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Lexical Crosslinguistic Influence in L3 Spanish by Tagalog–English Bilinguals

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Abstract: Crosslinguistic influence (CLI) has emerged as a topic of interest in the field of third language acquisition (L3A) due to the increasing focus on multilingual learners. Research has considered many different issues, such as the roles of typology/psychotypology, the influence of the L2, and L2 proficiency. Thus, the present study focuses on two less-studied factors, language dominance and L3 proficiency, in the lexical CLI in the oral and written output by 52 Tagalog–English early bilinguals with Spanish as their L3. They were grouped according to their language dominance based on the findings from the Bilingual Language Profile, and according to their Spanish proficiency. The experimental tasks included a written and an oral picture description task, followed by an exit questionnaire, wherein they expressed their perception about the similarities and differences between the languages in question. Instances of lexical CLI were identified according to the classifications used in previous studies. The results suggest that language dominance is not a significant predictor of the source language of the participants' lexical CLI production. However, the results do indicate that proficiency plays a significant role in the number and type of lexical CLI production. In other words, the number of lexical CLI produced decreased as L3 proficiency increased.

Keywords: crosslinguistic influence; L3; lexicon; language dominance; proficiency; transfer

1. Introduction

The influence of one language on another in an individual's mind has long been a topic of interest in the field of second language (L2) acquisition. One of the research interests within this field focuses on individuals learning an L2 and the influence of their first language (L1) on that L2 (Alonso Alonso 2016). However, research interest in multilinguals has come into the limelight and researchers have acknowledged that the world's population is comprised more of bi-/multilinguals than monolinguals learning additional languages. This led to a shift of interest and the consequent emergence of third language (L3) acquisition research has pushed researchers to re-evaluate previous studies on L2 acquisition and to point out that most of the participants in these studies were, in fact, speakers of multiple languages—before, all languages acquired after the L1 were considered the L2 (Gass and Selinker 1994) and the different circumstances of bi-/multilingual acquisition were not taken into account. L3 acquisition researchers argue that there is a significant difference between the language learning processes of L2 learners and L3 learners, and that this difference mainly lies in the much more complicated nature of L3 learning because of the presence of multiple languages in an individual's mind (Cenoz 2001; García Mayo and Rothman 2012; Hufeisen 1998).

One of the primary lines of research studied in L2 and L3 acquisition is lexical crosslinguistic influence. Crosslinguistic influence (CLI) generally refers to the influence of a person's knowledge of one language on that person's knowledge or use of another language (Jarvis and Pavlenko 2008, p. 1). The main difference between the two fields is that, in learning an L3, having previously known languages entails having more than one

possible source of influence. More variables come into play when it comes to determining which language becomes the source of influence, the type of CLI it results in, and the extent of each language's influence on the learning of the target language (De Angelis 2007; Sanz 2000). Many factors that influence CLI have been identified in the literature: language typology, psychotypology, the L2 status or the foreign language effect, recency of use, metalinguistic awareness, target language exposure, language proficiency, language dominance, age, and context or setting (Chlopek 2011; García Mayo 2012). While most studies at the lexical level focus on the main variables considered to be the most influential, i.e., language typology and psychotypology, the L2 status, proficiency, and recency of use (e.g., Cenoz 2001; De Angelis and Selinker 2001; Ringbom 1987; Williams and Hammarberg 1998), there have only been a few that have analyzed other variables, such as L3 proficiency and language dominance in bilinguals. Moreover, a vast majority of L3 studies have analyzed language combinations that belong to the Indo-European language family, as can be seen in the following section and in the literature review of many L3 studies (see, e.g., Ecke 2015). Therefore, in order to contribute to this line of research, the main aim of the present study is to analyze other factors that could potentially play a role in lexical CLI, namely, language dominance and L3 proficiency, in the oral and written production of L3 Spanish by bilingual speakers of a heavily understudied language combination (Tagalog–English).

2. Literature Review

2.1. Lexical Crosslinguistic Influence (CLI)

Lexical CLI can be simply defined as "the influence of word knowledge in one language on a person's knowledge or use of words in another language" (Jarvis and Pavlenko 2008, p. 72). From studying the oral production of an L1 English speaker with multiple L2s (German, French, Italian) who was learning Swedish as her L3, Ringbom (1987, 2001) categorized lexical CLI into two groups: transfer of form and transfer of meaning. Transfer of form (referred to as form-based transfer in this study) occurs when the morphological and phonological aspects of the language are transferred. It most commonly occurs in complete language switches (in some cases referred to as borrowings or code switching), hybrids or blends (which occur "when a word from an L1 or from any previously-acquired language is adapted to fit (assumed) target language norms better but the resulting word does not exist in the target language" (Ringbom 1987, p. 116)), and in the use of deceptive cognates or false friends (in which the learner uses a word in the target language which is only similar in form and not in meaning). Ringbom (2001) added that formal transfer tends to come from the source language that is perceived to be formally similar or closely related to the target language. In both of his studies, he commented that formal transfer tends to come from the L2. Additionally, noting that code switching is the most common type of form-based transfer, Hammarberg (2001) further divided it into seven subcategories: (i) edit, (ii) meta comment, (iii) meta frame, (iv) insert: explicit elicit, (v) insert: implicit elicit, (vi) insert: non-elicit and (vii) WIPP (Without Pragmatic Purpose). The EDIT category refers to self-repairs, META refers to comments regarding the task itself, and the INSERT categories refer to the use of non-L3 items to fill the lexical gap. Finally, those under WIPP are unintentional language switches and have no pragmatic purpose. The other type of transfer, transfer of meaning (meaning-based transfer), occurs when the learner uses "an authentic target language word with a meaning that reflects influence from the semantic range of a corresponding word in another language" (semantic extension) (Jarvis and Pavlenko 2008, p. 75), or when the learner uses loan translations or calques in the target language, which reflects the way a multi-word unit is mapped to meaning in another language (Ringbom 2001). Table 1 features examples from Swedish for each type of lexical CLI.

Table 1. Examples of lexical CLI taken from Ringbom (1987).

Transfer of Form		Transfer of Meaning	
Complete language switches	*I think that foreign languages are the most important* ämne *which are taught in our schools.* [target: subject]	Semantic extensions	*He bit himself in the language.* [FIN: kieli (both mean tongue and language; target: tongue]
Hybrids or blends	*I don't believe it's your* fale *that you have put the cheque in the wrong envelope.* [SWE: fel; target: fault]	Loan translations	*He remained a youngman all his life.* [SWE: ungkarl; target: bachelor]
Deceptive cognates	*Many* offers *of violence have not enough courage to speak about it.* [SWE: offer; target: victim]		

2.2. Factors That Influence Lexical CLI

Studies on lexical CLI investigate different aspects of the phenomenon but most concentrate on different factors that could influence and predict which previously known language will be the source of transfer. The following section presents previous research on these factors.

2.2.1. (Psycho)Typology

One of the most analyzed and influential predictive variables is the typological relationship between previously acquired languages and the target language. It is important, nonetheless, to draw the line between typology and psychotypology, because studies concerning these two abound in the literature. Typology (or language distance) refers to the genetic relationship of languages that linguists can identify and classify. Perceived language distance, on the other hand, refers to the learner's perception of the similarities and differences of the languages involved without pertaining to their actual similarities. This concept, which is referred to as psychotypology, was first introduced by Kellerman in 1978 (Kellerman 1978).

One of the most cited works on the importance of typology in lexical CLI is Ringbom (1987). In his study, he examined written essays of L1 Swedish–L2 Finnish and L1 Finnish–L2 Swedish learners of L3 English at a university in Finland. In these essays, he identified the instances of transfer and classified them into lexical transfer and borrowings. His findings showed that manifestations of transfer (in the sense of transfer of meaning) mainly came from the influence of the L1 and that manifestations of borrowings mainly came from the influence of the L2. In other words, L1 Finnish speakers were influenced mainly by Finnish in terms of semantic extensions, while Swedish, their L2, influenced their use of borrowings. In turn, L1 Swedish speakers were still influenced heavily by Swedish, even though they lived in Finland. Ringbom (1987) concluded that these results were mainly due to the genetic similarities between English and Swedish, but did not reject the roles other factors played, such as the L2 status of a language and the learner's perception of the languages that they know. Cenoz's (2001) study on the lexical CLI of Basque–Spanish speakers who were learning English as an L3 also showed the important weight of linguistic distance in choosing the source language. Ninety primary and secondary school students were asked to tell a wordless picture story. The participants were divided into two groups according to their L1 and the results showed that the order of acquisition did not have as much influence, because Spanish was still the main source of CLI. In fact, L1 Basque speakers showed an even stronger tendency to rely on Spanish than L1 Spanish speakers. The study claimed that linguistic distance was the main predictor of the source language of their lexical CLI. Pinto (2013) carried out a longitudinal study of the written production of L3 Portuguese by 31 Moroccan students who spoke Arabic (standard and dialectal)

as their L1 and other foreign languages such as French, Spanish, and German as their L2s. It was hypothesized that most lexical CLI would come from the participants' foreign languages and lexical CLI from Arabic would be much less frequent. Results confirmed this hypothesis and showed that all transfers came from French and Spanish, the participants' most dominant foreign languages. Aside from being foreign languages, the results were attributed to the typological closeness of French and Spanish to Portuguese, the target language.

As can be observed from these studies, psychotypology is entangled with typology and the L2 status, variables that could also influence lexical CLI. In order to be able to single out the influence of psychotypology, Ó Laoire and Singleton (2006a) examined the relationship between learner perceptions of the similarities between English, Irish, and French and the source language of their CLI productions using a fill-in-the-gap task and introspective commentary. The results show that participants transferred more from English than from Irish into their L3 French. However, the participants' L2 was the strongest previously acquired language so it could not be concluded that psychotypology was the main factor that contributed to this influence. Thus, they repeated the study (Ó Laoire and Singleton 2006b) with balanced English–Irish bilinguals. Results show that, despite having two strong L1s, English was still the main source of transfer and, thus, the authors attributed the results to the weight of psychotypology. Lindqvist (2015) examined the role of psychotypology in the lexical and grammatical written production of L3 learners of French. The participants were L1 speakers of Spanish and L2 speakers of Swedish and English. They were asked to give a written retelling of a story based on a series of pictures and, immediately afterwards, were asked to answer a questionnaire about their perceptions of the relationships of Swedish, English, and French. Results of the questionnaire show that 75% of the participants perceived English as closer to French than Swedish. In terms of vocabulary, 43% of the participants said that English and French were closer and 41% said that Swedish and English were closer. Results of the written production task show that 70% of the lexical CLI came from English and most of the lexical CLI from English are form adaptation. Statistically, the relationship between the transfer source and the typological perception was not significant. This was attributed to the fact that the participants' level was not high enough for them to produce longer utterances and, thus, there were few cases of transfer. However, results clearly show that most of the lexical CLI were from English and the participants perceived English closer to French than to Swedish, thus supporting the importance of psychotypology in influencing transfer.

2.2.2. L2 Status

In lexical CLI studies, researchers attribute the L2 status factor to the foreign language effect, which refers to how the learner categorizes languages according to whether it is the L1 or the foreign language. For the language learner, the L2 is more similar to the L3 than to the L1 because they are both considered foreign languages and, thus, they rely more on it than on the L1 in L3 production. Another argument supporting this claim is related to how the L2 and the L3 are acquired (Bardel and Falk 2007). This applies to cases where the L2 is learned in a formal setting, much like the L3. As described by Falk et al. (2013, p. 227), "a previously formally learned L2 is more likely to transfer into an L3 due to the many cognitive and situational characteristics that a formally learned L2 and a formally learned L3 have in common". Moreover, learners may utilize strategies that they used in learning the L2 in the subsequent learning of other languages. In terms of language processing, Paradis' (1994, 2004, 2009) declarative/procedural model maintains that the implicitly learned language, i.e., the L1, is stored in procedural memory, while the explicitly learned languages, i.e., in many cases, the L2 and the L3/n, when learned in a formal setting—together with other explicitly learned aspects of a language such as vocabulary—are stored in the declarative memory. Therefore, being stored together strengthens the connection between the L2 and the L3, which consequently raises the chances of transfer.

Williams and Hammarberg (1998) examined the spontaneous oral production of one of the authors (Sarah Williams), who was an L1 speaker of English, highly proficient in German as an L2, and who was also learning Swedish as an L3. The data collection was done over the course of two years through interviews. Results of the analyses show that out of 844 language switches, those influenced by English were mainly used for EDIT, which refers to self-repairs, META, which refers to comments regarding the task itself, and INSERT, which refers to the use of non-L3 items to fill the lexical gap. The language switches influenced by German, on the contrary, were switches with no pragmatic purpose and were unintentional. These results led the researchers to conclude that previously acquired languages play different roles in L3 acquisition. In this case, L2 German was fulfilling the role of the default supplier, in that it mainly provided material for lexical construction attempts, while L1 English played the instrumental role, which means that it was used to make comments on the task or the language itself. The researchers then concluded that it is the L2 status of a language that predicts the source language of CLI in the L3 regarding lexical construction attempts. Boksay Pap (2016) carried out a similar study where Hungarian–Romanian speakers learning L3 English were asked to produce written narrative texts through a picture description task. The researcher gathered additional data by using think-aloud protocols where the participants voiced out their thoughts while executing the task. The main focus was given to the comments of the participants on how they used their previously acquired languages in their production of the L3. Results show that participants used L1 Hungarian to interpret the tasks, to set goals, and to explain the task to themselves. On the other hand, L2 Romanian was used to name objects or activities not available in their L3 interlanguage. Using Williams and Hammarberg's (1998) term, Hungarian held the instrumental role, while Romanian was the default supplier. However, for bilinguals who are highly proficient in both their L1 and L2, the role of the L2 is unclear and more research on people with this linguistic profile is needed in order to shed light on the privilege of the L2 in the transfer process.

2.2.3. Proficiency

One of the variables that this study is concerned with is language proficiency. The literature has considered two important issues. The first is that there is a certain threshold that needs to be reached before a previously known language can influence the L3. This has been related to Cummins' (1976, p. 24) Threshold Hypothesis, which points to the existence of a "threshold level of L2 competence required to reap the cognitive benefits of his bilingual learning experience". Consequently, in L3 acquisition, when the previously learned languages reach this threshold, they are also able to influence the L3. In lexical CLI, Williams and Hammarberg's study (Williams and Hammarberg 1998) claimed that in terms of transfer of meaning, the L1 is the source language because, generally, the learner is most proficient in their L1. It is also possible for the L2 to be the source language, but that only happens when the learner has reached a certain proficiency in the L2. Unfortunately, this threshold is yet to be specifically identified. Despite this, studies mentioning the existence of this threshold exist in the literature. For example, Tremblay (2006) analyzed the correlation between L2 proficiency, L2 exposure, and the presence of lexical CLI in the oral production of English–French speakers who were learning German at an advanced level. She hypothesized that a higher L2 proficiency results in a higher L2 influence on L3 vocabulary production and, in turn, a low L2 proficiency has very little influence. However, contrary to her hypotheses, results show that L1 English was the main source of CLI for all groups. The researcher explained that this could have been because of the relatively low L2 proficiency in French of all the participants. The proficiency level of the participants who belonged to the high-proficiency group did not reach the threshold to be able to influence production in their L3.

The second issue concerns how the number and type of lexical CLI change as L3 proficiency increases. Various studies suggest that the higher the proficiency in the L3, the fewer lexical CLI there are (Möhle 1989; Odlin 1989; Poulisse and Bongaerts 1994). Williams

and Hammarberg's (1998) study provided support for this claim. The more proficient the participant was, the less she relied on using her previously acquired languages in her L3 production. Navés et al. (2005) conducted a study to analyze the role of grade levels (as a measure of proficiency) on the lexical CLI by 474 Catalan–Spanish bilinguals who were learning L3 English in primary school, by looking at the participants' written compositions. They reported that grade 5 students borrowed 3.5 per 100 written words, whereas those in grade 12 only used 0.11 borrowings per 100 written words. In terms of lexical inventions, grade 5 students used 0.80 out of 100 written words and grade 12 students 0.13 lexical inventions. In other words, there was a steady decrease in the use of borrowings and lexical inventions as the grade level increased. Age of onset has also been used as another way of categorizing L3 proficiency. Pfenninger and Singleton (2016) conducted a longitudinal study on the lexical and syntactic CLI by L1 German–L2 French speakers who were learning L3 English. The participants were divided into groups according to their age of onset in learning English: the early starters and the late starters. The early starters were considered the high-proficiency learners according to a lexical test and the late starters were considered the low-proficiency learners. The tasks involved writing an argumentative and a narrative essay, and re-telling a story from a silent film and doing a spot-the-difference task. Results show that the late starters relied more on their previously acquired languages than the early starters, supporting the claim that low-proficiency learners transfer more in their L3 production and the number of lexical CLI decreases as L3 proficiency increases. Nonetheless, not all studies in this area show coinciding results. Cenoz (2001) studied the relationship between the proficiency of grades 2, 6, and 9 (average ages ranging from 7.35 to 14.2), and lexical CLI. Contrary to other studies, she reported that students with a higher proficiency (those from grades 6 and 9) did not present less CLI than those in grade 2. However, she acknowledged that this trend could have been due to a lower overall proficiency of the participants.

Another facet of the L3 proficiency variable is the type of lexical CLI present at different proficiency levels. At lower levels of proficiency, it has been found that form-based lexical CLI is more abundant than meaning-based CLI. One example is the study by Lindqvist (2010), which aimed to find out what kind of inter- and intralingual lexical influences were present in the oral production of 14 advanced L3 French learners who spoke L1 Swedish, L2 English, and other languages with lower proficiencies. The study also examined which of the previously acquired languages would be the main source of lexical CLI. Results show that although the number of interlingual lexical influences was low, meaning-based influences—more specifically, semantic extensions—were more abundant in the participants' production than form-based influences. Out of 48 instances of lexical CLI, 54% of the occurrences pertained to meaning-based influences. Additionally, the previously acquired languages with the highest proficiencies, i.e., Swedish and English, were the main sources of interlingual lexical influences in L3 French.

2.2.4. Language Dominance

When studying bilinguals and the transfer phenomenon, another variable to analyze is language dominance, which "refers to the degree of bilingualism manifested by individuals who know two languages" (Hernández-Chávez et al. 1978, p. 41). Nowadays, there exist different ways to measure and operationalize dominance due to its different conceptualizations and extensive scope. Some examples of measures of language dominance are the test of lexical richness (Treffers-Daller 2011), the mean length of utterance (MLU) for bilingual children (Yip and Matthews 2006), and self-reports such as the Bilingual Language Profile (Birdsong et al. 2012). Generally, language dominance is measured using proficiency and/or frequency of use. However, in this study, dominance also includes factors such as language exposure/input, frequency of use, linguistic environment, and emotional involvement (Argyri and Sorace 2007; Birdsong et al. 2012; Weinreich 1953). In the field of L3 acquisition, specifically in the area of CLI, there is not much research concerning the role of language dominance. Over the past few years, however, researchers on L3 acquisition

have started to work with early bilinguals learning a foreign language, specifically heritage language speakers, because, generally, they either have two L1s or they acquire their L2 at an early age in a naturalistic setting. Most studies dealing with these situations focus on morphosyntax or phonology (e.g., Angelovska 2017; Fallah and Jabbari 2016; Puig-Mayenco et al. 2020), but in regard to lexical CLI, there have been a few studies that had bilingual participants and much fewer that examined the role of language dominance. One such study is that of Navés et al. (2005), wherein the written production of Catalan–Spanish bilinguals learning English as an L3 were analyzed. From the compositions of primary school students, they reported that, despite having found differences in the production of borrowings and lexical inventions between Catalan-dominant, Spanish-dominant, and balanced bilinguals, these differences were not statistically significant. The researchers explained that the results could be due to the presence and the prestige of a language, specifically Catalan, in school and as a means of instruction. In other words, the context could have been a stronger influence than language dominance.

3. The Present Study

As mentioned above, there is little research on lexical CLI in L3, defined in this study as the language currently being acquired when the individual has already acquired more than one language (Hammarberg 2001). To the best of our knowledge, there has been none on lexical CLI in the oral and written production of Tagalog–English learners of L3 Spanish. In the following sections, information about participants, materials, task, and procedures is presented.

Keeping in mind the previous literature and aforementioned gaps in research, this study aims to answer the following research questions:

1. What type of lexical CLI in L3 Spanish do Tagalog–English bilinguals produce?
2. Can language dominance indicate the source language of lexical CLI? If so, which of the two languages is the source of most lexical CLI?
3. Does L3 proficiency affect the number and type of lexical CLI? If so, what are the differences in the number and type of lexical CLI depending on proficiency level?

In turn, the following hypotheses were formulated to answer the research questions:

1. In line with the previous studies on lexical CLI, Tagalog–English bilinguals will also produce meaning-based and form-based transfer (De Angelis and Selinker 2001; Lindqvist 2010; Ringbom 1987, 2001). Additionally, it is expected that the participants will also produce different types of language switches due to the high number reported across levels in previous studies (Hammarberg 2001).
2. Based on the results in Navés et al.'s (2005) study, language dominance will not be a determining factor in predicting the source of transfer. Tagalog–English bilinguals' reliance on their previous languages will depend on other factors discussed in the literature.
3. In line with previous studies on lexical CLI, the lower the L3 proficiency, the more lexical CLI instances there will be (Navés et al. 2005; Williams and Hammarberg 1998). It is also hypothesized that advanced learners of L3 Spanish will produce more meaning-based lexical CLI than form-based ones (Lindqvist 2010; Ringbom 2001).

3.1. Participants

The participants in this study were Tagalog–English bilinguals (N = 52; age range: 18 to 24 years old (M = 20.3)) who were learning Spanish at a university in the Philippines. After having received their written consent to participate in this study, they were given a linguistic background questionnaire to make sure that none of them spoke other languages at an advanced level and that they learned Tagalog and English before the age of six, when English is officially introduced in the curriculum. Their proficiency levels in their other languages were self-reported and varied from beginner to low-intermediate. In order to determine their Spanish proficiency level, they took a proficiency test adapted from Duffield and White (1999). In order to assess their language dominance, they answered

the Bilingual Language Profile questionnaire (Birdsong et al. 2012). This measure was chosen because of its ease of administration, and because it factors in language history, language use, language proficiency, and language attitudes in its calculation of dominance (see Gertken et al. 2014). If the participants obtain a positive value, they are placed in the English-dominant group, and in the Tagalog-dominant group if they get a negative value. Table 2 provides a detailed description of the participants' group distribution.

Table 2. Participant groups according to Spanish proficiency and language dominance.

	Tagalog-Dominant	English-Dominant	Total
Low	9	13	22
Intermediate	9	12	21
Advanced	5	4	9
Total	23	29	**52**

3.2. Tasks and Procedure

The participants performed two picture description tasks. For the first task, they wrote a text narrating a picture story from Heaton's (1975) book, *Beginning composition through pictures* (Figure A1). This task was during their Spanish class, and they were given 15 min to write at least 10 sentences. Instructions were given in English and Tagalog to make sure everything was clear. The oral production task was carried out a few days after the written task. Similar to the first one, the participants were given a six-picture story that they had to narrate. The story given to the participants was the "Dog Story" by Heaton (1966) (Figure A2), which has been used in many oral elicitation tasks in various studies on CLI (Ortega and Celaya 2013; Sánchez 2015). To accomplish this, the participants were pulled out one by one from their Spanish class. They were given one minute to look at the pictures and ask questions about the task, and a minimum of two minutes to narrate the story.

After accomplishing the written and oral production tasks, the participants were given a final questionnaire, whose aim was to gather qualitative data and assess the participants' perception of the similarities and differences between English, Tagalog, and Spanish regarding vocabulary. It also gave the participants the opportunity to comment on the tasks that they previously carried out. The questionnaire was adapted from Lindqvist's (2015) study, wherein she analyzed the role of psychotypology in the lexical and grammatical crosslinguistic influence in French as the L3.

3.3. Codification and Data Analysis

The data from the 52 participants yielded a total of 4117 words from the written task and 3 h and 43 min from the oral task. Quantifying all instances of lexical CLI resulted in 136 instances found in the written task and 335 in the oral task. All lexical CLI instances were categorized based on the language source and on Ringbom's (1987) and Hammarberg's (2001) classifications of lexical CLI. Nevertheless, lexical CLI instances whose source language could not be clearly determined were also found and were not included in the analyses. Interactional strategies were not included in the statistical analyses either, as they are not present in the written texts, and so, could not be used to compare to the oral text. In this study, deceptive cognates are considered a transfer of meaning because, although it is the form that misleads the learner, the meaning of the word in the source language is transferred. The program SPSS version 26 was used to run all statistical analyses.

4. Results and Discussion

The first research question aimed to characterize the types of lexical CLI in L3 Spanish by Tagalog–English bilinguals, especially since no other studies have looked at this specific language combination. It was expected that, in line with previous studies (De Angelis and Selinker 2001; Lindqvist 2010; Ringbom 1987, 2001), Tagalog–English bilinguals would

produce form-based and meaning-based lexical CLI in both oral and written production. In order to confirm this hypothesis, all instances of lexical CLI in L3 Spanish that clearly fell under Ringbom's (1987) and Hammarberg's (2001) categories were identified and categorized accordingly. The letter *t* was added if the CLI comes from Tagalog and *e* if it comes from English. Examples of lexical CLI found in the data categorized accordingly are presented in Tables 3 and 4.

Table 3. Meaning-based CLI.

Type	Example
Semantic Extensions (SEM)	*Tiene algunos* habitaciones [SEMe]. Has some rooms 'There was some room.' [ENG: room (space), target: sitio]
Calques (CAL)	*Su* mascota perrito [CALe]. Their pet dog 'Their pet dog.' [ENG: pet dog, target: perro]
Deceptive Cognates (COG)	*El hombre* manejaba [COGt] *cuando los chicos pequeños esperabaron.* The man managed when the boys small waited 'The man was driving while the young boys waited.' [TGL: maneho (to drive), target: estaba conduciendo]

Table 4. Form-based CLI.

Type	Example
Hybrids/blends or relexifications (REL)	*Es número* veintesais [RELt]. Is number twenty-six 'It is number twenty-six.' [TGL: bentesais, target: veintiséis]
Complete language switches (CSW)	*Los pasajeros tomar* litrato [CSWt]. The passengers take pictures. [target: fotos] 'The passengers are taking pictures.'
Edit (EDT)	*Mientras los chicos se* ano ulit? [EDTt] *se despiden de su madre.* While the boys refl what again say goodbye to their mother 'While the boys, what was it again? Say goodbye to their mother.'
Meta Comment (MTC)	*Di ko alam iyong Spanish* [MTCt]. No I know the Spanish 'I don't know the Spanish word.'
Meta Frame (MTF) and Insert: Explicit Elicit (EEL)[1]	*Ano iyong* [MTFt] *nanay* [EELt]? What the mother 'What is mother (in Spanish)?'
Insert: Implicit elicit (IEL)	*Los niños viajan a la* farm? [IELe] The boys travel to the farm 'The children travel to the farm?'

Tables 5 and 6 present the adapted CLI classification in Ringbom (1987) and show the number and types of lexical CLI produced by the participants in written (Table 5) and oral (Table 6) production.

Table 5. Lexical CLI instances in written production.

| | Transfer of Form | | | | | | Transfer of Meaning | | | | TOTAL | |
| | CSW | | REL | | CAL | | COG | | SEM | | | |
	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean
Low	66	3.00	19	0.86	0	0	4	0.18	6	0.27	**108**	**4.31**
Int	14	0.67	10	0.48	0	0	3	0.15	9	0.43	**36**	**1.71**
Adv	1	0.11	0	0	0	0	2	0.22	2	0.22	**5**	**0.56**
	81	**1.56**	**29**	**0.56**	**0**	**0**	**9**	**0.17**	**17**	**0.33**	**149**	**2.62**

Table 6. Lexical CLI instances in oral production.

| | Transfer of Form | | | | | | Transfer of Meaning | | | | TOTAL | |
| | CSW | | REL | | CAL | | COG | | SEM | | | |
	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean
Low	176	8.00	5	0.23	0	0	0	0	3	0.14	184	**12**
Int	105	5.00	0	0	0	0	0	0	1	0.05	106	**7.19**
Adv	37	4.11	1	0.11	1	0.11	0	0	7	0.78	46	**8.44**
	318	**6.11**	**6**	**0.12**	**1**	**0.11**	**0**	**0**	**11**	**0.21**	**336**	**9.44**

Tables 5 and 6 answer the first research question and show that, as expected, form-based CLI and meaning-based CLI were also produced by the participants in the study, albeit some of them, specifically, calques and deceptive cognates, yielded very few to no instances in some proficiency levels. Additionally, as in previous studies, most instances of form-based lexical CLI are code switches (De Angelis and Selinker 2001; Dewaele 1998; Ringbom 2001; Williams and Hammarberg 1998) and most instances of meaning-based lexical CLI are semantic extensions (Lindqvist 2010; Ringbom 2001). In order to be able to compare both oral and written production for further analysis, all instances of interactional strategies were not included in the statistical analyses (as seen in Table 7).

Table 7. Lexical CLI in oral production without interactional strategies.

| | Transfer of Form | | | | | | Transfer of Meaning | | | | TOTAL | |
| | CSW | | REL | | CAL | | COG | | SEM | | | |
	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean	Raw	Mean
Low	76	3.45	5	0.23	0	0	0	0	3	0.14	**184**	**3.81**
Int	44	2.10	0	0	0	0	0	0	1	0.05	**106**	**2.14**
Adv	21	2.33	1	0.11	1	0.11	0	0	7	0.78	**46**	**3.33**
	141	**2.71**	**6**	**0.12**	**1**	**0.11**	**0**	**0**	**11**	**0.21**	**336**	**3.06**

One interesting phenomenon found in the data is the most frequent use of English as the source language for the target language word that is being elicited (EEL), no matter the frame's source language and the speaker's language dominance, for example:

1. Ano yung [MTFt] surprised [EELe]?
   What the   surprised
   'What is surprised (in Spanish)?'
2. How can you say [MTFe] empty [EELe]?

In the case of example (1), changing from Tagalog (MTF) to English (EEL) is considered a common phenomenon in bilingual communities in terms of the use of two languages in one utterance. What is interesting here is the reliance only on English when it comes to the word being elicited. Relying on English as the source language for the EEL could be attributed to its use as the primary language of instruction in teaching Spanish (and other foreign languages) in the Philippines. When Spanish words are taught, the English equivalents are commonly given to the students. This phenomenon can also be seen in Neuser's (2017) study, in which she concluded that the presence of German in the classroom influenced the reliance of her participants on German in the oral and written tasks. Finally, by looking at Tables 5 and 7, one can see that the total lexical CLI occurrences in each of the modes differ, even after removing the instances of interactional strategies. More lexical CLI were produced in oral production (M = 3.06) than in written production (M = 2.62), in line with the findings in Pereira Toassi and Mota (2014), who attributed this difference to the influence of the context, specifically, the formality of the situation wherein the tasks were performed. According to them, the written task reflects a more formal context, which led the participants to rely on lexical CLI less than in the oral task, a more informal context. The present study did not analyze the impact of mode of production on lexical CLI, and so no statistical tests were carried out for this purpose.

The second research question aimed to find out whether language dominance indicates the main source language of lexical CLI. In order to do so, a series of paired samples *t*-tests were carried out. The mode of production was also taken into account by running separate tests for each mode. Results from these tests show that, in written production, English-dominant learners, on average, produced 1.655 more instances of English-based lexical CLI than Tagalog-based lexical CLI, with a *p*-value of less than 0.001 [t(3.190) = 28; $p < 0.001$], which means that the difference is statistically significant. Tagalog-dominant learners, on the other hand, produced 1.043 more English-based lexical CLI on average than Tagalog-based lexical CLI. The test yielded a statistically significant difference, with a *p*-value of less than 0.001 [t(2.827) = 22; $p < 0.001$]. In terms of oral production, English-dominant learners produced 2.413 more English-based lexical CLI on average than Tagalog-based lexical CLI. The test resulted in a *p*-value of less than 0.001 [t(6.151) = 28; $p < 0.001$], which means that the difference is statistically significant. Finally, Tagalog-dominant learners produced 1.782 more English-based lexical CLI on average than Tagalog-based lexical CLI, with a *p*-value of less than 0.001 [t(3.390) = 22; $p < 0.001$], which means that the difference is also statistically significant. Table 8 provides a summary of the values produced from the series of paired samples *t*-tests.

Table 8. Statistical results from paired samples *t*-tests for language dominance.

Mode	Language Dominance	Mean Differences	t	df	*p*-Value	Remark
Written	English-dominant	1.655	3.190	28	<0.001	Sig
	Tagalog-dominant	1.043	2.827	22	<0.001	Sig
Oral	English-dominant	2.413	6.151	28	<0.001	Sig
	Tagalog-dominant	1.782	3.390	22	<0.001	Sig

To sum up, in both written and oral production, English and Tagalog are the source languages of the participants' lexical CLI production. However, the statistical analyses show that they rely more on English than on Tagalog. These findings indicate that language dominance does not play a significant role in the production of lexical CLI in terms of source language, because no matter the language dominance, the main source language is English. This finding is similar to the conclusion in Navés et al. (2005), who reported that language dominance did not play a key role in the production of borrowings and lexical inventions by Catalan-dominant, Spanish-dominant, and balanced bilinguals.

Mostly relying on English could be explained by other factors, such as language typology (for example, Cenoz 2001; Lindqvist 2015; Ringbom 1987), but, in this particular case, not psychotypology. Even though English is a Germanic language and Spanish is a Romance language, both belong to the Indo-European language family. Thus, these two languages share more similarities than Spanish and Tagalog, which is from the Austronesian language family. Nonetheless, this fact does not coincide with the perceptions of the participants regarding the similarities between these languages. The exit questionnaire provided a qualitative perspective regarding this issue. As can be seen in Figure 1, 40 out of 52 participants said that, in general, Tagalog is closer to Spanish than English; and 40 out of 52 think that Spanish vocabulary is closer to Tagalog. This perception, according to most of the participants, is mainly due to Spanish-borrowed words present in Tagalog as a result of the extended contact of these two languages for three centuries. The percentage of Spanish words in modern Tagalog vocabulary varies from 20% (Quilis et al. 1997) to 33% (Llamzon and Thorpe 1972). The fact that Tagalog has incorporated many Spanish words into its own vocabulary is well known among learners of Spanish in the Philippines, leading to this perception reflected in the final questionnaire.
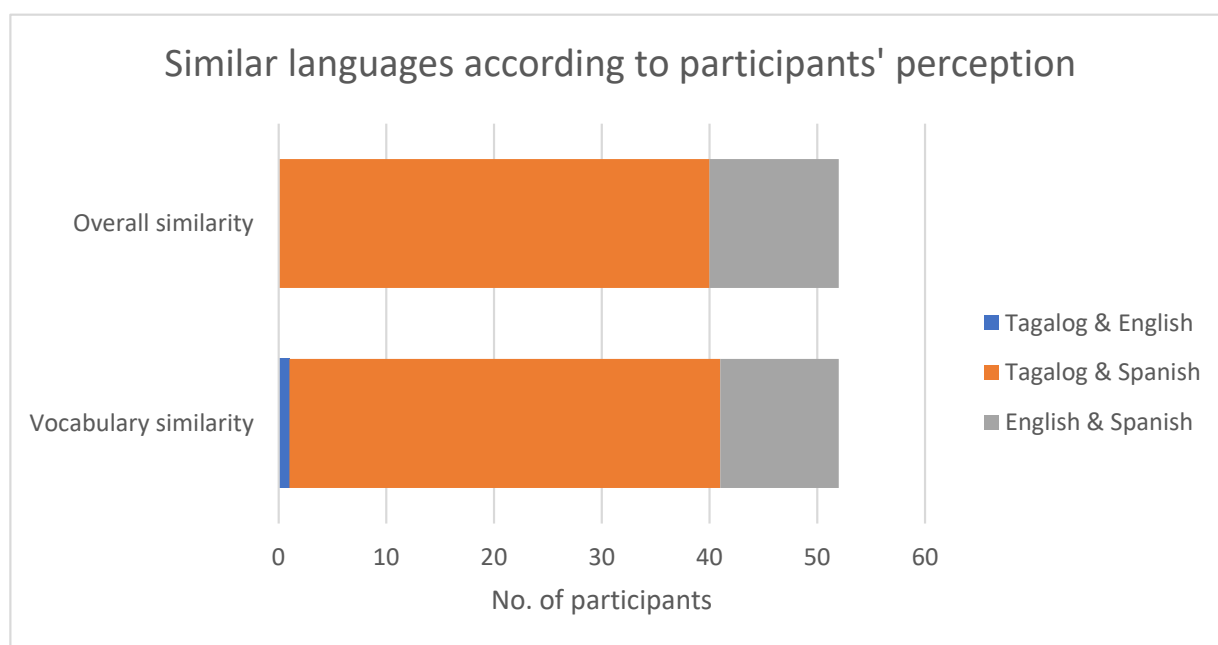

Figure 1. Perceptions of general and vocabulary similarity between languages.

Other reasons that could explain the results are the context of the study and the context in which the experimental tasks were carried out (Pereira Toassi and Mota 2014). First, English is used as the primary language of instruction. Teaching materials are also published in English, especially at the lower levels, if not published in Spanish. Moreover, the tasks were carried out inside the university premises—inside the classroom for the written task and, although a bit less formal, in another room inside the college building for the oral task. Therefore, together with the influence of typology, English became the most activated language at the moment of production and consequently became the main source of lexical CLI.

The third research question aimed to find out whether L3 proficiency influenced the number of lexical CLI in the oral and written production of Tagalog–English bilinguals learning Spanish as an L3, and whether the type of lexical CLI changes depending on L3 proficiency. Regarding the influence of L3 proficiency on the number of lexical CLI, it was expected that, as the proficiency level increases, the number of lexical CLI decreases, similar to the results of previous studies. In order to test this hypothesis, a one-way between groups Analysis of Variance (ANOVA) was carried out for each mode of production to

compare the effect of L3 proficiency on the number of lexical CLI. Results show that, in written production, there were significant differences among the three proficiency levels [$F(2,49) = 6.669$, $p = 0.003$]. Since significant differences were found, post hoc comparisons using the Tukey HSD test were also carried out in order to compare each proficiency level with every other proficiency level. Results indicate that the mean difference between the low-proficiency and the intermediate-proficiency groups (M = 2.60) was statistically significant, with a p-value of 0.017. However, the mean difference between the intermediate-proficiency and the advanced-proficiency groups (M = 1.16) was found not to be statistically significant, with a p-value of 0.597. In terms of oral production, results show that, in general, there were no significant differences between the three proficiency levels [$F(2,49) = 2.274$, $p = 0.114$]. Post hoc comparisons using Tukey HSD were carried out to analyze the differences, although the omnibus test results are not statistically significant. Results show that the mean difference between the low-proficiency and the intermediate-proficiency group (M = 1.68) was not statistically significant, with a p-value of 0.09. The mean difference between the intermediate group and the advanced group (M = −1.19) was also found not to be significant, with a p-value of 0.49.

In summary, in written production, only the differences between the low and intermediate-proficiency groups were found to be statistically significant and the differences between the intermediate and advanced-proficiency groups were not statistically significant. In oral production, the tests revealed that overall, there were no significant differences among the three groups. Nevertheless, despite the fact that the lexical CLI in oral production did not yield statistically significant differences depending on proficiency, as can be seen in Table 7, there is a downward trend in the number of lexical CLI produced from low-proficiency to intermediate-proficiency. However, as in written production, this decreasing trend did not continue until the advanced level. The statistically significant difference found between the mean differences of the low and intermediate-proficiency groups in written production supports the hypothesis and previous studies in the literature (for example, Lindqvist 2010; Navés et al. 2005; Pfenninger and Singleton 2016; Williams and Hammarberg 1998), which claimed that the number of lexical CLI decreased as proficiency increased. The lack of significant difference between the intermediate and the advanced-proficiency groups in both modalities seems to be similar to the results that Cenoz (2001) reported in her study. Although no statistical tests were run in her study, the descriptive analysis showed that the group with the highest proficiency level did not produce the least lexical CLI. Similar to the present study, the group with the highest proficiency produced more lexical CLI than the intermediate-proficiency group in oral production, although the difference was not significant. Several explanations could be offered for this finding. First, it may be the case that the advanced-proficiency group's proficiency level is not high enough. De Angelis (2007, p. 33) mentioned that it cannot be definitely said that the number of CLI significantly decreases when proficiency increases, unless the learner has achieved "a very high level of proficiency and automaticity in the target language". Second, the topic of the stimuli could have also played a role in this result. The participants in the advanced-proficiency group are Spanish majors and their vocabulary might be more advanced in formal and academic topics, but not in subjects that are casual and informal such as the topics used as stimuli for both oral and written tasks.

With regard to the influence of L3 proficiency on the type of lexical CLI, it was hypothesized that low-proficiency learners would produce more form-based lexical CLI and that advanced-proficiency learners would produce more meaning-based lexical CLI (Lindqvist 2010; Ortega and Celaya 2013; Williams and Hammarberg 1998). A series of paired samples t-tests were performed to check the mean differences between the form-based lexical CLI and the meaning-based lexical CLI produced by the participants of the study. A comparison between the two modes of production was not carried out, since the focus of the third research question is the relationship between L3 proficiency and the number of lexical CLI in each level. Thus, all instances of lexical CLI in the oral and written production were added together. Moreover, similar to the second research question, the

formula for comparison is that the means of meaning-based CLI were subtracted from the means of form-based CLI. Positive values mean that there were more form-based than meaning-based lexical CLI occurrences. Consequently, negative values mean that there were more meaning-based than form-based lexical CLI occurrences.

Results from these tests indicate that, on average, low-proficiency learners produced 6.955 more form-based lexical CLI than meaning-based lexical CLI, with a *p*-value of less than 0.001 [t(5.298) = 21, *p* < 0.001]. Intermediate-proficiency learners produced 2.619 more form-based lexical CLI than meaning-based lexical CLI, with a *p*-value of less than 0.001, which also means that the mean difference is statistically significant [t(4.841) = 20, *p* < 0.001]. Finally, advanced-proficiency learners produced 1.222 more form-based lexical CLI than meaning-based lexical CLI, with a *p*-value of 0.86, which is above the confidence level. This means that the mean difference is not statistically significant [t(1.178) = 8, *p* = 0.86]. Table 9 provides a summary of the results from the series of paired samples *t*-tests.

Table 9. Statistical results from paired samples *t*-tests for L3 proficiency.

Proficiency	Mean Differences	T	df	*p*-Value	Remark
Low	6.955	5.389	21	<0.001	Sig
Int	2.619	4.841	20	<0.001	Sig
Adv	1.222	1.178	8	0.86	Not sig

In other words, the low-proficiency and intermediate-proficiency groups' productions of form-based lexical CLI are significantly more frequent than their productions of meaning-based lexical CLI. These results mean that part of the hypothesis is confirmed: the low-proficiency group produced more form-based lexical CLI than meaning-based lexical CLI. Such is the case because, according to Ringbom (2001), the mental lexicon of learners is more focused on the formal aspects during the early stages of acquisition and so, as the L3 proficiency increases, the organization of the mental lexicon becomes more and more based on semantic network associations. This, then, leads us to the second part of the hypothesis, which stated that advanced-proficiency learners would produce more instances of meaning-based lexical CLI, similar to the results of Lindqvist's (2010) study. However, as mentioned above, the results of the statistical tests reveal that for the high-proficiency group, there were no significant differences in terms of their form-based and meaning-based lexical CLI production. Moreover, the mean differences between the production of the two types of lexical CLI point to a more frequent production of form-based lexical CLI. These findings could be attributed to the level of proficiency of the participants in the advanced group. In relation to what Ringbom (2001) claimed, despite scoring within the advanced range in the Spanish proficiency test, their level might not be advanced enough for it be semantically based. In other words, their mental lexicon could still be largely based on formal aspects rather than on semantic network associations.

5. Conclusions

Research on lexical CLI may be one of the most investigated areas in the field of L3 acquisition, but there are still many different aspects that need to be analyzed to obtain a clearer picture of the processes behind it. The aim of this study was to contribute to this growing body of research by analyzing a new language combination (Tagalog–English–Spanish) and focusing on the roles of language dominance and L3 proficiency in the lexical CLI seen in both oral and written production. In terms of language dominance, it does not seem to play a significant role in determining the main source language of the participants' lexical CLI. Both Tagalog- and English-dominant participants relied significantly more on English than on Tagalog. This result was attributed to the typology of the languages involved and the context in which Spanish is taught. English and Spanish share more simi-larities, due to their genetic relationship, than Tagalog and Spanish. An interesting finding was also presented: contrary to studies supporting the importance of psychotypology over

typology in determining the source language of lexical CLI (Cenoz 2001; Dewaele 1998; Ringbom 2001), the participants still relied more on English, despite saying that Tagalog is closer to Spanish. The setting and the language of instruction were identified to explain these findings, as in previous research that yielded similar results. Further research on the role of non-linguistic variables could provide more insights on how previously known languages are activated and used in production. Additionally, the weight of the separate roles of typology and psychotypology in the CLI of Tagalog–English bilinguals would be an interesting topic for future work, to contribute to how these two variables influence CLI not only at the lexical level, but also at other linguistic levels.

In terms of L3 proficiency, only part of the hypothesis was confirmed. It has been found that, generally, lexical CLI decreases as proficiency increases. Nonetheless, this trend was not statistically significant between the intermediate and advanced-proficiency groups in written production, and not visible in the descriptive analysis of the same groups in oral production. As to the type of lexical CLI, it has been found that form-based lexical CLI was more frequent than meaning-based lexical CLI at all proficiency levels, unlike results of previous studies. These results were attributed to the possibility of the advanced group's level not being high enough in order to reach the point of having a semantically based mental lexicon.

Although these results did confirm some of the hypotheses presented at the beginning of the study, we need to be aware that the participants in the present study cannot be considered representative of L3 Spanish learners in the Philippines, because their linguistic profile is very specific. The Philippines is very linguistically diverse, with more than 100 living languages. In foreign language classrooms, it is much more common to find multilinguals proficient in at least three languages than people who are only proficient in two. It would be interesting to look at early multilinguals learning an L3 and study how these languages interact with each other in their mental lexicon. In addition, the number of participants is only a little over fifty, and the participants in the advanced-proficiency group were only nine, which is a number too small to conclude that the results could be generalized to other advanced learners. Therefore, a study that involves a larger population size could provide more insights on the production of lexical CLI of learners with a similar linguistic profile. Furthermore, in light of the results of the present study, the weight of the separate roles of typology and psychotypology in the lexical CLI of Tagalog–English bilinguals would be an interesting topic for future work to contribute to how these two variables influence CLI not only at the lexical level, but also at other linguistic levels. There are also very few studies that look into the lexical CLI of advanced-proficiency learners in the L3 and, therefore, it would also be interesting to do more research on this particular group to be able to confirm our findings. Other factors that were not taken into account in the present study could have influenced the lexical CLI production of this particular group of participants. More research on this specific proficiency level is evidently warranted. In terms of the source languages of lexical CLI, the present study only analyzed the number of instances in relation to language dominance and L3 proficiency. It would be interesting to look at the roles that each source language plays in lexical CLI production. Finally, the present study very lightly touched on the issue of the restructuring of the organization of the lexicon of L3 learners, which is a topic that would be interesting to pursue to shed light on how words are arranged in a multilingual mind. However, this study has considered a clearly under-researched language constellation regarding lexical CLI and its preliminary findings should be considered as a first step leading to a more thorough study of this phenomenon.

Appendix A

Student no.   Date:

Figure A1. Stimulus for written production task.
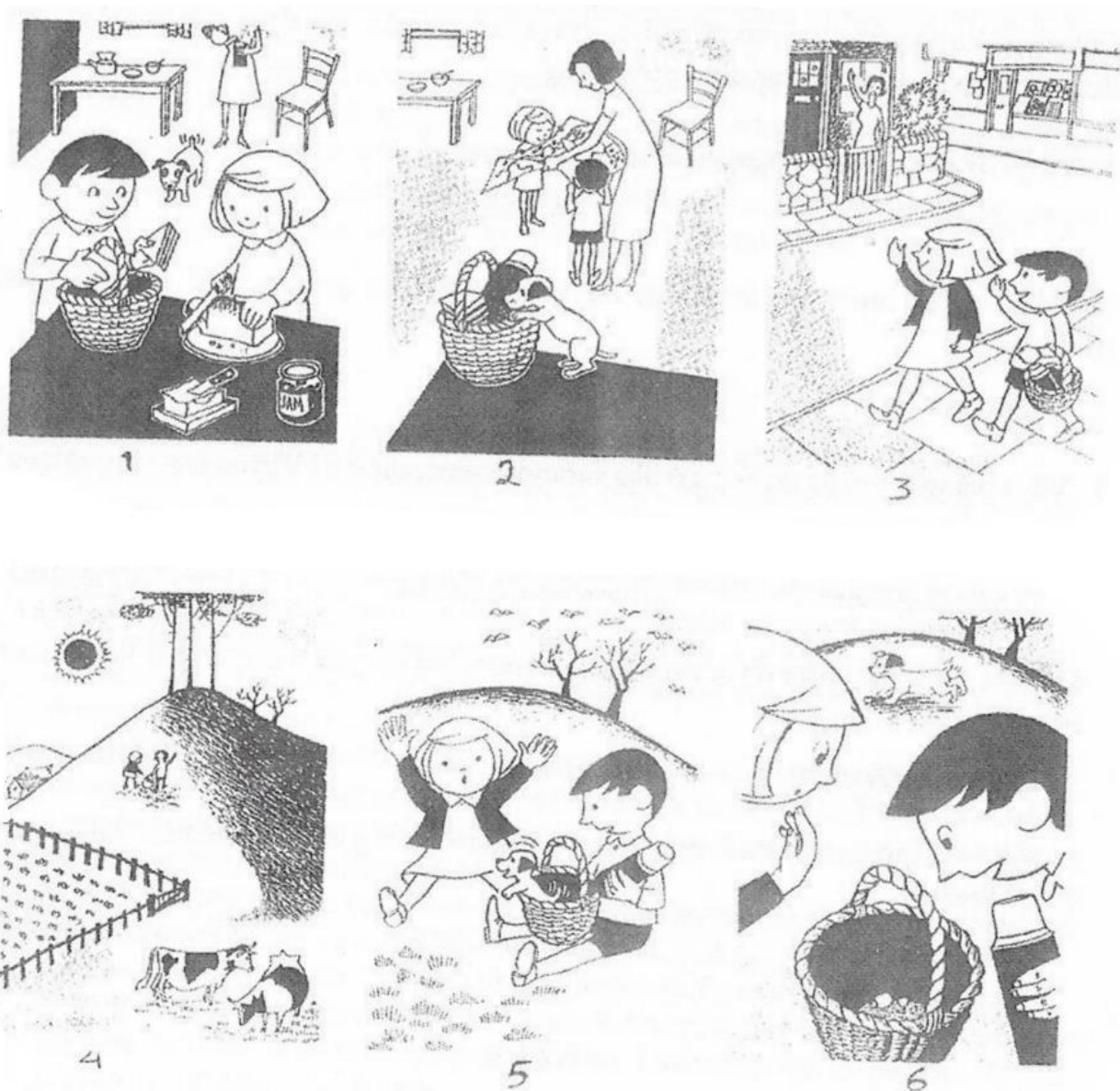
Appendix B

Figure A2. Stimulus for oral production task.

Note

[1] The Meta Frame category (MTF) always occurs with the Insert: Explicit Elicit category.

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