Virginia Rapún Mombiela
University of Tartu, Estonia
Carolina Paola Tramallino
Rosario Institute for Research in Educational Sciences, National Scientific and Technical Research Council, National University of Rosario, Argentina

ACQUISITION OF SPANISH TEMPORAL ADVERBIALS BY MULTILINGUAL ESTONIAN LEARNERS
A Proposal for Automatic Analysis

Annotation. This article focuses on the temporal structures used by multilingual Estonian students when expressing the hour in Spanish. Learning linguistic structures related to time is crucial in the early stages of foreign language acquisition. However, these structures can be complex and vary across languages, as they are highly idiosyncratic in terms of vocabulary and syntax. This study concentrates on the difficulties Estonian students face with Spanish time adverbials, specifically prepositions and articles. The paper aims to answer several research questions related to the repertoire of temporal expressions in the students' interlanguage, the difficulty posed by typological differences between their native language and Spanish, the influence of English, and the impact of English proficiency on Spanish production. The analysis of a corpus of interlanguage texts from Estonian students is conducted to identify idiosyncratic structures and patterns, distinguishing them from standard structures. The findings reveal that the use of articles improves with higher proficiency levels, while the use of prepositions remains challenging. Furthermore, the study explores the influence of English and Estonian on the students' Spanish production and highlights the importance of crosslinguistic reflection and attention to functional words for enhanced accuracy and fluency. The article concludes by emphasizing the significance of language proficiency levels and crosslinguistic influence in third language acquisition and suggesting areas for further research.

Keywords: crosslinguistic influence; interlanguage; language proficiency; multilingualism; temporal adverbials; third language acquisition.

Introduction

Historically, research about the factors associated with language acquisition has focused on the first (L1) and second languages (L2), ignoring what happens in the mind of a multilingual subject when learning a third language (De Angelis, 2007, pp. 9–10). However, in recent years, there has been an increasing amount of literature that considers that prior knowledge of

a non-native language can and should be a variable to consider in the study of non-native language acquisition (De Angelis, 2007, p. 14).

Third language (L3) is understood here as a non-native language that is being used or learnt by a subject with knowledge of one or more native languages and one non-native language at least (Hammarberg, 2010, p. 97). The acquisition of third languages is a complex and multidisciplinary phenomenon that is informed by a large number of individual and contextual factors (Cenoz, 2008, p. 220).

The project presented in this article arises from the need to understand the process of acquisition of the Spanish language by Estonian students, a field of research that has received scant attention. Estonian students, in addition to their native language, already have extensive knowledge of a second foreign language when they start studying Spanish (usually English). Sometimes they even know more than one (Russian, German, French) and are, therefore, multilingual.

Thus, the object of study of this research is the interlanguage of Estonian learners of Spanish. Interlanguage is here defined as a particular linguistic system that varies as the learner acquires the target language, "an intermediate system between the code of the native language and that of the target language" that has its own characteristics (Alexopoulou, 2011, p. 87–89). This system is in constant transition while students acquire vocabulary and new structures of the target language (Tramallino, 2021, p. 9).

This article will focus on Spanish time structures that express the hour learnt by multilingual Estonian students. Linguistic structures that express time are studied in the early stages of foreign-language learning. However, these structures are usually quite complex and differ to some extent from one language to another, since they "are lexically and syntactically highly idiosyncratic" (Bond *et al*., 2000, p. 55). Furthermore, teaching programs and textbooks often strive to teach all of these structures at once. In Spanish, time adverbials include prepositions and articles, two elements that have been shown to pose great difficulties to Estonian students (Kruse, 2018; Nikitina, 2019). It is not surprising, since articles do not exist as a part of speech in Estonian and, although the language has prepositions, cases or postpositions are preferred (Kruse, 2018, pp. 126–127).

Therefore, it would be logical to assume that the interlanguage of students whose first language lacks articles and does not commonly use prepositions presents a higher number of idiosyncratic structures involving these parts of speech. From these assumptions arise some research questions:

1. Is there a greater repertoire of temporal expressions in the interlanguage grammar compared to standard Spanish grammar?

2. Do these structures pose a real difficulty for students due to the typological differences between their L1, L2 and their target language or, on the contrary, they only represent a problem in the early stages of acquisition?

3. Can any influence from the English language be detected?

4. Does the English proficiency level influence in any way the Spanish productions of the learners?

The only way to answer these questions is to systematically analyse the language of Estonian students. Before identifying the cause of deviation, it is necessary, first, to describe and classify the idiosyncratic structures and, second, to discern those interlanguage structures that belong to only one individual from those that appear in most of the productions, creating a pattern. This will also help us distinguish the structures that coincide with the standard from those of the interlanguage. To carry out this purpose, it is necessary to meet three pre-requisites: 1) to compile a corpus of interlanguage texts, containing the phrases studied, sufficiently representative of the population we want to study; 2) to describe the interlanguage and perform a qualitative analysis in order to establish possible patterns; and 3) to automate the detected structures in such a way that we can work with them computationally.

Firstly, a theoretical framework is provided along with a detailed description of the specific structures analysed. Secondly, the chosen methodology for the learner corpus linguistics method is explained, along with an overview of the corpus used, from which the studied expressions were derived. Furthermore, a detailed description is provided of the compilation, classification and process of automation of temporal prepositional phrases found in the Spanish interlanguage of Estonian students. For the automation

stage, NooJ, a computational tool that allows the creation of syntactic grammars of the students' interlanguage, has been used. Moving forward, this article presents the quantitative analysis carried out to understand whether there is an improvement in the accuracy of the use of temporal structures as the level of proficiency in the target language advances, followed by a discussion based on qualitative analysis of the findings. Lastly, limitations are addressed, and future research directions are outlined.

Theoretical Framework

Interlanguage Theory

Selinker's Interlanguage theory (1972) posits that second language learners do not simply imitate the target language, but instead develop a unique linguistic system known as interlanguage that is influenced by both their native language and the target language. This interlanguage system is characterized by a set of transitional rules and structures that are neither the target language nor the native language. The interlanguage is dynamic and constantly evolving, with errors and approximations gradually giving way to more accurate language use as learners gain proficiency.

An important particularity of this variety of the language is the systematicity established by its internal coherence at a certain point in its development. This is perceived in the application of linguistic rules that respond to strategies activated by learners. The interesting aspect of this perspective lies in the hypothesis it supports: although this idiosyncratic language differs in each particular student, it presents areas of intersection in learners who share the same level of instruction (Tramallino, 2021, p. 9).

Third Language Acquisition

Third language acquisition represents a further step in the development of interlanguage theories because it takes into account not only the learner's native language but also all languages that the student has

learnt or acquired through their life. There is a wide agreement among researchers that any previous knowledge of a language can exert its influence on the acquisition of a non-native language (Arıbaş & Cele, 2021; Cenoz, 2001; De Angelis, 2007; Kellerman, 1995; Odlin, 2003; Williams & Hammarberg, 1998). The prior knowledge that learners have about language usage is significant for comprehending L3 learning. This is because learners embarking on L3 learning have already acquired a mastery of complex concepts and ideas communicated through their first and second language(s) (McManus, 2021, p. 8).

Academic literature on L3 acquisition has revealed that, when it comes to multilingual learners, a significant amount of language transfer (especially at the initial levels) seems to come from the L2 (De Angelis, 2007; Williams & Hammarberg, 1998). In addition, in L3 production, there are many more cases of unintentional transfer of L2 function words than of those that provide content. It seems proven that semantic transfer is more related to L1 while lexical transfer comes from L2 (Angelis & Selinker, 2001; Cenoz, 2001; Hammarberg, 2001). It also appears that as proficiency in a L3 improves, the frequency of lexical transfer and language switches generally tends to decrease (Dewaele, 1998); L2 influence decreases at a faster rate compared to the L1 influence (Hammarberg, 2001). This suggests that L2 transfer is primarily a superficial process (Ringbom, 2001).

This suggests that when Estonians do not know how to use certain structures in Spanish, they resort to their linguistic repertoire. If they are looking for articles and prepositions, it is much more probable that "the grammatical properties of the L2-interlanguage –English in this case–, at whatever stage of development it happens to be, forms the initial grammatical state in the acquisition of their L3" (Schwartz & Sprouse, 2021, p. 3).

Expressions of Time

From a structural perspective, two fundamental elements are recognized in an adjunct of time: the time-unit and the time-modifier. Time expressions are generally regarded as phrases in which the time-unit serves as the phrase head and the time-modifier serves as the modifier. A time-unit

can be either simple, consisting of a single type of time-unit, or complex, composed of multiple units. Time-units include time measurement units (e.g., *hour*, *minute*, *week*), deictic units (e.g., *today*, *yesterday*), and named units, which can be either non-numeric (weekdays, months, seasons) or numeric (*1998, 12/10/2007*). These time-units, along with optional time-modifiers, combine to form time expressions (Vicente-Díez, Samy, & Martínez, 2008, p. 2154).

Temporal adverbials are a fundamental aspect of expressing temporality in all languages. This is evident in learner varieties where they play a dominant role. According to Klein, Dietrich and Noyau (1995, p. 80) early in the learning process, three types of adverbials are introduced and gradually developed, while a fourth type is introduced later but becomes a regular part of usage:

1.   Temporal Adverbial of Position: refers to adverbials that indicate the relative position of a time span on the time axis, such as *now*, *then*, *yesterday at eight*, *three years ago*, and *on July 2nd, 2002*.

2.   Temporal Adverbial of Duration: refers to adverbials that specify the duration, or sometimes the boundaries, of a time span, such as *for many days*, *all week*, and *from ten to twelve*.

3.   Temporal Adverbial of Frequency: refers to adverbials that indicate the frequency of time spans, such as *twice* and *sometimes*.

4.   Temporal Adverbial of Contrast: is a less clearly defined class of adverbials, but generally they serve to mark a particular contrast between one time span and another. Typical examples include *already*, *yet*, and *only* when used in a temporal function.

Temporal Adjuncts in Spanish

In Spanish, temporal adjuncts can be adverbs –*ayer* (yesterday)– or adverbial phrases –*muy tarde* (very late)–, prepositional phrases –*a las diez* (at ten), *por la mañana* (in the morning)–, nominal groups –*el mes pasado* (last month)–, and subordinate clauses –*cuando llegamos* (when we arrived)–. Some participles are also used as temporal adjuncts, as in *Os estáis viendo muy seguido* (You are seeing each other very often) (Real Academia Española

and Asociación de Academias de la Lengua Española, 2011, pp. 5502–5503).

Time nouns are typically associated with adverbials and arguments expressing time, but they can also perform other functions. By metaphorical extension, they can be subjects of a large number of predicates, especially in literary language, as in *El año 2019 supuso un trauma para muchas personas* (The year 2019 was traumatic for many people). Nevertheless, the traditional observation that prototypically relates temporal nouns to adverbials is well-founded, since it has been statistically proven that they are used in a very high proportion to add information that measures the duration of events or places them in relation to certain reference points (Real Academia Española and Asociación de Academias de la Lengua Española, 2011, pp. 5503–5504).

Temporal adverbials are subdivided into location complements –*este mes* (this month), *por la tarde* (in the evening), *a las siete* (at seven)–, duration complements –*para siempre* (forever)–, and frequency complements –*una vez al día* (once a week), *a menudo* (often)– (Real Academia Española and Asociación de Academias de la Lengua Española, 2011, pp. 5504).

In Spanish, time-modifiers can be classified as pre-modifiers –e.g., *último* (last)– or post-modifiers –e.g., *después* (after)–, depending on their position in the phrase. However, modifiers can also be categorized based on their semantic content, such as ordinal-modifiers –e.g., *primero* (first)–, and frequency-modifiers –e.g., *cada* (every)–, (Vicente-Díez, Samy, and Martínez, 2008, p. 2154).

Temporal Adjuncts in English

Adjuncts of time have a wide range of grammatical realizations in English: noun phrases (*last year*), prepositional phrases (*in the afternoon*), adverbs (*before*), adverbial phrases (*since last year*) and *when*-clauses (*I will call you when I arrive home*). Vaguer temporal expressions can be achieved by non-finite and verbless clauses (*Coming home last night, I met John on the street*) (Quirk, 1985, p. 529). Temporal noun and prepositional phrases express position (*I was there last in the morning*), duration (*I lived there for 5 years*), and frequency (*I go to the gym every Monday*).

English temporal noun and prepositional phrases are subject to several syntactic restrictions. First of all, in many cases, temporal noun and prepositional phrases have determiners (*They met in the afternoon*). Secondly, with some modifiers (*next, last*) the phrase does not accept any preposition or article (**on last Wednesday*). Furthermore, a noun phrase cannot express a pinpointed time position (*I arrived there at three-fifteen*). Lastly, duration adjuncts offer the most flexibility for using noun phrases, which can generally be considered shortened prepositional phrases, since adding *for*, they can be made more specific and formal (*They worked in that company (for) several years*) (Quirk, 1985, pp. 526–527).

Temporal Adjuncts in Estonian

According to Erelt (2007) the linguistic elements that can express time in Estonian are adverbs –*nüüd* (now)–, adjectives –*tänane* (today's)–, noun phrases –*eelmine aasta* (last year)–, postpositional phrases –*eelisest saadik* (since yesterday)–, and *when*-clauses –*kui tuled* (when you arrive)–. Vague expressions of time can be uttered through the use of non-finite clauses –*istudes* (when sitting)–.

In Estonian, nominals are inflected for number and case. There are fourteen nominal cases, both in singular and plural (Erelt, 2007, p. 32); three of them are grammatical cases and eleven are semantic cases. Frequently, the Estonian nominal cases of illative, inessive, elative, allative, adessive and ablative are grouped together under the umbrella term of *locative cases*. They are considered to share the same feature of referring to local relations (Matsumura, 1994, p. 223). Allative, adessive and ablative are regarded as a group of *exterior locative cases* because supposedly their primary function is to "express spatial relations of an open surface" (Klavan, 2021, p. 158). However, exterior locative cases fulfil other functions besides location as possessors, agents, sources, addresses, experiencers and temporal relations (Klavan, 2021, p. 159).

The adessive case in modern Estonian ends in –l and attaches to the genitive stem (Rätsep, 1979, p. 56). According to Matsumura, it is justified to consider this form a locative case, but it would be more accurate to call it

an adessive-dative case, since his research, based on statistical data, showed that only 23 percent of the total occurrences of the adessive case could be regarded as expressions of place –*Ma olen <u>tööl</u>* (I am at work)–, whereas 43 percent of the adessive expressions occurred in possessive constructions –*<u>Mul</u> on raamat* (I have a book)–. 21 percent of the total occurrences were temporal expressions (1994, p. 226). While research has been carried out on the local and possessive meanings of the adessive case (Klavan 2014, 2020; Matsumura, 1994), the expression of time has received scant attention in the research literature.

The usage of the adessive case to express abstract external location is extended to temporal expressions. The adessive case is used for dates –*teasel aprillil* (on the second of April)–, weeks –*veebruari kolmandal nädalal* (in the third week of February)–, times of the day –*pärastlõunal* (in the afternoon)–, and seasons of the year –*kevadel* (in spring)– (Oranen, 2019, pp. 211–212).

Expressions of Time Acquisition

As mentioned earlier, temporal expressions in Spanish contain articles and prepositions, two linguistic elements that are foreign to the Estonian language. Recent research confirms the difficulty that the article acquisition presents for learners of L2 and L3 and verifies that the mere contact with the target language and without methodical analysis of the input does not allow to integrate its use in the interlanguage of the students (Pizarro Escabia, 2012; Santiago Alonso, 2017; Tarrés Chamorro, 2002). Previous research has analysed the use of articles in Spanish as a Foreign Language textbooks and have found the explanations referring to this topic insufficient (Pizarro Escabia, 2012, p. 84).

Furthermore, research on the acquisition of prepositions in a non-native language agrees in pointing out that this linguistic element is one of the most challenging difficulties to overcome in the learning process (Alexopoulou, 2006; Lam, 2018). The most commonly used prepositions are the ones that pose the greatest acquisition challenges in a non-native language. "The idiomatic values, polysemy, and the difficulty in internalizing

their obligatory usage justify the high percentage of deviations" that are found in the interlanguage of L2 and L3 learners (Alexopoulou, 2006).

The teaching community is conscious of the difficulty that these structures can pose for learners. Nevertheless, this concern is not reflected in the development of specific instructional materials, and the available resources are inadequate to address the issue. Consequently, it is difficult for Estonian students to become aware of the differences between Spanish and their L1 as well as their L2.

L3 learners generally have learned and master the concept of time, including the constructions to express the hour, through their languages. Thus, to understand information regarding time the learner of Spanish needs to have some knowledge of the linguistic indicators used in Spanish to express time and understand the differences that exist between Spanish and their first and second language(s). Also, in order to attain expertise, on one hand, learners need to recognize the most significant indicators of time and the meanings they convey. On the other hand, this ability seems to become routine and automatic through usage and practice, because, in essence, increased exposure to a language enhances language use (McManus, 2021, p. 8). Following this reasoning, if insufficient attention is paid to Spanish time indicators and crosslinguistic reflection[1] is not encouraged in the classroom, it is very probable that Spanish language learners will have difficulties in expressing time at the beginning of their learning process. However, it is not so clear whether this difficulty will continue as the learners are exposed to richer input and the language is acquired.

Methodology

Second and third language studies try to understand the representations underlying the mental processes that take place in

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[1] By crosslinguistic reflection we refer to the process by which learners actively compare linguistic structures, meanings, or uses across two or more languages. Implementing crosslinguistic reflection in the classroom can be done through activities that encourage students to analyse how different languages convey the same message. By actively engaging with multiple languages in this way, learners can develop a deeper understanding of each language's nuances and potentially avoid negative transfer from one language to another, thus enhancing the learning process.

the mind of a learner when acquiring an additional language and to detect aspects that may limit their production in that language. The greatest source of information that can evidence these mental processes is the language produced by the learners themselves (Lozano & Mendikoetxea, 2013, p. 65). In this way, working with textual corpora of learners seems to be the best way to understand the process of second and third language acquisition.

Learner corpora offer a unique opportunity to observe the production of L2 speakers and identify their characteristics in an empirical way (Brezina & Flowerdrew, 2017, p. 1). The analysis of the data offered by a learner corpus can be beneficial for many areas of study: linguistics (nature and development of interlanguage); teaching of non-native languages and curricular design (order of acquisition, excess or scarcity of use, influence of the instructional input used in class, influence of other languages known by the students), and the autonomy of the student (self-awareness of the acquisition process, recognition of errors, self-correction).

Learner corpus research (LCR) started in the late 1980s "as an offshoot of corpus linguistics" (Granger *et al*., 2015, p. 1). Since then, a considerable amount of literature has been published on this topic. A learner corpus is a "collection of machine-readable texts consisting in representative samples of the language written and/or spoken by learners of an additional language" (Paquot & Tracy-Ventura, 2020, p. 23).

Learner corpora are generally used to test Second and Third Language Acquisition theories, to provide information for the improvement of teaching materials (Paquot & Tracy-Ventura, 2020, p. 23), to build on institutional curricula, and to assess L2 proficiency (Callies & Götz, 2015, p. 1). A great deal of previous research into LCR has focused on L2 English, while there is a relatively small body of studies that is concerned with L2 Spanish acquisition. However, over the past decade, there has been an increasing interest towards this subject that has caused the number of corpora of Spanish learners to grow.

In Estonia, the use of corpora of Spanish learners, with a significant number of samples, has not been a common practice. Kruse (2018) was a pioneer in using this methodology, analysing 73-degree projects defended in the Spanish Section belonging to the Department of Romance Studies of the University of Tartu. Through this corpus, Kruse showed the complex

systems that were generated in the Estonian multilingual speaker to empirically demonstrate whether, as she had observed as a Spanish teacher, Estonian students produced a large number of lexical false friends from English (Kruse, 2018, p. 121). The corpus also made it possible to verify that false friends were not limited to the lexical category and would also appear in the spheres of syntax and spelling. This work paved the way for learner corpus linguistics in research related to the acquisition of Spanish by students of Finno-Ugric languages, a field of study in which much remains to be investigated.

Longitudinal Corpus of Estonian Learners of Spanish

Despite the undeniable value of the aforementioned corpus, its transversal nature prevents it from being used to analyse the development of interlanguage and understand how Estonian students of Spanish advance in proficiency levels. There was a need, therefore, to create a new learner corpus that contains samples produced by students over time. With a longitudinal approach, it could be easily understood which areas students find more difficult, if there is crosslinguistic influence or not, which errors become fossilised and whether there is a specific and generalizable sequence of acquisition. To that purpose the *Corpus Longitudinal de Español de Aprendientes Estonios* (Longitudinal Corpus of Estonian Learners of Spanish) (CLEAE) is currently being compiled at the University of Tartu.

This corpus has oral and written samples. To date the written subcorpus has 90575 tokens. There are 41 hours of recorded interviews, of which 15 have been manually transcribed, making a total of 56711 tokens in the oral subcorpus. The vast majority of informants are women, studying Spanish as a third language at university and aged between 18 and 23. This research is part of a doctoral project that aims to understand the process of acquisition of the Spanish language by Estonian students in order to create study materials adapted to the needs of these students and improve their learning experience.

Students in Spanish Philology at the University of Tartu study Spanish intensively during their first academic year. The course is divided into two semesters, and in each of them, the students reach levels A1 and A2,

respectively. For this study, only the samples containing temporal expressions have been selected. These correspond to two of the written tasks carried out during the first semester and two written tasks from the second semester. A total of 70 texts produced by A1 level students were analysed and contrasted with 57 texts produced by the same students at A2 level. The difference in the number of texts is basically due to the fact that some of the students dropped out before reaching level A2.

The texts are short, containing an average of 80 words each, and describe what the learners do in their daily routines. The daily-routines subcorpus has 10103 words. From these, 1035-hour expressions were extracted and analysed. The students have been divided into two groups: those who have an English proficiency level of B2 and those who have a C1.

Classification of Interlanguage Structures

Before automating the structures, a prior description work was carried out on the temporal constructions of time. First, the adverbials that express time in standard Spanish[2] were described, and then the structures of the interlanguage were illustrated with examples from the corpus.

Table 1

Description of Hour Expressions

Standard	Interlanguage	Example of interlanguage
a la/s + hour (*a las cinco*: at five)	en + hour	Llego a clase *en 8:30.
	a + hour	Yo levanto tarde *a diez u once.
	hasta + hour	Mis clases terminan normalmente *hasta dos por la tarde.
	de + hour	Termino *de nueve por la tarde.

[2] For this study, the parameters indicated in the *Plan Curricular del Instituto Cervantes* have been followed. This document adopts the standard variety of the central-northern peninsular Spanish dialect. This decision has been made based on the fact that the textbook and other materials used at the University of Tartu are based on the same document, and therefore, that variety is the target language of the students in our study.

Standard	Interlanguage	Example of interlanguage
	hour	Estas días voy a estudiar mucho y volver a casa muy tarde, *seis o siete.
de + hour + a + hour (*de tres a cinco*: from three to five)	a + hour + de hour	En miercoles tengo clase de baile *a tres de cinco.
	a la/s + hour + de la/s + hour	En jueves tengo clases *a las diez y cuarto de las dos menos cuarto.
desde la/s + hour + hasta la/s + hour (*desde las tres hasta las cinco*: from three to five)	desde de + hour + a + hour	Los viernes trabajo *desde de ocho a dieciocho.
	desde + hour + hasta + hour	Normalmente tengo clases *desde ocho y media hasta diez de la mañana
entre la/s + hour + y la/s + hour (*entre las siete y las nueve*: between seven and nine)	entre a la/s + hour + y la/s + hour	Suelo me acuesto entre a las once y media y doce y media.
	entre de la/s + hour + y la/s + hour	Suelo acordarme *entre de las siete y nueve.
a/de/desde/hasta/entre (las) + hour + de la mañana/tarde/noche (*a las siete de la mañana*: at seven in the morning)	a/de/desde/hasta/entre (las) + hour + por la mañana/tarde/noche	Me levanto *a las siete y media por la mañana.
	a/de/desde/hasta/entre (las) + hour + en la mañana/tarde/noche	Mis clases empiezan *a las ocho y media en la mañana.

Automation of Hour Expressions with Nooj

Computational linguistics enables us to carry out natural language processing through computational systems that are capable of emulating human linguistic capacity (Tramallino, 2021, p. 3). The NooJ computational tool allows, among other things, to create syntactic grammars that are used to recognize or annotate expressions in texts (Tramallino & Arnal, 2019, p. 4), like tagging adverbials. These grammars can be used to extract groups of words, such as time expressions.

In order to detect all the hour utterances –those coinciding with the standard and those deviating from it– we, first, used NooJ to create two syntactic grammars (one numerical and one alphabetical) describing standard hour expressions[3]. The alphabetical grammar detects time structures expressed with words, e.g., *a las diez y media* (at half past ten), while

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[3] These grammars were designed and presented at the 6th International NooJ 2022 Conference by Rapún Mombiela, Tramallino, and Arnal.

the numerical grammar detects structures expressed with numbers, e.g., *a las 10:30* (at 10:30).

Figure 1

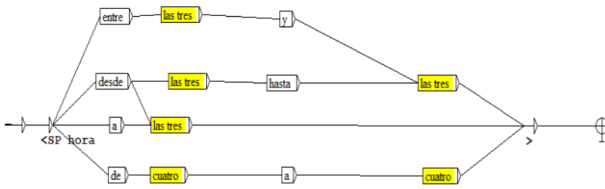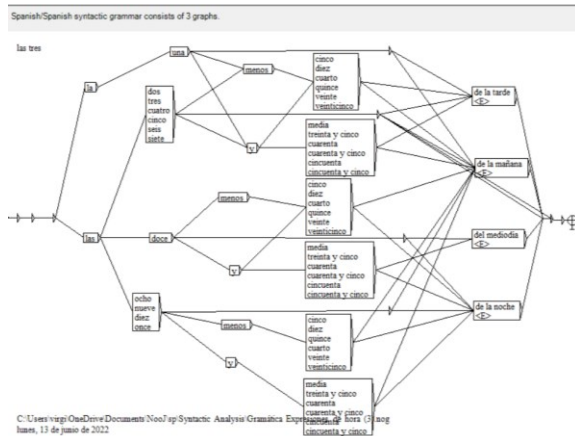*Alphabetical Syntactic Grammar of Hour Expressions in Standard Spanish*

Figure 2

Numerical Syntactic Grammar of Hour Expressions in Standard Spanish

Figure 3

Embedded Grammar to One of the Nodes

The next step was to create two new syntactic grammars capable of detecting interlanguage structures. These grammars are more complex than the previous

ones because they have to contemplate a greater number of possible combinations. It was necessary to resort to embedded grammars due to the large number of possible combinations.

Figure 4

Alphabetical Syntactic Grammar of Hour Expressions in the Interlanguage
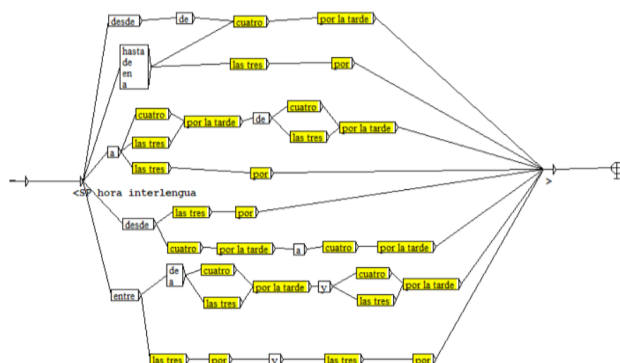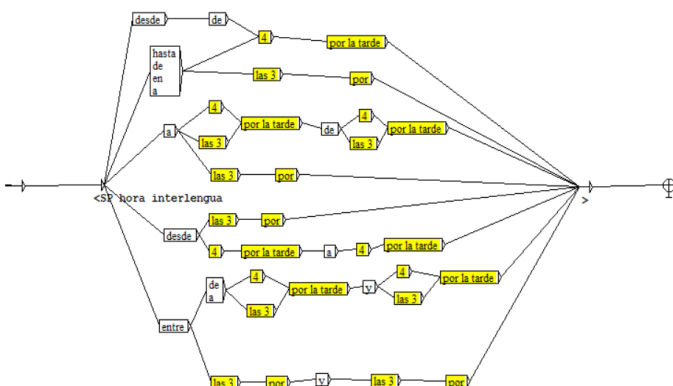

Figure 5

Numerical Syntactic Grammar of Hour Expressions in the Interlanguage

Results

The interlanguage expressions found can be categorized into three large deviation types: the structures that are missing a preposition, the structures that are missing an article, and those structures that are accompanied by a preposition that differs from the standard.

Table 2

Examples of Deviation Types in the Learners' Interlanguage

	Interlanguage	**Standard**
Absence of preposition	*Llego casa aproximadamente a las **nueve tarde**.	Llego a casa aproximadamente a las **nueve de la tarde**.
Absence of article	*Yo levanto temprano **a seis y media** por la mañana.	Yo me levanto temprano, **a las seis y media** de la mañana.
Change of preposition	***En nueve y media** estoy en mi piso.	**A las nueve y media** estoy en mi piso.

As demonstrated in Table 3, by comparing hour expressions in A1 and A2 texts, a significant improvement in article accuracy was observed as the level increased. Additionally, the absence of articles in mandatory contexts revealed an important correlation between the two levels. The results in A2 texts confirm that having more exposure to and practice with different patterns and structures in the target language is crucial for developing automatic processing abilities. This increased experience helps in producing more accurate output, even when encountering grammatical constructions that differ from those in the L1 and L2.

Table 3

Article Use Accuracy

	A1	**A2**	**P-VALUE**
Correct article	84.3%	91.7%	0.0016
Absence of article	11.9%	7%	0.0018
Incorrect selection of article	1.9%	0.3%	0.0551
Unnecessary article	1.9%	1%	0.2994

In the case of prepositions, the results were not as satisfactory. Although there was a greater precision in their use in the A2 texts, the difference was not statistically significant (as shown in Table 4), which suggested the need to further investigate the use of these structures by Estonian learners of Spanish.

Table 4

Preposition Use Accuracy

	A1	A2	P-VALUE
Correct preposition	84.6%	87.7%	0.1906
Absence of preposition	7.3%	5.3%	0.2430
Incorrect selection of preposition	6.2%	6.0%	0.8777
Unnecessary preposition	1.9%	0.7%	0.1433

To verify that these results were due to a natural acquisition process and not to deficient input, the hour structures that were not calques[4] were distinguished from the calques that originated from English and those from Estonian. Additionally, a third type of calque which comes from a semantic perspective shared by both L1 and L2 –that will be explained later– was added.

Table 5

Calques

	A1	A2	P-VALUE
No calque	75.7	87.4%	0.0000
Calque from English	11.4%	6.3%	0.0131
Calque from Estonian	1.8%	0.3%	0.0699
Calque from both English and Estonian	4.3%	4.0%	0.7998

Table 5 shows how A1 students produce a greater number of calques than A2 students. We can also see how the percentage of calques from English decreases considerably as the level of proficiency advances. However, the type of calques that comes from a concept shared by the English and Estonian languages produces alarmingly similar results. Calques from Estonian are so few that the difference between the two levels does not provide significant information.

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[4] The word "calque" is understood in this paper as a deviation from the standard that occurs when the structure of L1 or L2 is transferred to the target language.

The analysis carried out comparing the texts from informants who had a B2 English with those from C1 English also yielded some significant results. As we can see in Table 6, in the case of articles, the accuracy is higher if the student has a C1 level of English both in A1 and A2 texts. However, in the case of prepositions, there seems to be no significant difference in accuracy related to the English proficiency level of the participants. It is still worth noting that students who have a C1 level of English make fewer structures lacking a preposition (the percentage drops from 8.8% to 3.5%). This trend becomes more pronounced when students reach an A2 level of Spanish. The number of calques from English is also lower in the productions of Spanish A2 level students whose English proficiency is at C1.

Table 6

English Proficiency

	B2 English		C1 English	
	A1 Spanish	**A2 Spanish**	**A1 Spanish**	**A2 Spanish**
Correct article	81.0%	87.3%	86.3%	94.0%
Correct preposition	83.1%	87.3%	85.4%	87.9%
No calque	73.8%	86.3%	76.7%	87.9%

Discussion

This article has discussed the role of interlinguistic influence in the production and acquisition of Spanish temporal structures expressing time by multilingual Estonian subjects. It has been found that while the accuracy in the use of articles improves as the proficiency level in the Spanish language advances, the use of prepositions does not undergo a similar progression, as errors found in A1 productions persist in A2.

Based on the information provided by this analysis, two aspects emerge as highly relevant for teaching Spanish: the confusion between the prepositions "en" and "por" instead of "de" in expressions that indicate time together with the part of the day, and the lack of prepositions in certain contexts. By examining the expressions for time in the three languages spoken

by the students (Estonian, English, and Spanish), one can gain insights into why these deviations persist despite improvements in proficiency levels.

When referring to the hour as a position in time, Estonian expresses it in the nominative case, despite it being an adverbial element that can often be omitted –*kell viis* (a las cinco)–. This usage is intriguing since it applies the nominative case, typically associated with the subject, even when discussing an adjunct rather than a complement. Understanding this characteristic of the Estonian language could shed light on the remarkably high number of time expressions lacking a preposition. Some informants consistently produce time structures without a preposition, irrespective of their English proficiency level (B2 or C1), suggesting a pronounced influence of their native language.

However, when expressing the part of the day, Estonian employs the adessive case, which is a locative case. Hence, the locative expression is used for denoting the part of the day in Estonian. In the English language locative prepositions are also employed to indicate the time with numerals and when introducing the part of the day. In contrast, Spanish, along with other Romance languages, associates the numerical value of the hour with a complement introduced by the preposition "de," which indicates the part of the day to which the time interval belongs (Real Academia Española, 2011, p. 2919). Syntactically, the preposition "de" conveys the information that would be marked by the Latin genitive (Real Academia Española, 2011, p. 4182). Therefore, while the locative expression is retained in the preposition used with numerals (the preposition "a" expresses the temporal location of events), it is absent when referring to the part of the day.

Table 7

Comparation of Hour Expressions in Spanish, English and Estonian

Spanish	English	Estonian
por la mañana	in the morning	hommikul
a las 5 **de** la mañana	at 5 in the morning	kell viis hommikul

Considering that these structures are not explicitly emphasized in the Spanish classroom nor are they clearly indicated in the learning input provided to students, and that crosslinguistic reflection is not actively encouraged, it is understandable that students struggle to accurately produce these expressions. When resorting to their linguistic repertoire, they primarily encounter locative expressions and constructions lacking prepositions.

In conclusion, the analysis of Spanish temporal structures in the interlanguage of Estonian learners appears to confirm Third Language Acquisition theories asserting that the languages present in an individual's repertoire influence the production of a third language. Furthermore, the influence diminishes as proficiency levels increase. However, it has been observed that the use of prepositions poses a greater challenge for Estonian students, especially in cases where Estonian and English share a similar concept that is reflected in their structures.

Studying Spanish hour expressions produced by Estonian learners has allowed to identify aspects of Spanish language structure that pose difficulties for Estonian students. This discovery highlights the importance of engaging in crosslinguistic reflection and paying greater attention to functional words that, despite not carrying the core meaning of the message, contribute to speaking with enhanced accuracy and fluency.

The findings emphasize the importance of language proficiency levels and crosslinguistic influence in the acquisition of third languages. The improvement in article accuracy, the need for further investigation into preposition use, and the impact of calques when they come from a shared semantic perspective in English and Estonian highlight key areas for language learning research. Understanding these influences with a better input and developing more automatic processing behaviors can lead to enhanced accuracy in production, even when encountering typologically different structures.

Conclusion

In conclusion, the analysis of Spanish temporal structures in the interlanguage of Estonian learners appears to confirm Third Language Acquisition theories asserting that the languages present in an individual's

repertoire influence the production of a third language. Furthermore, the influence diminishes as proficiency levels increase. However, it has been observed that the use of prepositions poses a greater challenge for Estonian students, especially in cases where Estonian and English share a similar concept that is reflected in their structures.

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Limitations and Further Investigation

Research in third language acquisition is challenging to conduct due to the lack of a sufficient number of informants who share the same linguistic background. This has resulted in a small sample size for this study, which has led to a moderate size effect. However, despite the challenges posed by the limited number of informants, the study has yielded valuable insights into the Spanish language that may hold significance for Estonians. Additionally, it has laid the groundwork for future investigations into the acquisition of Spanish temporal expressions. Furthermore, the establishment of this research framework paves the way for future studies that can delve deeper into the intricacies of third language acquisition and contribute to a broader understanding of language learning processes.

The interlanguage syntactic grammars created using the NooJ tool have shown a coverage of 77% and accuracy of 80%. While it is challenging to achieve broader coverage for interlanguage structures (due to the high number of idiosyncratic possibilities), accuracy will improve when grammars are expanded and more complex combinatorial possibilities are added, offering more elaborate temporal information. This is because this hour-based grammar mistakenly recognizes constructions that express the date. However, once the date expression is integrated into the syntactic grammar, this issue will disappear, and the grammar will attain a commendable level of accuracy.

From a practical standpoint, research findings on crosslinguistic influence in L3 Spanish should have didactic implications that enable the development of greater metalinguistic and crosslinguistic awareness in students, allowing them to create strategies that make them more autonomous and conscious of their own learning. The question of how to apply the results of this study to the instruction of the Spanish language in Estonia is the next logical step to take.

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Virginia Rapún Mombiela
Universidad de Tartu, Estonia
virginia.rapun@ut.ee
Carolina Paola Tramallino
Instituto Rosario de Investigaciones en Ciencias de la Educación (IRICE), Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Universidad Nacional de Rosario, Argentina
tramallino@irice-conicet.gov.ar

ADQUISICIÓN DE ADJUNTOS TEMPORALES EN ESPAÑOL POR PARTE DE ESTUDIANTES ESTONIOS MULTILINGÜES
Una propuesta de análisis automático

Resumen. Este artículo examina las estructuras temporales utilizadas por estudiantes estonios multilingües al expresar la hora en español. Las construcciones que expresan tiempo son complejas y difieren en su estructura de unas lenguas a otras, lo que dificulta su aprendizaje a los estudiantes de idiomas extranjeros. Este estudio se centra en las dificultades que suponen los adjuntos de tiempo en español para los estudiantes estonios, específicamente se analiza el uso de artículos y preposiciones. El artículo tiene como objetivo responder varias preguntas de investigación relacionadas con el repertorio de expresiones temporales en la interlengua de los estudiantes, la dificultad que plantean las diferencias tipológicas entre la lengua nativa de los aprendientes y el español, la influencia del inglés y el impacto del nivel de competencia en inglés en la producción de español. Tras analizar un corpus de textos escritos por estudiantes estonios y categorizar las estructuras idiosincráticas encontradas, los resultados revelan que los estudiantes estonios producen un número significativamente alto de estructuras temporales que expresan la hora desviadas y que el uso incorrecto de las preposiciones es especialmente alarmante ya que persiste incluso cuando la competencia en español mejora. Los hallazgos destacan la importancia de la reflexión interlingüística en la clase de español como lengua extranjera e indican la necesidad de prestar atención a las palabras funcionales en el aprendizaje del español.

Palabras clave: adjuntos temporales; adquisición de terceras lenguas; influencia interlingüística; interlengua; nivel de competencia; plurilingüismo.

Virginia Rapún Mombiela
Tartu universitetas, Estija
virginia.rapun@ut.ee
Carolina Paola Tramallino
Rosario nacionalinis universitetas, Argentina
tramallino@irice-conicet.gov.ar

DAUGIAKALBIŲ ESTŲ, BESIMOKANČIŲ ISPANŲ KALBOS, LAIKO ADVERBIALŲ ĮSISAVINIMAS
Pasiūlymas automatinei analizei

Anotacija. Šiame straipsnyje aptariamos daugiakalbių estų studentų vartojamos laiko konstrukcijos, kai ispanų kalba išreiškiamas laikas. Kalbinių struktūrų, susijusių su laiku, mokymasis yra labai svarbus ankstyvuoju užsienio kalbos įsisavinimo etapu. Tačiau šios struktūros gali būti sudėtingos ir skirtingos įvairiose kalbose dėl žodyno ir sintaksės savitumo. Šiame tyrime daugiausia dėmesio skiriama sunkumams, su kuriais susiduria estų studentai, mokydamiesi ispanų kalbos laiko adverbialų, konkrečiai – prielinksnių ir artikelių. Straipsnyje siekiama atsakyti į kelis tyrimo klausimus, susijusius su laiką išreiškiančių žodžių repertuaru mokinių tarpkalbėje, sunkumais, kuriuos kelia tipologiniai gimtosios ir ispanų kalbos skirtumai, anglų kalbos įtaka ir anglų kalbos kompetencijos įtaka ispanų kalbos produkavimo komunikacinei veiklai. Atlikta estų mokinių tarpkalbinių tekstų rinkinio analizė, siekiant nustatyti idiosinkratines struktūras ir dėsningumus, atskyrus juos nuo standartinių struktūrų. Tyrimo rezultatai atskleidė, kad artikelių vartojimo gebėjimai gerėja didėjant kalbinei kompetencijai, o prielinksnių vartojimas kelia sunkumų. Be to, tyrime nagrinėjama anglų ir estų kalbų įtaka besimokančiųjų ispanų kalbos produkcijai ir pabrėžiama tarpkalbinės refleksijos bei dėmesio funkciniams žodžiams svarba siekiant kalbos tikslumo ir sklandumo. Straipsnyje daroma išvada, kad kalbos mokėjimo lygio augimas ir tarpkalbinė įtaka yra labai reikšmingi aspektai trečiosios kalbos įsisavinimui, bei pateikiamos kryptys tolesniems tyrimams.

Pagrindinės sąvokos: tarpkalbinė įtaka; tarpkalbystė; kalbų mokėjimas; daugiakalbystė; laiko adverbialai; trečiosios kalbos įsisavinimas.