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Multilingual Processing Phenomena in Learners of Portuguese as a Third or Additional Language

A b s t r a c t : The purpose of the study is an analysis of Polish students' cued translation of Polish (L1) and English or French (L2) sentences into Portuguese (third or additional language in De Angelis's (2007) terminology). In particular, the study investigates cross-linguistic interaction (Herdina & Jessner's (2002) term) in multilingual processing involved in L3 production. In fact, translation constitutes a special case of production because, on the one hand, the content is already contained in the L1 or L2 source sentences, but, at the same time, this is not necessarily a facilitation, as the cues may require the use of words or structures the participants might not use in free production.

The article is based on two studies carried out with thirty and forty-two students of Portuguese philology respectively. As the results show, cross-linguistic interaction in various directions was observed, not only from L2 (English or French), L3 (in those participants for whom Portuguese was an L4 and their L3 was Spanish or Italian), L4, etc. or, intralingually, from Portuguese, but also from L1, despite the distance between Polish and Portuguese and the special status of the native language. However, the amount of interference and/or negative transfer often depended on the sentence rather than on the language combination. The diversity of the observed interactions also supports Herdina and Jessner's (2002) claim of the dynamic and unpredictable nature of cross-linguistic interaction.

K e y w o r d s : SLA, multilingualism, language learning, language acquisition, psycholinguistics

Introduction

By and large, the investigation of Portuguese L3 acquisition is an area of research that has received little attention and relatively few studies have been published so far on its phenomena. First, L3 acquisition research constitutes a new and constantly developing domain and, second, the Portuguese language

is still regarded as quite exotic and is rarely studied, as compared not only with English, but also, for example, with Spanish. However, the situation is changing, as more and more Americans are becoming interested in Brazil—be it for business or cultural reasons—and the demand for Portuguese is gradually growing (Razuk, 2008, pp. 21–22). Still, the learning of Portuguese as a foreign language has not yet received the attention it deserves.

The purpose of the paper is an analysis of Polish students' translations from Polish (L1) and English or French (L2) into Portuguese as a third or additional language (term introduced by De Angelis (2007) to refer to L3 and further languages) in order to reveal multilingual processing phenomena, especially different forms of cross-linguistic interaction (abbreviated to CLIN, Herdina & Jessner, 2002). The present article is based on two studies: in the first one, the subjects translated 15 sentences from Polish and 15 sentences from English or French into Portuguese. In the second one, another group of participants translated ten sentences from Polish into Portuguese.

It was assumed that translation, as a task involving the coactivation of at least two languages, would provoke more cross-linguistic interaction (CLIN) than a monolingual task. At the same time, unlike purely lexical or purely grammatical tasks, translation would involve both grammatical and lexical processing. Still, given that sentence structure is largely determined by the morphosyntactic properties of lexical items (Singleton, 2000, p. 17), grammar and lexis are largely interconnected. Thus, in the present paper, such errors as the use of false friends or the confusion of word meanings are regarded as lexical, whereas using, for example, an infinitive instead of the subjunctive after a particular verb is classified as a grammatical error. However, in the present two studies cued translation was used in order to make the participants use the target structures as much as possible, as in free translation they could use a variety of unpredictable structures, which might have complicated the analysis.

The research questions were as follows: First, what languages were the sources of transfer and/or interference into Portuguese? As a working hypothesis, it could be assumed that an important role would be played by linguistic similarity, especially psychotypology (Kellerman, 1987), but given the special role of the native language (Hufeisen, 1991), its influence could not be excluded either. Second, what types of errors did the participants make and what language processing phenomena do the errors reveal? Third, what do the data reveal about multilingual storage and processing?

Multilingual Storage and Processing

General properties of multilingual systems. Generally, multilingual systems are neither fully integrated nor fully separate. On the one hand, cross-linguistic interaction, including such phenomena as transfer, interference, borrowing and code-switching (Herdina and Jessner, 2002, p. 29), indicates some interconnection between the languages. On the other hand, multilinguals' ability to use each language separately, for example, while talking to monolinguals, shows that there is enough separation to prevent language mixing (Singleton, 2003, pp. 168–169).

In the process of vocabulary acquisition, the L2 lexicon is initially an extension of the L1 lexicon and, with time and increased proficiency, it becomes an independent system (Herwig, 2001, p. 117). Similarly, the L3 lexicon starts out as an extension of another lexicon, though not necessarily L1, but, for example, a more closely related (and thus more similar) language. Indeed, formal similarity plays an important role in both acquisition and processing. As Kellerman (1987) has shown, psychotypology, or a learner's own perception of language distance, is more significant for the learning of a foreign language than the language distance estimated by linguists. However, the distance perceived between languages influences not only the acquisition of vocabulary, but also processes of transfer in general, including at the grammatical level. Still, transfer does not have to manifest itself in the form of errors or anomalous structures. Undoubtedly, positive transfer results in correct structures, but it is also more difficult to detect because the learner seems to know the appropriate rules (Kellerman, 1987, p. 222).

A related, though slightly different phenomenon is interference. According to Herdina and Jessner (2002, pp. 28–29), transfer can be defined as a regular and largely predictable phenomenon of transferring structures from one language into the other, whereas interference constitutes dynamic interaction which is not reducible to any of the languages involved. Consequently, it can be supposed that some forms of transfer are a result of interference: as two or more languages are coactivated and interact, some words or structures can be transferred from one language to the other, even without the speaker realizing it (Wlosowicz, 2008/2009). In fact, as the system shift (De Angelis, 2005, p. 14) phenomenon indicates, learners can use a non-target language word, thinking it is the intended target language word.

At the same time, it must be remembered that the mental lexicon is not arranged like a dictionary, but rather it is a network in which the properties of lexical items are stored in a distributed way (Herwig, 2001). Within each entry, there are separate yet interconnected nodes representing the phonological, syntactic, semantic, etc. properties of words (Herwig, 2001, pp. 121–123).

Moreover, as the present author's earlier research indicates (Włosowicz, 2012), some properties (e.g. the morphological endings of the indicative) may be more available than others, such as the subjunctive or irregular verb forms.

Still, as semantic and syntactic properties are stored in a distributed way, they do not all have to be immediately available and focus on meaning does not have to be accompanied by focus on form and a non-target form of the target word or a semantically related word with different syntactic properties may be selected.

As for the representation of more general grammatical rules, such as inversion or preposition stranding, they are acquired by UG parameter setting (Klein, 1995). If a foreign language value differs from the native language one, the parameter needs to be reset. As Klein (1995) has shown, L3 learners, who are already familiar with two grammars, build more powerful grammars and reset parameters to the L3 values more efficiently than L2 learners do.

However, in L3 acquisition both L1 and L2 can be sources of transfer and/ or interference. While L1 remains an important source of transfer (Hufeisen, 1991), there is considerable evidence for L2 transfer as well (De Angelis, 2007, pp. 22–40). In general, given the interconnection between the languages, CLIN is inevitable. As Green (1993, pp. 260–269) has proposed on the basis of Bates and McWhinney's (1989) Competition Model, lexical entries compete for selection and the item most compatible with the input (in comprehension) or with the communicative intention (in production) is selected, although it may belong to a non-target language. This might explain the system shift phenomenon (De Angelis, 2005), as spreading activation leads to the selection of non-target language items which seem appropriate enough not to be intercepted by control mechanisms.

Given the number of factors involved in third or additional language acquisition, translation into L3 (or a further language) must be assumed to be a complex and largely unpredictable process. At the same time, as a combination of source language comprehension and target language production, it can be assumed to reveal a number of language processing phenomena.

Translation as multilingual processing. Generally speaking, translation consists in the reproduction in the target language of the meaning of the source language text. Simultaneously, the production process is somewhat simplified, as the communicative intention is already present in the source language text. As Hölscher and Möhle (1987, p. 114) remark, "the number of choices among available linguistic devices is restricted." However, this facilitation may only be apparent, as the learner may not know the target language equivalents of the source language words and structures and, if he or she were to convey the same meaning spontaneously, he or she would choose completely different

linguistic means. Translation is therefore useful for testing learners' knowledge of particular words and structures.

Translation can thus broadly be divided into two stages: source language comprehension and target language production. As illustrated by Perfetti's (1999) Blueprint of the Reader, based on Levelt's (1989) Blueprint Model of speech production, the comprehension process starts by the identification of word forms, which activate the appropriate lexemes within the lexical entries. The lexemes activate the corresponding lemmas, which send activation to the underlying concepts. Once a number of concepts have been activated, a context is formed, which then sends activation back to the lemmas, which permits, among other things, the selection of the contextually appropriate meanings of appropriate words.

It may be assumed that, in accordance with Levelt's (1989) Blueprint Model of speech production, in target language production the opposite process takes place, however, the following must be taken into account: First, if the translation operates from a well-known language, especially L1, it may be assumed to involve few or no comprehension problems (Herwig, 2001). Yet, in producing the target text, the subject may not know a target language word (both the lexeme and the lemma), the target form (e.g. the past tense form of an irregular verb, despite knowing the infinitive), some lemma information (such as the word's syntactic properties), or the target language concept.

Still, as has already been signaled, the target word form may not be available within the lexeme (e.g. the learner may know the form of the present indicative, but not the subjunctive), the lexemes of similar words may be confused due to formal similarity, or non-target syntactic information may be activated, either due to interference from another lemma, or because the TL lemma actually contains information copied from L1, which may result in the choice of an incorrect structure.

Second, in case of word order differences (e.g. adjectives precede nouns in one language and follow them in the other), translation cannot be word-for-word, but should take into account the target language rules. Even so, in translation from L2 into L3, some non-target structures might pass unnoticed, especially L2 structures, regarded as foreign and thus as more correct than structures transferred from L1.

In summary, translation into a third or additional language must be assumed to be a very complex process, involving CLIN between all the languages at the lexical and the grammatical levels. Still, in the case of cued translation, despite the apparent facilitation, the subjects cannot avoid using certain structures, which makes the transfer of non-target structures from L1 or L2 even more visible.

Method

Participants. Study 1 was carried out with thirty Polish (L1) students of Portuguese philology at the Jagiellonian University in Cracow and seven learners of Portuguese at the Iberian Language School 'Porto Alegre' in Katowice. Thirty-one of the subjects were female and six were male. As Portuguese philology students in Poland generally start learning the language at university, which is also the case of the participants in the present study, all of the subjects can be assumed to have an intermediate or an upper-intermediate level of proficiency in Portuguese. Similarly, the seven subjects at the private language school themselves defined their levels of proficiency in Portuguese as intermediate. Given the relatively low popularity of the Portuguese language in Poland, it was difficult to find a sufficient number of learners advanced enough to participate in the study, and the group is therefore not as homogeneous as it might be expected. In particular, they have a variety of language combinations and Portuguese is their third or additional language, but not always L3. Still, as Van Gelderen et al. (2003, p. 23) have observed, multilingual groups are generally more heterogeneous than the research design might require.

Their L2 was mostly English (30 subjects), but seven subjects had French as L2. All of them had also studied other languages, especially Spanish (19 subjects), German (16), Italian (11), French (8 subjects for whom it was not the L2), Latin (5), Romanian (4), ancient Greek (2), Catalan, Russian, Estonian, Hungarian, and modern Greek (one subject each). Still, their language biographies can be established only approximately, as the chronological acquisition order and the time of learning each language do not always reflect the proficiency levels attained in the languages.

Study 2 was carried out with forty-two intermediate students of Portuguese philology, at Maria Curie-Sklodowska University in Lublin (22 participants) and at the Jagiellonian University in Cracow (20), thirty-seven of whom were female and five male. Forty-one of the subjects had studied English and for 34 of them it was the L2. Thirty-five had studied Spanish and three of them indicated it as their L2. The next most popular languages were German (16 subjects, one of whom indicated it as her L2), French, and Italian (11 subjects each, while one indicated Italian as her L2), and Russian (6 subjects, two of whom indicated it as their L2). Some subjects had also studied Romanian (5), Latin (5), Swedish and Chinese (one subject each). Their language biographies are therefore so varied that determining the sources of cross-linguistic influence can only be approximate.

Data collection procedure. Study 1 consisted of the cued translation of ten sentences from Polish (L1) and ten sentences from English or French (L2) into Portuguese, followed by a questionnaire concerning the subjects' language biographies and the translation task. The thirty subjects whose L2 was English translated Polish and English sentences into Portuguese, whereas the seven subjects whose L2 was French translated Polish and French sentences. The focus was on infinitival and gerundive clauses, as well as on the subjunctive. The stimuli were of the following type: Adam congratulated Mary on winning a poetry contest. – O Adão felicitou a Maria _____ um concurso de poesia. However, if the focus was on the choice of the verb form and, consequently, the target verb form could not be revealed, the infinitive was prompted by an extra cue, for example: You did not really tell me to drive your grandma to the airport. (to drive – conduzir) – Na verdade não me disseste _____ a tua avó ao aeroporto. (The whole list of sentences used in the study is presented in Appendix 1.)

Study 2 consisted of the cued translation of ten sentences from Polish into Portuguese, where the focus was both on grammar and lexis, and a questionnaire. The stimuli were of the type illustrated by the following example: Kiedy słońce zachodziło, siedzieli na tarasie przy plaży.[1] _____ o sol _____, _____ numa terraça _____. However, the target structures were sometimes prompted by extra cues, for example: Chociaż Piotr jest bardzo bogaty (superlative), ciasto, które podał na swoich urodzinach, było bardzo złe.[2] _____ o Pedro _____, o bolo que _____ na sua festa de anos _____. Here, the extra cue was added in order to suggest that the students should use the superlative form *riquíssimo* (very rich, extremely rich), which is more emphatic than the analytic form *muito rico* (very rich). (The sentences are presented in Appendix 2.)

Results and Discussion

Study 1. Tables 1 and 2 show the sources of influence the students' translations from Polish and English into Portuguese can be attributed to and they actually reflect language processing only in this particular group, but even so, the participants' translation reveals a number of interesting phenomena.

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[1] As the sun set, they were sitting on a terrace next to the beach.

[2] Even though Peter is very rich (superlative), the cake he served at his birthday party was very bad.

However, the results should be treated with some caution, as it is not always possible to determine a particular source of cross-linguistic influence and one has to rely on "plausible interpretation" or "plausible reconstruction" (Corder, 1972, p. 42, as cited in Heine, 2004, p. 85). Moreover, even if the source of influence is identified as, for example, L1, this does not necessarily mean that the transfer was negative and resulted in an error. In fact, as the present author has argued elsewhere (Włosowicz, 2012), transfer may take subtle forms, such as the preference for certain structures, for example, finite clauses, even if infinitival clauses sound more idiomatic in the target language. Moreover, as each sentence could contain several more or less serious errors, the focus here has been on CLIN at the grammatical level, though lexical transfer and interference have also been observed. (The results have been partly discussed in Włosowicz (2012, pp. 144–146), but only in reference to the English L2 group.) Furthermore, while the author's earlier paper (Włosowicz, 2012) focused on cross-linguistic interaction at the grammatical level as much as possible (as has been explained in the Introduction above, grammar and lexis are largely interconnected and cannot be fully separated in the analysis), the present study also takes into account CLIN at the lexical level (see below).

Tables 1 and 2 show the percentages of responses attributable to different sources in the translation from Polish into Portuguese and from English into Portuguese respectively by the Polish-English-Portuguese group (Włosowicz, 2012, p. 145). The results are categorized into: Correct (target structures), L1 influence, L2 influence, L3 error/non-target structure, Other languages, Avoidance, and Other (often impossible to identify).

Table 1

The percentages of responses attributable to different sources in the Polish-English-Portuguese group's translation from Polish into Portuguese

Sentence	Correct %	L1 influence %	L2 influence %	L3 error/ non-target structure %	Other languages %	Avoidance %	Other %
1		56.67	20	6.67			16.67
2	16.67	30	30	20		3.33	
3	30	46.67	6.67	3.33	6.67	6.67	
4	3.33	40	3.33	36.67	6.67	6.67	3.33
5	46.67	40		6.67		3.33	3.33
6	40	23.33	10	23.33		3.33	
7	46.67	13.33	3.33	20		6.67	10
8	90	3.33		6.67			
9	13.33	50	30		3.33		3.33
10	6.67	63.33		30			

Table 2

Percentages of responses attributable to different sources in the Polish-English-Portuguese group's translation from English into Portuguese (Włosowicz, 2012, p. 145)

Sentence	Correct %	L1 influence %	L2 influence %	L3 error/ non-target structure %	Other languages %	Avoidance %	Other %
1		16.67	6.67	53.33	13.33		10
2	26.67	50	6.67	16.67			
3		40	30	10		3.33	16.67
4	30		30	36.67		3.33	
5	30	43.33	23.33	3.33			
6	90	3.33	6.67				
7	6.67	40	40	6.67		3.33	3.33
8	50	13.33	13.33	10		6.67	6.67
9	33.33	46.67	3.33	13.33			3.33
10	23.33	6.67	30	36.66	3.33		

As the results show, the sentences differed in difficulty, from relatively easy to fairly difficult ones. The most correct translations (90%) were produced in the case of the sentences *Portugalski jest pięknym językiem mimo tego, że jest dość trudny* ('Portuguese is a beautiful language despite being quite difficult.') and *Despite working at an embassy, Robert speaks few foreign languages*. Both sentences contain the structure *apesar de* + infinitive (*apesar de ser* and *apesar de trabalhar* respectively) and it can be assumed that the subjects had good command of this structure and did not have to rely on the L1 routine, which would have required a finite clause. Still, falling back on L1 routines has been observed in the case of other sentences, for example:

(1) *Henry does not remember dressing up as a duck during the carnival*: 63.33%. Target: *O Enriques não se lembra de se ter mascarado de pato durante o carnaval*. Subjects' responses included, for example, *O Enriques não se lembra mascarou-se de pato/mascarar-se de pato durante o carnaval* (there is no perfect infinitive in Polish).

(2) *Czy mogłabyś powiedzieć Filipowi, żeby przyszedł jutro?* (Could you tell Philip to come tomorrow?): 50%. Target: *Poderias dizer ao Filipe para (ele) vir amanhã?* Subjects' responses included, for example: *Poderias dizer ao Filipe que viesse/ que venha amanhã?*

In the translation from English into Portuguese, the most L1 influence was observed in the case of the sentence *Isabella asked her sister to help her with the homework* (50%). Instead of the infinitival target structure, (*A Isabel pediu à sua irmã para ajudá-la/ para a ajudar no trabalho de casa*), the subjects tended to choose such structures as: *A Isabel pediu à sua irmã que lhe ajudasse no trabalho de casa*. Simultaneously, the indirect object (*lhe*) instead of the

direct object is another proof of L1 influence, as in Polish the verb *pomagać* (to help) takes the indirect object in the dative case, whereas the Portuguese verb *ajudar* (to help) takes the direct object, which, in the case of pronouns, occurs in the Accusative case. (Unlike in Polish, in Portuguese only pronouns, and not nouns, are marked for case.)

Similarly, in the sentence *Joan hopes to marry a rich man* (target: *A Joana espera casar* (or: *casar-se* in Brazilian Portuguese) *com um homem rico*) 43.33% of the subjects produced finite clauses, for example, *A Joana espera que ela se case com um homem rico*.

The second most frequent case of L1 influence on L2-L3 translation (46.67%) is the sentence *John is very busy repairing his car* (target: *O João está muito ocupado a reparar/ reparando o seu carro*). In fact, the analogous sentence in Polish (*Alicja jest bardzo zajęta pisaniem pracy magisterskiej* ('Alice is very busy writing her M.A. thesis') triggered even more L1 transfer (63.33%), the dominant structure being a literal translation, for example, *A Alice está muito ocupada com escrever sua tese de mestrado*. However, the lower percentage of Polish-like structures in the L2-L3 translation and the use of the gerund (*O João está muito ocupado reparando...*) indicate that similarities between English and Portuguese facilitated the choice of the structure and that, moreover, source language structures influence subjects' choices in translation.

As for cross-linguistic influence at the lexical level, it was not very frequent, because most potentially unfamiliar words were prompted by the cues. However, some CLIN was also observed, for example, one participant wrote *ambaçada* instead of *embaixada* (embassy), under the influence of Polish (ambasada) and possibly also Italian (ambasciata). In fact, the Italian word *ambasciata* was used by three students, two others used the Spanish word *embajada*, and two borrowed the Polish word *ambasada* into Portuguese. Moreover, for unclear reasons (probably because of phonological and orthographic similarity, even though the target verb was prompted), one participant used the Spanish verb *marearse* (to be seasick or dizzy) instead of *mascararse* (*to dress up* in Portuguese).

Some influence of Spanish was also observed at the morphological level, as the past subjunctive forms *obtuviera* and *viniera* indicate. Certainly, errors of this kind lie on the borderline between grammar and lexis, but as word forms belonging to the Spanish lexemes *obtener* and *venir*, they can be regarded as lexical rather than grammatical influence.

Tables 3 and 4 show the results obtained by the French L2 group. The categories of sources of CLIN are the same as in Tables 1 and 2.

Table 3

Percentages of responses attributable to different sources in the translation from Polish into Portuguese by the Polish-French-Portuguese group

Sentence	Correct %	L1 influence %	L2 influence %	L3 error/ non-target structure %	Other languages %	Avoidance %	Other %
1		42.9			57.14		
2	42.9	14.3			28.6	14.3	
3	14.3	57.14			14.3	14.3	
4	14.3	57.14				14.3	14.3
5		28.6	14.3		14.3	28.6	14.3
6	71.4	14.3		14.3			
7		28.6		14.3		42.9	14.3
8	71.4				14.3	14.3	
9		42.9	28.6			28.6	
10	14.3	14.3	14.3				57.14

Table 4

Percentages of responses attributable to different sources in the translation from French into Portuguese by the Polish-French-Portuguese group

Sentence	Correct %	L1 influence %	L2 influence %	L3 error/ non-target structure %	Other languages %	Avoidance %	Other %
1	14.3		42.9	14.3	14.3		14.3
2	14.3		57.14			28.6	
3	57.14			28.6	14.3		
4		42.9			57.14		
5	14.3	14.3	28.6			42.9	
6	28.6	14.3	14.3				42.9
7	42.9			42.9	14.3		
8	14.3	28.6	14.3				42.9
9	14.3	28.6	42.9	14.3			
10	42.9	14.3			28.6	14.3	

In the French-Portuguese translation, as the languages were typologically closer to each other, one might expect a higher percentage of correct responses. However, as Table 4 indicates, this was not the case, as the highest percentage of correct responses (57.14%) was obtained in the case of the sentence *En dépit de travailler dur, Marie est toujours de bonne humeur* ('Despite working hard, Mary is always in a good mood'). Here again, the structure *apesar de* + infinitive proved to have been mastered best and, similarly, in the Polish-Portuguese translation, 71.4% of the subjects produced the target structure.

The other most frequently correct structure in the L1-L3 translation was the sentence *Małgorzata nigdy nie widziała, jak kangury skaczą* ('Margaret has never seen kangaroos jumping'; target: *A Margarida nunca viu cangurus a saltar*, though *A Margarida nunca viu cangurus saltar* was also accepted), where 71.4% of the subjects chose the infinitive, while only one person (14.3%) translated the sentence literally (…*como os cangurus saltam*). A possible reason may be the existence of a similar structure in French (*Marguerite n'a jamais vu les kangourous sauter*), which may have been a source of positive transfer.

Transfer from French was also frequent in the case of the sentence *Je vais traduire le texte pour que vous puissiez le lire* ('I am going to translate the text so that you can read it'; target: *Vou traduzir o texto para você(s) poder(em) lê-lo*). 57.14% either translated the French sentence literally or chose '*por*' instead of '*para*' because of its phonological similarity with '*pour*'.

Another interesting tendency towards French-Portuguese transfer was observed in the sentence *Il a demandé à la secrétaire d'écrire une lettre au ministre* ('He asked the secretary to write a letter to the minister'; target: *Pediu à secretária para escrever uma carta ao ministro*). Three subjects (42.9%) chose the French-like preposition and wrote *de escrever*.

Some influence of English was also observed. In the sentence *Przykro mi, że nie zaprosiłam cię na urodziny* ('I am sorry not to have invited you to my birthday party'; target: *Sinto muito por não te ter convidado à minha festa de anos*), four subjects (57.14%) omitted the preposition, producing structures like: *Sinto muito não te convidei…* (cf. I am sorry I did not invite you to my birthday party).

Here, the cross-linguistic influence was mostly grammatical, while lexical influence was limited to function words (for example, *por* instead of *para*), except for some interference from French (e.g. *volar* instead of *voar* 'fly'). A possible reason is that the focus of the study was on grammar, while potentially unknown words were prompted by the cues. This indicates that L2-L3 influence is not limited to lexis, but can also occur at the grammatical level.

Study 2. The results of Study 2 are presented in Table 5. The categories into which the sources of influence have been divided are the same as in Study 1, with one exception. Here, Portuguese (Port) is a source of intralingual influence (e.g. overgeneralization), while L3 refers to another language that was the subjects' L3, especially Spanish. In fact, the calculations can only be approximate, as they are based on 'plausible reconstruction' (see above) and not on tapping the exact processes going on in the participants' brains. Moreover, as interference is dynamic and non-reducible to a single language (Herdina & Jessner, 2002, pp. 28–29), finding the exact source of a non-target form may even be impossible.

Table 5

Percentages of responses attributable to different sources in the translation from Polish into Portuguese

Sentence	Correct %	L1 influence %	L2 influence %	L3 influence %	Port. %	Other lang. %	Avoidance %	Other %
1	4.76	21.43	7.14	11.9	38.1		16.7	
2	9.52	19	7.14	4.76			57.14	
3	11.9	19	11.9	2.38	2.38		50	2.38
4	7.14	16.67	26.19	2.38	4.76	4.76	23.8	14.29
5	40.48		4.76	16.67	28.57		9.52	
6	28.57	4.76		4.76	23.8		28.57	9.52
7	28.57	50	2.38	7.14	9.52		2.38	
8	19	64.3		4.76	7.14	4.76		
9	47.62		2.38	11.9	30.95	2.38	4.76	
10	35.7	47.6		2.38	9.52		2.38	

L1 influence was most visible in the sentence *W Finlandii pije się dużo mleka, a we Francji je się ślimaki* ('In Finland a lot of milk is drunk and in France snails are eaten'; target: *Na Finlânda bebe-se muito leite e na França comem-se caracóis*), as 64.3% of the subjects chose the singular construction *na França se come/ come-se caracóis* instead of the plural, as the singular is also used in Polish. The second most frequent case of L1 influence (50%) was sentence 7, where the subjects tended to choose the indicative (e.g., * *A pesar do Pedro é muito rico*) instead of the correct forms *apesar de o Pedro ser riquíssimo* (infinitive), or *embora o Pedro seja riquíssimo* (subjunctive: though Peter be very rich), which indicates their reliance on L1 routines. However, apart from the target forms, the colloquial form *apesar do Pedro ser riquíssimo* was also accepted, as it is often used by native speakers on the Internet and the students may have also acquired it from such input.

L1 influence was also observed in sentence 10 (47.6%), where the subjects chose the imperfective form (*A Maria lia/ *leia um livro*) instead of the continuous form (*A Maria estava a ler um livro* (Mary was reading a book)).

Finally, in sentence 1 the influence of L1 Polish was quite frequent too (21.43%). The form *sentavam* (e.g., *Quando o sol _____*[3], *sentavam numa terraça à praia*.) is a reflection of the Polish imperfective aspect (*siedzieli* – they were sitting) expressed by a single verb form. In fact, the target Portuguese form was *estavam sentados* (literally: [they] were seated), while the continuous form, *sentavam-se* is reflexive and means *they were sitting down*,

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[3] The gap reflects the participant's ignorance or avoidance of the target form. However, as part of the sentence has been provided, it is analysed as a case of CLIN. On the other hand, the response would have been classified as avoidance if the subject had avoided translating the sentence completely or had provided only the prepositional phrase *à praia* (by the beach).

which refers to the process or habit of taking seats, rather than to the state of being seated. On the other hand, different more or less inaccurate forms, such as *sentiam*, *sentaram*, *sentavão*, *estavam sentando*, etc. can be attributed to in-tralingual influence in Portuguese, which resulted in the retrieval of non-target verbs (e.g. *sentiam* comes from *sentir* – to feel) or verb forms, or even the creation of non-existing forms (e.g. *sentavão*).

The influence of L2 English was most visible in sentence 4, where 26.19% of the subjects used the present tense in the conditional clause (**se eu encontro esse livro*) instead of the future subjunctive (*se eu encontrar esse livro*), as in: *if I find that book*. However, as a similar construction occurs in Spanish, the influence may also have been double.

L3 influence came mainly from Spanish and was especially visible in sentences 5 (16.67%) and 9 (11.9%). In 5, instead of *Comprar-te-ei uma caneta nova* ('I will buy you a new pen'), the subjects used the Spanish future tense form *Compraré*, e.g. *Compraré-te uma caneta*. By contrast, in sentence 9, instead of *Vais tomar (um) duche agora?* ('Are you going to take a shower now?'), four subjects used the form *vais a tomar* (cf. *Vas a ducharte ahora?).* In the same sentence, the subjects tended to use unnecessary definite articles (*tomar o duche*), probably due to overgeneralization of other Portuguese structures. In this case, the correct form contains either no article (*tomar duche*), or an optional indefinite article with a generic meaning (*tomar um duche*). They also sometimes used non-target words (e.g. *tomar um banho* 'to take a bath') or even *tomar uma banheira* 'to take a bath(tub)'), or neologisms (e.g. *tomar o chove*, under the influence of *chuveiro* (a shower as a piece of equipment)).

Still, the biggest numbers of correct answers were observed in the case of sentences 9 (47.62%) and 5 (40.48%), precisely because they allowed the most possible alternatives. In 5, apart from *Comprar-te-ei*, *Vou comprar-te* and *Vou te comprar*, it was also possible to use the present tense (*Compro-te*, see below) and in 9, structures with or without the indefinite article were acceptable.

Possible influence of German might be supposed in the sentence *Compro-te uma nova caneta* (instead of *Comprar-te-ei/ Vou te comprar/ Vou comprar-te uma caneta nova*, cf. *Ich kaufe dir einen neuen Kugelschreiber*), where the present tense form was used in a future sentence. However, as the use of the present in reference to the future is also possible in Portuguese, the choice of the present tense is not an error, but rather a preference reinforced by the existence of a similar structure in another language. At the same time, this may just be the choice of a morphologically simpler option, prompted by the avoidance of the morphologically complex form *comprar-te-ei* (in-finitive + pronoun + future tense morpheme), or hesitation between *vou te comprar* and *vou comprar-te* (I am going to buy you [a new ballpoint pen]), both of which are correct, but with a slight stylistic difference. Forms where the pronoun follows the verb (e.g. *compro-te*) often appear stylistically bet-

ter in European Portuguese, while ones in which the pronoun precedes the verb (e.g. *te compro*) are more characteristic of Brazilian Portuguese and are regarded in European Portuguese as more colloquial. On the other hand, in some contexts forms with the pronoun following the noun are considered hypercorrect, for example, after some conjunctions (e.g., *Estou a escrever para te dar as notícias* (I am writing in order to give you the news) sounds better than *Estou a escrever para dar-te as notícias*). Thus, it is possible that some students were not sure whether to use *vou te comprar* ou *vou comprar-te*, while they were sure of the correctness of *compro-te*.

Still at the grammatical level, avoidance was observed in sentences which required the subjunctive (2, 3, 4, and 6). As the subjects themselves admitted, they had only recently started learning the subjunctive and were not sure of its forms.

On the other hand, lexical transfer was both intralingual and interlingual (overgeneralization, the confusion of similar forms), for example, *quando o telefone sonou* (target: *tocou* (when the telephone rang)), probably under the influence of Spanish (*sonar*) or French (*sonner*) or overgeneralization in Portuguese (*som* 'sound'). Similarly, *uma pena* (feather) used instead of *uma caneta* (pen) may be due to the influence of the English *pen*, or an extension of the meaning of *pena* in Portuguese, perhaps supported by the Polish word *pióro* (pen/feather) or the Italian word *penna* (pen/feather). The influence of Italian was reflected, for instance, in the borrowing of the verb *tramontare* (**Quando o sol tramontava*), instead of *pôr-se* (*Quando o sol se punha*—When the sun was setting). This indicates that the concepts underlying equivalents in different languages do not fully overlap (Pavlenko, 2009). However, as activation spreads from source language words to their equivalents, it also activates the corresponding concepts, which send activation back to the lemma level, and the result may be a non-target word, partly overlapping in meaning with the target.

General discussion. In general, both studies show that translation is a useful tool for studying multilingual language processing. To answer the research questions, first, the sources of transfer and/or interference were L1 (Polish), L2 (English, French or sometimes Spanish), L3 (if different from Portuguese, especially Spanish), Portuguese (intralingual influence), as well as other languages (Italian or even German).

However, the influence of the particular languages often depended on the structure used in a given sentence. Although typological proximity is an important factor in both positive and negative transfer, the influence of L1 Polish remains visible, especially in the choice of target structures (not necessarily erroneous, as discussed above). This supports Razuk's (2008, pp. 171–172) finding that L1 influence is particularly strong at the syntactic level, as L1 syntax

is acquired early and remains deep-rooted in the mind, which often results in syntactic transfer.

Moreover, relatively many errors can be attributed to intralingual influence, especially the use of non-target Portuguese words or word forms. It can be supposed that an important role is played by formal similarity and phonological-level connections (cf. Herwig, 2001) and by such processes as semantic extension, largely motivated by transfer.

The hypothesis concerning the transfer sources is thus generally confirmed, yet with some additional reservations. Given the dynamic nature of multilingual systems, the results of CLIN are largely unpredictable and a word or structure from a less closely related language may reach the highest activation level and be selected, and the factors determining this may be quite idiosyncratic (recency of use, individual associations, etc.).

Certainly, lexical transfer and interference were generally limited to the Romance languages, especially Spanish and French due to formal similarity, though *pena* may have been influenced by *pen* in English. However, the CLIN observed between several languages at the grammatical level indicates that all the grammars of a multilingual are connected to a common UG base (cf. Cook's (1992) notion of multicompetence) and interact, often in unpredictable ways. It is also possible that, unlike the lexical level, where formal differences (e.g. between Polish or English and Portuguese words) facilitate language separation, the grammatical level is more abstract and thus the languages are more difficult to keep apart. Thus, even if UG parameters are reset in accordance with the rules of a language, the parameter settings of other languages can interfere with them, for example, because of higher activation levels.

Second, the error types observed ranged from the confusion of words (e.g., *apesar* (despite) and *apenas* (hardly)) and the creation of neologisms (e.g., *volar* instead of *voar*), through the use of incorrect non-target structures (e.g., the present indicative form instead of the future, the subjunctive or the future subjunctive) and structures occurring in a non-target language such as Spanish (*ir a* + infinitive), to reliance on L1 routines, such as finite clauses instead of infinitival ones (which, in some cases, were erroneous, but not always). However, all the errors observed occurred in production, as the comprehension of L1 and L2 did not cause the subjects any problems. This shows that CLIN is a multifaceted phenomenon which can occur at different levels simultaneously and result in the production of unpredictable structures.

Finally, the results indicate that, on the one hand, lexical and grammatical processing is largely interconnected and the choice of particular structures often depends on the activation of lexical items and their morphosyntactic properties (e.g. verb + de (or another preposition) + infinitive). On the other hand, in multicompetent language users the grammars of their languages are all based on UG and interconnected, perhaps more or less strongly as a function of their

similarity, and the parameter settings appear to be so subtle that they cannot be kept apart, as CLIN is inevitable.

Conclusion

On the basis of the results, it can be concluded that the processing of Portuguese as a third or additional language constitutes a highly complex process, dependent not only on the typological similarity between the languages, but also on a variety of factors, such as the activation levels of particular words and structures, or the existence of a formally similar word in two or more languages which supports transfer (also negative, as in the case of *pena* and *sonar*). The status of the native language is indeed special, however, if the languages are as distant as Polish and Portuguese, L1 influence can be subtle, leading to the preference for certain structures, rather than direct transfer. Undoubtedly, the languages are interconnected; they share a common UG base despite different parameter settings, and not only is it impossible to separate their processing, but often it is also difficult to identify the source of an error or a syntactic or lexical choice.

However, the occurrence of syntactic transfer may be partly attributable to the use of translation: in some cases, the source language sentence may have activated the corresponding syntactic structure, leading to a literal L3 translation. While translation allows for testing of the participants' knowledge of the target structures, it may also prompt them to use the source language structures in the target language.

Moreover, as the present study is based on written production, it is possible that some other processes, even inaccessible to consciousness, also took place, so it would be advisable to continue research on this topic, using other methods as well. Future research might also investigate the processing of other structures, also in other language combinations, to contribute to the study of multilingual processing.

Stimuli used in Study 1

Polish sentences

1. Przykro mi, że nie zaprosiłam cię na urodziny.
   (zaprosić: convidar)
   Sinto muito _____ à minha festa de anos.
2. Nie przypominam sobie, żebym rozmawiała z prezydentem w zeszłym roku.
   Não me lembro _____ com o Presidente no ano passado.
3. Anna ma nadzieję, że dostanie pracę w liniach lotniczych „TAP".
   A Ana espera _____ um trabalho na companha aérea 'TAP'.
4. Piotr pogratulował mi tego, że zdobyłam nagrodę.
   O Pedro felicitou-me _____ um prémio.
5. Chciałabym cię prosić, żebyś kupił pomidory.
   Queria pedir-te _____ tomates.
6. Małgorzata nigdy nie widziała, jak kangury skaczą.
   (kangur – canguru, skakać – saltar)
   A Margarida nunca viu _____.
7. Przyniosę buty, żeby pani je zobaczyła.
   Vou trazer os sapatos _____.
8. Portugalski jest pięknym językiem mimo tego, że jest dość trudny.
   O português é uma língua bonita apesar _____ bastante difícil.
9. Czy mógłabyś powiedzieć Filipowi, żeby przyszedł jutro?
   Poderias dizer ao Filipe _____ amanhã?
10. Alicja jest bardzo zajęta pisaniem pracy magisterskiej.
    A Alice está muito ocupada _____ sua tese de mestrado.

English sentences

1. Adam congratulated Mary on winning a poetry contest.
   O Adão felicitou a Maria _____ um concurso de poesia.
2. Isabella asked her sister to help her with the homework.
   A Isabel pediu à sua irmã _____ no trabalho de casa.
3. I'm sorry to have disturbed you with a phone call last night.
   (to disturb – incomodar)
   Sinto muito _____ com um telefonema ontem à noite.
4. One day Mark saw a strange man walking in the woods.
   (to walk – passear)
   Um dia o Marco viu _____ na floresta.
5. Joan hopes to marry a rich man.
   A Joana espera _____ um homem rico.
6. Despite working at an embassy, Robert speaks few foreign languages.
   Apesar _____, o Roberto fala poucas línguas estrangeiras.
7. You did not really tell me to drive your grandma to the airport.
   (to drive – conduzir)
   Na verdade não me disseste _____ a tua avó ao aeroporto.
8. I will translate the text for you to read.

Vou traduzir o texto _____.
9. John is very busy repairing his car.
   O João esta muito ocupado _____ seu carro.
10. Henry does not remember dressing up as a duck during the carnival.
    (to dress up as – mascarar-se de)
    O Enriques não se lembra _____ de pato durante o carnaval.

French sentences

1. Anne a vu un oiseau étrange voler au-dessus de la forêt.
   A Ana viu _____ em cima da floresta.
2. Je vais traduire le texte pour que vous puissiez le lire.
   Vou traduzir o texto _____.
3. En dépit de travailler dur, Marie est toujours de bonne humeur.
   Apesar _____, a Maria está sempre de alto astral.
4. Je suis désolée de ne pas t'avoir informé du mariage de ma sœur.
   Sinto muito _____ do casamento da minha irmã.
5. Pourrais-tu dire à Philippe de venir demain matin?
   Poderias dizer ao Filipe _____ amanhã de manhã?
6. Jean est très occupé à réparer sa voiture.
   O João está muito ocupado _____ seu carro.
7. Hélène ne se souvient pas d'avoir voyagé en Allemagne en 2001.
   (voyager – viajar)
   A Helena não se lembra _____ para a Alemanha em 2001.
8. Je te félicite d'avoir terminé tes études.
   Felicito-te _____ os estudos.
9. Il a demandé à la secrétaire d'écrire une lettre au ministre.
   Pediu à secretária _____ uma carta ao ministro.
10. Monique espère obtenir un travail à la banque.
    A Mônica espera _____ um trabalho no banco.

Stimuli used in Study 2

1. Kiedy słońce zachodziło, siedzieli na tarasie przy plaży.
   _____ o sol _____, _____ numa terraça _____.
2. Gdybym tylko (=I wish) kupiła bilet na ten koncert wczoraj!
   _____ um bilhete para esse concerto _____!
3. Gdyby Sylwia nie odmówiła, pracowałaby teraz w międzynarodowej firmie.
   Se a Sílvia _____, _____ agora _____ multinacional.
4. Jeśli znajdę tę książkę, pożyczę mu ją jutro.
   Se _____ esse livro, _____ amanhã.
5. Nie przejmuj się! Kupię ci nowy długopis.
   Não _____! _____ uma _____.
6. Oby egzamin nie był zbyt trudny!
   _____ o exame _____ difícil!
7. Chociaż Piotr jest bardzo bogaty (superlativo), ciasto, które podał na swoich urodzinach,
   było bardzo złe.
   _____ o Pedro _____, o bolo que _____ na sua
   festa de anos _____.
8. W Finlandii pije się dużo mleka, a we Francji je się ślimaki.
   Na Finlânda _____, e na França _____.
9. Czy zamierzasz wziąć prysznic teraz?
   _____ tomar _____?
10. Maria czytała książkę, kiedy telefon zadzwonił.
    A Maria _____ um livro _____.

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Teresa Maria Włosowicz

**Phänomene der mehrsprachigen Sprachverarbeitung
bei den Lernern von Portugiesisch als Dritt-oder Zusatzsprache**

Z u s a m m e n f a s s u n g

Das Ziel der Studie war eine Analyse der Übersetzung mit Hinweisen (*cued translation*) von polnischen (L1) und englischen oder französischen (L2) Texten ins Portugiesische

(Dritt- oder Zusatzsprache, nach der Terminologie von De Angelis, 2007) von polnischen (L1) Studenten. Die Studie erforscht insbesondere die interlingualen Interaktionen (*cross-linguistic interaction,* den von Herdina und Jessner geprägten Begriff, 2002) bei mehrsprachiger Verarbeitung in der Produktion von L3. Eine Übersetzung stellt in Wirklichkeit einen Sonderfall der Sprachproduktion dar, weil der Inhalt schon in den L1- oder L2-Quellensätzen enthalten ist, obwohl es andererseits keine Erleichterung ist, denn die Hinweise können den Gebrauch von solchen Wörtern oder Strukturen erfordern, die von den Probanden in freier Sprachproduktion nie gebraucht werden könnten.

Der Beitrag basiert auf zwei Studien, die jeweils mit dreißig und zweiundvierzig Studenten portugiesischer Philologie durchgeführt wurden. Wie die Ergebnisse zeigen, wurden interlinguale Interaktionen in verschiedenen Richtungen beobachtet, nicht nur aus L2 (aus dem Englischen oder dem Französischen), aus L3 (bei den Probanden, für die Portugiesisch eine L4 war und deren L3 Spanisch oder Italienisch waren), L4, etc., sowie intralinguale Interaktionen im Portugiesischen, aber auch aus dem Polnischen (L1), trotz der Distanz zwischen dem Polnischen und dem Portugiesischen und des besonderen Status der Muttersprache. Die Menge von Interferenzen und/oder negativem Transfer hing jedoch häufig eher von dem Satz als von der Sprachkonstellation ab. Die Vielfalt von den zu beobachtenden Interferenzen bestätigt Herdina und Jessners (2002) Behauptung von dynamischer und unvorhersehbarer Natur der interlingualen Interaktion.