

Transfer, hybridization and analogy in L2 usage: The case of Estonian object marking

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Abstract

The article presents the results of a quantitative study of Estonian object marking by L2 speakers with Russian as their L1 ($N = 91$). A written production task was used to obtain the data. This task consisted of a coherent Estonian text where the informants needed to fill the blanks left for the direct objects. The data revealed large-scale variability: informants did not only transfer Russian features to Estonian L2. There was also evidence for analogical extension of productive patterns of Estonian object case assignment and compromise forms. This indicates that direct transfer of L1 patterns is just one and not the major source of L2 innovations. Apart from this, L2 productive patterns, universal cognitive preferences and analogical extension of error patterns are in part responsible for the non-standard forms found. The article argues that all these phenomena rely on analogy in the broadest sense, and therefore it is to be assumed that analogy is the main mechanism behind contact-induced phenomena in L2 usage and that copying, replication and pivot-matching are all specific manifestations of the same analogical mechanism.

Keywords

analogy, Estonian, imposition, language contact, morphosyntax, transfer

1. Introduction

Cross-linguistic influence is often described in terms of copying (Johanson, 2002) or replication (Heine & Kuteva, 2008; Matras & Sakel, 2007) by which linguistic elements or abstract structures of the source language are imported into the target language. This process is usually called transfer. The present article argues that transfer is just one and not the major process of cross-linguistic influence. Based on a quantitative analysis of Estonian object marking, the article shows how L2 speakers use a variety of strategies besides L1 transfer to form target language utterances.

The article is organized as follows. Section 2 gives the theoretical background for the study, arguing that the phenomenon could be studied psycholinguistically, sociolinguistically, structurally or diachronically; and all these dimensions of analysis must be kept separate as the regularities and

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constraints that operate on one level may not be valid or just have little relevance on the other level. This study concentrates on the study of L2 production errors in order to find out L1 transfer effects.

The third section outlines the design of the study, which uses a written production test. Estonian object marking is a complex one requiring the use of the partitive, genitive or nominative case. Altogether 91 subjects produced 1456 object forms in 16 different constructions, the average error rate being 30 percent.

The fourth section presents the results of the study for all three object case contexts (genitive, nominative and partitive) and the last sections discuss the general implications of the findings for the study of transfer.

2. Theoretical background

2.1 The nature of transfer

Broadly speaking, transfer is a process whereby any linguistic material (i.e. lexemes, meanings, constructions, morphemes, morphological patterns, syntactic patterns, phonemes, phones, prosodic features or pragmatic patterns) is taken by speakers from one language and integrated into their use of another language (Clyne, 2003). In other words, transfer is any replication of linguistic material from one language to the other. Grosjean (this issue) proposes that the term transfer be used for only those features that have received 'high presence or acceptability value' in the receiving language while the notion of interference is to be preferred to features that have 'low presence or acceptability'. In the present article, and until there is no exact mechanism to distinguish the two types in intermediate levels of presence and acceptability, I use the notion of transfer in the meaning specified by Clyne (2003).

Most authors distinguish two broad types of transfer: replication of lexical material, morphemes, words or stretches of words, which is often called borrowing and/or code-switching (Heine & Kuteva, 2008; Treffers-Daller & Mougeon, 2005), and replication of meanings, morphosyntactic arrangements and other linguistic patterns which does not involve the importation of lexical units. This phenomenon is called either pattern replication (Matras & Sakel, 2007) grammatical replication (Heine & Kuteva, 2008) or transfer in a narrow sense (Treffers-Daller & Mougeon, 2005).

What characterizes all types of transfer, whether understood in a narrow or broad sense, is the notion of replication or copying. The nature of replication is different in the case of lexical and grammatical transfer. This distinction is well represented in the code copying framework (Johanson, 2002) by the notions of global and selected copying. Global copying is a process whereby the whole linguistic unit is copied with its material, semantic, combinatorial and frequential properties; in the case of selective copying only one or some properties of a linguistic unit are copied. Thus, prototypically borrowing involves whole units, whereas pattern or grammatical replication only involves semantic, combinatorial and/or frequential properties of units. According to Johanson (2002), in both cases copies are also adapted to the structural requirements of the recipient language: a copy is a replica and for this reason never fully identical to the model.

There are several hypotheses about the nature of the copying process. Matras and Sakel (2007) call the replication process *pivot-matching*, which is assumed to involve two steps: first, identifying the structure that has a pivotal function in the model construction; and second, finding a structure in the replica language that is assigned the same pivotal function in the replica construction. They argue that pivot-matching can lead to contact-induced grammaticalization, but there are also other instances which do not necessarily involve grammaticalization.

As for contact-induced grammaticalization, Heine and Kuteva (2008) argue that speakers while looking for a corresponding category in the replica language do not choose a grammatical category that is semantically and morphosyntactically closest to the model, but use a lexical construction instead, and thereafter ‘have to go through a process whereby the lexical construction gradually turns into a functional category equivalent to that of the model’ (p. 80). Thus, according to Heine and Kuteva (2008) instead of relating a category in the model language M_x directly to a category in replica language R_x they relate the model category M_x to the process of creating a replica category: $M_x = (R_y > R_x)$. The Heine and Kuteva model differs from the Matras and Sakel model in one important dimension: pivot-matching is an inherently synchronic psycholinguistic process (be it with diachronic implications), whereas the Heine and Kuteva model involves a diachronic aspect (grammaticalization of R_y to R_x) as a crucial component of the model.

2.2 Dimensions of transfer

One reason why the issues of transfer are so complex and terminologically fuzzy is that the phenomenon has at least four different dimensions (psycholinguistic, sociolinguistic, structural and diachronic), each having its own regularities and constraints on possible processes and outcomes. These four dimensions are interconnected, but need to be clearly distinguished for a comprehensive account of transfer processes.

One aspect of the psycholinguistic dimension of transfer involves studying the kinds of errors (potential innovations) that could be produced by speakers who have competence in two languages (see Jarvis & Pavlenko, 2008). This includes both the errors in speakers’ L1 because of the familiarity with L2 (Pavlenko, 2004) and errors in L2 that are caused by the influence of their L1 (Jarvis, 2000; Odlin, 2008). Speakers’ knowledge of L1 and L2 may range from almost pure monolingualism in L1 and only marginal knowledge of L2 through balanced L1–L2 bilingualism to almost total monolingualism in L2 with a marginal knowledge of their heritage L1. All these combinations are likely to produce different types of transfer-based errors in the speaker’s usage of both languages.

The study of error patterns and their frequency can provide insight into the features that are likely or unlikely to be transferred from one language to the other in natural language usage situations. Ultimately, the introduction of a novel construction or linguistic unit to a language is not likely, if the corresponding type of error does not occur or has a very low frequency. For example, Johannes Aavik, the leader of the Estonian language renewal campaign and the initiator of a number of successful lexical and grammatical innovations, tried also to introduce an analogue of the English *of*-genitive construction into Estonian. Although the innovation would have made parsing and comprehension of genitive constructions more transparent, the innovation had absolutely no success, which could be attributed to its incompatibility with the ways in which Estonian utterances are constructed (see Ehala, 1999). Correspondingly, very frequent errors are more likely to lead to a change. The frequency of any type of error may depend on its universal or system-dependent naturalness (see Wurzel, 1989), strength of contact influence and various social factors such as prestige or stigmatization.

The sociolinguistic dimension is concerned with the social network of the individuals who produce contact-induced errors in their speech communities. This is the dimension where Van Coetsem (1988) distinguishes two types of transfer agency: adaptation and imposition. Adaptation is a process where L1 speakers introduce material from their L2 into their L1; imposition is a process where L2 speakers introduce their L1 material to their L2. As the distribution of both type of innovators (L1 and L2 speakers) is different in each speech community, differences in the sociolinguistic setting can lead to different types of contact (see Verschik, 2007). For example, some 30 years ago,

Estonian used to be spoken overwhelmingly by native speakers only, meaning that the only source for transfer were the adaptational innovations. At present, there are also a large number of Russians using Estonian daily, making impositional changes possible too (see Ehala, forthcoming). Social identity issues are also relevant for the spread of innovations (Anderson, 1999; Meyerhoff, 1998; Milroy, 2001). For example, Estonians tend to adopt English items easily because of the positive connotations of the western identity, while the Russian items associating with the Soviet past are not adopted even though Estonians know Russian as well as English.

The structural dimension of transfer is a controversial one. Following, Saussure, Meillet and Sapir, over a century a view has been prominent that only those transfer innovations that are compatible with the structure of the borrowing language have a chance of entering language, and even in this case, inflectional morphology is particularly resistant to transfer innovations. In the late 1980s an alternative was proposed by Thomason and Kaufman (1988): 'it is the sociolinguistic history of the speakers, and not the structure of their language, that is the primary determinant of the linguistic outcome of language contact'. The controversy is not solved as recent debates show (see Heine & Kuteva, 2008; Thomason, 2008). This debate is based on the assumption made by some historical linguists that languages are autonomous entities having their own ontology. But clearly, languages are not autonomous, but are spoken by individuals who have certain psycholinguistic limitations of what they are able to produce as well an established network of linguistic acquaintances which could be more or less prone to diffusing innovations. While there certainly are settings extreme enough to substantiate Thomason and Kaufman's (1988) claims, the structural argument appears to hold for more typical speech communities. Thus, structural constraints on transfer may exist even though the strength of the constraints seems to depend on the degree of bilingualism of the speakers and the nature of social networks in the speech community.

But the nature of transfer is even more complex because of the possible long-term diachronic consequences of language contact. For example, even though it is unlikely that a bound grammatical morpheme (such as an aspect suffix or future marker) would be borrowed by a speech community dominant in their L1 (Van Hout & Muysken, 1994; see also Muysken, this volume), there is still a possibility that such a morpheme could evolve in this language historically under the influence of the model language (Heine & Kuteva, 2008). In such cases, only the meaning is transferred, which, in the borrowing language, is expressed usually by indigenous lexical means. Such constructions have a tendency to grammaticalize under the continuous influence of L2; and may continue to grammaticalize even after the initial external influence has ceased (Heine & Kuteva, 2005). This suggests that transfer could also combine with language internal forces of change leading to outcomes that are only partially transferred from the model language.

2.3 Transfer and other contact-induced innovations

However, changes caused by transfer, even in the broad understanding of the term, are not the only type of contact-induced change in languages. For example Mougeon, Nadasdi, and Rehner (2005) name analogical regularization and reduction of linguistic elements as possible outcomes of high levels of contact and reduced usage of heritage language. Usually these changes are associated with L1 attrition as a synchronic usage phenomenon (Köpke & Schmid, 2004), but similar innovations are also characteristic for L2 learners' interlanguages as this study shows.

All such changes involve system simplification or reduction of universal markedness. They are sometimes called natural changes (Mayerthaler, 1981). According to Wurzel (1989), there are two types of naturalness: universal naturalness, which is based on general cognitive preferences, and system-dependent naturalness, which is directed at the growth of large productive patterns, at the

expense of smaller idiosyncratic patterns. The latter type, for example, forces morphological systems to minimize the number of inflectional classes. The two types of naturalness are independent, and may even be heading towards contradictory goals. Thus, for example, the outcome of a merger of inflectional classes which increases system-dependent naturalness may not necessarily be natural in terms of system-independent naturalness (i.e. cross-linguistically widespread, early acquired, etc.). In fact, Wurzel (1989) argues that system-dependent naturalness always overrules system-independent naturalness. This means that language-specific naturalness is considered stronger than the universal type, at least in morphology.

It is also possible that speakers produce forms that are distinct from both contact languages, often situated at the mid-point of the corresponding values in the two contact languages. Pavlenko (2004) calls these phenomena convergence, which is unfortunate, as the same term is also used to signify the process by which two contact languages become more similar in their structural properties (Bullock & Toribio, 2004). Convergence in this latter meaning may also involve transfer in both directions as well as analogical regularization. Thus, the phenomenon where bilinguals use features or patterns in one of their languages that do not exist in either language, but which are still clearly contact-induced, should rather be called hybridization than convergence. From a diachronic perspective, instances of hybridization may become clear cases of transfer when the hybridized constructions approximate more and more to the model construction.

Heine and Kuteva (2008) argue that loss is a subcase of grammatical replication that is also an instance of transfer. While there certainly may be cases like this, loss of some patterns is very often a consequence of extension of some productive patterns that already exist in the language. These can be seen as instances of analogical extension or intraference (see Croft, 2000). This can happen without contact, but as shown by various overgeneralization errors found among L1 learners, but it is far more common in contact situations. Also, analogical extension characterizes first language acquisition more than adult speech and this indicates that, rather than having a transfer of something that is missing in the model language, we have a replication of some productive patterns within the recipient language. Thus, it is not transfer per se. But as much as L2 learning and usage is a contact phenomenon, analogical extension may also be a language contact phenomenon.

Based on this analysis, two research questions were postulated for this study: first, to design a study in which all critical instances of the source language (Russian) would be invariant in all test sentences. In this case a uniform cross-linguistic influence would be expected in all target language (Estonian) test sentences, too. Second, if the results indicate a more diverse distribution of errors than would be expected in the case of transfer of a single target language feature only, the nature of this diversity needs to be analysed and possible models for these deviating patterns found.

2.4 Object case marking in Estonian and Russian

In both Estonian and Russian direct object refers to the person or thing receiving the action of a transitive verb. In Russian the direct object is usually in the accusative case (1a), but in negative clauses, it may be in the genitive case (1b). The choice of genitive in negative clauses is not categorical, accounting for about 70 per cent of objects in this context. The choice of the genitive in negative clauses depends on a number of factors (Mustajoki & Heino, 1991), which are not directly relevant for this overview:

- (1) a. *Mal'čik čitaet knigu.*
 boy-NOM is reading book-ACC
 'The boy is reading the book.'

- b. *Mal'čik ne vidit knigi.*
 boy-NOM not see book-GEN
 'The boy does not see the book.'

In Estonian, the direct object is in the partitive, genitive or nominative case. The choice is also dependent on the aspectual meanings of the main verb and the partiality/totality of the object substance. Furthermore, the choice depends on verbal morphology. Altogether, the choice of object case is one of the most complex domains of Estonian morphosyntax. A short outline of the object case marking rules of Estonian is provided below.

The most common case for a direct object in Estonian is the partitive, which is used to express the imperfective aspect (2); and/or a quantitatively indefinite object (3); and in all negative sentences irrespective of the aspectual meaning (4). As the partitive is the most frequent case for Estonian objects, it could be considered the equivalent to the Russian accusative (at least from the language learner's point of view):

- (2) *Mees lammutas auto-t.*
 Man-NOM demolished car-PART
 'The man was demolishing a car/some cars?'
- (3) *Tüdruk sõi pitsa-t ja tänas pärast viisakalt.*
 Girl-NOM ate pizza-PART and thanked afterwards politely
 'The girl ate some pizza and thanked politely afterwards.'
- (4) *Poiss ei leidnud oma saabas-t.*
 Boy-NOM not found his boot-PART
 'The boy did not find his boot.'

The genitive is used to express the perfective aspect (5) and/or quantitatively bounded objects (6):

- (5) *Mees lammutas auto ära.*
 Man-NOM demolished car+GEN away
 'The man demolished the car.'
- (6) *Tüdruk sõi pitsa ära ja tänas viisakalt.*
 Girl-NOM ate pizza+GEN away and thanked politely.
 'The girl ate the pizza and thanked politely afterwards.'

In Russian, aspectual meaning is expressed by verbal morphology, thus, the transfer of aspectual features from Russian is unlikely to affect Estonian object case marking. On the other hand, the expression of partiality/totality is expressed in Estonian and Russian by case marking, but the pattern in Estonian is the reverse of that in Russian. In Estonian, partial objects are marked with the partitive while the total object is expressed by the genitive; while in Russian, a partial object is expressed by the genitive while a total object is expressed by the accusative. While in Estonian partiality is associated with the imperfect aspect, in Russian it is linked to verbs expressing the perfective aspect. Table 1 exemplifies this complex relationship.

The usage of the nominative case for the Estonian object largely depends on the properties of verbal morphology. It is used if the verb is in impersonal voice (7), in the imperative mood (8) or in the infinitive (9):

Table 1. The interaction of aspect and partiality in object marking

	Total object	Partial object
Perfective aspect	<i>Otsi-n mööbli</i> Bought-1sg furniture+GEN 'I bought the furniture' (Est.)	<i>Nakupi-l mebel-i</i> Bought-1sg furniture-GEN 'I bought some furniture' (Rus.)
Imperfective aspect	<i>Nakupa-l mebel'</i> Bought-1sg furniture+ACC 'I was buying the furniture' (Rus.)	<i>Otsin mööbli-t</i> Bought-1sg furniture-PART 'I was buying some furniture' (Est.)

- (7) *Saabas lei-ti voodi alt.*
Boot+NOM find-IMPERS bed under
'The boot was found under the bed.'
- (8) *Otsi saabas üles!*
Find boot+NOM up
'Find the boot!'
- (9) *Mei-l on kavatsus lõpeta-da leping*
We-ADES is intention end-INFIN contract+NOM
'We have an intention to end the contract.'

The morphological manifestation of the object cases in both languages depend on the declension class of the object nouns. Russian has three inflectional classes which combine with the animate/inanimate distinction. In Estonian, there are five inflectional classes which combine with stem alternation patterns. In both languages some case forms are homonymous. The overall pattern of declensional variation is too complex to be discussed in detail at this point (see Erelt, 2003, for a full overview).

To summarize, the case marking of direct object in Estonian differs considerably from the Russian case marking and the number of factors that could influence the choice of the case and its morphological manifestation in bilinguals is too large to be analysed effectively in all its complexity. For this reason the data elicitation test was designed so as to minimize the range of L1 features that could have had a simultaneous effect on transfer.

3. Design of the study

The data for this article come from a large-scale quantitative study of case marking of the Estonian direct object. The main goal of the study was to obtain evidence about the variation in use of the object case marker(s) in different linguistic environments, characterized by different intensities of language contact and by different language contact profiles of the speakers (Ehala, 2009; Ehala, forthcoming).

3.1 The design of the data elicitation test

The test consisted of an Estonian text where the informants needed to fill in the blanks left for the direct objects so that the sentences (and the whole text) would flow naturally. The text was drafted specifically for this purpose.

To eliminate the variation that could have risen from the critical words belonging to different declensions, the text of the test was composed so that all critical object positions required a form of same word *leping* ('contract') in 16 different grammatical constructions. This eliminated also the possible impact caused by variation in the declension, gender and animacy of the Russian equivalents of the critical words.

Table 2. Partial paradigms of *leping/dogovor*

	Estonian	Russian
Nominative	<i>leping</i>	<i>dogovor</i>
Genitive	<i>leping-u</i>	<i>dogovor-a</i>
Partitive (Est.)	<i>leping-ut</i>	∅
Accusative (Rus.)	∅	<i>dogovor</i>

Table 3. The design of the production test

Test (Estonian)	Model (Russian)	Translation (English)
<i>Meie firmal on kavatsus sõlmida leping (nom) Microsoftiga.</i>	<i>Наша фирма решила заключить договор (acc) с компанией Microsoft.</i>	Our company has an intention to ratify a contract with Microsoft.
<i>Neljapäeval toimus koosolek. Seal otsustati, et kui tingimused on rahuldatud, siis sõlmime lepingu (gen) kindlasti.</i>	<i>В четверг состоялось собрание, на котором постановили, что если все условия будут соблюдены, то мы непременно заключим договор (acc).</i>	There was a meeting on Thursday. It was decided that if the conditions are met, we will ratify the contract certainly.
<i>Kui meid aga tahetakse petta, siis me ei sõlmi lepingut (part).</i>	<i>Если же нас хотят обмануть, то мы не будем заключать договор (acc).</i>	But if one wants to trick us, we will not ratify the contract .
<i>Ühesõnaga, me olime valmis lepingu (gen) sõlmima.</i>	<i>Другими словами, мы были согласны заключить договор (acc).</i>	In sum, we were ready to ratify the contract .
<i>Ka vallavanem arvas, et oleks tarvis leping (nom) sõlmida.</i>	<i>Старейшина волости также считал, что было бы необходимо заключить договор (acc).</i>	The mayor also said that it would be good to ratify the contract .
<i>Siis aga teatas Microsoft, et ta ei ole veel valmis lepingut (part) sõlmima.</i>	<i>Но затем Microsoft сообщил, что ещё не готов заключить договор (acc).</i>	But then Microsoft announced that it is not ready to ratify the contract .

In Estonian, the forms of *leping* are clearly distinguished morphologically in all object cases. In Russian, the corresponding word for *leping* (*dogovor*) would have always occurred in the accusative case (homonymous with nominative) in these text examples. The partial paradigms of *leping* and *dogovor* relevant for the object marking are presented in Table 2.

Table 3 presents an excerpt of the production test in Estonian with Russian equivalents and English translations. In the Estonian text, the object positions which were left blank for the subjects are filled in with correct object forms in bold with case indicated, the same was done in the Russian model text as well as in the English translation.

3.2 The sample

The subjects of the study were 16- to 18-year-old students of secondary schools with Estonian as the language of instruction. The total size of the sample was 669 students of whom 41 per cent were

male and 59 per cent female; 578 (86.5%) students indicated Estonian to be their L1, and 91 (13.5%) had Russian as their L1. The number of Russian-speaking students in each school in the sample varied according to the ethnic composition of the area. In some schools the proportion of Russian subjects approached one-third of the total number of subjects, while there were also schools in the sample with only 3 percent of Russian subjects.

The present article is based on the analysis of the subgroup of bilingual Russian students, thus the size of the sample for this study is 91. The subjects had not had instruction about object case marking before the test was conducted. They were informed that the test was not about their knowledge of Standard Estonian, but about their own usage and that the results would not affect their school assessment. Altogether these 91 subjects provided 1439 critical object case forms, the response rate being 98 per cent.

4. Results

The results of the production test are presented in Tables 4–6, each of which groups sentences that require the direct object to be in the same case: genitive, nominative or partitive. Each table is followed by a discussion attempting to pinpoint the source of the variation in case usage.

4.1 Genitive objects

In all sentences in Table 4, the genitive case is triggered by the perfectivity of the action and the totality of the object. In Russian, all these sentences would also require the perfective aspect, but expressed in verb morphology in Russian. The object in all these cases would be accusative in Russian. Thus, if Russian were the model, it would have uniform influence in all sentences, and provided that it is the Russian accusative that is transferred, its closest equivalent in Estonian would be the partitive. The actual pattern is given in Table 4 (in this and the following tables only the percentages are given; as the 100 per cent on each row is made up of 91 occurrences, the absolute numbers of tokens would be very similar to the percentage figures, only slightly lower).

As predicted, the innovations using the partitive were the preferred ones in all sentences, except (13). It would seem that the Russian construction with the accusative has had its impact in shaping the nature of innovations. However, two details prevent us from accepting this explanation without further clarification: first, we need to establish why the transfer of the Russian accusative affects different contexts differently; and second, why sentence (13) does not follow the pattern.

One possible explanation would be that the error rate depends on the complexity of the construction: the more difficult the construction, the less the subjects are able to produce the correct forms. Although all sentences express the perfective aspect, the robustness of this feature clearly differs in the sentences in Table 4. For example, sentence (10) could be interpreted perfectly, meaning that contractors were ready to complete the ratification, or it could be interpreted imperfectly, meaning that they were ready to engage in the ratification process. In sentences (11), (12) and (13), the sense of perfectivity is reduced by the main verbs expressing modality, while the objects belong to subordinate non-finite clauses. In sentences (13) and (14), perfectiveness is stressed by the use of adverbial phrases *by midnight* and *certainly*; and the level of correct object forms was higher in these two sentences.

According to the rules of Estonian object case assignment, imperfective action and/or indefinite object require the partitive case. Therefore in sentences (10) to (12), the partitive case could also be triggered by overgeneralizing the default object marking rule, because of the weakening of perfective interpretation of these situations. But this is hardly modelled on Russian, as in Russian,

Table 4. Production test results in the genitive context in percentages (most frequent errors marked in bold)

	Blanks where genitive would be expected	Nom	Gen	Part
(10)	<i>olime valmis sõlmima</i> we were ready to ratify the contract	3.3	33.0	63.7
(11)	<i>järgmisel päeval tahtis Microsoft tühistada</i> Next day, Microsoft wanted to nullify the contract	4.4	46.7	48.9
(12)	<i>et me peame sõlmima</i> we need to ratify the contract	3.3	73.3	23.3
(13)	<i>Keskööks saimegi sõlmitud</i> By midnight we got the contract ratified	16.7	76.7	6.7
(14)	<i>et siis sõlmime kindlasti</i> that then we ratify the contract certainly	4.4	84.4	11.1

Table 5. Production test results in the nominative context in percentages

	Blanks where nominative would be expected	Nom	Gen	Part
(15)	<i>et oleks tarvis sõlmida</i> that it is necessary to ratify the contract	44.4	13.3	42.2
(16)	<i>On kavatsus sõlmida Microsoftiga</i> has an intention to ratify the contract	76.9	15.4	7.7
(17)	<i>et sõlmitakse kindlasti</i> that the contract will be ratified certainly	74.4	10.0	15.6
(18)	<i>et tühistage!</i> nullify the contract!	80.9	15.7	3.4

all these sentences are in the perfective aspect. Rather one could see here Estonian default object marking pattern as a model. This is supported by the fact that sentence (10) was interpreted as imperfective by 79 per cent; sentence (11) by 30 per cent; and sentence (12) by 1.2 per cent of the Estonian L1 subjects; whereas in the other two sentences the rate of partitive innovations was less than 0.5 per cent (Ehala, 2009).

Sentence (13) is particularly interesting, as here neither of these explanations is applicable: contrary to expectations, innovations with the nominative case were more than twice as frequent as partitive innovations. The construction in (13) is a rather complex one, involving an embedded impersonal non-finite clause where the critical object form is located. The perfectivity requirement is salient because of the adverbial phrase *keskööks* ‘by midnight’, and therefore the salience of the partitive is reduced. Thus, the choice between genitive and nominative is not straightforward. As a rule, impersonal mood requires the nominative case for the object as in *Leping on sõlmitud* ‘the contract is ratified’, but in this particular sentence, the object in the impersonal non-finite clause *lepingu sõlmitud* is raised, so that it is licensed by the main verb *saimegi* ‘got’ and assigned the genitive case. The error pattern indicates that in more than 17 per cent of the cases the informants used the Estonian impersonal construction as a model for object case assignment, whereas the Russian accusative and the Estonian default object case (partitive) together had a lower impact.

Table 6. Production test results in the partitive context in percentages

	Blanks where partitive would be expected	Nom	Gen	Part
(19)	<i>et ei oleks hiljem tarvis tühistada</i> that the contract would not need to be nullified	30.8	7.7	61.5
(20)	<i>et ei sõlmita</i> that the contract will not be ratified	30.0	4.4	65.6
(21)	<i>et meil ei ole kavatsust tühistada</i> that we do not have an intention to nullify the contract.	18.9	15.6	65.6
(22)	<i>kuigi ei kavatsetud tühistada</i> even if the contract was not intended to be nullified	18.7	13.2	68.1
(23)	<i>siis me ei sõlmi</i> then we will not ratify the contract	2.3	20.5	77.3
(24)	<i>Homme lähengi Londonisse tühistama</i> So tomorrow I'll go to London to nullify the contract	2.2	18.0	79.8
(25)	<i>et ta ei ole veel valmis sõlmima</i> that it is not ready to ratify the contract		19.1	80.9

4.2 Nominative objects

Nominative case is used for Estonian objects when the sentence expresses perfective meaning and when the verb is in infinitive like *sõlmida* in sentences (15) and (16), in impersonal mood (17) or imperative (18). There are no aspectual differences in these sentences: in Estonian and Russian alike they all express the perfective aspect.

As in the case with genitive sentences in Table 4, the error rate is rather high in nominative contexts as well. The formal properties of the Russian model are uniformly accusative in these sentences, which would have triggered the partitive in Estonian. As can be seen, there is partitive overusage, but the pattern is not consistent. This does not explain either the overusage of the genitive, which is not large, but fairly consistent in all sentences in Table 5. When interpreting this phenomenon, one must consider that in Estonian, the default case for objects that express perfectivity is the genitive. Therefore, it could be that the consistent preference for the genitive instead of the nominative is caused by overgeneralization of the Estonian main pattern of expressing the perfective aspect.

The tendencies to use the partitive are particularly interesting. Considering that the Russian model uses the accusative, some partitive innovations would be expected. What makes the pattern hard to interpret is the large differences in the rate of partitive innovations in different sentences. This means that there must be other factors involved that have caused this. As for sentence (15), the weakening of perfective interpretation just like in sentences (10) to (12) could be the likely cause for the high level of partitive usage. In comparison, Estonian L1 subjects used the partitive in as many as 8.3 per cent of all answers in sentence (15) while in sentences (16) to (18) the error rate was less than 0.5 per cent (Ehala, forthcoming).

But sentence (17) also has an unexpectedly high level of partitive overusage. As perfectivity is stressed by the adverbial phrase *kindlasti* 'certainly' in (17), the weakening of perfective meaning is not a plausible explanation. But if we compare it to sentence (14), which has a similar structure, the difference towards choice of the partitive is not large: 15.6 per cent compared to 11.1 per cent. Why this type of sentence triggers a slightly higher level of partitive innovations than other typically perfective sentences like (13), (16) and (18) remains unclear.

4.3 Partitive objects

Partitive is the default case for Estonian objects and the partitive is also supported by the Russian accusative, which is its translation equivalent. In this data set (see Table 6), six out of the seven sentences requiring partitive objects used negation. In Estonian, negative sentences always require a partitive object, irrespective of the formal or semantic properties of the sentence. Therefore, it is a fairly robust rule that should be easy to acquire, suggesting that there would be fewer deviations from the correct usage in this context.

Actually, the rate of correct forms for objects in the partitive is only about 2 percentage points higher than in the other two contexts. The low correctness rate may be caused by the complexity of the constructions used in sentences (19) to (22). Nevertheless, even these sentences provide clear error patterns, which suggest that they follow a salient model. We can see that the first four sentences in Table 6 trigger more nominatives and the last three sentences more genitives.

One possibility is that the default rule of Russian object marking in negative sentences is used as a model. The genitive is also associated with partiality in Russian (see Table 1). In Estonian, negation and partiality are always co-conceptualized and if this conceptualization triggers the association with the Russian genitive, this may in turn trigger the usage of the genitive in these Estonian sentences.

If this were the case we would expect to see a higher rate of genitive innovations in all but in (24), which is an affirmative sentence. In fact, (24) has a quite high level of genitive errors, which needs to be explained. Remember that genitive errors had a stable presence also in nominative contexts (sentences (15) to (18)), which could be attributed to the dominant Estonian pattern of expressing perfectivity. Together, the Russian negative sentences and Estonian perfective patterns might have made the genitive a quite salient object case for L2 Estonian speakers with Russian as their L1. This pattern in turn may also have become the model reinforcing genitive innovations in other contexts which do not have direct Russian or Estonian models, such as (24).

The somewhat lower levels of genitive objects in sentences (19) and (20) also require an explanation. Assuming that the Russian genitive object is a model for these sentences, their reduced production rates must be caused by other possible models that have higher salience and have therefore distorted the pattern. For example, sentences (19) to (22) are agentless constructions and in these constructions object is often in the nominative (except in negative constructions).

Thus, in (19), the grammatical subject is the infinite verb *tühistada* and its object *lepingut* is raised to the sentence-initial position, where it is easy to reanalyse it as the subject of the predicate verb form *ei oleks* 'would not'. In this case it would be in the nominative instead of the partitive. In fact, as many as 12 per cent of the native Estonian subjects made this error, too (Ehala, forthcoming). Sentences (20) and (22) are in impersonal mood and lack a grammatical subject, leaving the object the most important nominal constituent in the sentence. In affirmative impersonal sentences, the object is in the nominative case, which makes this construction quite similar to the English passive. In negative impersonal sentences, the object is in the partitive, as are all objects in negative sentences.

Due to the prominence of the object in impersonal sentences and its nominative marking, it is easy to reanalyse it as the subject of the sentence. This reanalysis becomes apparent in these negative impersonal sentences in which the object occurs in nominative instead of partitive. As the data suggest, there seems to be a tendency towards such a reanalysis. Actually, Estonian L1 subjects also had a tendency to reanalyse the object of impersonal sentences as the subject of passive sentence, although at a lower rate: 5 per cent in sentence (20) and 1.7 per cent in sentence (22) (Ehala, forthcoming).

Sentence (21) is similar to (19), except that the object of the infinite subject *tühistada* 'nullify' is not raised to a sentence-initial position, but remains next to its head. Furthermore the sentence has an agent in the dative (*meil* 'for us'). For this reason the reanalysis of the object is less likely, which

is reflected also in the data. In (21) Estonian L1 subjects used the object in the nominative in 3.3 per cent of the cases. As the number of errors in this sentence and in the remaining three sentences is very small (below 0.5 per cent; see Ehala, forthcoming), these results strongly support the hypothesis that in sentences (19) to (22) reanalysis of the object of subjectless sentences is the main cause for nominative innovations for both L1 and L2 subjects. It is also possible that the reanalysis is influenced by the English passive, as knowledge of English is fairly widespread among the younger generations of both Estonians and Russians in Estonia. In any case, it suggests that the phenomenon may have multiple causes, in that universal naturalness criteria and cross-linguistic influence point in the same direction. The Estonian L2 speakers who lead this innovation seem to impose the feature from their L3 (English), rather than L1 (Russian) to Estonian. It may also be that the tendency to reanalyse the object of impersonal sentences as the subject of passive sentences is a general cognitive tendency, present even in the absence of reinforcing model languages.

5. General discussion

The results of this production test indicate that transfer in the L2 speakers' usage is not straightforward: the variation pattern is diverse and although innovations in the predicted directions do exist, there are certainly other factors that contribute to the outcome. As we have seen in the case of genitive objects, the partitive is often used because of the erosion of perfective meaning, which affects both L2 and L1 users although L1 users are affected less. Second, productive patterns of the target language can also serve as models for innovations as sentence (13) suggests. Third, reanalysis seems to be the reason for the nominative innovations in partitive contexts, affecting both L2 and L1 speakers, possibly on the model of English passives, but it may be due to a universal cognitive tendency. Here too, L2 speakers are leading the innovation, indicating that language contact is the major cause for innovations. Fourth, there are also clear instances of transfer from L1 to L2 as indicated by the genitive innovations in negative sentences ((19) to (23) and (25)). However, the genitive is also used in affirmative sentences where a nominative is required. This could have its model in Estonian, where the genitive is the common case to express perfectivity. And finally, as the genitive is used as an object case in both Estonian and Russian, although in different contexts, it may have become a salient pattern for marking objects among Estonian L2 speakers with Russian as L1. This has started to spread in contexts where neither Estonian nor Russian models are applicable, like sentence (24). In this case the genitive object in Estonian L2 usage is not direct transfer from either Russian or Estonian, but what Pavlenko (2004) calls a hybrid form.

The rather marginal role that direct transfer plays in shaping the Estonian L2 speakers' production of object forms suggests that it is not the main source of L2 innovations. Instead, it could be said that the main tool for producing innovative forms in L2 is analogy. This is in line with the findings of Matras and Sakel (2007), who have proposed that the speakers use whatever resources they have at their disposal to fulfil their communicative need. This article goes further, arguing that sometimes innovations are modelled on the basis of productive patterns in the target language, sometimes on the basis of universal naturalness criteria (Wurzel, 1989), and sometimes even on the basis of productive error patterns creating hybrid constructions by extending them beyond the scope of the initial model(s).

All this suggests that the phenomenon of transfer should be seen in a much wider scope, and linked to the mechanism of analogy as a cognitive process in general. In fact, analogy has been mentioned to be a possible source for both language internal and contact-induced changes by Croft (2000) and Treffers-Daller (2008). Therefore, adopting an analogy-based approach to the study of transfer might provide some new insights.

If analogy is indeed a key mechanism behind transfer, the chance of any particular variant to appear in the utterance would depend on the set of available models, the extent of similarity of each model to the variant and the frequential prominence of each model in the speech of L1 and L2 users. Methodologically, this means that in predicting a particular outcome, all potential models should be taken into account with their frequency of occurrence. This may be a daunting task in practice, but it would provide some information about the form that is most likely to have served as a model in a particular situation. As the usage of analogy is occurrence-based, this would help to distinguish between interference and transfer (Grosjean, this issue). Of course, this would require much richer data and more powerful computational resources, but in principle, these processes could be modelled – with some precision, depending on the richness of the available data, availability of computational power, even though usage will continue to be variable.

6. Conclusion

Transfer is a complex cross-linguistic phenomenon that can be approached from different viewpoints: psycholinguistically, sociolinguistically, linguistically and diachronically. Each of these approaches foregrounds some aspects while the others remain in the background. For a fruitful discussion of transfer, it is necessary to clearly distinguish the dimensions of analysis. Mixing the levels may lead to fruitless debates as the constraints and regularities that exist in one level of analysis may not be relevant on the other.

The analysis presented in this article addresses the problem of cross-linguistic influence on the production of innovative forms in L2 learners' usage. As the analysis has shown, the cross-linguistic influence on L2 is considerably more complex than just transfer of L1 features to the second language. L2 users do not only transfer structures from L1 but they also overgeneralize productive L2 patterns reducing complexity in the target language; they use general strategies such as reanalysis to reduce markedness and introduce universally natural features; and last but not least, they use recurrent error patterns resulting in one or several of the above strategies as models to expand the error pattern to novel constructions that have no model in either language. In this way language contact may produce hybrid forms that do not directly concur with either language, but which are still contact-induced.

The results of the article suggest that the existence of a model construction in another language itself is not evidence for transfer, as has also been pointed out by Jarvis (2000) and Mougeon et al. (2005): there could be other patterns in the source language or in the target language, or just universal cognitive preferences that can nullify or reduce the effect of any particular model. There are two possible ways to measure this – either collecting large amounts of usage data that would indicate the relative salience of different models; or to measure the salience of patterns psycholinguistically. Both of these methods fall outside the scope of this article but are the necessary next steps in studying the phenomenon of transfer.

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