

CROATIAN STUDENTS AND ENGLISH PATH VERBS – EVIDENCE OF POSITIVE AND NEGATIVE TRANSFER

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Both English and Croatian are satellite-framed languages, yet they differ significantly in how they express spatial relations. This contrast is particularly noticeable when comparing English path verbs and their Croatian counterparts. Croatian learners of English often struggle with using prepositions alongside certain English path verbs, leading to the production of incorrect sentences. However, with other English path verbs, their usage of prepositions tends to be accurate. This behavioural study aimed to investigate whether these difficulties might be attributed to transfer from Croatian. A total of 82 subjects participated and solved a cloze test containing path and manner verbs. The results suggest that strong negative transfer occurs with English path verbs whose Croatian equivalents are prefixed motion verbs governing prepositions cognate with their prefixes. Conversely, positive transfer occurs in the case of English path verbs whose Croatian equivalents are either prefixed or unprefixes not accompanied by prepositions. These insights may prove valuable in shaping more effective methods for teaching prepositions.

KEYWORDS:

Croatian, English, path verbs,
prefixed verbs, transfer

1. INTRODUCTION

Each language expresses relations among entities in the world in a way that is particular for that language. Consequently, students learning a second language frequently have problems encoding these relations in it. In most cases, they encode them by means of prepositions and, subsequently, prepositions are usually among the most problematic elements of language to master when learning a foreign language. This is also the case for Croatian students of English even once they reach a high level of proficiency in English.

Croatian and English use different prepositions to encode the same relations. Let us look at the following examples:

- (1) a) *Kupio sam meso **na** tržnici.*
 b) *Išao sam **na** koncert.*
 c) *Knjiga je **na** stolu.*

The first observation is that in all three Croatian sentences the same preposition is used: *na*¹. However, if we translate these sentences into English, we use a different English preposition for each of them:

- (2) a) *I bought the meat **at** the market.*
 b) *I went **to** the concert.*
 c) *The book is **on** the table.*

These examples indicate that Croatian and English construe the relations among entities in a different way. Perhaps an even more striking example would be the following:

- (3) *Tko je **na** ovoj slici?*

where the corresponding translation into English is:

- (4) *Who is **in** this picture?*

¹ The translational equivalent of this English preposition listed in most Croatian-English dictionaries is 'on' (e.g., Bujas 1999). However, as can be observed from the English translations of the Croatian sentences listed here, in a number of situations this is not the appropriate translational equivalent.

This example leads us to the conclusion that in Croatian a picture is perceived as a flat surface *on* which something is located, while in English it is perceived as a container *in* which something is located.

The list of all the differences between Croatian and English when it comes to the use of (spatial) prepositions would be almost endless, but the above listed examples should demonstrate some of the problems that Croatian students of English are faced with when trying to master the encoding of spatial relations in English. The situation becomes even more complicated when it comes to the metaphorical use of prepositions (e.g., *under the law*, the equivalent of which in Croatian is *prema zakonu*, i.e., ‘*according to the law*’).

A particular problem for Croatian students of English is the use of English path verbs. Namely, they tend to produce sentences of the following type: *He entered into the room; He has left from the building*; etc. In these sentences, the verb cannot be followed by the preposition, but Croatian students use it. On the other hand, some path verbs do not appear to pose difficulties for them (e.g., *He followed John.*). Therefore, the aim of this study is to determine whether there is evidence of transfer from Croatian into English in proficient Croatian speakers of English.

Transfer is usually defined as influence of the first language (L1) on the second language (L2) which is the result of differences and similarities between the two languages. The idea on which it is based is that previous learning, i.e., learning of L1, affects subsequent learning, i.e., learning of L2, in such a way that the patterns and forms of the L1 are imposed on L2. It can be positive (if the structure is the same in both languages) or negative (if the structure is not the same in both languages). Positive transfer is facilitatory, and usually leads to a reduced number of errors, while negative transfer causes interference and usually leads to an increased number of errors. Bardovi-Harling and Sprouse (2018) sum up the current approaches to transfer in second language acquisition in a very handy way: “Transfer, to the extent that it exists, would now be viewed as the influence of the mentally represented native language grammar on the mentally represented interlanguage grammar” (*ibid*: 2). These approaches can be divided into several groups: those that assume that learners have access to universal grammar (e.g., Eubank 1993; Schwartz and Sprouse 1994, 1996; LaFond et al. 2001), those that assume that they have limited access to universal grammar (e.g., Meisel 1983, 1991; Clahsen 1986), the competition model which assumes that general cognition and communicative needs constrain linguistic behaviour (Bates and MacWhinney 1981, 1987; MacWhinney 1992), the approach based on the processability theory (Pienemann 1998), approaches that focus on thinking for speaking and conceptual transfer (e.g., Odilin 2005; Jarvis and Pavlenko 2008; Han

and Cadierno 2010), and others. Regardless of the differences between current approaches, they all agree that, in order to show that transfer exists, it is not sufficient to prove that it exists only in individual cases—it should be demonstrated that it exists in a particular category. When talking about types of evidence of transfer, Jarvis (2016) lists intralingual contrasts which “can be derived through comparison of the features of the TL that differ with respect to how (closely) related they are to the features of the L1” (ibid: 40). As we will see, English path verbs are particularly well-suited for this purpose.

Before moving on to the present research, we need to look at Talmy’s typology of languages and motion verbs.

1.1. TALMY’S TYPOLOGY OF LANGUAGES

According to Talmy (2000a), languages can be divided into two major types based on typical structures used for encoding of motion events. He calls them verb-framed and satellite framed languages. The former include Romance languages, Semitic languages, Polynesian languages, Japanese, Tamil, Bantu, some branches of Mayan languages, Nez Perce and Caddo; the latter all the other languages.²

The motion event itself comprises four elements: 1) the Figure (the moving entity whose trajectory is described); 2) the Ground (the reference object relative to which the Figure’s movement is characterised); 3) the Motion (the dynamic process of the Figure’s displacement in relation to the Ground); 4) the Path (the trajectory along which the Figure moves with respect to the Ground) (Talmy 2000a).

In most languages, the core schema of a motion event consists of the Path. However, languages differ according to where the core schema is expressed: in verb-framed languages it is predominantly expressed in the verb, and in satellite-framed languages it is predominantly expressed in the satellite. Talmy defines the satellite as “the grammatical category of any constituent other than a nominal complement that is in a sister relation to the verb root” (Talmy 2000a: 486). In other words, it can include affixes (e.g., verbal prefixes) or free words.

On the basis of this division of languages and structure of motion events, Talmy

² In order to accommodate serial-verb, bipartite verb, and generic verb languages, Slobin (2004) proposed a third type of languages that he called “equipollently framed languages” defining them as “serial-verb languages and other types of languages in which both manner and path are expressed by “equipollent” elements—that is, elements that are equal in formal linguistic terms, and appear to be equal in force or significance” (Slobin 2004: 237). He also proposed that, rather than using a dichotomised or trichotomised typology, it would be better to place languages on a cline of manner salience.

proposes a division of motion verbs into path verbs (which express the Path of motion, but not the Manner of motion) and manner verbs (which express the Manner of motion but not the Path)³. The first type of verbs is typical of verb-framed languages in which the Manner can optionally be coded in an additional sentential element. The second is typical of satellite-framed languages in which the Path has to be encoded in an additional lexical unit—a satellite. However, it should be borne in mind that no language employs only one way of encoding Manner or Path but usually has at least two or more options for encoding these components. What determines its classification is the predominant way of encoding these components. This, in itself, implies that there exists a certain level of interlanguage variation among those languages that are classified as belonging to a particular group. What is interesting is that interlanguage variation can be observed even among closely related languages (for more on variation in expressing Manner and Path in Slavic languages see: Hasko and Perelmutter 2010).

According to Talmy (2000a), both Croatian and English belong to satellite-framed languages, that is, both predominantly use satellites for the expression of Path, and the majority of motion verbs in these languages are manner verbs. However, Talmy (2000a) himself says that most languages in fact contain both manner and path verbs. Croatian, a Slavic language, should, according to him, encode Path in the verbal prefix (2000). However, the view adopted here is that presented in Brala (2002), Memišević (2012), and Brala-Vukanović and Memišević (2014) that verbal prefixes are primarily Aktionsart markers⁴, while for the encoding of the actual Path, in many cases, a preposition is also usually needed (in line with Talmy's view presented in Talmy 2007: 141). In other words, even when using a prefixed motion verb in Croatian, it is frequently necessary to also use a preposition, if we wish to make explicit reference to the Ground. The first studies that directly discussed Croatian from the typological perspective are those by Filipović (2008a, 2008b, 2010) who in fact primarily studies Serbian, but also Serbo-Croatian.⁵ She places Croatian, along with Serbian, somewhere around the middle of the continuum the poles of which are verb-framed and satellite-framed languages. However, her research should be taken with caution

³ Özyürek and Özçalışkan (2000) list a third type of verbs which express both Manner and Path. As an example of such a verb, they provide the Turkish verb *turman* ('climb up').

⁴ According to the view adopted here, the prefix at best gives directionality to the verbal action but does not encode the Path on its own.

⁵ This should not be confused with Croatian. Leaving aside political debates and other factors that frequently play a role when referring to Serbian and Croatian as two languages or one, there are actual differences between the two languages. Most importantly for our purposes, the use of prepositions with verbs in the two languages differs, and, furthermore, they differ with respect to the possibility of combining certain prefixes with certain verbs.

as she, when discussing morphological blocking, makes some claims that are not true of Croatian (Filipović, 2010); for example, she argues that it is impossible to imperfectivise a perfective verb (i.e., it is impossible to say “*Ukotrljavao se u sklonište*” and a sentence of the type “*Ulazio je u sklonište kotrljajući se*” has to be used when trying to express the meaning conveyed by the English sentence “*He was entering the shelter rolling.*”) (*ibid*: 261) and states that *ući* (‘enter’, perfective) is a prefixed verb, but *ulaziti* (‘enter’, imperfective) is not (*ibid*: 262).

Some research on motion verbs in Croatian has been conducted. For example, Katunar and Šojat (2011) analysed the morphosemantic field of words derived from the root *kre-* (‘move’). Katunar et al. (2012) also proposed the existence of phrasal verbs in Croatian, stressing the importance of the contribution that the preposition used after the verb makes to the meaning. For our purposes, probably the most interesting are the findings of Blagus Bartolec and Matas Ivanković (2018) who found that in the case of some prefixed verbs, such as *otići*, prepositions are actually a key component of encoding the Path element of motion, and that their role is to determine the direction of motion.

As far as English is concerned, Talmy (2000b) says that it is not the most consistent example of a satellite-framed language and that it contains the following 20 path verbs: *enter, exit, ascend, descend, cross, pass, circle, advance, proceed, approach, arrive, depart, return, join, separate, part, rise, leave, near, follow* (Talmy 2000b: 52; 2007: 92). These path verbs, which are borrowings from Romance languages, require the use of syntactic structures typical of verb-framed languages, that is, no satellite is needed to enable us to explicitly refer to the ground (e.g., *He entered the building. / He followed the path.*, etc.).

1.2. THINKING-FOR-SPEAKING

The “thinking-for-speaking” hypothesis was introduced by Slobin (1996) who defines it as “a special form of thought that is mobilized for communication” (Slobin 1996: 76). In other words, our mother tongue trains us to attend to those aspects of motion events (and other events and situations) that must be encoded from the moment we begin acquiring our mother tongue. Thus, a child acquiring Spanish (a verb-framed language) will pay attention to different aspects of motion events compared to a child acquiring English (a satellite-framed language).

The results of a number of behavioural studies seem to support this hypothesis. Some studies have focused on infants, and their findings suggest that they can detect changes in the Path (and in the Manner) of motion in the first year of life (Pulverman

et al. 2006; Papafragou et al. 2008; Pruden 2008; Pulverman et al. 2008). Other studies have found that children use sentence structures that are typical of their language from the very first stages of sentence formation and that they use the dominant elements used in their mother tongue for encoding the Path of motion from the earliest stages of language acquisition (Bowerman et al. 1995; Slobin 1997; Özçalışkan and Slobin 1999; Özçalışkan and Slobin 2000; Slobin 2005; Allen et al. 2007; Hickmann 2008; Maguire et al. 2010). Studies involving adult speakers have also been conducted. Here we will mention two that focused on speakers of Spanish and English (Naigles and Terrazes 1998; Cifuentes-Ferez and Gentner 2006) which both found that, when presented with a novel motion verb, Spanish speakers expect it to encode the Path of motion, whereas English speakers expect it to encode the Manner of motion. Studies have even revealed that gestures used by speakers of verb-framed and satellite-framed languages when talking about motion events differ significantly (Özyürek and Kita 1999; McNeill and Duncan 2000; Özyürek and Özçalışkan 2000; Kita and Özyürek 2003).

One of the most compelling examples of how a language shapes its speakers' attention to specific aspects of motion events is found in Tzeltal (Brown 2001, 2008). This Mayan language uses an absolute system of spatial orientation based on the uphill/downhill (southward/northward) slope of land. Therefore, when describing motion events or locations of objects, whether on a large or small scale, speakers of this language use absolute terms. In other words, speakers of Tzeltal go uphill and downhill, and not left, right, forward, or backward. To be able to talk about motion or location of an object they must be constantly aware of the locations of south and north. Speakers of languages that use a relative system of spatial orientation are usually not aware of what lies to the south or north of them.

The thinking-for-speaking hypothesis would predict that Croatian and English, even though they generally belong to the same group of languages according to Talmy's typology, train their speakers to pay attention to somewhat different aspects of motion events. This, in turn, would result in Croatian students of English having problems with the use of prepositions in English when it comes to motion events (and spatial relations in general), or more specifically for the purposes of this study, with the use of prepositions with English path verbs.

1.3. WHY PATH VERBS?

According to Gentner (2006), verb semantics vary across languages more than noun semantics. When learning one's mother tongue and trying to understand meanings of verbs, a child first has to figure out which aspects of the situation that the verb

describes are included in the meaning of a particular verb. She stresses two important points: a) “even fairly concrete meanings (such as those of motion verbs) make a selection from the available information, and just which information is selected varies across languages” (Gentner 2006: 544); b) “for verbs and other relational items, children must discover how their language combines and lexicalizes the elements of perceptual field” (Gentner 1982: 325).

English path verbs are particularly interesting in this respect because they can be divided into several groups on the basis of Croatian verbs that are their equivalents. This should enable us to determine whether there is evidence of systematic transfer from Croatian into English, and if so, to what extent.

For the purposes of this research, we will divide the aforementioned 20 English path verbs into four groups:

- 1) The first group consists of path verbs whose counterparts in Croatian, in the majority of contexts, are prefixed verbs that form a lexical unit⁶ with the preposition that follows them. In most cases, this means the repetition of the same form in the prefix and the preposition, but there are some exceptions⁷. However, the prefix and preposition are in each case semantic cognates. This group includes the following path verbs⁸: *enter* (*ući u*), *exit* (*izaći iz*), *ascend* (*popeti po*), *descend* (*sići s*), *pass* (*proći pored*), *circle* (*okružiti oko*), *cross* (*prijeći preko*), *leave* (*otići od*), *part* (*odvojiti od*), *depart* (*otići od*), *separate* (*odvojiti od*).
- 2) The second group consists of path verbs whose counterparts in Croatian, in the majority of contexts, are prefixed verbs followed by a preposition that do not form a lexical unit, that is, the prefix and the preposition do not share form and are not semantic cognates. These include *proceed* (*nastaviti prema*) and *advance* (*nastaviti/napredovati prema*).

⁶ Speakers in such cases actually perceive the verb and preposition as a lexical unit, e.g., *ući u*, *izaći iz*, *otići od*, etc. On the other hand, a combination consisting of the same verb and a different preposition would not have the same status in the speaker’s mind, e.g., *ući iz*, *izaći na*, *otići preko*... In other words, prefixed verbs, which can be used with prepositions, tend to be strongly associated with prepositions that are the cognates of the prefix. The definition of a lexical unit adopted here is Langacker’s (1987: 59): “A unit is a structure that a speaker has mastered quite thoroughly, to the extent that he can employ it in largely automatic fashion, without having to focus his attention specifically on its individual parts or their arrangement”.

⁷ For details see Memišević (2012).

⁸ The Croatian counterparts are indicated in brackets. The indicated counterparts are those that would be used in the translation of tests used in Memišević (2012) and in the present study. In other contexts, other translational counterparts might be more appropriate.

- 3) The third group includes those path verbs whose counterparts in Croatian, in the majority of cases, are prefixed verbs that cannot be followed by a preposition, and they include: *approach (približiti/primaknuti se)*, *near (približiti/primaknuti se)*, *join (pridružiti se)*, *rise (ustati)*.
- 4) The fourth group includes the path verbs whose counterparts in Croatian are, in the majority of cases, unprefixed verbs that are not followed by prepositions: *follow (pratiti)*, *arrive (stići)*, *return (vratiti se)*⁹.

The fact that Croatian counterparts of this small group of English verbs display such level of variation in terms of lexicalisation patterns and syntactic structures in which they can be used makes them well-suited candidates for studying possible transfer from Croatian into English.

Transfer in the case of eight verbs from the first group has already been studied by Memišević (2012). As the present study builds on the results of this one, the results of that study will be presented in more detail. She used both a behavioural and the ERP¹⁰ method and focused on the following English path verbs: *enter*, *exit*, *ascend*, *descend*, *cross*, *pass*, *leave*, *circle*. As can be noticed, the focus of that study was on the possibility of the existence of negative transfer. Evidence of negative transfer from Croatian into English was found both at the productive (the behavioural part of the study) and receptive level (the ERP part of the study).

The behavioural part of the study which focused on the productive level used a specially constructed cloze test containing eight path and eight manner verbs that were followed by blanks. The subjects were instructed to fill the blanks with prepositions only if a preposition was necessary. A total of 127 subjects, all of whom were students of English (meaning at least B2 level according to the Common European Language Framework), participated. The results revealed that, overall, the subjects made significantly more errors when it came to the production of prepositions with English path verbs compared to the production of prepositions with English manner verbs. The analysis of errors revealed that the majority of errors

⁹ It is important to note that *ustati*, *stići*, and *vratiti se* can be followed by prepositions in Croatian, but also appear in structures in which they are followed by a noun in the dative case. In this study, the English path verbs that correspond to them were used in sentences that, when translated into Croatian, would produce the structure verb + noun in the dative case.

¹⁰ ERP stands for event-related potentials, a neurolinguistic method based on EEG recordings which allows us to measure the brain's responses to various stimuli. The recordings are then analysed with the goal of identifying effects that reveal potential issues encountered during the processing of a particular stimulus.

in the case of path verbs were “expected errors”, that is, the subjects used English prepositions that are cognates of Croatian prepositions appearing with the Croatian counterparts of English path verbs (the actual percentage of expected errors ranged from 33.1 to 88.2 per cent of total answers). It was also found that, with respect to the percentage of expected errors, the eight studied path verbs seemed to fall into two groups. The first would consist of *enter*, *exit*, *leave*, and *cross*, and the second of *ascend*, *descend*, *pass*, and *circle*, where the percentage of expected errors in the former group was significantly lower than in the latter. A possible explanation for this difference was that Croatian students have more exposure (including explicit mention in the classroom that these verbs are special in the sense that in the majority of cases they cannot be followed by prepositions, and explicit examples of when they can be followed by prepositions) to the verbs belonging to the former group than to those belonging to the latter. All of this suggests that there is negative transfer from Croatian into English when it comes to the production of prepositions with English path verbs.

The overall results of the behavioural segment of this study seem to support Slobin’s thinking-for-speaking hypothesis at the productive level of language. Precisely, the language seems to train its speakers to think in a manner that is most appropriate for that particular language. The fact that the subjects treated the structure consisting of a Croatian prefixed verb + cognate preposition as a linguistic unit would, according to the conclusions of the study, support Talmy’s claims that grammatical words determine the conceptual structure (Talmy, 2000b). This claim implies that these structures are more difficult to “un-learn”, that is, it is more difficult to replace them by the appropriate structures in the second language.

In the ERP part of the study, two groups of subjects were studied—the high proficiency EFL group (C2 level) and the low proficiency EFL group (B1 level). The high proficiency group was of primary interest, as the goal was to determine whether evidence of negative transfer from Croatian into English exists at the receptive level, even among Croatian speakers who have attained a high level of proficiency in English. The subjects were presented with three types of sentences: 1) correct sentences in English (no preposition after the path verb, e.g., *He entered the room whistling a tune.*), 2) incorrect sentences in English that follow the Croatian syntactic pattern (preposition after the path verb that is a cognate of the Croatian preposition that is used after the corresponding Croatian verb, e.g., *He entered in the room whistling a tune.*), 3) incorrect sentences in English (preposition after the path verb that is semantically incongruent with the sentence, e.g., *He entered up the room whistling a tune.*). The results revealed that the high proficiency group exhibited three effects:

- 1) A P250¹¹ which was of such nature that it indicated that the high proficiency subjects process both the English and the Croatian patterns at this very early stage of processing in a similar manner;
- 2) A CNV¹² effect which was of such nature that it revealed that both highly proficient Croatian speakers of English and those at a lower level expect a preposition after a path verb and not an article (supporting the hypothesis that there is transfer, since even semantically incongruous prepositions were more “acceptable” to the subjects than the correct English structure);
- 3) A P600¹³ effect which was of such nature that it revealed that the highly proficient Croatian speakers of English process correct English sentences as incorrect and that they process sentences which follow the Croatian syntactic pattern as correct. Interestingly, even the completely incorrect sentences (containing a semantically incongruent preposition) were not processed as syntactic violations. The analysis of the distribution of the obtained P600 effect revealed that the correct English sentences were processed as violations and non-preferred structures; the incorrect sentences with semantically incongruous prepositions were processed as syntactically acceptable but non-preferred structures; and the sentences which followed the Croatian pattern were processed as syntactically correct and preferred structures.

These results indicate that negative transfer from Croatian into English exists at the receptive level even in highly proficient Croatian speakers of English when it comes to English path verbs.

2. THE PRESENT STUDY

2.1. AIMS AND HYPOTHESES

The aim of the present research was to determine whether there is transfer from Croatian into English when it comes to the production of prepositions with English

¹¹ P250 is an effect that reflects word recognition.

¹² CNV (contingent negative variation) is an effect that reflects anticipatory processes.

¹³ P600 is an effect that reflects syntactic processing and difficulties at the level of syntactic integration.

path verbs that were not studied in Memišević (2012). That study focused exclusively on verbs for which existence of negative transfer from L1 to L2 might be expected, that is, on eight out of 11 English path verbs whose Croatian counterparts are prefixed verbs followed by prepositions that are cognates of the prefixes. However, that study did not investigate the possibility of positive transfer for English path verbs whose Croatian counterparts are prefixed or unprefixed verbs not followed by prepositions, neither did it examine what occurs with English path verbs whose Croatian counterparts are verbs followed by prepositions that are not cognates of the prefixes. If positive transfer is found, and if analysis of English path verbs whose Croatian counterparts are verbs followed by prepositions that are not cognates of the prefixes shows that their error rates are similar to those of manner verbs, then, according to Jarvis (2016), we can claim with a high degree of confidence that transfer from the mother tongue is the primary factor influencing preposition use with these verbs in English.

The central hypothesis on which the research is based is that in a group of adult Croatian speakers of English there is evidence of transfer from Croatian into English. This key assumption can further be subdivided into several sub-hypotheses:

H1.1 In a group of adult Croatian speakers of English, the influence of the Croatian pattern for processing will lead to an increased number of errors for path verbs whose Croatian counterparts are prefixed verbs governing prepositions cognate with their prefixes (i.e., that form a lexical unit). The nature of errors should be such that they should primarily consist of the subjects producing English prepositions that are semantic cognates of Croatian prepositions.

This should prove that negative transfer from Croatian into English with these verbs exists and confirm the findings of Memišević (2012).

H.1.2. In a group of adult Croatian speakers of English, the influence of the Croatian pattern for processing will lead, for path verbs whose Croatian counterparts are prefixed verbs followed by prepositions that are not semantic cognates of the prefixes, to a number of errors comparable to those observed for manner verbs.

H.1.3. In a group of adult Croatian speakers of English, the influence of the Croatian pattern for processing will lead to a reduced number of errors for verbs whose Croatian counterparts prefixed verbs not followed by prepositions, and for those whose Croatian counterparts are unprefixed verbs not followed by prepositions.

Existence of positive transfer would provide further evidence that the lexicalisation patterns of L1 (which in the case of these particular motion verbs are reflected in syntactic patterns) have an impact on how even proficient subjects lexicalise motion events in L2.

3. METHODS

3.1. SUBJECTS

Students of the second and third year of the B.A. and those of the first and second year of the M.A. programme of English Language and Literature at the Faculty of Humanities and Social Sciences of the University of Rijeka participated in the research. The choice of subjects was based on their sufficient level of proficiency in English (at least B2). This means that they would not be expected to make many errors. Students of the first year of the B.A. programme were excluded because they are not sufficiently familiar with the type of test used, which might have influenced the results. A total of 82 subjects participated in the research.

3.2. MATERIALS

The test used was a specially constructed cloze test. The targets were prepositions following motion verbs. The test had a total of 24 blanks, where half of them appeared after path verbs and half appeared after manner verbs. In this test, the eight path verbs that were the focus of the Memišević (2012) study were not included. All the path verbs were used in sentences in which they could not be followed by satellites (i.e., semantically cognate prepositions). The text was a fairy tale about a young knight on a quest, which enabled us to use a short text with a high percentage of motion verbs (e.g., *He could have joined ___ me, but he went ____*). Cloze test was chosen because it enables a high level of control, that is, the sentential, textual, and contextual surroundings of the target structure limit the number of correct answers. In the written instructions, the subjects were informed that this was a special type of cloze test where prepositions should be used only if they are necessary, that is, that 0 (zero) should be used as an answer in those cases where they thought no preposition was needed.

Prior to undertaking the testing procedure, the test was given to eleven native speakers who were asked to complete it and give their feedback. Their comments were considered and the final version used in the research was constructed.

3.3. PROCEDURE

Testing was conducted during regular classes at the Faculty of Humanities and Social Sciences of the University of Rijeka, that is, the subjects were tested in four groups. The researcher would come at the beginning of the class and ask the stu-

dents to participate in the research. The subjects were additionally instructed, in oral form, to provide a preposition after a verb only if it was necessary, that is, they were instructed that zero (0) could also be a correct answer. The subjects were given 20 minutes to complete the test, which proved sufficient, since the vast majority had submitted their tests before time elapsed.

4. RESULTS

4.1. MANNER VERBS

Since manner verbs were included in the test as a control and to enable us to establish a baseline when it comes to the frequency of errors, the results for this group of verbs will be presented first.

TABLE 1. Results for manner verbs

Verb	Error N	Error %
ride	8	9.8
rush	11	13.5
hasten	13	15.9
move	10	12.2
jump	11	13.5
run	12	14.6
race	9	11
stand	14	17.1
climb	9	11
lead	14	17.1
walk	15	18.3
sprint	8	9.8

As can be observed, the percentage of errors varies between 9.8 and 18.3 %. This span will serve as a reference frame against which the percentage of errors when it comes to the use of prepositions with path verbs will be compared. Manner verbs

were taken as a reference group since both English and Croatian are primarily satellite-framed languages, that is, they predominantly express Manner in the verb itself and require a satellite/preposition to encode the Path, and the percentage of errors made with these verbs should primarily reflect issues involving prepositions that reflect differences in the conceptualisation of spatial relations between the two languages, and do not involve situations where a preposition is used with the verb in one language, but not in the other.

4.2. PATH VERBS

The results for path verbs are laid out in the four tables depending on the category to which they belong.

TABLE 2. Results for path verbs whose Croatian counterparts are prefixed verbs governing prepositions cognate with their prefixe

Verb	L1 transfer error N	L1 transfer error %	Other error N	Other error %	Total error N	Total error %
part	50	62.2	1	1.2	52	63.4
depart	57	69.5	0	0	57	69.5
separate	56	68.3	2	2.4	58	70.7

In this table, the column ‘L1 transfer error’ contains the percentage of errors consisting of subjects using an English preposition that is the semantic cognate of the Croatian preposition that would be used with the corresponding Croatian verb, while the column ‘Other error’ contains the percentage of errors consisting of using other English prepositions (i.e., ones that are not semantic cognates of the corresponding Croatian preposition). The column ‘Total error’ gives a total of errors for each verb so as to enable easier comparison with the other groups of verbs. When the answers for the path verbs whose Croatian counterparts are prefixed verbs that form a lexical unit with the preposition that follows them are compared to those for manner verbs, the first observation is that the percentage of errors is significantly higher. If the errors are analysed, it can be noticed that the great majority (and in the case of *depart* all) are L1 transfer error errors. What is meant by this is that the answers were English prepositions that are the counterparts of the Croatian preposition which is part of the lexical unit consisting of a prefixed verb + preposition (od-prefixed verb + od PP).

TABLE 3. Results for path verbs whose Croatian counterparts are prefixed verbs followed by non-cognate prepositions

Verb	Error N	Error %
proceed	16	19.5
advance	13	15.9

When the subjects' answers for the two verbs whose Croatian counterparts are prefixed verbs followed by non-cognate prepositions are compared to those for manner verbs, it can be noticed that there are no significant differences in the percentage of errors.

TABLE 4. Results for path verbs whose Croatian counterparts are prefixed verbs not followed by prepositions

Verb	Error N	Error %
approach	4	4.9
near	12	14.6
join	2	1.2
rise	3	3.7

When the answers for the path verbs whose Croatian counterparts are prefixed verbs not followed by prepositions are compared to those for manner verbs, it can be noticed that the percentage of errors is lower. The only exception is the verb *near*. However, the analysis of errors revealed that almost all of them were the result of the subjects not realising that it was a verb, but mistaking it for an adverb (as attested by "corrections" they made to the test).

TABLE 5. Results for path verbs whose Croatian counterparts are unprefix verbs not followed by prepositions

Verb	Error N	Error %
follow	5	6
arrive	4	4.9
return	6	7.3

Again, as in the case of the previous group, the comparison of answers for the path verbs whose counterparts are Croatian unprefix verbs not followed by prepositions with those for manner verbs reveals that the percentage of errors is lower than for manner verbs.

In order to test our hypotheses, the percentage of errors for each group of verbs studied was calculated for every subject and then a one-way ANOVA was conducted. It revealed significant differences in the percentage of errors made with different groups of verbs ($F(4, 403) = 202.3133$; $p < .01$). Post hoc comparisons using the Tukey HSD test revealed no significant differences between error rates for manner verbs and path verbs whose Croatian counterparts are prefixed verbs followed by non-cognate prepositions, on the one hand, and between the error rates for path verbs whose Croatian counterparts are prefixed verbs not followed by prepositions and path verbs whose Croatian counterparts are unprefixed verbs not followed by prepositions. All the other groups of verbs differed significantly from each other: a) manner verbs–path verbs whose Croatian counterparts are prefixed verbs followed by cognate prepositions ($p < .01$); b) manner verbs–path verbs whose Croatian counterparts are prefixed verbs not followed by a preposition ($p < .05$); c) manner verbs–path verbs whose Croatian counterparts are unprefixed verbs not followed by prepositions ($p < .02$); d) path verbs whose Croatian counterparts are prefixed verbs followed by cognate prepositions–path verbs whose Croatian counterparts are prefixed verbs followed by non-cognate prepositions ($p < 0.01$); e) path verbs whose Croatian counterparts are prefixed verbs followed by cognate prepositions–path verbs whose Croatian counterparts are prefixed verbs not followed by prepositions ($p < .01$); f) path verbs whose Croatian counterparts are prefixed verbs followed by cognate prepositions–path verbs whose Croatian counterparts are unprefixed verbs not followed by prepositions ($p < .01$); g) path verbs whose Croatian counterparts are prefixed verbs followed by non-cognate prepositions–path verbs whose Croatian counterparts are prefixed verbs not followed by prepositions ($p < .01$); h) path verbs whose Croatian counterparts are prefixed verbs followed by non-cognate prepositions–path verbs whose Croatian counterparts are unprefixed verbs not followed by prepositions ($p < .01$).

We additionally checked for possible effects of verb frequency¹⁴ on the error rate, but it seems that this did not have any significant effect. Table 6 shows the percentage of errors compared to the frequency (in the Corpus of Contemporary American English (COCA)) of each verb included in the study:

¹⁴ The source consulted was: https://www.ilinuxkernel.com/files/Word_Frequency_List_of_American_English_20000.pdf. (accessed on 15 May 2025).

TABLE 6. Comparison of the percentage of errors and frequency

Verb	Error %	Frequency
ride	4.9	30476
rush	13.5	18561
hasten	15.9	1603
move	12.2	179388
jump	13.4	28504
run	14.6	187325
race	11	14233
stand	17.1	140937
climb	11	24367
lead	17.1	122691
walk	18.3	113787
sprint	9.8	1995
part	63.4	2729
depart	69.5	5035
separate	70.7	18251
proceed	19.5	2720
advance	15.9	2706
approach	4.9	27449
near	14.6	5939
join	1.3	506
rise	3.7	53542
follow	6	119425
arrive	4.9	47435
return	7.3	81812

Pearson's correlation coefficient was calculated but the result was not statistically significant ($r(22) = -.22, p = .30$).

5. DISCUSSION

The results of this study support the hypothesis on which it is based—there seems to be transfer from Croatian into English when it comes to the production of prepositions with English path verbs. The sub-hypotheses, introduced in Section 3, have also been confirmed.

The comparison of results for manner verbs and for those path verbs whose Croatian counterparts are prefixed verbs governing prepositions cognate with their prefixes (i.e., that form a lexical unit) suggests existence of negative transfer, since the percentage of errors for the latter was significantly higher than that for the former. Also, the nature of errors is such that it reveals that this seems to be a case of direct transfer from Croatian into English because the great majority of errors consisted of subjects producing an English preposition that is the semantic cognate of the Croatian preposition. This is in line with the findings of Memišević (2012). Since both studies have found a large percentage of errors for this category of verbs, and since the nature of these errors is the same in both studies, we might claim that, for these path verbs, a robust negative transfer from Croatian into English seems to exist.

If we shift our attention to the production of prepositions with English path verbs whose Croatian counterparts are prefixed and unprefixes verbs not followed by prepositions, it can be noticed that the percentage of errors is lower than that for manner verbs. Although this difference is not as great as for the previously discussed group of English path verbs, it is statistically significant at $p < .01$ and suggests that, in this case, the Croatian structure has a positive effect on production in English, since the percentage of errors with these verbs is significantly lower than with manner verbs. As was already mentioned, the subjects in this study had a relatively high level of proficiency in English (lowest being B2), and therefore it was expected that they would not make many errors in the first place. Hence, it is somewhat harder to claim that a robust positive transfer can be observed here, but it seems to be present. In addition, the comparison of the results for these two groups of path verbs with the results for the previously discussed group of path verbs (those whose Croatian counterparts are prefixed manner verbs followed by cognate prepositions) reveals significant differences, and this supports the claim that positive transfer is at work here.

The path verb *near* should be singled out here. This is the only verb in the category of verbs whose Croatian counterparts are unprefixes or prefixed verbs not followed by prepositions for which the percentage of errors was in the same range as for manner verbs. The explanation for this probably lies in the fact that this is a verb which shares the form with an adjective, adverb, and preposition, all of which are more fre-

quent than the verb itself. It seems that, as a result of this, the subjects who made errors with this verb mistook it for an adverb. This claim is based on the fact that almost all of them made a “correction” to the test and in this way clearly indicated that they did not recognise that *near* was a verb in the sentence used in the test. Unfortunately, it is not possible to draw any conclusions about the errors made with the remaining path verbs falling into these two categories, as the number of errors was too low (in absolute numbers ranging from two to six), and the incorrect prepositions used with them were too diverse to allow for any kind of meaningful analysis.

Finally, the results for path verbs whose Croatian counterparts are prefixed verbs followed by prepositions that are not cognates of prefixes are very similar to those for manner verbs, that is, there is no statistically significant difference between these two groups. This seems to indicate that, for these verbs, there is neither a particularly robust negative transfer nor a discernible positive transfer. Furthermore, the analysis of errors revealed that approximately half of the prepositions produced with these verbs were semantic cognates of the prepositions that most frequently appear with these verbs in Croatian, while the rest were semantically unrelated prepositions. In other words, the results were in line with what is usually found when production of prepositions with manner verbs in English is analysed.

Taken together these results seem to support Slobin’s (1996) thinking-for-speaking hypothesis, since evidence of transfer from Croatian into English was found. The robust negative transfer with path verbs whose Croatian counterparts are prefixed verbs governing prepositions cognate with their prefixes, and the positive transfer with those path verbs whose Croatian counterparts are prefixed and unprefixed verbs not followed by prepositions indicate that the subjects were guided by their L1 when dealing with an L2 cloze test. In other words, in the cases in which Croatian has trained them to use a linguistic unit consisting of a prefixed verb followed by a preposition, that is, the cognate of the prefix, to encode a motion event they tend to transfer this structure into English, even though the English structure encodes the Path in the verb and does not require a satellite/preposition to express it. This results in the production of an incorrect English sentential structure. On the other hand, in the cases in which Croatian has trained them to use a prefixed or unprefixed verb not followed by a preposition, they do not tend to produce a satellite/preposition after an English path verb, which in turn results in a correct English sentential structure. In sum, this evidence of both positive and negative transfer with this particular group of verbs seems to meet Jarvis’ (2016) aforementioned criterion for evidence of the existence of transfer.

The results are also in line with Gentner’s (2006) claims about the differences in verb semantics between different languages, i.e., when we learn a language, we must

understand how the language in question “lexicalizes the elements of the perceptual field” (1982: 325). In other words, when learning their mother tongue, i.e., Croatian, our subjects come to expect that verbs encode primarily either Manner of motion or the direction of motion (for more on the contribution that the prefix makes to the verbal semantics, i.e., in Croatian it is primarily an Aktionsart marker (adds the directional component to the verb) see: Brala 2002 and Brala-Vukanović and Memišević 2014), and not the Path of motion. According to Slobin’s (1996) thinking-for-speaking hypothesis, this expectation then becomes entrenched, and it is possible to assume that, when they begin learning their second language, this same expectation will apply. In other words, when learning English verbs, speakers of Croatian expect them to encode primarily Manner or direction of motion, particularly in those cases where their Croatian translational counterparts encode this type of information. Since, according to Talmy (2000a), English is also primarily a satellite-framed language with a very limited repertoire of path verbs, this expectation is in most cases justified and further reinforces the training received by their first language. Thus, it is not surprising that English path verbs, even those that are more frequent, such as *enter* and *exit*, whose Croatian counterparts are prefixed verbs followed by prepositions that are cognates of the prefixes, represent a particular challenge even for proficient Croatian speakers of English. In case of these verbs, learners’ expectations regarding both the semantics of these verbs and the syntactic patterns in which they appear lead them to use prepositions with English path verbs, even when the verbs occur in structures that do not allow prepositions, i.e., structures typical of verb-framed languages.

An alternative interpretation of these results, although still in line with the analysis outlined above, could draw on the findings of cognitive neuroscience. The basis here is Fabbro’s (2001) claim that in bilingual speakers who started learning their L2 after the age of seven the function words of their L2 are stored in the temporal lobe together with the lexical words, whereas in L1 they are stored in the left frontal lobe, meaning that in L1 these speakers use procedural memory to process function words and that in L2 they use declarative memory to process them. Procedural memory is usually defined as the one that is in charge of automatic processes not directly available to our consciousness, while declarative memory is usually defined as the one containing information and knowledge directly available to conscious processes. In practice, this would mean that in those situations when the procedural and the declarative memory compete, the procedural trumps the declarative. Almost all of our subjects started learning English around or after the age of seven, since English is introduced as a subject in the first grade of primary school in Croatia. According to Fabbro, this would mean that English function words are stored in their temporal lobes, that is, processed

by the declarative memory, indicating that in those situations in which the differences between the English and Croatian structures with regard to the use of function words are significant, the automatic processes of procedural memory, in which the Croatian function words are stored, might dominate, which would explain the high percentage and nature of errors obtained for the path verbs whose Croatian counterparts are prefixed verbs followed by prepositions that are cognates of the prefixes.

Regardless of the preferred interpretation, the results obtained in this study might provide an answer to the question posed in this study—is there evidence of transfer in the behaviour of proficient Croatian students when dealing with English path verbs, and if so, how is this reflected in their production? It seems that in those cases when the Croatian counterpart of the path verb is a prefixed verb followed by a preposition that is the cognate of the prefix, negative transfer frequently causes problems for Croatian students of English, while in those cases when the Croatian counterpart is an unprefixed or prefixed verb not followed by a preposition positive transfer seems to help. This could be utilised in teaching English in the sense that more attention could be paid to the verbs that show evidence of negative transfer, and a more cognitively oriented approach to teaching prepositions in general could be applied. This approach should focus on conceptual crosslinguistic differences and the consequences they have for linguistic realisations in English and Croatian.

6. CONCLUSION

In this study, evidence of both negative and positive transfer from Croatian into English when it comes to the production of satellites/prepositions with English path verbs has been found. Thus, the hypothesis on which this study was founded has been confirmed. Future crosslinguistic research should also focus on other types of verbs (i.e., manner, generic, directional) and prepositions that follow them, considering their counterparts and conceptual differences between the two languages. It would also be interesting to examine the ERP signatures of processing the verbs included in this study, as well as other types of verbs and their following prepositions that tend to be problematic for Croatian speakers of English. Combinations of other types of words with prepositions (e.g., noun + preposition) or prepositional phrases could also be studied from this crosslinguistic perspective, which could provide useful information, leading to a better understanding of how a language functions as a system and to improved methods for teaching prepositions. It would be particularly interesting to observe results for other pairs of languages and other types of function words.

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HRVATSKI STUDENTI I ENGLESKI GLAGOLI KRETANJA KOJI IZRIČU PUT – DOKAZI POZITIVNOGA I NEGATIVNOGA TRANSFERA

ANITA MEMIŠEVIĆ

SAŽETAK

I engleski i hrvatski pripadaju satelitima uokvirenim jezicima, no uvelike se razlikuju po tome kako izražavaju prostorne odnose. Taj je kontrast osobito primjetan kada uspoređujemo engleske glagole kretanja koji izriču put i njihove hrvatske ekvivalente. Hrvatski studenti engleskoga jezika često imaju poteškoća kada je u pitanju uporaba prijedloga s određenim engleskim glagolima koji izriču put, što rezultira netočnim rečenicama. Istovremeno, u slučaju nekih engleskih glagola koji izriču put ne rade greške pri uporabi prijedloga. Cilj je ovoga istraživanja ispitati uz pomoć biheviornalne metode mogu li se navedene poteškoće pripisati transferu iz hrvatskoga. U istraživanju su sudjelovala 82 ispitanika koji su rješavali upitnik koji je sadržavao i glagole koji izriču put i one koji izriču način kretanja. Rezultati upućuju na postojanje jakoga negativnoga transfera u slučaju engleskih glagola kretanja koji izriču put čiji su hrvatski ekvivalenti prefigirani glagoli kretanja nakon kojih slijedi prijedlog koji dijeli oblik s prefiksom. Nasuprot tomu, postoje indikacije pozitivnoga transfera u slučaju engleskih glagola kretanja koji izriču put čiji su hrvatski ekvivalenti prefigirani ili neprefigirani glagoli nakon kojih ne slijedi prijedlog. Rezultati ovoga istraživanja mogu pomoći pri oblikovanju učinkovitih metoda za poučavanje prijedloga.

KLJUČNE RIJEČI:

hrvatski, engleski, glagoli kretanja koji izriču put, prefigirani glagoli, transfer