

Periphery Effects in Phonological Integration
Turkish suffixation of Swedish proper nouns by advanced bilinguals
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ii. ABSTRACT

This essay investigates how certain word-final Swedish rimes are integrated phonologically into Turkish by means of suffixation. Specific Swedish rimes have been selected for their unusual characteristics from the perspective of Turkish phonology such as vowel and consonant quantity as well as coda phonotactics. The data have been collected in an experiment, which involved the oral translation of a Swedish text including potential borrowings such as proper names and place names. The participants were advanced bilingual speakers of the standard varieties of Turkish and Swedish living in Stockholm. Two phonological properties of Turkish are relevant for this essay. Firstly, every word-final rime must have a vocalic, palatal and labial classification in order to be licensed for suffixation. Secondly, Turkish has a large and diverse periphery in its phonological lexicon due to faithful or partially faithful adaptation of a plethora of historical loanwords. The focus of the investigation is if the new borrowings are integrated into the core or into the periphery of the Turkish phonological lexicon or alternatively how faithful their integration is to the Swedish originals. In terms of resolving j-final coda cluster problems, the popular strategies are found to be palatalization, deletion and metathesis. The main body of data displays low faithfulness to the Swedish originals as well as an underutilization of the Turkish periphery. The participants are found to use the periphery of their phonological lexicon to a high degree for established words in Turkish but only to a limited extent when adapting new borrowings from Swedish into Turkish. This finding is explained by the fact that the structural and sociolinguistic conditions are not conducive to periphery maintenance in the present context in contrast to the historical context during the inflow of Arabic and Persian loanwords.

1. INTRODUCTION

Turkish has interested linguists working on bilingualism due to the large number of Turkish immigrants living in the Western world and due to the genetic and typological distance of Turkish to the ambient Indo-European languages. However, very few among these copious studies have dealt centrally with the phonological properties of Turkish (for exceptions see Queen, 2001 and Adalar & Tagliamonte, 1998). Even prior to the emigration of Turks from Turkey, Turkish was a language that interacted intensively with a number of different languages during long migration processes and in imperial multicultural contexts (see Johanson, 2002 for an overview and Lewis, 2002:5-27 and Kerlake, 1998 for Ottoman Turkish). These contacts, most notably with Persian and Arabic, have left their mark on Turkish phonology. The Turkish lexicon is replete with loanwords¹, whose phonological forms have undergone some adaptation to the Turkish phonology, especially in the case of the Arabic loanwords (cf. Zimmer, 1985). On the other hand, even Turkish phonology has adapted itself within certain limits to the original forms of these prestigious loanwords by adopting loan phonemes, relaxing its phonotactic constraints and stress rules as well as by allowing stem alternations, thereby creating a rich periphery in its phonological lexicon. However, hitherto no study on Turkish bilingualism has investigated how this ‘flexible’ periphery of the Turkish phonological lexicon interacts with new borrowings in new settings, motivated by the social and linguistic circumstances of the Turkish immigrants, their children and their grandchildren. This essay intends to address this issue by investigating if new Swedish borrowings that bear crucial structural similarities to established loanwords in the Turkish periphery are placed into the periphery like these older loanwords or not.

2. THEORETICAL BACKGROUND

The main data for the essay come from an experiment, where the participants were asked to translate a Swedish text into Turkish. The original text was constructed in such a way that the translation task required the suffixation of Swedish proper names with Turkish case suffixes. Thus the experiment triggered the integration of Swedish words into Turkish. The focus of this essay is the phonological and morphophonological aspects of these integration processes. These integrated words will generally be referred to as “borrowings” for the sake of simplicity but they actually display a few different types of borrowing as well as cases that might not be viewed as borrowing. Therefore an overview of the integration literature regarding what constitutes a borrowing and which relevant types of borrowing there are seems necessary here.

2.1 Integration of L2-elements into L1

In this context, Turkish is indisputably the main language as the language that is being translated into. As such, Turkish is the recipient of potential foreign elements from the donor language Swedish. Chronologically speaking, Turkish also happens to be most of the participants’ first language (L1), whereas Swedish is mostly their second language (L2). Therefore the recipient language Turkish will henceforth be referred to as L1 and the donor language Swedish as L2. This essay deals with the integration of nouns and Turkish has special morphophonological constraints concerning nouns. According to the Turkish grammar, in order to be able to receive a suffix, the final rime of a noun must be classified as either vowel-final or consonant-final as well as be assigned a value for palatality and labiality. Naturally, these constraints also apply to

¹ According to the Turkish Language Society’s Turkish dictionary 1998 (Türkçe Sözlüğü, TDK 1998) slightly less than half of the nearly 100,000 words included in it are loanwords. According to Nişanyan’s etymological dictionary 2002 with ca. 15,000 entries as much as 80% of the everyday vocabulary of Turkish consists of loanwords.

borrowed nouns that are to be integrated into Turkish. These constraints will be discussed in length in Section 5.

2.2 Borrowing vs. code-switching

In bilingualism research some linguists have found it useful to distinguish between the concepts of “borrowing” and “code-switching” (cf. Poplack, 1988; Di Sciullo et al., 1986; Muysken, 2000 and Myers-Scotton & Jake, 2001). Some of these researchers view these two as distinct types or phenomena with separate functions and origins. The most famous proponent of this approach is Poplack (e.g. Poplack et al., 1988), but Johanson also “disregards” cases of code-switching in his *code-copying model* implying that it is a separate phenomenon from copying² (Johanson, 2002:9). Others have questioned the feasibility and meaningfulness of such a rigid distinction and have opted to view borrowing and code-switching as different parts of one and the same continuum (cf. Appel and Muysken, 1987; Boyd et al., 1991; Romaine, 1995 and Park, 2000). Currently, the latter approach seems to be prevalent in the literature, where cases can be associated with different parts of the continuum and thus classified as prototypical borrowings, prototypical code-switches or as cases in-between (for cases in-between see Park, 2006:18-23).

The great majority of the “borrowings” in this essay are single nouns and the rest are short nominal phrases. In most cases these are suffixed with Turkish suffixes but in some cases, such as in the subject position, they remain unsuffixed. The borrowings are always syntactically integrated into Turkish due to the requirements of the translation task and of the follow-up questions. However, since the translation task is oral and online, the syntactic integration shows effects of syntactic transference from Swedish, which is to be expected in this context. Thus the morphosyntactic characteristics of the data place them closer to the prototypical borrowing end of the continuum. Different types and degrees of integration have been established in the literature as criteria or guidelines for different types of mixed language use. The traditional view has been that longer stretches of speech from another language than the main one, which are not integrated into the main one, count as code-switching, whereas single words or phrases count as borrowings (cf. Park, 2004:312). A common criterion for a prototypical borrowing has been morphosyntactic integration into the recipient language (cf. Poplack, 1980 and Sankoff et al., 1991), although this view is not shared by all linguists (cf. Muysken, 2000).

2.3 Phonological integration as a criterion for borrowings

Morphosyntactic criteria are not the only proposed criteria for determining if a foreign-origin structure is a borrowing or a code-switch, although the literature seems to display a certain “morphosyntactocentric” bias. Phonological integration has also been used as a criterion to distinguish borrowings from code-switching (cf. Di Sciullo et al., 1986) and to distinguish between different types of borrowing (cf. Poplack 1980, Poplack et al., 1987 and Poplack et al. 1988). Sometimes phonological integration is used as an autonomous criterion and sometimes as a complementary criterion to morphosyntactic integration. Many researchers, who view certain forms as borrowings on morphosyntactic grounds, have commented that the degree of phonological integration can be highly variable for these forms (cf. Romaine, 1995:153 and Muysken, 2000:70). The traditional view has been that the more established a borrowing is in a community the higher its phonological integration is into the recipient language. Some studies have suggested that other factors such as bilingual proficiency or sociolinguistic norms are more decisive factors. Haugen (1950) proposes a negative correlation between the degree of bilingual

² Johanson prefers the term and concept of copying to the more traditional term borrowing.

proficiency and the degree of phonological integration. Poplack et al. (1988) show, on the other hand, that the sociolinguistic norms in a community are the main factor for the degree of phonological integration. Most languages in the world have borrowings that are well established and fully conventionalized within the language community and have typically been integrated phonologically into the recipient language. These borrowings are often referred to as loanwords and constitute an extreme case of full phonological as well as lexical and morphological integration. On the other extreme we find “borrowings” that are not conventionalized in a community and preserve their original phonological form fully despite the fact that they may be syntactically and even morphologically integrated into the recipient language. Poplack (1980) considers such forms as “code-switches”, when they are morphologically simplex and as “nonce-borrowings” when they receive suffixes from the recipient language. The former categorization is straight forward, whereas the latter one has attracted considerable criticism for being an ad hoc solution to theory-internal problems for Poplack’s proposed universal constraints for code-switching. It is, in fact, not clear why the suffixed cases should be treated differently from the unsuffixed ones, if the original phonological form is preserved in both cases. Perhaps it would be more fruitful here to adopt an approach regarding phonological integration, which would be in line with the afore-mentioned concept of a continuum from prototypical borrowings to prototypical code-switches. Applying a combination of lexical and phonological criteria, at the one extreme we have conventionalized integrated forms called loanwords and at the other extreme we have non-conventionalized words that are faithful to the originals called code-switches. In between we meet varying degrees of phonological integration and here lexical conventionalization. As we shall see, the data in the present essay fall on different points on this proposed continuum between loanwords and code-switches.

2.4 The locus of integration within the L1-lexicon

When phonological integration is discussed in the literature, the phonological lexicon is often treated as a monolithic entity with an absolute set of units, rules and constraints. Hence a borrowed form is either phonologically integrated or it is not. Poplack (1980) discusses some cases of partial integration and suggests that they are cases, where the original donor form is aimed at but missed due to accented speech. Therefore she views them as code-switches, where the actual donor code is an accented version of the original donor code. This is a theoretical possibility and it may well be the case for the set of data she discusses. However, we also need to allow theoretically for cases where partial integration is not just partial in absolute terms but where it is relative to the structures in question. Hence, integration should not solely be seen as a quantitative matter but also as a qualitative one, where the quality of the structure in question is highly relevant. Consequently, the main question becomes not *if* the forms are integrated or not, but *in which respects* they are integrated into the recipient language and why in those respects and not in others. This essay focuses specifically on the syllable structure within word-final rimes in order to investigate the latter issue.

Here the concept of a stratified phonological lexicon may prove useful. The question can, then, be reformulated as “Into which stratum of the recipient language’s phonological lexicon are the foreign forms integrated?” According to this view, the phonological lexicon consists of a “core” and a “periphery” or to be more precise different peripheral strata (for examples of stratification in Japanese see Itô & Mester, 1999). The core is the portion of the phonological lexicon, where all the phonological rules and/or constraints of the language’s grammar are followed. The periphery, on the other hand, is the stratum or consists of different strata, where certain core rules and/or constraints are followed, while others are violated. In the periphery some

core rules are thus relaxed and one strong motivation for this has been shown to be the desire to remain as faithful to the original of a foreign form as possible. Turkish examples for this will be discussed in Section 5. This core-periphery distinction has proven to be particularly meaningful for languages/language varieties, whose phonological systems have been or still are greatly influenced by borrowing such as Japanese and Canadian French (cf. Itô & Mester, 1999 and Paradis & LaCharité, 1997). As mentioned before, this is also the case for Turkish. From the perspective of the recipient language Turkish, we consequently have a continuum for phonological integration ranging from full integration into the core of the Turkish phonological lexicon or into the different strata in its periphery, to no integration i.e. code-switching, where the original foreign structure is preserved in its entirety.

2.5 Lexical integration

The present essay deals mostly with proper names such as place names and personal names, but there are also a few cases of generic Swedish nouns being integrated into Turkish. Traditionally, there has been a tendency to treat proper nouns as exceptional cases of borrowing/code-switching, whereas others have argued that this discrimination is theoretically not defensible (cf. Park, 2006). The approach taken here is closer to the traditional one in the sense that the present essay allows for the theoretical possibility that the propensity to remain faithful to the original of a proper noun can be greater than for a generic noun, precisely because the former is the name of one and only one original referent.

3. THE OBJECTIVE OF THE ESSAY

The main objective of this essay is to investigate what kind of phonological classification certain unusual final rimes in new Swedish borrowings receive in the Turkish phonology. As will be discussed in section 5, nominal suffixation in Turkish is very sensitive to the structure of the stem's final rime. This property of the Turkish phonological system offers an excellent opportunity for investigating the morphophonological classification of alien word-final rimes by examining their suffixation patterns in Turkish. From the perspective of Turkish phonology, potentially problematic Swedish rimes are those that contain impermissible coda clusters as well as long vowels in closed syllables and geminate consonants in the word-final coda. Therefore, potential Swedish borrowings containing exactly these types of rime structures will be examined in this essay. Another reason for investigating precisely these Swedish structures is they display significant similarities to the original structures of some established loanwords from Arabic and Persian. In the case of these historical loanwords the Turkish periphery has been extended in order to integrate these loanwords as faithfully to their originals as possible. Therefore the phonological infrastructure for the faithful integration of the new Swedish borrowings currently exists in the periphery of Turkish. The question is if this peripheral infrastructure will in fact be utilized in the similar cases as well as possibly be extended further in novel cases. A related question is what this utilization and extension of the periphery is contingent upon. In this respect the current Swedish case offers a unique opportunity for comparing the historical integration patterns with contemporary ones. Two considerations are of utmost importance for such an investigation. Firstly, the data need to come from individuals who have an advanced command of the phonologies of both Swedish and Turkish so that it is ensured that they have the relevant structures in their phonological systems. Secondly, the data collection method has to be devised in such a way as to generate a sufficient amount of data for a very specific combination of certain Swedish word-final rimes and certain Turkish suffixes. These issues are discussed in the following section.

4. METHODOLOGY

4.1 The participants' bilingual profiles

The participants were selected on the basis of their advanced functional competence in the standard varieties of Turkish and Swedish. Most of the participants were known to the researcher prior to data collection, which facilitated an initial informal assessment of their general proficiency in both languages. Others were recruited through recommendations. The term “balanced” bilingual is avoided here on purpose, firstly because it has normative connotations and secondly because it seems to apply to a broader range of criteria than applied in the present essay. The term “advanced functional competence” stands for a level of general proficiency that enables the participants to use both languages at an advanced level for the functional requirements of everyday life. Additional to the researcher’s prior assessment, data acquired through the background interviews and through different language tasks involved in the experiment were used toward the final assessment of the participants’ general proficiency.

Data were collected from a total of twelve participants that matched the above-mentioned criterion. Half of them were male and half were female. All participants had some form of tertiary education and were living in the Stockholm region at the time of data collection. The ages of the participants varied between twenty one and thirty eight and all but one were children of Turkish immigrants in Sweden. Ten of the participants had two Turkish-speaking parents, whereas two had one Turkish-speaking and one Swedish-speaking parent. Not all participants were born in Sweden but all of them had spent a significant portion of their lives in Sweden. Regarding the age of onset to language acquisition, the age of three is sometimes used in the bilingualism literature as a demarcation line between simultaneous and successive bilingualism. This practice is not followed in the present essay, because it is largely arbitrary and lacks sound backing from research on maturational constraints (see Hyltenstam & Abrahamsson, 2003 for a discussion of maturational constraints). All but two of the participants report that their age of onset for both languages was seven at the latest. Eight of these ten participants had Turkish as their first acquired language. Some had started with Swedish at home, some in kindergarten between the ages of three and four, others in pre-school classes at the age of six and the rest in primary school at the age of seven. Therefore, all ten can be seen as early bilinguals. The residual two among the twelve participants, where one had a reported age of onset for Swedish at fourteen and one for Turkish at seventeen, both, nonetheless, with some earlier exposure to the languages, can be viewed as late bilinguals.

4.2 The data collection

The data collection took between one hour and one and a half hours per participant and was carried out at a location that was convenient for the participants, mostly at Stockholm University. All data were recorded by computer with the help of a phonetic analysis program. The data collection involved six different parts. First the participants were interviewed about their language background and current language use in a semi-structured interview, where the questions were asked and mostly answered in Turkish. The questions that constituted the basis for the interview can be found in Appendix 1. Parts two and three were recordings of natural speech in Turkish and Swedish respectively in order to evaluate the participants’ general pronunciation in both languages. The fourth part was an oral fill-in-the-blanks test in Turkish designed to test the participants’ use of relevant peripheral aspects of the Turkish phonology. In part five the participants were given a one-page text in Swedish, which they first read out loud for

recording and then translated into Turkish orally. In the sixth and last part, the participants answered some follow-up questions about the text in Turkish.

4.2.1 Evaluation of the participants' Turkish

The participants' Turkish was evaluated in three ways. Firstly, their general oral proficiency was observed by the researcher during the Turkish tasks in parts one, two and four of data collection. Secondly, their Turkish morphophonology was evaluated in a specific test in part four. The participants were given fifty sentences in Turkish on a fill-in-the-blanks test and were asked to complete the sentences orally in an appropriate way. This test is included in Appendix 2. Thus it was tested if the participants were competent in the relevant peripheral aspects of Turkish morphophonology. These aspects were stem alternations involving long vowels and long consonants as well as the participation of /l/ in palatal harmony in suffixation. The nouns in the test were expressly chosen for their structural similarity to the Swedish proper nouns in the translation text. Lastly, in part three the participants were asked to elaborate on the following question in Turkish: "Where would you like to go, if you were given 10,000 US dollars to travel anywhere in the world?" The answers' length ranged from one to two minutes. These natural speech samples were then presented to a turkologist. Additional samples from two native speakers of Turkish, who moved to Sweden as adults, and from one native speaker of Swedish, who obtained high proficiency in Turkish as an adult, were included in the presented material in order to diversify it. The expert was then asked to comment on the following aspects of these fifteen samples in Turkish: 1) Is the speaker in the sample a native speaker of Turkish? 2) If not, how would you rate the speaker's degree of foreign accent on a scale from 0 to 10 (0 being no foreign accent)? 3) Does the speaker in the sample speak the standard variety of Turkish? The results are summarized in Table 1.

Table 1. The participants' scores on the evaluation for Turkish

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
1) native speaker	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
2) foreign accent (0-10)	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
3) standard Turkish	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
long vowels (%)	68	77	86	68	73	77	96	91	100	64	91	55	-	-	-
long consonants (%)	56	22	78	89	44	78	56	56	67	44	78	22	-	-	-
intersyllabic L (%)	33	78	100	67	78	100	67	100	100	78	100	67	-	-	-

Legend: P stands for participant. ✓ means that the participants' varieties are deemed as native or standard respectively. The scores for long vowels, long consonants and intersyllabic L represent to which degree the participants use these standard peripheral structures in their Turkish suffixation. Long vowels and long consonants are part of peripheral stem alternation processes while intersyllabic L refers to the participation of this phoneme in stem-suffix harmony.

Participants P1-P12 were the participants of the main study, whereas participants P13, P14 and P15 only supplied extra data to diversify the samples. All twelve participants passed as native speakers of standard Turkish. Regarding their competence in three peripheral aspects of Turkish morphophonology, we can see the attested usage of periphery in percentage in the last three rows. This percentage indicates to what extent the participants used peripheral suffixation as opposed to core suffixation. There is some variation among the participants and it should be added here that

the forms in the blanks test were primarily chosen for their structural similarity to Swedish forms in the translation text. Some of these forms are, however, not very frequent in everyday speech, which explains the fact that the score 100 is not attested so often. The relatively low scores of some participants regarding certain structures have to be addressed here. If we disregard low-frequency words on the test, a meaningful criterion would be to require from a participant with an advanced functional competence in Turkish to have a minimal score of 50%, 44% and 67% for long vowels, long consonants and the participation of /l/ in intersyllabic harmony processes respectively. This requirement is not fulfilled by three participants for one structure each, namely P1, P2 and P12. These low scores are rendered in bold style in the table. Participants P3-P11 that fulfilled this requirement are rendered in bold style, too. It was, however, decided not to exclude participants with low scores because in the end all participants did display all relevant peripheral forms to some degree and with a different set of more high-frequency forms even the participants with low scores might have performed better. Instead, it will be investigated if there is a correlation between these scores and the results of the translation task later in the essay.

4.2.2 Evaluation of the participants' Swedish

The participants' Swedish was evaluated by a panel of three phonetics students about to complete the second term of their phonetics studies at Stockholm University, who had standard Swedish from the Stockholm region as their only mother tongue and had no prior knowledge of Turkish or of the Turkish accent in Swedish. The panelists were presented with three different samples from fifteen speakers, including the twelve bilingual participants of the study as well as three additional native speakers of Swedish. The first sample was natural speech obtained in part three of the data collection, where the participants elaborated on the following questions: "What was the last film you saw on TV, DVD or at the cinema? What was the film about and what did you think of it?" The answers' length ranged from one to three minutes. This sample reflects the participants' general pronunciation in natural speech. The second sample was obtained in part five of the data collection, where the participants read out loud a passage from the translation text. This passage was selected because it was comparable in length (one to two minutes) to the natural speech samples. The second and the third samples were based on the translation text and therefore had a higher frequency of the relevant structures than the first sample. The third sample was based on a different and slightly longer passage from the same translation text, but this time the panelists were in addition provided with a copy of the passage that was being read out loud in advance in order to facilitate comparison between the text and the participants' pronunciation. On all evaluation tasks the panelists were asked to answer the following two questions: 1) Is this speaker a native speaker of standard Swedish? 2) Is this speaker a native speaker of a Swedish dialect? On task three they were additionally asked to evaluate the non-native speakers' degree of foreign accent on a scale from 0 to 10, 0 being no foreign accent. More detailed data about the evaluations can be found in Appendix 5.

Table 2. *The participants' scores on the panel evaluation for Swedish*

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P14	P16	P17
Natural speech native? (0-3)	1	3	1	3	3	0	0	1	0	3	1	0	3	1	3
Recitation native? (0-3)	1	1	2	1	3	0	0	1	0	1	0	1	3	2	3
Recitation with text comparison native? (0-3)	0	0	1	1	3	0	0	0	0	3	2	0	3	2	3
TOTAL native? (0-9)	2	4	4	5	9	0	0	2	0	7	3	1	9	5	9
Mean for foreign accent (0-10)	2.7	2.3	1.7	1.3	0	3	3	2.7	3	0	1	1.7	0	0.3	0

Legend: *P stands for participant. The scores for nativeness represent the number of panelists that deemed the participant to be a native speaker. The sample type Natural speech was a short commentary on a given topic. The sample type Recitation was the recitation of a short text passage. The sample type Recitation with text comparison was the recitation of another short text which was presented to the panel in advance for comparison of text and pronunciation. The row TOTAL summarizes the scores from the first three rows. Mean of foreign accent stands for the evaluation of the participants Swedish by the panel.*

The scores for the evaluations based on the three different samples, namely natural speech, reciting a text (Recitation) and reciting a text that was handed in to the panelists (Recitation with text comparison) are summarized in Table 2. The scores in the table stand for the number of panelists, out of three, that evaluated the speaker as a native speaker of either standard or dialectal Swedish based on the respective sample. In the last row the mean of the three panelists' evaluation regarding degree of foreign accent is presented. The reason for including different types of samples was to capture different facets of the participants' pronunciation in general and more specifically for a high frequency of relevant structures as well as to give the panelists a diversified basis for evaluation. Again the participants P1-P12 were the bilingual participants of the main study, whereas the participants P14, P16 and P17 supplied additional samples only for this evaluation in order to diversify the samples. According to the results, many of the twelve bilingual participants pass as native speakers of Swedish on different samples based on the evaluations of different panelists, while others are deemed to have slight foreign accents. The speakers were scrambled in sequence between the different sample types in order to prevent the panelists from identifying the speakers.

The results from the different sample types and panelists are to be seen as complementary, since a speaker might perform differently on different tasks and a panelist might evaluate one type of sample differently from another or might apply more or less stringent criteria compared to the other panelists. This inherent problem in the data collection method at hand is exemplified by the fact that P16, a native speaker of Swedish, is not always identified as such by *all* panelists. P16 is, nevertheless, evaluated as a native speaker when we weigh in all samples and all panelists. A meaningful criterion would be to require from a participant with an advanced functional competence in Swedish to pass as a native speaker in at least two out of the three tasks according to the evaluation of at least one panelist. Out of the twelve bilingual participants eight fulfilled this requirement with means for foreign accent ranging from 0 to 2.7. These speakers are rendered in bold style in Table 2. Among the other four, three did not pass as native speakers at all, displaying a mean for foreign accent of 3, and one passed as a native speaker only in one

sample type according to one panelist with a mean for foreign accent of 1.7. Despite these important differences, these four participants will not be excluded from analysis for two reasons. Firstly, their slight foreign accents might not necessarily affect the relevant structures for this essay and secondly it will be more informative to investigate a possible correlation between these results and the results of the translation task. Summarizing the evaluation for Turkish and Swedish, only six participants, namely P3, P4, P5, P8, P10 and P11, fulfilled the afore-mentioned narrow requirements for advanced functional competence in both languages. We shall see later if these narrow requirements have a bearing on the results of the translation task.

4.2.3 The translation task and the follow-up questions

In order to investigate how very specific Swedish rimes are suffixed in Turkish, fully naturalistic data would have required a very large amount of recordings and it might still not have provided all relevant combinations of Swedish rimes and Turkish suffixes. Therefore the only effective method of data collection was to elicit data in a very specific fashion. It was, nonetheless, preferable to avoid direct and transparent elicitation, where the participants would be openly asked to suffix Swedish words, which could make them self-conscious about the task. Therefore a more subtle type of elicitation was designed to approximate naturalistic data as much as possible. To this end a one-page text in Swedish was prepared, where all the relevant rimes feature in place names and personal names. This text can be found in Appendix 3. The text is the story of a man from northern Sweden, who decides to leave his home town and eventually moves to Stockholm, where he needs to move house a couple of times, too. This storyline facilitates the use of the Turkish case suffixes such as the ablative corresponding to “from”, the dative corresponding to “to” and the genitive corresponding to “of” in phrases like “in the middle of” and “the most beautiful part of” in English. Thus, as the participants translated the text orally into Turkish they needed to suffix the place names and personal names with the intended case suffixes without becoming conscious of the suffixations. In order to distance the focus from the suffixations, the participants were told that the experiment was about how bilinguals translated from Swedish to Turkish. First, they were given time to read the text in order to get familiar with its content. Then they were asked to recite the text for recording and lastly to translate it into Turkish. The participants were not interrupted in any way or given further instructions or help during the translation. Due to the possibility of important omissions in the translation, this task was followed by a more direct elicitation in the form of follow-up questions in Turkish. These follow-up questions can be seen in Appendix 4. The participants were asked to respond to the follow-up questions in full sentences with the same structure as in the questions and in as much detail as possible in order to achieve the desired suffixations. Furthermore, they were reminded of these requirements, when they did not follow the instructions. None of the participants expressed major difficulties with these two tasks. The results from these tasks were later analyzed together.

4.3 Data transcription

All in all, over 1200 words were transcribed by the researcher by listening to the recordings, partly by focusing on specific parts of the speech wave in the phonetic analysis program Wavesurfer. Closer spectrogram analysis has not been used. Of these approximately 1200 words a small portion has been deemed unsuitable for analysis due to bad quality of recording or inarticulate pronunciation. The main focus of the transcription has been the final rimes of these forms but a full transcription for the whole word is given when necessary. The researcher’s transcriptions of over 5% of these words, mostly in ambiguous cases, have later been checked by a Turkish linguist. After these checks further words have been excluded from analysis due to

ambiguity and the transcriptions were changed for some words after discussion. In the great majority of the cases, the Turkish linguist confirmed the transcriptions made earlier by the researcher. In the final data 2089 structures were analyzed, as many of the 1200 words contained more than one relevant structure or property simultaneously.

5. RELEVANT ASPECTS OF TURKISH AS THE RECIPIENT PHONOLOGY

In order to explain why suffixation has been chosen as the context of focus for this essay, certain fundamental properties of Turkish phonology will be sketched out in this section. The emphasis will be on harmonic processes and the stratification of the Turkish phonological lexicon.

5.1 Intersyllabic harmony processes in Turkish

Vowel harmony is a well known property of Turkish phonology. Turkish vowel harmony has two components, namely palatal harmony and labial harmony. The Turkish vowel system is very symmetrical as illustrated in terms of relevant features in Table 3.

Table 3. Turkish vowel phoneme features

	[-back]		[+back]	
	[-round]	[+round]	[-round]	[+round]
[+high]	i	y	ɯ	u
[-high]	e	œ	a	o

In fact, palatal harmony applies beyond the realm of vowels. Even some consonants are phonologically classified as [+back] or [-back] and can therefore participate in harmony processes. The focus of this essay is a subtype of intersyllabic harmony processes, namely harmony processes between nominal stems and suffixes. Most Turkish suffixes have underspecified vowels, only fully specified for the feature [high], that adopt the [back] and [round] features of the stem's final rime. This property leads to several allomorphs for one and the same suffix. These harmonic processes can be illustrated by using the accusative suffix as an example.

5.1.2 The accusative suffix's underlying form: /-jI/

This suffix has an underlying /j/ that only appears after the vowel-final stems in (2) but not after the consonant-final stems in (1). The underspecified [+high] vowel /I/ adopts the [back] features of the stems' rimes as illustrated by the contrast between the forms in a and c, and those in b and d. The underspecified [+high] vowel is represented with a capital /I/ here in accordance with turkological conventions, where it stands for the variants [i], [ɯ], [y] and [u]. The roundness contrasts are illustrated by the difference between the forms in a and b, and those in c and d.

- | | | | | | | |
|-----|----|---------|-----------------|----|----------|----------------|
| (1) | a. | kuɫ-u | 'slave-ACC' | b. | kyl-y | 'ash-ACC' |
| | | koɫ-u | 'arm-ACC' | | gœl-y | 'lake-ACC' |
| | c. | kuɫ-u | 'body hair-ACC' | d. | kil-i | 'clay-ACC' |
| | | daɫ-u | 'branch-ACC' | | kel-i | 'bald man-ACC' |
| | | | | | | |
| (2) | a. | kutu-ju | 'box-ACC' | b. | syry-jy | 'flock-ACC' |
| | | puro-ju | 'cigar-ACC' | | mœsjœ-jy | 'monsieur-ACC' |
| | c. | karu-ju | 'wife-ACC' | d. | ked-i-ji | 'cat-ACC' |
| | | kasa-ju | 'safe-ACC' | | kese-ji | 'purse-ACC' |

5.1.3 Deviant loanword rimes with a [+back] vowel and a [-back] /l/

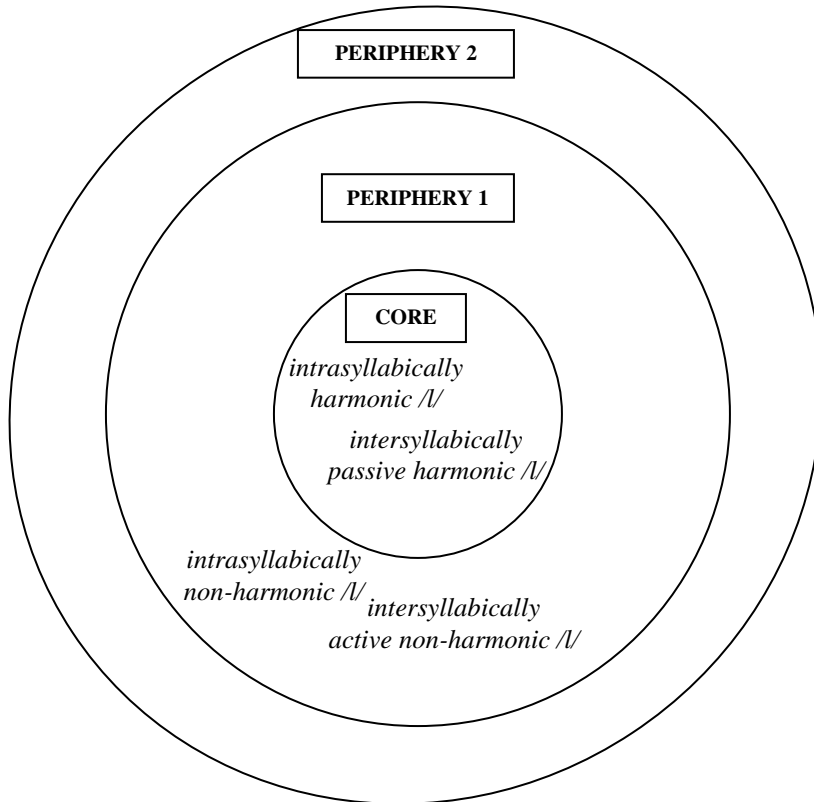
Native Turkish words display two allophones of the phoneme /l/, namely [l] and [ɫ], which are phonologically classified as [-back] and [+back] respectively. Apart from intersyllabic harmony there is also intrasyllabic harmony in Turkish whereby e.g. the [-back] allophone of /l/ is used in the coda position of syllables with a [-back] vowel, whereas its [+back] allophone is used in a syllable with a [+back] vowel making the whole rime palatally harmonic. This is illustrated by the [+back] allophones in the forms (1) a and (1) c as opposed to the [-back] allophones in the forms (1) b and (1) d. However, there are number of loanword rimes that deviate from this pattern because they contain a [+back] vowel and a [-back] /l/ as in (3).

- | | | | | | | |
|-----|----|--------|-----------------|----|-----------|------------|
| (3) | a. | meɟgul | 'busy (person)' | b. | meɟgu:l-y | |
| | | gol | 'goal' | | gol-y | |
| | | hal | 'market' | | hal-i | |
| | | | | | | |
| (1) | a. | kuɫ-u | 'slave' | b. | kyl-y | 'ash' |
| | | koɫ-u | 'arm' | | gœl-y | 'lake' |
| | c. | kuɫ-u | 'body hair' | d. | kil-i | 'clay' |
| | | daɫ-u | 'branch' | | kel-i | 'bald man' |

The rimes in the forms in (3) b take their [round] classification from the vowel, whereas it is the coda /l/ that is responsible for the [back] classification. This important exception to palatal harmony within the rime compels us to stipulate as the trigger of intersyllabic stem-suffix harmony the whole final rime of the stem and not just its final vowel. Therefore, the accusative-suffixed deviant loanword forms in (3) b display the same pattern as the native forms in (1) b and (1) d rather than the pattern in (1) a and (1) c. This violation of intrasyllabic palatal harmony is a good example for the periphery of the Turkish phonological lexicon. Furthermore, this peripheral violation is productive as new foreign proper names are adopted in this way all the time and thus integrated into the periphery of the lexicon and not adapted to the core. Therefore this peripheral property should be placed in a peripheral stratum closer to the core than other peripheral strata as in Figure 1. It is important to treat the intrasyllabic status of /l/ and the participation of /l/ in intersyllabic palatal harmony processes as two separate issues. The non-harmonic /l/ could namely occur in the periphery without necessarily playing an active role in suffixation. The fact that the coda /l/, nonetheless, co-determines the specification of the suffix vowel together with the nucleic vowel means that the trigger for stem-suffix harmony has been extended from the

final nucleus to the whole final rime. In the core /l/ is harmonic and passive in suffixation i.e. not participating in it independently, whereas in the periphery it is non-harmonic and active in suffixation. By this extension, vowel harmony as defined in the core is in fact violated since the palatality feature is no longer specified by the nucleus but by the coda and the suffix vowel no longer palatally harmonizes with the final nucleic vowel. This is a related but still different peripheral property from the violation of intrasyllabic palatal harmony as depicted in Figure 1. In contemporary standard Turkish /l/ is the only consonant that shares the phonological feature [back] with vowels and can co-determine suffixes in coda position. This peripheral property is also placed in Periphery 1 in the figure because this rime-triggered violation of vowel harmony or the extension of palatal harmony to the consonant /l/ is also highly productive for new loanwords. Productivity is introduced here as a novel criterion for distinguishing between the different strata in the periphery and has otherwise not been attested in the literature on the periphery of the phonological lexicon.

Figure 1. *The status of the coda /l/ in the Turkish phonological lexicon*



Legend: *In the core, harmony rules are followed, whereas they are violated in some respects in the periphery. Intrasyllabically harmonic /l/ means that /l/ harmonizes palatally with the vowels of the same syllable, whereas intrasyllabically non-harmonic /l/ does not share the palatality of the vowels in the same syllable. The intersyllabically passive harmonic /l/ does not determine the subsequent suffix vowel's [back] feature across syllable boundaries, whereas the intersyllabically active non-harmonic /l/ determines the subsequent suffix vowel's [back] feature.*

5.1.4 The case of the phoneme /k^j/

Similar to the two allophones of the phoneme /l/, also the phoneme /k/ has a [-back] allophone [k^j] in [-back] environments and a [+back] allophone [k] in [+back] environments. A narrower transcription of the forms in (1) illustrates these differences in (4) a and b. Moreover, through borrowing from Persian and Arabic the allophone [k^j] has obtained phonemic status as illustrated in (4) c, where it occurs in the same syllable with [+back] vowels. Minimal pairs or near-minimal pairs to the forms in (4) c are given in (4) d to display phonemic contrasts.

(4)	a.	kuɫ	‘slave’	b.	kiyl	‘ash’
		koɫ	‘arm’		kɨœr	‘blind’
		kuɫ	‘body hair’		kil	‘clay’
		kaɫ	‘stay!’		kiel	‘bald man’
	c.	kjar	‘profit’	d.	kar	‘snow’
		kjah	‘sometimes’		kah.ve	‘coffee’
		sy.kjun	‘calm’		so.kun	‘insert! (Pl.)’
		sy.kiut	‘silence’		kor.kut	‘frighten!’

The phoneme /k^j/ never appears in coda position in contemporary Turkish, but there is an old-fashioned irregular suffixation pattern with a few k-final words similar to the irregular l-final forms in (3) b that suggests that this phoneme may have previously occurred in coda position as well. Some such examples are illustrated in (4) e and f. However, the /k/ in the forms in (4) e definitely lacks a [-back] pronunciation in contemporary speech.

(4)	e.	idrak	‘perception’	f.	idra:k-i ³
		iftirak	‘participation’		iftira:k-i
		emlak	‘real estate’		emla:k-i
(3)	a.	meɟgul	‘busy (person)’	b.	meɟgu:l-y
		gol	‘goal’		gol-y
		hal	‘market’		hal-i

The peripheral phoneme /k^j/ is not placed in the same peripheral stratum as the peripheral phoneme /l/ firstly because its peripheral distribution is limited to the onset, whereas the peripheral /l/ can also occur in both onset and coda position and secondly because it is not productive in contrast to /l/. All the words containing the onset /k^j/ are old loanwords that can therefore be viewed as “fossilized” forms in the lexicon. Therefore this phoneme is placed in a more peripheral stratum. The relevant aspect of the phoneme /k^j/ for the essay is that it possibly provides a certain “infrastructure” in the periphery of the Turkish phonology, i.e. the fact that it is present in the onset position, that may help accommodate a [k^j] in the word-final coda position in case it should occur in loanword forms that are to be adapted as faithfully as possible. To put it

³ The long vowel in these suffixed forms will be explained in section 5.2.

differently, the coda /k^j/ could follow the coda /l/ mentioned in Section 5.1.3 and join the triggering rime as in the first periphery in Figure 1 given the right circumstances.

5.1.5 The suffixes for dative and genitive

As we have seen, the underspecified [+high] vowel in a suffix can adopt the [round] feature of the primary stem's final rime as well as its [back] feature, thus resulting in four different realizations [i], [y], [u] and [ɯ] plus additional four variants with an initial j followed by the same four vowels. The case is different for suffixes with an underspecified [-high] [-round] vowel, which only adopts the [back] feature of the rime. The dative suffix is a good example for this as it behaves like the [-high] counterpart of the [+high] accusative suffix. The dative suffix has the underlying form /-jA/⁴ and displays only four variants, [a], [e], [ja] and [je]. The third case suffix with similar sensitivities towards the stem is the genitive suffix, which has the underlying form /-nIn/ where the first n only appears after vowel-final stems. The vowel harmonic processes are otherwise the same as with the accusative suffix. It should also be noted that Turkish has double marking for possession, where the modifier of the phrase gets the genitive suffix, while the head gets different possessive suffixes depending on the grammatical person.

5.2 Underlying long vowels in the closed syllables of loanwords

The afore-mentioned violation of palatal harmony within the rime appears only in loanword forms as we have seen. It can be generally said that the native phonology of Turkish has been influenced significantly by extensive borrowing from languages like Arabic, Persian and French, whose phonologies are partly incompatible with native Turkish phonology. The best known examples for this are loanwords that violate intersyllabic vowel harmony within stems. As a result of borrowing, today the phonological lexicon of Turkish is replete with nominal stems that lack intersyllabic vowel harmony, both palatally and labially. This contact-induced outcome can be interpreted as Turkish phonology allowing peripheral structures in order to deal with the structural and sociolinguistic demands of heavy borrowing. There are nevertheless parts of the phonology where Turkish has consistently resisted compromises. While Turkish rimes have allowed new types of coda clusters through borrowing, the ban on super-heavy syllables, i.e. closed syllables with long vowels, has proven very resistant to change. The long vowels of Arabic and Persian loanwords within super-heavy syllables can therefore only surface in certain contexts and are suppressed in others. They can be analyzed as part of the underlying forms but they are only realized when the coda of the syllable becomes the onset of a subsequent vowel-initial suffix or auxiliary verb.

⁴ The underspecified [-high] vowel is represented with a capital /A/ here in accordance with turkological conventions, where it stands for the variants [a] and [e].

- | | | | | | | |
|-----|----|-----------------------------|------------|----|------------|----------------|
| (5) | a. | bin | 'thousand' | b. | bi.n-i | 'thousand-ACC' |
| | | put | 'effigy' | | pu.t-u | 'effigy-ACC' |
| | | at | 'horse' | | a.t-u | 'horse-ACC' |
| | | | | | | |
| (6) | a. | ze.min | 'ground' | b. | ze.mi:.n-i | 'ground-ACC' |
| | | u.mut | 'hope' | | u.mu:.d-u | 'hope-ACC' |
| | | ha.jat | 'life' | | ha.ja:.t-u | 'life-ACC' |
| | c. | /zemi:n/, /umu:d/, /haja:t/ | | | | |

The nominative forms in (5) a. overlap with their underlying forms and the accusative suffixation is regular, whereas the forms in (6) are irregular in the sense that the nominative forms in (6) a. are not simultaneously the underlying forms⁵. The underlying forms are given in (6) c. The underlying long vowel can only be realized as such in open syllables and is therefore shortened in closed syllables. This type of vowel-length alternation in nominal stems is mainly encountered in loanwords, where the original foreign vowels were long. Turkish phonology does not allow super-heavy syllables but is flexible enough or faithful enough to the original long vowels to allow this type of nominal stem alternation. This type of vowel length alternation is also fossilized as the class of stems with alternating vowel length has shown no tendency to increase despite the fact that the number of contemporary English loanwords offers the opportunity with their final super-heavy syllables. In contemporary loanwords the long vowels are shortened for good and vowel length does not alternate as in the word *blucin* [bludʒin] 'blue jeans' and *blucin-e* [bludʒin-ɛ] 'to the blue jeans'. On the contrary, this class might be shrinking as some degree of free variation can currently be observed in Turkey, where the alternation is sometimes used and sometimes not.

5.3 Permissible and underlying word-final coda clusters

So far we have only seen examples with simplex codas for the sake of simplicity. Despite a preference for simple word-final codas Turkish does in deed allow certain biconsonantal clusters to appear in word-final position. These coda clusters display a clear tendency to follow the sonority sequencing principle, whereby the first coda consonant has to be more sonorant than the final one. There are very few exceptions to this that involve foreign names and s-final loanwords, where coda consonants either have the same level of sonority or violate the sonority sequencing principle⁶. There is a certain preference for a minimal sonority distance of two among native words, but a distance of one is nevertheless well-tolerated among a number of loanwords. In (7) we can see some examples of permissible coda clusters:

⁵ “.” represents a syllable boundary here.

⁶ [ʃarʃ] (Charles from French), [dʒips] (chips), [faks] (fax) etc.

- | | | | | | | |
|-----|----|------|-----------------|----|------|----------|
| (7) | a. | vals | 'Waltz' | b. | zamk | 'glue' |
| | | ha+k | 'people' | | ʃans | 'chance' |
| | | Kars | 'the city Kars' | | bant | 'tape' |
| | | kart | 'old, rough' | | | |
| | c. | dost | 'close friend' | | | |
| | | aʃk | 'love' | | | |
| | | zift | 'tar' | | | |
| | | zevk | 'pleasure' | | | |
| | | taht | 'throne' | | | |
| | | | | | | |

Many of these words do actually have foreign origin but these formerly alien coda clusters have been incorporated into the Turkish phonology without any adjustments because they all follow the sonority sequencing principle. The ones with a sonority distance of two can be said to have been integrated into core phonology, whereas those with a lesser sonority distance were integrated into the periphery. On the other hand, there are also a large number of words in Turkish, both of native and foreign origin, whose underlying forms display coda clusters that are not permissible in surface forms in Turkish. When we investigate how the loanword forms with problematic original coda clusters are remedied, we observe the same strategy as we have encountered in (3) and (6), namely a limited faithfulness to the original rimes in syllabically permissible contexts. When the syllable structure constraints do not permit faithfulness, two strategies are applied: deletion⁷ (degemination of geminate consonants) as in (8) or epenthesis with an underspecified [+high] vowel as in (9).

- | | | | | | | |
|-----|----|--------|------------------|----|------------|----------------------|
| (8) | a. | ma.hal | 'location' | b. | ma.hal.l-i | 'location-ACC' |
| | | sur | 'secret' | | sur.r-u | 'secret-ACC' |
| | | zam | 'price increase' | | zam.m-u | 'price increase-ACC' |
| | | zan | 'suspicion' | | zan.n-u | 'suspicion-ACC' |
| | c. | his | 'feeling' | d. | his.s-i | 'feeling-ACC' |
| | | haz | 'enjoyment' | | haz.z-u | 'enjoyment-ACC' |
| | | af | 'forgiveness' | | af.f-u | 'forgiveness-ACC' |
| | | | | | | |
| | | | | | | |
| | | | | | | |

The words in (8) are all loanwords, whereas the words in (9) have both native and foreign origin. Here we observe a case of phonological convergence, whereby two different phonological developments, namely a native one involving so-called “weak” historical vowels and one involving the adaptation of problematic loanword codas, have led to the same outcome of stem alternation.

⁷ One single case of ‘permanent’ deletion of the last consonant in a final coda cluster is known, namely in the French loanword *hors-d’œuvre* which is written as *ordövr* in Turkish but pronounced without the final ‘r’ as [ordœv] in nominative and as *ordövü* [ordœvy] in accusative.

(9)	a.	zu.lym 'oppression'	b.	zul.m-y	'oppression-ACC'
		ka.rwɯn 'belly'		kar.n-w	'belly-ACC'
		œ.myr 'life span'		œm.r-y	'life span-ACC'
		ge.niz 'nasal passage'		gen.z-i	'nasal passage-ACC'
	c.	ne.sil 'generation'	d.	nes.l-i	'generation-ACC'
		œ.zyr 'apology'		œz.r-y	'apology-ACC'
		u.fuk 'horizon'		uf.k-u	'horizon-ACC'
		o.ğɯ† ⁸ 'son'		oğ.†-u	'son-ACC'
		zi.hin 'mind'		zih.n-i	'mind-ACC'

The alternations in (8) and (9) are part of standard Turkish and are particularly dominant in the written language, but we can speak of fossilization also in this case as with vowel length alternation. The class is not increasing but possibly decreasing as free variation is currently observed, where the alternation is sometimes present and sometimes not.

5.4 The status of stem alternations in the phonological lexicon

The issue of stem alternation is different from the issue of intrasyllabic and intersyllabic harmony, because it involves not one but two variants of the same word. In the case of harmony, forms violating harmony were placed in the periphery, in the first stratum if they were productive and in the second if they were not. In the case of stem alternation no surface form violates the general phonotactic rules/constraints of the core phonology because the impermissible rimes are either remedied or their codas are resyllabified. The peripherality lies in the alternation itself, which affects the timing slots of the stem, either decreasing or increasing them. Considering that these alternations resulted mainly from the desire to be as faithful to the originals as possible and that the majority of nouns in the Turkish lexicon do not display alternations affecting timing slots, alternating stems should be placed in the periphery. Since the class of words with the above-mentioned types of stem alternation shows a tendency to decrease, the second stratum of the periphery is more suitable for these stems. As with /l/ participating in palatal harmony, the peripherality of these structures is revealed through suffixation.

5.5 The sensitivities of the Turkish rime

In summary, the phonological lexicon of Turkish consists of different strata. The periphery is characterized by a phonological flexibility within certain limits. This periphery is quite rich as we have seen and in many instances of historical borrowing processes faithfulness to the original of the loanword has been preferred to faithfulness to the phonological demands of the core. We have also observed that such Turkish suffixes as the accusative, dative and genitive are sensitive to the properties of the final rime of a nominal stem. The allomorphs of these case suffixes have shown us that Turkish suffixes display the following sensitivities:

⁸ The phoneme /ğ/ historically corresponded to [ɣ] and still behaves like a consonant phonologically but is deleted intervocalically and lengthens the preceding vowel in coda position.

- 1) Vowel-final or consonant-final final rime
as displayed by the differences between the forms in (1) and (2)
- 2) [+back] or [-back] final rime
as displayed by the differences between the forms in (1) a and (1) c, and those in (1) b, (1) d and (3) b
- 3) [+round] or [-round] final rime
as displayed by the differences between the forms in (1) a and (1) b, and those in (1) c, (1) d and (3) b
- 4) vowel length in the final rime
which is preserved and can be realized in open syllables as in (6) b
- 5) consonant length in the final rime
which is preserved and can be realized in open syllables as in (8) b and d

This essay intends to explore these sensitivities by examining how new borrowings from Swedish are suffixed when integrated into Turkish. More specifically, it will be examined how certain “alien” rimes are treated phonologically in terms of these classifications. Another important investigation will be how the impermissible coda clusters of some Swedish borrowings are treated in comparison to the strategies applied in (8) and (9).

6. RIMES OF INTEREST IN THE SWEDISH BORROWINGS

Before moving on to the results, certain properties of the Swedish rimes selected for this study deserve special attention. Therefore these rimes are discussed in this section from the perspective of borrowing in terms of vowel and consonant quality as well as quantity.

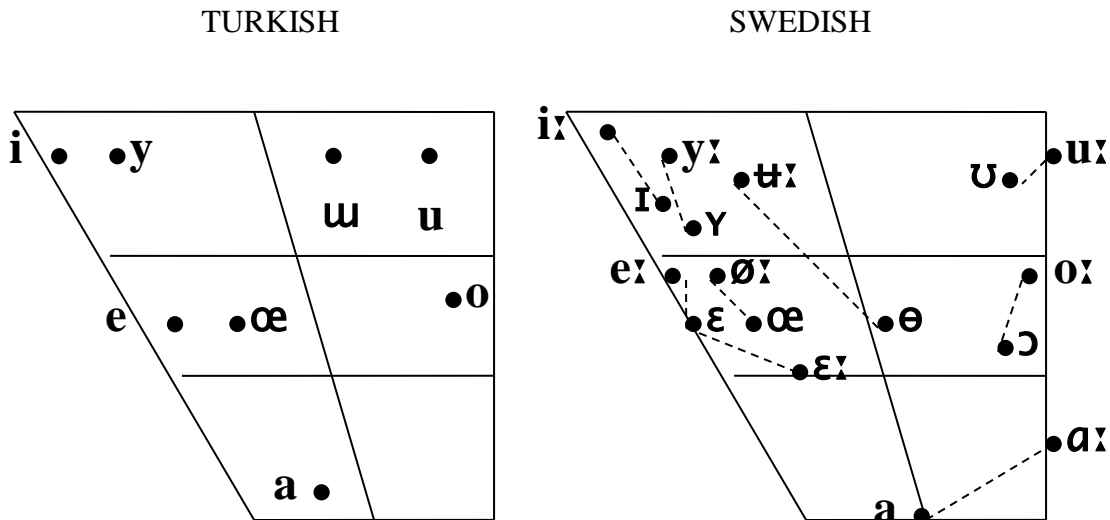
6.1 The Nuclei

The vowel phoneme inventories of Turkish and Swedish are relatively similar as illustrated by the phonetic realizations of the vowel phonemes in Figure 2. Turkish also has long variants of all eight vowel phonemes.

6.1.1 Vowel quality

An important difference between these vowel systems is that vowel quality is the same for short and long vowels in Turkish, whereas Swedish short and long vowels display differences in vowel quality resulting in the following nine short vs. long allophone pairs: $i:/ɪ$, $y:/ʏ$, $e:/ɛ$, $ɛ:/ɛ$, $ø:/œ$, $ɤ:/ə$, $u:/ʊ$, $o:/ɔ$, $a:/a$. This is why the Swedish vowel trapezoid seems more crowded compared to the Turkish one. These pairs are indicated by dotted lines in the figure. The short allophone of both the phoneme /e/ and /ɛ/ is [ɛ] as signaled by the two dotted lines originating from it in the figure.

Figure 2. Phonetic realizations of the vowel phonemes⁹



Legend: The dotted lines indicate the allophonic relationships between the short and long vowels.

6.1.2 Vowel quantity

As we have seen in (6) Turkish does not allow super-heavy syllables in surface forms, but underlying long vowels in word-final rimes can still be realized as such, when a vowel-initial suffix or auxiliary verb follows. Therefore it would be interesting to investigate whether such long vowels display the same alternation as in (6) a and b between unsuffixed Swedish borrowings and the same ones when they receive a vowel-initial suffix.

6.2 The Codas

As we have seen, in surface forms Turkish does not allow geminate consonants in final coda position or consonant clusters that violate the sonority sequencing principle. Final geminate consonants are, however, permissible in Swedish phonology as for example in the word *katt* ‘cat’ [kat:]. As for permissible final consonant clusters, it should be noted that Swedish has clusters that end with the phoneme /j/, which is a palatal approximant¹⁰ as in the word *borg* ‘castle’ [bɔɲj], and as such do not follow the sonority sequencing principle. Therefore these clusters potentially pose a problem for the phonotactic rules of Turkish (see Hammarberg, 1993 for how German speakers treat these problematic clusters).

6.2.1 Geminate coda consonants

In (8) we have seen that Turkish allows underlying geminate coda consonants to surface when the word receives a vowel-initial suffix. The question here is if Swedish borrowings of this type would reproduce the pattern in (8). Such a reproduction is exemplified in examples (10) and (11).

⁹ Based on the descriptions in the Handbook of the International Phonetic Association 1999

¹⁰ There is some debate about the manner of articulation of this phoneme. Some sources such as the Handbook of the IPA (1999) classify it wholesale as a fricative, whereas others present it as varying in its distribution between a fricative and an approximant (cf. Lindblad 1980; Garlén, 1988:39). Nevertheless, presently there seems to be a consensus among Swedish phoneticians that it is mainly to be viewed as an approximant. Björsten (1996) finds the approximant realization in the coda clusters /rj/ and /nj/, which is the most relevant aspect for this essay. Therefore /j/ shall henceforth be referred to as an approximant.

Compare the actual Turkish examples in (10) a and b with the hypothetical Swedish-Turkish examples of the same type in (11) a and b, where the Swedish originals have the same form as the Turkish underlying forms in (10) c.

(10)	a.	his	'feeling'	b.	his.s-i	'feeling-ACC'
		hat	'line'		hat.t-u	'line-ACC'
		hal	'(taking) care'		hal.l-i	'(taking) care-ACC'
	c.	/his:/, /hat:/, /hal:/				
(11)	a.	SW hiss /his:/	'elevator' > TR [his]	b.	his.s-i	'elevator ^{SW} -ACC ^{TR} '
		SW hatt /hat:/	'hat' > TR [hat]		hat.t-u	'hat ^{SW} -ACC ^{TR} '
		SW hall /hal:/	'hall' > TR [hal]		hal.l-i	'hall ^{SW} -ACC ^{TR} '

6.2.2 The classification of j-final coda clusters

Swedish has a number of coda clusters that end in /j/: /lj/ as in *detalj* [detaɭj] 'detail', /rj/ as in *borg* [bɔɹj] 'castle' and /nj/ as in *champagne* [ʃampanj]. The /j/ can lead to the palatalization of the preceding /l/ in casual speech¹¹. This type of j-final coda cluster is not permitted in Turkish phonology. Although palatalization of velars is possible in Turkish, palatalization of coronals is not documented in the literature on Turkish phonetics. Nevertheless, there are a few words that need to be examined more closely for palatalization of coronals, but this falls outside the scope of this essay¹². If Swedish borrowings containing these j-final clusters are subjected to Turkish phonotactic rules such clusters might be remedied with an epenthetic vowel as in (13) or perhaps through deletion as in (12), if they are perceived as a long consonant due to a reduction of the j in native pronunciation. Even innovative remedies might be introduced such as the reanalysis of /j/ as the vowel /i/. The effects of these different treatments would be observable in the borrowings' suffixation due to the afore-mentioned sensitivities. If the borrowing, however, is not adapted to Turkish phonology, its rime will still need a representation within the Turkish phonology to be able to receive a suffix at all. It could be represented as /j/-final i.e. [+back] and consonant-final or as /i/-final i.e. [-back] and vowel-final or perhaps with a palatalized coronal i.e. [-back] and with the roundness feature of the preceding vowel. Again the sensitivity of Turkish case suffixes would reflect the effects of these different representations.

6.2.3 The classification of the word-final Swedish /k/

The status of the phoneme /kⁱ/ has been discussed in section 5.1.4, especially as a historically unclear [-back] coda consonant in (4). In Swedish coda /k/ is phonetically slightly palatalized, especially in the coda position after both front and back vowels (cf. Engstrand, 2004:134) and it would be interesting to see if loanwords with a [+back] final vowel and a coda with [kⁱ] would be treated as the forms in (4) in line with the /l/-final forms in (3).

¹¹ Engstrand 2004:157

¹² *harf* [haɹf] 'letter' and the old word for 'war' *harp* [haɹp] have a [+back] vowel but the final rime is treated as [-back] in suffixation. The 'r' in these words seems to have a palatalized pronunciation in educated speech.

7. RESULTS AND DISCUSSION

7.1 Vowel quantity

In order to investigate how Swedish long vowels in word-final closed syllables are integrated into Turkish seven proper nouns and two generic nouns as parts of place names were incorporated into the translation text. Apart from these, six more generic nouns were introduced spontaneously by the participants during translation leading to a total of 461 occurrences of original Swedish word-final super-heavy syllables in the data. As mentioned before Turkish does not allow super-heavy syllables in surface forms but allows for vowel length alternation in its periphery. The data occur in two main contexts. In the first context, henceforth referred to as V, the long vowels are not allowed for example when the word is not suffixed or suffixed with a consonant-initial suffix. In the second context, henceforth VV, the long vowels are allowed because the word-final consonant can be resyllabified due to a vowel-initial suffix or auxiliary verb. Therefore, when a word-final super-heavy syllable is to be integrated into Turkish, in context V the choice is between adapting the long vowel into the core of the Turkish phonological lexicon by shortening it and not adapting it by preserving the original length. The second choice is thus faithful to the original at the cost of violating Turkish phonotactic constraints. In context VV, the choice is between adapting the long vowel into the core by shortening it and preserving the length, thereby laying the foundation for possible stem alternation in the length. The latter option thus enables integration into the second peripheral stratum. Concerning word-final phonotactics in this case, the second peripheral stratum overlaps with the Swedish original and thereby also allows faithfulness to the Swedish original. Let us illustrate these choices with the personal name *Josefin* from the data as in (12).

(12) original: /jusefi:n/

Context V: nominative (unsuffixed)

- a) [fi:n] violates core phonotactic constraints BUT stays faithful to the original
- b) [fin] follows core phonotactic constraints BUT alters the original

Context VV: accusative suffixation

- c) [fin-i] follows core phonotactic constraints BUT alters the original
- d) [fi:n-i] follows core phonotactic constraints AND stays faithful to the original

The combination of b) and d) reproduces the kind of stem alternation that is attested in the second peripheral stratum of the Turkish phonological lexicon as illustrated in example (6) earlier, whereas the combination b) and c) shortens the original length for good not allowing for peripheral stem alternation and thereby integrating the borrowing not in the periphery but in the core of the phonological lexicon. Thus the periphery remains unutilized in favor of the core or to put it differently the periphery is *absorbed* by the core. Therefore, d) will be referred to as peripheral integration, whereas b) and c) will be called core integration. As for a) there are two possible analyses; firstly that original Swedish phonotactics is used instead of Turkish phonotactics, which can be analyzed as a code-switch, and secondly that the individual speaker has extended their Turkish periphery by allowing new phonotactic structures that violate core constraints. The focus in this essay lies on the rime and not the whole word. Consequently, a relevant question is if the presence of foreign phonotactics in the word-final rime is sufficient

grounds for speaking of code-switching irrespective of the treatment of the rest of the word in question. Depending on the realization of the whole word some of such cases may in fact be fully faithful to the original, whereas others might display Turkish adaptations with the exception of coda phonotactics. Lehtinen (1966:191) discusses similar cases, where English words are suffixed with Finnish suffixes, as cases of code-switching and suggests a transition zone from one code to the other that stretches approximately one phoneme to each side of the morphological boundary. Therefore, what happens in the final rime is crucial for code-switching. Another important issue is if these are cases of code-switching or established cases of periphery extension in the speaker's phonological lexicon. Since this issue goes beyond the scope of the current essay, the following double approach will be taken henceforth. Phonotactically all such cases will be analyzed as periphery extension, while they will also be presented as following both codes.

Table 4. *Loci of integration for original long vowels (in percent)*

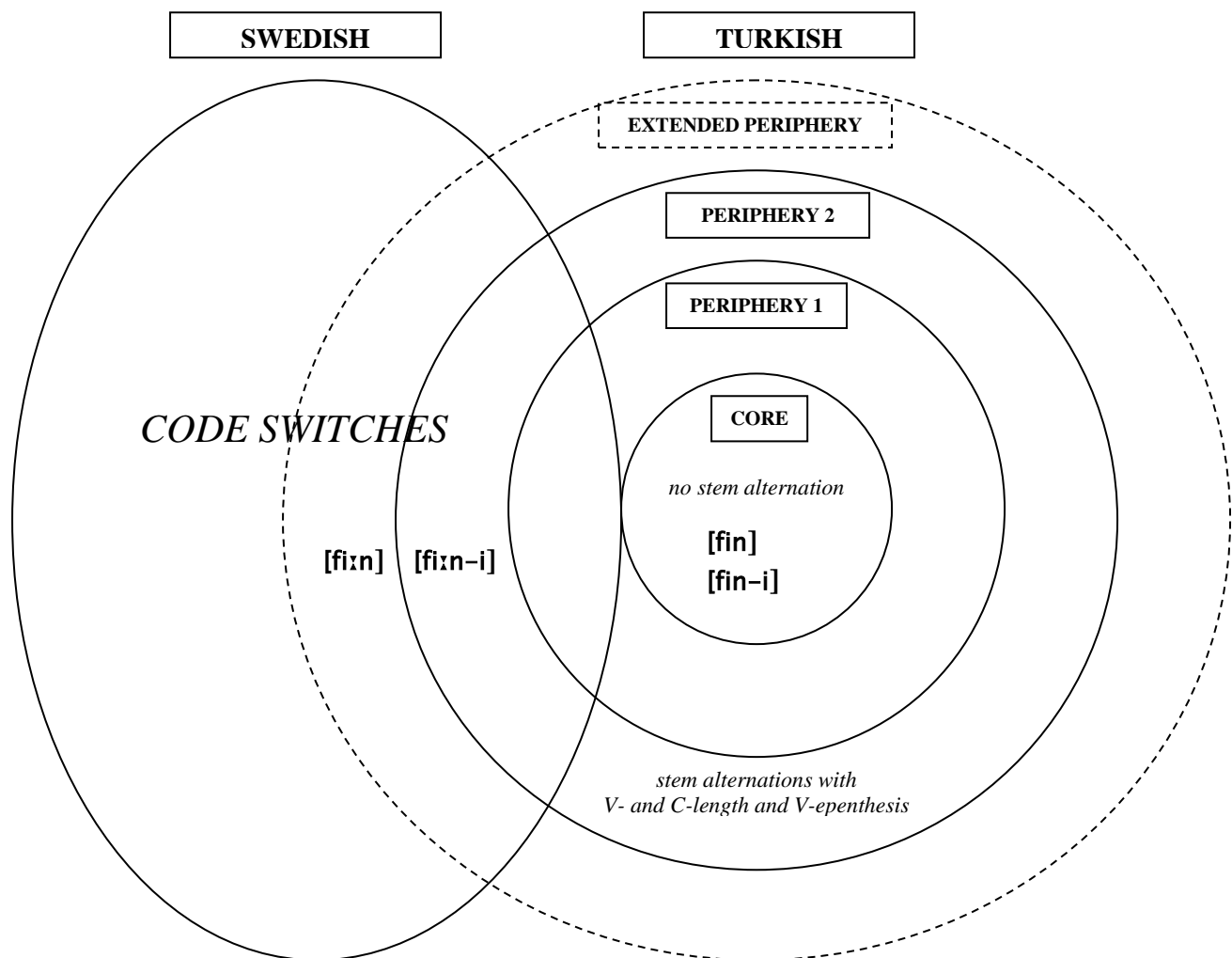
Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean	N	
V	a)	core	TR	24	21	44	69	32	26	29	33	52	50	52	32	39	109
	b)	ext. P	SW	76	79	56	31	68	74	71	67	48	50	48	68	61	168
VV	c)	abs. P	coreTR	33	13	0	50	35	6	0	12	53	27	75	31	27	50
	d)	use P	SW=TR	67	87	100	50	65	94	100	88	47	73	25	69	73	134
Periphery score V				68	77	86	68	73	77	96	91	100	64	91	55	79	208

Legend: *P* in the first row stands for participant. In the context *V* long vowels are not tolerated while they are tolerated in context *VV*. *Locus* stands for where in the phonological lexicon a given form is integrated. The forms can be integrated into the core (*core*) or violate the phonological rules thereby extending the periphery (*ext. P*). Alternatively they can be placed into the periphery (*use P*) or into the core in a context where the periphery is also available whereby the periphery is absorbed by the core (*abs. P*). *Code* represents the phonology that is being adhered to in a given integration, either the phonology of Turkish (*TR*) or that of Swedish (*SW*) or an overlap of both (*SW=TR*). As a code *core TR* stands for adherence to the core of Turkish phonology as opposed to its periphery. *Periphery score V* represents the degree to which the participants use stem alternation with long vowels in their Turkish in general.

In Table 4 the different treatments for original Swedish long vowels in closed word-final syllables are summarized according to the afore-mentioned contexts *V* and *VV*. The letters a)-d) in the first column called *Context* correspond to the cases represented by the same letters in example (12). When the long vowel is shortened in a) under the context *V*, the rime is considered to be integrated into the core of the Turkish phonology as indicated in column two called *Locus*, which stands for locus of integration. Furthermore, this integration pattern follows Turkish (*TR*) as the code as indicated in column three called *Code* by complying with the adaptation requirements of the Turkish phonology. In case b) in row two, the long vowel is preserved, which is analyzed as an extension of the Turkish periphery (*ext. P*) and as adhering to Swedish (*SW*) as the code. In context *V*, there are thus only two possible treatments: vowel shortening as in a) and long vowel preservation as in b). The percentage scores for the twelve participants illustrate to which extent these two possible treatments were attested in the data. Under the context *VV*, the choice is between integrating the long vowel into the core and the periphery of the Turkish lexicon. Case c) in row three displays integration into the Turkish core (*coreTR*), whereby the opportunity to use the periphery of the lexicon is not used. This case can also be seen as the absorption of the periphery by the core, hence the abbreviation “*abs. P*” in column two. The alternative is that the periphery is in fact used (*use P*) as in d) in row four, which furthermore

entails an overlap of the Turkish and Swedish codes (SW=TR), since the structure is allowed in the grammars of both codes. In the penultimate column we can see the mean for the whole group rendered in bold style, while we can see the number of total occurrences per context in the last column called N. In the last row of the table the scores that the participants obtained on the aforementioned Turkish periphery test for the relevant structure long vowels is repeated for comparison with periphery utilization. When we look at the results, for context V the tendency in the data is for option b), i.e. towards faithfulness to the Swedish original at the expense of violating core Turkish phonotactics, with a mean of 61% for the whole group. Also in the VV-context, where preserving the original vowel length is allowed in Turkish, there is a strong tendency towards faithfulness to the original with 73% of the borrowings being integrated into the Turkish periphery.

Figure 4. Overview of relevant integration loci with the example /fi:n/



Legend: Long vowels in closed syllables are not tolerated in the core. In Periphery 2 they are tolerated when they can be resyllabified due to a vowel-initial suffix. When a long vowel is used in a closed syllable it violates Turkish phonological rules and can be considered part of a possible periphery extension for the speaker, hence the dotted line around the extended periphery. When an original long Swedish vowel is preserved overlaps occur between the two phonological systems depending on the context of the long vowel. Faithfulness to the original vowel length can also be interpreted as a code-switch (consult the background section for a theoretical discussion).

The overlap in cases like d) as illustrated in Figure 4 is perhaps the reason for why the highest average is attested in this category. In Figure 4 the uncertainty surrounding periphery extension, i.e. whether the individual speakers extend it consistently or not, is represented by the dashed lines. Only the aspects relevant for this case of overlap are shown in Figure 4, but more generally the Swedish code can overlap with different Turkish strata regarding further dimensions such as consonant quantity, too. A more exhaustive figure for a complete overview can be found in Appendix 6. The variation in the V-context could also be interpreted as a conflict between the codes represented by Turkish and Swedish. The mean periphery use is high at 73%, together with the mean core use (abs. P) at 39% reproducing cases of stem alternation. An important issue that needs to be addressed is why the second peripheral stratum is not used to full extent despite the code overlap. A possible explanation for this could be that the participants use the periphery in the integration of new borrowings to an extent, which is proportionate to their Turkish periphery score in the last row. This would mean that those, who had low scores for the Turkish periphery, cause the low use of the periphery in the new borrowing context. However, the statistical analysis shows that there is no significant correlation (2-tailed Pearson: $r = 0.27$, $N = 12$, $p < 0.933$) between the scores in the penultimate and last rows meaning that the incomplete use of the periphery is not a function of the participants' incomplete use of the periphery in Turkish.

7.2 Consonant quantity

A similar situation is also the case for geminate coda consonants. Here seven proper nouns were incorporated into the translation text and one generic noun was introduced spontaneously during translation resulting in a total of 304 occurrences of original geminate final coda consonants in the data. As we have seen in example (8) earlier, the Turkish periphery allows for stem alternations involving consonant length in its second peripheral stratum. Again there are two relevant contexts here, which are identical with the contexts in the previous section. Analogously they will be referred to as C, where no resyllabification is possible, and CC, where the geminate consonant is allowed due to the possibility of resyllabification as presented in Table 5.

Table 5. Locus of long consonant integration according to the participants (in percent)

Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean	N
C	a)	core TR	100	72	100	94	95	93	100	100	96	100	94	93	95	203
	b)	ext. P SW	0	28	0	9	5	7	0	0	4	0	6	7	5	11
CC	c)	abs. P coreTR	100	92	100	100	100	63	83	100	100	100	100	100	94	85
	d)	use P SW=TR	0	8	0	0	0	37	17	0	0	0	0	0	6	5
Periphery score C			56	22	78	89	44	78	56	56	67	44	78	22	57	62
Mean of foreign accent			2.7	2.3	1.7	1.3	0	3	3	2.7	3	0	1	1.7		

Legend: P in the first row stands for participant. In the context C long consonants are not tolerated while they are tolerated in context CC. Locus stands for where in the phonological lexicon a given form is integrated. The forms can be integrated into the core (core) or violate the phonological rules thereby extending the periphery (ext. P). Alternatively they can be placed into the periphery (use P) or into the core in a context where the periphery is also available whereby the periphery is absorbed by the core (abs. P). Code represents the phonology that is being adhered to in a given integration, either the phonology of Turkish (TR) or that of Swedish (SW) or an overlap of both (SW=TR). As a code core TR stands for adherence to the core of Turkish phonology as opposed to its periphery. Periphery score C represents the degree to which the participants use stem alternation with long consonants in their Turkish in general. Mean of foreign accent stands for the evaluation of the participants Swedish by the panel.

Compared to the results from vowel quantity, the results for consonant quantity display much less variation and clearly point to the direction of adaptation to the Turkish code. All participants show a clear preference for the core of the Turkish phonological lexicon with an average of 95% and 94% for the contexts C and CC respectively. Why are the results for consonant quantity so different from the results for vowel quantity? One explanation could be that the duration of the long Swedish vowels is perceived as more salient by the participants than the duration of long Swedish consonants. Garlén (1988: 125) reports that there are important differences between the duration of long vowels and long consonants in Swedish. On average, short vowels display 65% of the duration of the long vowels, whereas short consonants display 85% of the duration of the long consonants. This means that there is a greater or more salient difference between short and long vowels than between short and long consonants.

It has been mentioned before that not all participants passed as native speakers in the panel evaluations and that most of them had slight foreign accents in Swedish as presented again in the last row in Table 5. One possible explanation is that these foreign accents could involve the shortening of long word final Swedish consonants. If this were the case participants with no or very little accent should display a different integration pattern than those with stronger accents. However, when the values for foreign accent are correlated with the results for the contexts C (2-tailed Pearson: $r = 0.40$, $N = 12$, $p < 0.902$) and CC (2-tailed Pearson: $r = 0.47$, $N = 12$, $p < 0.123$), no significant correlation is found. Another possible explanation might be the participants' low performance in the Turkish periphery regarding stem alternations involving final consonant length, which is presented in the penultimate row in Table 5. The group mean for this type of stem alternation was lower with 57% than the group mean for stem alternation with long vowels at 79%. However, when we investigate a possible correlation between the periphery score and the results for use of the periphery in row four we find no significant correlation (2-tailed Pearson: $r = 0.166$, $N = 12$, $p < 0.607$). It seems that the very low utilization of the second stratum of the periphery is not a function of the participants' periphery performance just like in the case of vowel quantity in the previous section. Thus the results seem quite independent of the participants' potential weaknesses in either language. Not even the code overlap in the CC-context produces more faithfulness to the original unlike in the VV-context mentioned earlier. The only plausible explanation for this overall shortening of Swedish word-final long consonants is that they are not salient enough, as mentioned before, to be incorporated into the Turkish periphery, neither into the second stratum nor into a possible extension, although the participants can be generally assumed to produce them in their Swedish.

7.3 The integration of the word final Swedish /l/

Hitherto, results for the unproductive second stratum of the periphery have been discussed. Now we turn to the non-harmonic /l/ in the productive first stratum of the periphery. In order to test how Swedish words with a final rime containing a [+back] vowel and [-back] /l/ are integrated into Turkish, five Swedish proper nouns and one generic noun were incorporated into the translation text leading to a total of 813 occurrences, whereof 446 were unsuffixed and 367 suffixed. The unsuffixed forms will be investigated regarding intrasyllabic palatal harmony, whereas the suffixed ones will be examined for intersyllabic stem-suffix harmony. When an unsuffixed noun of this type is to be integrated into Turkish, there are two possible outcomes as displayed in example (13) a) and b) with the place name *Gröndal* from the data. The vowel length is not altered in the example for the sake of simplicity. The choice is between adapting the /l/ to the backness of the nucleic vowel according to intrasyllabic harmony thereby following the core of the Turkish phonology as in a) or preserving its original quality and thereby placing it

into the first stratum of the Turkish periphery as in b). The latter case displays again an overlap of the Turkish and Swedish codes as we have seen with vowel and consonant quantity before.

(13) original: [gʊœ:nda:l]

Context: nominative (unsuffixed)

- a) [da:ɫ] integrated into the core BUT alters the original
- b) [da:l] integrated into the first peripheral stratum AND faithful to the original

Context: dative suffixed

- c) [da:ɫ-a] stem integrated into the core and suffixed after vowel harmony
- d) [da:ɫ-e] stem integrated into the core but suffixed ungrammatically
- e) [da:l-e] stem integrated into periphery and suffixed after palatal harmony
- f) [da:l-a] stem integrated into periphery but suffixed after vowel harmony

When the forms in a) and b) are suffixed, there are four possible outcomes. The core can be adhered to fully as in c) leading to both intra- and intersyllabic harmony or the periphery can be adhered to fully as in e) whereby not the vowel but the intrasyllabically non-harmonic /l/ determines the vowel in the suffix. In case d) the [-back] suffixation is ungrammatical because neither the vowel nor the coda /l/ are phonologically [-back]. In case f) the original [-back] quality of the /l/ is preserved but it has no effect on the suffixation, which is determined by the [+back] vowel. This case could also be analyzed as ungrammatical, but in contrast to d) there is actually some phonological basis for the suffixation, although it does not follow the grammatical conventions of standard Turkish. In Table 6 we can see the results organized in the same categories as in example (13).

Table 6. Locus of word-final /l/-integration after back vowels (in percent)

Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean	N
unsuffixed	a)	abs. P1 coreTR	35	13	21	41	20	18	0	24	11	3	14	59	22	98
	b)	use P1 TR=SW	65	87	79	59	80	82	100	76	89	97	86	41	78	348
suffixed	c)	abs. P1 coreTR	36	14	14	39	22	22	0	21	7	3	15	63	21.8	80
	d)	ungram. TR?	0	0	0	0	0	0	0	3	0	0	0	0	0.3	1
	e)	use P1 TR=SW	21	3	31	52	31	30	17	63	86	59	82	9	40.9	150
	f)	deharm. SW/coreTR?	43	83	55	9	47	48	83	13	7	38	3	28	37.1	136
Periphery score L			33	78	100	67	78	100	67	100	100	78	100	67	81	87

Legend: P in the first row stands for participant. The unsuffixed context deals with the participation of /l/ in intrasyllabic harmony, while the suffixed context deals with its participation in stem-suffix harmony. Locus stands for where in the phonological lexicon a given form is integrated. The forms can be integrated into the core (core) or they can be placed into the first stratum of the periphery (use P1) or into the core in a context where the periphery is also available whereby the periphery is absorbed by the core (abs. P1). Code represents the phonology that is being adhered to in a given integration, either the phonology of Turkish (TR) or that of Swedish (SW) or an overlap of both (SW=TR). As a code core TR stands for adherence to the core of Turkish phonology as opposed to its periphery. Cases where code adherence cannot be determined clearly are presented with a question mark. In the suffixed context option d) is ungrammatical (ungram.) and option f) involves l-deharmonization (deharm.) where the original Swedish /l/ is preserved but does not participate in stem-suffix harmony. Periphery score L represents the degree to which the participants have coda /l/ participating in stem-suffix harmony processes in their Turkish in general.

For d) the code that is being adhered to is not clear because on the one hand intrasyllabically the Turkish code is being followed but on the other hand intersyllabically the suffixation is ungrammatical. This situation is expressed by “TR?” in the column Code for case d). Case e) involves again an overlap of the two codes, whereas case f) is given the name *l-deharmonization* (deharm.) because of the fact that the intrasyllabically non-harmonic /l/ stops participating in the stem-suffix harmony processes i.e. it is being intersyllabically deharmonized. As for the repercussions of this for code adherence, the Swedish original is being preserved while l-deharmonization entails a return to simple core vowel harmony in Turkish, although intrasyllabic harmony in the core remains violated. The term “SW/coreTR?” is used in the Code column for this case to reflect this complexity. In the last row the results from the Turkish periphery test regarding the suffixation of words ending in an intrasyllabically non-harmonic /l/ are repeated for comparison with the results from the integration of new borrowings in row e).

In the results we can see that unsuffixed Swedish nouns are predominantly integrated into the first peripheral stratum with an average of 78%. The remaining 22% of the occurrences are integrated into the core instead of the periphery although both codes overlap in the periphery. We have previously called this phenomenon *core absorption*, hence the abbreviation “abs. P1” for case a), because the periphery is absorbed by the core. We can observe a similar amount of core absorption also for suffixed nouns as illustrated in row c) at 21.8%. In the suffixed context, the fact that the options “use P1” at 40.9% and “l-deharmonization” at 37.1% both entail faithfulness to the phonetic quality of the original Swedish /l/ might explain why they are more popular than core integration. The slightly higher tendency towards “use P1” could be due to total code overlap in that case allowing for faithfulness to both Turkish and Swedish. However, for the very same reason it should be expected to fair much better than the other options. Here we encounter once more a situation, where the existing Turkish periphery is not utilized to full extent. In this particular case it is even the productive first stratum of the periphery with a code overlap that is only utilized in 40.9% of all occurrences. There is a striking parallel between faithfulness to the Swedish original for the suffixed and the unsuffixed contexts, both at 78% if we for the former context add the means for periphery utilization in e) and l-deharmonization in f). A possible interpretation is that the participants’ main concern here is faithfulness to the Swedish original, but when it comes to the suffixed context this faithfulness has repercussions for the suffixation only in roughly half of the cases where the /l/ determines the suffix palatally as in e) but not for the other half as in f). Why does option e) not fair better than it does? One possibility for the low use of the periphery could be certain participants’ low scores in the relevant part of the Turkish periphery test, which involved only the suffixed context. This would mean that they do not use the periphery to a large extent in new borrowings because they do not use it fully in their Turkish to begin with. Statistical analysis shows, however, that there is no significant correlation (2-tailed Pearson: $r = 0.529$, $N = 12$, $p < 0.077$) between the participants’ Turkish periphery scores in the last row of Table 6 and their use of the periphery in suffixed Swedish nouns in row e) in the same table. The group mean for the former was quite high at 81% but much lower for the latter at only 40.9%. These results indicate that in the l-context the participants use the periphery to a large extent with established words in Turkish but not to the same extent for the new borrowings. The new borrowings are thus treated as a different case despite identical structures in both cases.

7.4 The integration of the word final Swedish /kʲ/

In order to test how the palatalized Swedish word-final [kʲ] is integrated in to Turkish two proper nouns were incorporated into the translation text resulting in a total of 154 occurrences, whereof 83 occurred unsuffixed and 71 suffixed. The case of the non-harmonic /kʲ/ is similar to the non-

harmonic /l/ in the sense that they both violate intrasyllabic palatal harmony in the onset position. The difference is that /k^j/ is synchronically not attested in the word-final coda position and consequently does not partake actively in intersyllabic stem-suffix harmony processes. There is, however, an archaic suffixation pattern where some nouns with a final /k/ do receive [-back] suffixes despite [+back] vowels in the final rime. This archaic pattern was attested only in one single case in the Turkish periphery test, whereas the onset-/k^j/ was attested in all possible cases as can be seen in the antepenultimate and penultimate rows in Table 7. The reason for investigating how word-final Swedish [k^j] is integrated into Turkish was to check if its peripheral status would be extended to mimic the status of the non-harmonic /l/ in the first stratum.

Table 7. Locus of word-final [k^j]-integration after back vowels (in percent)

Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean	N
unsuffixed	a) core	TR	100	83	88	100	100	83	100	100	90	88	100	100	94	78
	b) ext. P	SW	0	17	12	0	0	17	0	0	10	12	0	0	6	5
suffixed	c) core	TR	100	100	100	100	100	60	100	100	80	57	100	100	90	63
	d) ungram.	TR	0	0	0	0	0	0	0	0	10	29	0	0	4	3
	e) ext. P active in suffixation	SW	0	0	0	0	0	20	0	0	0	14	0	0	3	2
	f) ext. P passive in suffixation	SW	0	0	0	0	0	20	0	0	10	0	0	0	3	2
Periphery score /k ^j / (onset)			100	100	100	100	100	100	100	100	100	100	100	100	100	84
Periphery score /k ^j / (coda)			0	0	0	0	0	33	0	0	0	0	0	0	3	1
Mean of foreign accent			2.7	2.3	1.7	1.3	0	3	3	2.7	3	0	1	1.7		

Legend: P in the first row stands for participant. The unsuffixed context deals with the participation of /k^j/ in intrasyllabic harmony, while the suffixed context deals with its participation in stem-suffix harmony. Locus stands for where in the phonological lexicon a given form is integrated. The forms can be integrated into the core (core) or violate the phonological rules thereby extending the periphery (ext. P). When the periphery is extended as in options e) and f) /k^j/ can either co-determine the suffix (active in suffixation) or not (passive in suffixation). Code represents the phonology that is being adhered to in a given integration, either the phonology of Turkish (TR) or that of Swedish (SW). In the suffixed context option d) is ungrammatical (ungram.) and option f) involves l-deharmonization (deharm.) where the original Swedish /l/ is preserved but does not participate in stem-suffix harmony. Periphery score /k^j/ represents the degree to which the participants have this phoneme in the onset and coda positions in their Turkish in general. Mean of foreign accent stands for the evaluation of the participants Swedish by the panel.

In Table 7 the contexts are identical with the contexts in Table 6, but are in most cases expressed by different terms in the columns Locus and Code because /k^j/ is not part of the periphery completely as /l/ was in the previous section. When it is not part of the periphery in a certain context we can consequently not speak of the utilization of this periphery. Instead we can speak of periphery extension (ext. P), which would give /k^j/ the same status as /l/. The cases e) and f) involve both the preservation of the original word-final [k^j], where in e) it partakes actively in determining the suffix, which it does not in f). The results show that core integration, i.e. the adaptation of the word-final [k^j] as its [+back] variant [k], is the predominant pattern for both the

unsuffixed and the suffixed contexts at 94% and 90% respectively. Nevertheless, the only participant, who had the afore-mentioned archaic suffixation pattern in one out of three possible cases in the Turkish periphery test, does show higher periphery extension in both unsuffixed and suffixed nouns. One explanation for this outcome could be that most participants do not display [kʲ] in their Swedish as part of their foreign accents and therefore do not have this original structure to preserve to begin with. However, when we correlate the mean of their foreign accents as repeated again in the last row with their results for both context, we find no significant correlation for either the unsuffixed context as in row a) (2-tailed Pearson: $r = -0.153$, $N = 12$, $p < 0.635$) or the suffixed context as in row c) (2-tailed Pearson: $r = 0.061$, $N = 12$, $p < 0.85$). This outcome means that the participants' high degree of adaptation of [kʲ] to the core is not due to a possible accent regarding this structure. The only remaining explanation is that the palatalization of the word-final /k/ in Swedish is not salient or important enough for most participants to extend their peripheries in order to give [kʲ] the same peripheral status as [l].

7.5 Coda phonotactics

In order to test how the word-final j-final Swedish coda clusters /rj/, /lj/ and /nj/ in rimes with a [+back] vowel are integrated into Turkish five proper nouns were incorporated into the translation text resulting in a total of 237 occurrences of such coda clusters in the data, whereof 87 were unsuffixed and 150 suffixed. /lj/ and /nj/ featured in one noun each, while /rj/ featured in three nouns after a [+back] vowel in all cases. As mentioned before Turkish core phonology follows the sonority sequencing principle strictly and furthermore prefers a minimal sonority distance of two. It should be added here that a distance of one seems to be tolerated in the periphery, as there is a small class of old and new loanwords, where the reversed clusters /jl/ and /jn/ are attested. There are several categories in Tables 8-11, where relevant types were not attested in the data as not all participants translated the same sentences with the same suffixes. These missing categories prevent us from statistically examining correlations between the results and the participants' foreign accents.

7.5.1 The coda cluster /lj/

The results are summarized in Table 8 in three main categories depending on if the word was suffixed or not and if the suffix started with a vowel or consonant. Within all these categories the attested realizations of the j-final cluster are then presented in separate rows. As mentioned before the realizations [lj] and [lʲ] are both common in standard Swedish. In the table these two options predominate with totals of 92% (unsuffixed), 71% (preconsonantal) and 92% (prevocalic). These patterns attest a strong tendency towards faithfulness to the Swedish originals, which in the first two cases entails violating Turkish phonotactic constraints. When Turkish constraints are violated this is analyzed as an extension of the periphery (ext. P) in the column Locus in line with the practice in previous sections. The relatively lower means for these two options in the context of preconsonantal nouns can be explained by the fact that this situation produces a cluster of three consonants across the morpheme boundary. This might lead to a higher propensity to adapt the coda cluster. Another supporting argument is that the option [lj] is not attested in this particular context at all. It seems to have been abandoned in favor of the other common Swedish realization [lʲ], which reduces the number of consonants from three to two. In the case of prevocalic nouns the final [j] in the cluster can be resyllabified consequently following the phonotactic rules of Turkish. In two cases intrasyllabic harmony is improved by making the /l/ [+back] and in one of these the [j] is furthermore deleted thus integrating the rime into the core also phonotactically.

Table 8. *The integration of word-final /lj/ into Turkish (in percent)*

Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean	N	
no suffix	lj	ext. P	SW	-	33	100	-	-	100	0	100	0	0	-	50	42	5
	lʲ	ext. P	SW	-	67	0	-	-	0	100	0	100	100	-	0	50	6
	ɫ	core	TR	-	0	0	-	-	0	0	0	0	0	-	50	8	1
preconsonantal	lj	ext. P	SW	0	-	-	100	0	100	100	100	100	100	100	100	71	5
	jl	useP1	TR	100	-	-	0	0	0	0	0	0	0	0	0	14.5	1
	l	useP1	TR	0	-	-	0	100	0	0	0	0	0	0	0	14.5	1
pre-vocalic	lj	core	TR=SW	100	100	100	100	50	100	100	100	100	100	33	33.3	84	32
	lʲ	ext. P	SW	0	0	0	0	50	0	0	0	0	0	0	33.3	8	3
	ɫj	core	TR	0	0	0	0	0	0	0	0	0	0	0	33.3	3	1
	jl	core	TR	0	0	0	0	0	0	0	0	0	0	67	0	5	2

Legend: *P* in the first row stands for participant. The coda clusters can appear in three contexts; in isolation (no suffix), before a consonant-initial suffix (preconsonantal) or before a vowel-initial suffix (prevocalic). Locus stands for where in the phonological lexicon a given form is integrated. The forms can be integrated into the core (core) or violate the phonological rules thereby extending the periphery (ext. P). Alternatively they can be placed into the first stratum of the periphery (use P1) or into the core in a context where the periphery is also available whereby the periphery is absorbed by the core (abs. P1). Code represents the phonology that is being adhered to in a given integration, either the phonology of Turkish (TR) or that of Swedish (SW) or an overlap of both (SW=TR). As a code core TR stands for adherence to the core of Turkish phonology as opposed to its periphery.

In another single case the /l/ remains non-harmonic but the [j] is deleted thus following the core phonotactically and the first peripheral stratum intrasyllabically. In fact this kind of j-deletion is also observed in spontaneous monolingual speech in Swedish. Based on data in Bannert & Czigler's (1999) study in Swedish consonant clusters j-deletion occurs in 20% of all unsuffixed and in 10% of all suffixed cases in their corpus. The last interesting option that deviates from the main tendency is metathesis within the coda. This is attested three times, once before a consonant-initial suffix and twice before a vowel-initial suffix. This measure improves the sonority profile by turning a cluster that violates the sonority sequencing principle into one that follows it with a sonority distance of one. This strategy is particularly useful in the first case, where resyllabification is not possible. In terms of peripherality, [lj] extends the periphery phonotactically, whereas [lʲ] is phonotactically better but extends the phoneme inventory. Therefore, there is no overall difference between these options regarding this relation to the core as their similar popularity in the unsuffixed context proves. The exception is when [lj] is in a resyllabification context, where it is the better option, which is also proven by the data in the V-suffixed context. All in all, the general tendency is not to adapt the coda cluster /lj/ to Turkish and to prefer the phonotactically more suitable option among the two possible realizations [lj] and [lʲ]. Whether this type of rime participates in the intersyllabic stem-suffix harmony or not was included in the discussion about the coda /l/.

7.5.2 The coda cluster /nj/

There is very little research as to what kind of variation exists in the realization of the word-final /nj/ in Swedish. Bannert & Czigler (1999) discuss four cases of unsuffixed and three cases of suffixed words ending on /nj/, where /nj/ is always realized as [nj]. The data presents quite a bit of variation as can be seen in Table 9. Such realizations as the palatalized coronal [nʲ] and the palatal [ɲ] that cannot be explained by Turkish influence, because Turkish does not have these

sounds. It is possible that these variants do exist in native Swedish speech as with the variants of /lj/ in the previous section. Another possibility is that [nʲ] is a variant also attested in native Swedish speech, whereas [ɲ], which is not quite as palatal as the Spanish “ñ” but rather postalveolar as opposed to the usual dental Turkish and Swedish “n”, involves an attempt at j-deletion with some residual palatality in the “n”.

Table 9. *The integration of word-final /nj/ into Turkish (in percent)*

Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean	N.	
no suffix	nj	ext. P	SW	50	50	100	-	50	0	0	100	0	-	0	0	29.4	5
	nʲ	ext. P	?	0	50	0	-	0	0	0	0	50	-	0	0	11.8	2
	ɲ	ext. P	?	0	0	0	-	0	33	100	0	0	-	100	100	29.4	5
	njə	ext. P	?	50	0	0	-	0	0	0	0	0	-	0	0	5.8	1
	jn	useP1	TR	0	0	0	-	50	0	0	0	50	-	0	0	11.8	2
	nja	core	TR	0	0	0	-	0	67	0	0	0	-	0	0	11.8	2
preconsonantal	nʲ	ext. P	?	0	100	0	-	-	-	-	33,3	0	0	-	0	10	1
	ɲ	ext. P	?	0	0	100	-	-	-	-	33,3	50	0	-	100	40	4
	jn	useP1	TR	100	0	0	-	-	-	-	33,3	50	100	-	0	50	5
pre-vocalic	nj	core	SW=TR	0	100	-	100	100	-	100		100	100	100	-	90	9
	jnʲ	ext. P	TR?	100	0	-	0	0	-	0		0	0	0	-	10	1

Legend: *P* in the first row stands for participant. The coda clusters can appear in three contexts; in isolation (no suffix), before a consonant-initial suffix (preconsonantal) or before a vowel-initial suffix (prevocalic). Locus stands for where in the phonological lexicon a given form is integrated. The forms can be integrated into the core (core) or violate the phonological rules thereby extending the periphery (ext. P). Alternatively they can be placed into the first stratum of the periphery (use P1) or into the core in a context where the periphery is also available whereby the periphery is absorbed by the core (abs. P1). Code represents the phonology that is being adhered to in a given integration, either the phonology of Turkish (TR) or that of Swedish (SW) or an overlap of both (SW=TR). Cases where code adherence cannot be determined clearly are presented with a question mark.

The phenomenon of metathesis within the coda is encountered here again, which improves the sonority profile. As with /lj/ before, it is most common in the preconsonantal context, where furthermore the variant [nj] is not attested at all, as with /lj/ before. The variant [nja] is influenced by the original Swedish word’s Turkish equivalent. The original word was *champagne* [ʃampanj] and the Turkish equivalent is *şampanya* [ʃampanja]. The overall picture is more varied than for /lj/ and the cluster /nj/ is treated as more problematic than /lj/ with more metathesis and possible cases of j-deletion (ɲ), which could be explained by the fact that the sonority distance is greater between n and j than for l and j¹³. The final j in the cluster is always treated as a consonant in the suffixation as all the borrowings follow the suffixation pattern for consonant-final words in Turkish and the coda cluster never participates in intersyllabic stem-suffix harmony processes.

¹³ In the phonological literature the theoretical concepts “sonority sequencing principle” and “minimal sonority distance” are applied only to cases, where the sonority distance is greater than nil. This means that only positive distances are treated as measurable and comparable in the literature, but not the negative ones. However, when metathesis is involved, i.e. when negative distances are converted to positive distances, the resulting effect is greater the greater the previous negative distance was. Therefore an exception is made in this essay by extending the application of sonority distances to negative distances in order to enable the quantification of the results of the attested coda cluster metatheses.

7.5.3 The coda cluster /rj/

There is also little research about how the cluster /rj/ is realized apart from as [rj]. Bannert & Czigler (1999) report no cases of j-deletion for this cluster in native Swedish but they encounter two cases of r-deletion in unsuffixed words. As with the previous j-final cluster cases we encounter a lower average for the variant [rj] in the forms suffixed with a consonant.

Table 10. *The integration of word-final /rj/ into Turkish (in percent)*

Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean	N	
no suffix	rj	ext. P	SW	100	100	100	0	75	80	20	100	0	67	33	50	60	35
	r ^j	ext. P	?	0	0	0	80	0	20	80	0	80	16.5	67	50	33	19
	r ^j	ext. P	?	0	0	0	0	0	0	0	0	20	16.5	0	0	3	2
	rk	core	TR	0	0	0	20	0	0	0	0	0	0	0	0	2	1
	rg ^j	ext. P	TR?	0	0	0	0	25	0	0	0	0	0	0	0	2	1
preconsonantal	rj	ext. P	SW	0	-	0	0	50	0	-	0	0	50	0	0	21.4	3
	r ^j	ext. P	?	0	-	100	100	50	100	-	100	100	50	100	100	71.4	10
	r ^{jə}	?	?	100	-	0	0	0	0	-	0	0	0	0	0	7.2	1
pre-vocalic	rj	core	TR=SW	80	71	83	71	40	0	67	78	67	86	67	50	68	50
	r ^j	ext. P	?	20	29	17	29	40	100	33	22	33	0	0	33	25	18
	rg	ext. P	TR?	0	0	0	0	20	0	0	0	0	0	0	0	1	1
	rk	core	TR	0	0	0	0	0	0	0	0	0	0	33	0	3	2
	r ^j	ext. P	?	0	0	0	0	0	0	0	0	0	14	0	17	3	2

Legend: *P* in the first row stands for participant. The coda clusters can appear in three contexts; in isolation (no suffix), before a consonant-initial suffix (preconsonantal) or before a vowel-initial suffix (prevocalic). Locus stands for where in the phonological lexicon a given form is integrated. The forms can be integrated into the core (core) or violate the phonological rules thereby extending the periphery (ext. P). Alternatively they can be placed into the first stratum of the periphery (use P1) or into the core in a context where the periphery is also available whereby the periphery is absorbed by the core (abs. P1). Code represents the phonology that is being adhered to in a given integration, either the phonology of Turkish (TR) or that of Swedish (SW) or an overlap of both (SW=TR). Cases where code adherence cannot be determined clearly are presented with a question mark.

A difference from the previous clusters is that no metathesis is attested within this cluster. Because of the loanword form of the city Gothenburg in Turkish *Göteborg* [gøtəbork] we also encounter three k-final forms as well as two forms ending in g/g^j, which reflects the spelling but follows neither the Turkish nor the Swedish code. The g-final forms are unusual in Turkish for two reasons; firstly because final coda clusters have to have the same voicing value and secondly because voiced stops are not allowed in word-final position. They do, nevertheless, improve the sonority profile of the coda cluster. There are two occurrences of partial r losing its primary articulation, which comes close to the r-deletion Bannert & Czigler (1999) have encountered in their data. Again we encounter variants where j has secondary articulation rather than primary and this variant is particularly popular in the preconsonantal context. A further interesting variant is [r^{jə}] after the vowel o where the r is palatalized and the form has a weak rounded vowel and is treated as ending on a [+round] [+back] vowel. Here j seems to be reinterpreted as a vowel with the same round feature as the previous vowel. In three other cases of suffixation, two [rj]-final forms and one [r^j]-final form are treated as [-back] despite the preceding [+back] vowel. It seems that the primary and the secondary articulation of the j is participating in the palatal harmony processes here. It has been mentioned before that there are at least two words in contemporary Turkish that have coda r after a [+back] vowel and nevertheless receive a [-back] suffix. The phonetic quality of the r in these words has not been systematically investigated. If this Turkish r

were a palatalized version of the usual r, this might explain the fact that the coda cluster /rj/ participates in the palatal harmony process in 4.4% of the essay data in this category.

7.5.4 Overview for j-final coda cluster integration

The most common realizations of j-final coda clusters are summarized in Table 11 to give an overview. Here the focus is on the phonotactic aspects of the realizations and additional adaptations which have been discussed for each cluster are either excluded or summarized under the phonotactic phenomenon in order to clarify the overall picture. The four realization types included in the table account for between 82.4% and 100% of all attested cases as can be seen in the penultimate row called Total. In all three clusters the original Cj-realization is consistently highest for the prevocalic context (preV) and lowest for the preconsonantal context (preC). The unsuffixed context is given the term simplex in the table. The last row “harmonic coda j” summarizes to which extent the palatalized coronals codetermine the suffix choice by introducing palatality into the final rime of the stem. Palatalization can be viewed as a less drastic adaptation than j-deletion with respect to both phonotactics and the segment inventory because the original palatality of the j is at least preserved as a secondary articulation feature. This can explain the fact that it is attested in all three clusters and is the most popular option in the preconsonantal context for clusters with a sonority distance of -1.

Table 11. Most common realizations of j-final coda clusters (in percent)

	/lj/			/nj/			/rj/		
sonority distance	-1			-2			-1		
	simplex	preV	preC	simplex	preV	preC	simplex	preV	preC
Cj	42	87	0	29.4	90	0	60	71	21.4
palatalization	50	8	71	11.8	0	10	33	25	71.4
j-deletion	8	0	14.5	29.4	0	40	0	0	0
metathesis	0	5	14.5	11.8	10	50	0	0	0
TOTAL	100	100	100	82.4	100	100	93	96	92.8
harmonic coda j	0			0			4.4		

Legend: The most common realizations of the clusters are presented in the first column. Cj stands for the realization of the cluster in its original unadapted form. The data are grouped according to three contexts; in isolation (simplex), before a consonant-initial suffix (preC) or before a vowel-initial suffix (preV). As further realization types have been attested in some cases the totals in the row TOTAL do not always add up to 100. The participation of the coda clusters in stem-suffix harmony processes is referred to as harmonic coda j. See footnote 13 for comments on negative sonority distances.

Phonotactically speaking there is no difference between palatalization and j-deletion as they both deconstruct the cluster. In terms of the segment inventory, palatalization is more problematic than j-deletion because it creates a new coronal with secondary palatalization because it is a novel segment for Turkish. Metathesis in the context of an original sonority distance of -1 is phonotactically not as good as palatalization or j-deletion because the result is a distance of +1, while the Turkish core prefers a minimal distance of +2. With an original distance of -2, it is phonotactically equal to palatalization and j-deletion as well as preferable to j-deletion because it preserves the full segments despite altering their sequence. The fact that both j-deletion and metathesis are more common with the cluster /nj/ in both the simplex and the preconsonantal context could be due to the fact that the original sonority distance of -2 is more problematic than -1 in the other cases and therefore requires more drastic measures. The fact that j-deletion and

metathesis are not attested for /rj/ can be explained by the fact that one of the /rj/-final forms was the city Gothenburg, which has an established loanword form in Turkish triggering different adaptations than the ones in this table as we have mentioned before. On a final note, it should be mentioned that further research on native Swedish phonotactics could reveal that the palatalization already mentioned in the literature for the cluster /lj/ could also apply as a common variant for the other two j-final clusters. Such a finding could explain the overall popularity of the phenomenon palatalization with the clusters in this essay, too. In Turkish the only attested remedy for coda clusters that violate phonotactic constraints is vowel epenthesis as we have seen earlier in the examples in (9). Why is this adaptation not attested among the data as a common adaptation? Firstly, Turkish has no prior cases of either loanword originals or underlying forms, where the final coda is a j-final cluster, which then is remedied through vowel epenthesis. On the other hand, there are prior cases of j-initial clusters being epenthesized, which might be attracting the attested metathesis in the data. Secondly, there are cases of palatalization of the preceding coronal and even j-deletion with the cluster /lj/ in Swedish and perhaps also for the others, which decreases the segmental stability of j and consequently the motivation to epenthesize.

8. SUMMARY OF RESULTS

In the previous discussion of the results certain contexts and categories have proven more reliable and useful than others for the discussion of the main themes of this essay. In this section such relevant results are summarized according to these themes.

8.1 Narrow group vs. residual group

We have previously seen that some of the participants had lower scores in certain parts of the Turkish periphery test and that not all of them passed as native speakers in Swedish according to the chosen criteria. The concern was firstly that the participants might not integrate the L2 structures in to the relevant periphery of L1 because they did not have a fully developed periphery as suggested by the low periphery scores. The second concern was that accented speech might mean that the original L2 structures would not be considered as candidates for the periphery to begin with. As we can see again in the figures in bold style in Table 12, participants P6, P7, P9 and P12 had low scores in the panel evaluation regarding their Swedish in row 4), while P2 and P12 had low scores on the Turkish periphery test regarding stem alternations with consonant length in row 2) and P1 had a low score regarding the participation of the non-harmonic /l/ in stem-suffix harmony in row 3). In the data there are only three contexts, where we can reliably observe the effects of low scores in both Turkish and Swedish. These contexts are those, where we have data on comparable structures in both established forms in Turkish and in the new borrowings. This is the case for the suffixed contexts of long vowels, long consonants and the non-harmonic l. Therefore the results for these are repeated in rows 5), 6) and 7) respectively in Table 12. If the afore-mentioned six participants' low scores in the evaluation for both languages did in fact affect their degree of periphery utilization negatively, their exclusion from the participant group should consistently produce higher means for periphery utilization for the remaining participants, who fulfilled the afore-mentioned narrow criteria. These means can be found in the last two columns of Table 12, where the group fulfilling the narrow criteria is referred to as "narrow group" and the other group with lower evaluation scores as "residual group".

Table 12. Comparisons between the results of the narrow group and the residual group

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean residual group	Mean narrow group
1) TR periphery score VV (%)	68	77	86	68	73	77	96	91	100	64	91	55		
2) TR periphery score CC (%)	56	22	78	89	44	78	56	56	67	44	78	22		
3) TR periphery score intersyllabic L (%)	33	78	100	67	78	100	67	100	100	78	100	67		
4) SW native? (0-9)	2	4	4	5	9	0	0	2	0	7	3	1		
5) use periphery (VV)	67	87	100	50	65	94	100	88	47	73	25	69	77.33	66.83
6) use periphery (CC)	0	8	0	0	0	37	17	0	0	0	0	0	10.33	0
7) use periphery (L)	21	3	31	52	31	30	17	63	86	59	82	9	27.67	53

However, the means for the two groups show that the narrow group has a higher mean than the residual group only in the context of the intersyllabic l in row 7) and not in the other two cases in rows 5) and 6). This indicates that the variation between the participants' periphery utilization during the integration of new borrowings is independent of the scores that the participants obtained in the language evaluations. Furthermore, in several previous sections, we had also investigated correlations, not collectively as here but between single evaluation scores and study results and had failed to find a significant correlation in all these cases. Therefore we conclude that the results in this essay are not sensitive to the lower performance of some participants in some respects in both languages but that they all fulfill the necessary criteria for advanced functional competence in both languages regarding the context of this essay.

8.2 Implications for theories of integration and code-switching

In this section some themes from the theoretical background to the essay will be revisited. The questions that will be treated here are as follows: Are there considerable differences between proper nouns and generic nouns and established loanwords respectively? Does any general stylistic pattern in the integration of the new borrowings emerge from the data and is this related to the competence of the participants in any of the languages? Which implications do the present data have on the distinctions between borrowing and code-switching?

8.2.1 Differences between lexical categories

As mentioned before the majority of the nouns in the data are proper nouns but there were also some generic nouns. Some of these were included in the translation text on purpose and others were introduced spontaneously by the participants. We can examine if there are any conclusive differences between the proper and the generic nouns for the categories quantity and the non-harmonic /l/. The theoretical hypothesis was that the propensity of the proper nouns to remain faithful to the originals would be higher than for generic nouns, because the former have unique referents. In all the contexts in Table 13 periphery use simultaneously means faithfulness to the originals. Therefore what we expect to find would be higher periphery use for proper nouns than for generic nouns. We can see in the table that generic nouns are encountered in four different contexts. We can see that generic nouns make up only between 2.6% and 7.2% of all nouns in these categories and that the hypothesis is confirmed only in one of these four contexts. When the generic nouns sample is so little, it is difficult to state anything with certainty but it seems that in

most contexts proper nouns display less faithfulness to the originals than generic nouns contrary to the hypothesis.

Table 13. Differences between proper nouns and generic nouns/established loanwords regarding the use of the periphery in their integration

Context		proper nouns	generic nouns	generic nouns as % of all nouns	new borrowings	established loanword: Stockholm	Stockholm as % of all nouns
1) VV							
	N	449	12	2.6			
	periphery use (%)	72.8	100				
2) CC							
	N	282	22	7.2			
	periphery use (%)	5.8	8				
3) unsuffixed non-harmonic L							
	N	425	21	4.7	314	132	30
	periphery use (%)	78.3	71		73.4	89	
4) suffixed non-harmonic L							
	N	346	21	5.7	244	123	34
	periphery use (%)	39.9	57		37.8	47	

Legend: In the contexts VV and CC long segments are allowed in Turkish phonology which leads to a clear choice between using the periphery by preserving the length or by not using it by shortening the segments. In the L-contexts in 3) and 4) the choice is between preserving the original Swedish /l/ which violates intrasyllabic harmony in both 3) and 4). Additionally, in 4) there is a choice between allowing the /l/ to co-determine the subsequent suffix or not.

Another interesting lexical category is that of established loanwords such as *Gothenburg* and *Stockholm* in the data. In the context of the coda clusters it has been discussed that the established adaptation for *Gothenburg* had a small effect on the current treatment of that noun but in general there are very few instances of the word *Gothenburg* in the data. The situation is quite different for *Stockholm*, which makes up between 30% and 34% of all the nouns in contexts 3) and 4) in the table. The hypothesis for this loanword, which is established in the first peripheral stratum, is that its score for periphery use would be greater than for new borrowings because its peripherality would be reinforced by contact with standard Turkish. This hypothesis is in fact confirmed by the results in Table 13. However, the differences are not so great that the exclusion of the loanword *Stockholm* considerably alters the general picture for periphery use in new borrowings in contexts 3) and 4).

8.2.2 General code faithfulness

The dichotomous contexts, where the choice is clearly between faithfulness to the Turkish and the Swedish code, provide us with the possibility to examine whether the participants treat the structures in question according to Turkish phonology and consequently adapt them to it or according to Swedish phonology and consequently adopt them in their original form. Table 14 gives a summary of such contexts. In the previous sections the results summarized in Table 14 were mainly discussed from the perspective of phonotactics and phonetic salience, where satisfactory explanations were found. It is also important to examine if these results reflect a

more general tendency independent of structural differences among some of the participants to prefer one code over the other as a kind of general integration style. In Table 14 we can also see the mean of the three contexts V, C and intrasyllabic *k^j* as well as the participant’s functional oral competence in both languages according to their own assessments on a scale from 0 to 10. In the penultimate row, we can see the difference between the participants’ self-assessed competence in both languages, which is calculated by subtracting the Turkish competence from the Swedish competence and labeled as “Swedish dominance” in the first column. In the last row, the total number of evaluations that identified the speakers as native speakers of Swedish (out of a maximum of nine) is repeated.

Table 14. Code preference in dichotomous contexts where the choice is between adhering to the Turkish or to the Swedish code (in percent)

Context	Locus	Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Mean
V	core	TR	24	21	44	69	32	26	29	33	52	50	52	32	39
	ext. P	SW	76	79	56	31	68	74	71	67	48	50	48	68	61
C	core	TR	100	72	100	94	95	93	100	100	96	100	94	93	95
	ext. P	SW	0	28	0	9	5	7	0	0	4	0	6	7	5
k^j intrasyllabic	core	TR	100	83	88	100	100	83	100	100	90	88	100	100	94
	ext. P	SW	0	17	12	0	0	17	0	0	10	12	0	0	6
Mean V, C, k^j	core	TR	75	59	77	88	76	67	76	78	79	79	82	75	76
	ext. P	SW	25	41	23	12	24	33	24	22	21	21	18	25	24
Mean coda C_j	ext. P	SW	30	36.6	50	0	35	30	4	50	0	23.4	6.6	16.7	23.5
	self-reported general competence (0-10)	SW	8	9	10	10	10	10	10	9	6	10	10	9	
		TR	4	5	8	8	7	10	8	9	10	8	10	6	
Swedish dominance			4	4	2	2	3	0	2	0	-4	2	0	3	
native score (SW)		SW	2	4	4	5	9	0	0	2	0	7	3	1	

Legend: The contexts V and C where long segments are not allowed, intrasyllabic *k^j* which violates harmony between *k^j* and the syllable’s vowel and –final coda clusters (coda C_j) are presented together because they all constitute cases where the participants have a choice between adhering as a code to Turkish phonology (TR) and the Swedish phonology (SW). Swedish dominance is a relative measure calculated by subtracting the competence for Turkish (row 6) from that for Swedish (row 7). The native score stands for the number of times that the participants have been deemed a native speaker of Swedish by the panel out of a total of nine.

Some studies have previously found a negative correlation between a bilingual speaker’s L2-competence and the degree of phonological integration meaning that the better the speaker is in L2 the more faithful to the L2-originals the integration of L2-borrowings is. In order to investigate if this hypothesis is true for the data at hand we can correlate the mean score for faithfulness to Swedish in the fourth row with different measures of L2-competence in Swedish. The correlation of this mean with the participants’ self-assessed competence in Swedish in the fifth row is not significant ($r = -0.54$, $N = 12$, $p < 0.867$). The correlation between the same mean and the number of native evaluations as an alternative and more objective measure of Swedish competence is not significant either ($r = -0.171$, $N = 12$, $p < 0.595$). The last correlation we can check for is between the same mean and the figures for “Swedish dominance”, which checks for

if the *relative* dominance of Swedish over Turkish leads to higher faithfulness to Swedish, and this also turns out to be not significant ($r = 0.301$, $N = 12$, $p < 0.342$). In summary, no significant L2-competence effects are found on the degree the structures in this essay are integrated phonologically into L1. When we check for the reverse, namely if L1-competence has a negative effect on L2-faithfulness by correlating the self-assessed Turkish competence scores with the same mean, again we do not find a significant correlation ($r = -0.377$, $N = 12$, $p < 0.275$). The low faithfulness to the Swedish originals as in the mean in the fourth row is furthermore confirmed by a similar degree of low faithfulness at 23.5% for the comparable portion of the coda clusters as repeated in the fifth row. It seems that there is a general preference for Turkish, more specifically for the Turkish core in these contexts at 75-76%, which is moreover independent of the participants' competence in either language. The most probable explanation for this pattern is that it depends on the dominant character of Turkish as the main language in the context of the translation text and the data collection in general.

8.2.3 Borrowing vs. code-switching

It has been mentioned before that Poplack (1980) considers forms, which preserve their original phonological form fully despite the fact that they may be syntactically integrated into the recipient language, as “code-switches”, when they are morphologically simplex and as “nonce-borrowings” when they receive suffixes from the recipient language. This implies that the suffixation in itself creates an *essential* difference, which merits the application of a different term. In the data collected for this essay, two contexts that have been discussed before offer an opportunity to see if there is a difference between suffixed and unsuffixed nouns regarding the degree to which they fully preserve the original rime structure phonologically. These contexts are l-final nouns from Table 6 and k^j-final nouns from Table 7. In both tables the forms in the row b) are unsuffixed nouns that preserve the Swedish original and the nouns in rows e) and f) the suffixed counterparts of these¹⁴. When we compare the group means for suffixed and unsuffixed nouns in these two contexts, we find that they actually are identical at 78% for the l-context and 6% for the k^j-context. This suggests that suffixation leads to no essential difference and that Poplack's distinction between code-switches and nonce-borrowings cannot be defended on the proposed grounds.

A further problem for Poplack's theories regarding universal constraints on code-switching is the form in example (14) attested in the data, because such forms are controversial as prototypical borrowings.

- (14) *Västerbro-n-a*
Västerbro-ART_{SW}-DAT_{TR}
 to the *West Bridge*

Here a Swedish place name containing the bound morpheme of the Swedish postposed definite article is suffixed with Turkish case. In total there are seven instances of this example. Such examples pose problems for both Poplack's (1980) two-constraint model as well as Myers-Scotton's (1993) Matrix Language Model model of code-switching. They violate Poplack's free morpheme constraint and do not fit into any of Myers-Scotton's proposed constituent types because an embedded language content morpheme is followed by an embedded language system

¹⁴ In order to arrive at the total for suffixed nouns that preserve the original Swedish form the means for rows e) and f) are added.

morpheme. Park (2006:26-31) presents similar examples, where Korean suffixes are added to definite Swedish place names and concludes that their status as borrowings or code-switches is unclear. Only two of the twelve participants avoid this type of construction by using the Turkish word for bridge, whereas the other ten do not seem to have a problem with not deconstructing it morphologically. There are too few instances of this construction in the data to make any certain statements but an alternative analysis of such forms could be to view them as borrowings, which remain morphologically unanalyzed precisely because they are place names that are always used in the definite form, as many other place names in Swedish. Hence, they are morphologically complex Swedish forms that are treated as simplex in Turkish.

8.3 General utilization of the periphery

One of the interesting phenomena encountered during the discussion of the results was that the core was used to a certain extent even in contexts, where there was an overlap between the Swedish original and a Turkish peripheral stratum. This phenomenon involves the underutilization of the Turkish periphery despite very advantageous conditions for periphery utilization. In other words the core absorbs the periphery in a number of cases, hence the aforementioned term *core absorption* for this phenomenon. Core absorption also included another unexpected phenomenon, namely *l-deharmonization*. These contexts are summarized in Table 15.

Table 15. Periphery utilization overview (in percent)

Context	Locus	Code	Context Mean	Stratum Mean
VV	core	TR	27	
	P2	SW=TR	73	
CC	core	TR	94	
	P2	SW=TR	6	P2: 39.5
L intrasyllabic	core	core	22	
	P1	SW=TR	78	
L intersyllabic	core	TR	21.8	
	l-deharmonization	SW	37.1	
	P1	SW=TR	40.9	P1: 40.9
k ^j intrasyllabic	core	TR	94	
	extend P1	SW	6	
k ^j intersyllabic	core	TR	90	
	extend P1	SW	3	extend P: 4.5

Legend: P1 stands for the first stratum of the periphery while P2 stands for the second stratum. These contexts allow the utilization of different peripheral structures in the integration of Swedish borrowings. They can be integrated into different loci in relation to the Turkish phonological lexicon; either into its core or into its different peripheral strata. Alternatively, the peripheral use of a given structure such as k^j can be extended to new context inside the periphery (extend P1). l-deharmonization is a special case where intrasyllabic harmony is violated as in the first peripheral stratum but where this non-harmonic /l/ nonetheless does not participate in stem-suffix harmony contrary to the general practice in the periphery. Preservation of the original Swedish structure can be interpreted as adherence to Swedish phonology (SW) as a code or in some peripheral cases as an overlap between the Swedish and the Turkish (TR) codes.

Another context included here is that of the [k^j] because it is potentially similar to the case of /l/ but the first peripheral stratum is not extended in a way that would give this segment the same status as that of /l/. The lack of this extension belongs to the same context as the underutilization

of the periphery in the other cases. We could explain the different degrees of periphery utilization among these cases by referring to such factors as phonetic salience before. However, in order to explain the overall underutilization of the periphery as well as the lack of periphery extension regarding [k], we need to remind ourselves of the conditions that gave rise to peripheral strata in the Turkish phonological lexicon to begin with. This issue is addressed in the next section.

8.4 The origins of the periphery

The factors that gave rise to the Turkish periphery were sketched briefly before. Today's loanwords that once created the periphery of Turkish came from prestigious languages such as Arabic and Persian. Turkish was the majority language in the context and the integration of these loanwords into Turkish was carried out by the highly educated elites of the Ottoman Empire, who are generally described as trilingual (cf. Kerslake, 1998:180). These loanwords did not only feature in conversations but also and perhaps to a greater extent in written language. Thus the elites had an opportunity to impress each other by using foreign words and by being as faithful to their original forms as possible as in the case of Latin and Greek loanwords in Western Europe. This was the social context of the emergence of the Turkish periphery. The current context for bilingual Turks in Sweden is quite different in all these respects. In Sweden Turkish is a minority language and the majority of the Turks in Sweden have a background as migrant laborers and generally have a low degree of education. Using Swedish words in Turkish is common but it is hardly a matter of prestige. Rather, it is more prestigious, especially among Turks with university education, not to use Swedish words and impress each other with a diversified Turkish vocabulary instead. In some circles the use of Swedish words is even stigmatized. Another difference from the Ottoman context is that the use of Swedish words is not reflected in written Turkish, where their use is even more stigmatized than orally. Considering these crucial sociolinguistic differences and the underutilization of the periphery in the Swedish context, we could conjecture that perhaps it is not only the *emergence* of the periphery that requires strong sociolinguistic pressure but also its *reutilization/maintenance* in new contexts.

Structural factors such as the preservation of original foreign contrast also play a crucial role for the periphery. It is outside the scope of the current essay to compare specific structural aspects of historical Arabic and Persian loanwords with those of the contemporary Swedish borrowings in the data. Some general differences between the phonological systems of Arabic and Persian and that of Swedish shall, nevertheless, be mentioned here. In Swedish vowel length and consonant length are interconnected in such a fashion that short vowels mostly feature before geminate consonants or other consonant clusters, while long vowels mostly co-occur with single coda consonants. Furthermore Swedish short and long vowels have different allophonic qualities in addition to the quantity contrasts. As for Swedish vowel quantity, it is not exclusively lexical but also phonological because in many contexts vowel length does not originate from the lexical entry but is due to the fact that stress is often expressed by vowel length in Swedish. These aspects of segment quantity in Swedish consequently mean that not preserving original Swedish quantity in borrowings does not entail a total loss of original contrast as the quantity contrasts are multifaceted. On the other hand vowel and consonant quantity are crucial for preserving original contrast from Arabic and Persian. In addition quantity also functions a grammatical feature in Arabic morphology. Consequently, the structural pressure for creating a periphery for Arabic and Persian borrowings was perhaps greater than it is for Swedish borrowings in the current context. Therefore we could conclude that a combination of these sociolinguistic and structural pressures is necessary for reutilizing/maintaining the Turkish periphery and these conditions are not fulfilled in the context of new Swedish borrowings.

9. CONCLUSION

This essay focused on two types of structures; periphery effects regarding quantity, the non-harmonic /l/ and the non-harmonic /k^j/ as well as the integration of j-final coda clusters. The picture that emerged from the data is that there is general high preference for adapting the borrowings to Turkish phonology at ca. 75%, which is thought to have to do with the strong position of Turkish as the main language in the context of the translation task. When we went on to investigate if the borrowings were integrated into the core or into the periphery of the Turkish phonology, we found that there was a general underutilization of the periphery with a mean of ca. 40%. Within the periphery, no significant differences were attested between the first and the second strata. Furthermore, no correlation was found between the participants' periphery use with established loanwords in Turkish and their periphery utilization in the integration of the new borrowings, which indicated a clear discrimination of the new borrowings in this respect. It was shown that this outcome was not due to some of the participants' relatively low scores in some aspects of both languages. Furthermore, the possibility that the reason for this discrimination could be the fact that the data mainly consisted of proper nouns was investigated and it was found that the integration of the few generic nouns in the data actually displayed higher faithfulness to the originals. Having thus excluded these possibilities, it was argued that both the aforementioned lack of correlation and the attested underutilization of the periphery were probably linked to the fact that the structural and sociolinguistic pressures were not as great for the current Swedish context as they had historically been with the Arabic and Persian loanwords. This means that the reutilization or maintenance of the periphery relies on these factors as much as its emergence did. Beyond this general picture, there were also some more specific factors in the different cases that led to the attested outcomes. There was, for instance, some degree of variation among the periphery data. Periphery utilization was considerably higher for vowel quantity at 73% than for consonant quantity at 6%. The reason is thought to be the higher phonetic salience between short and long vowels in Swedish than between short and long consonants. The non-harmonic /l/ was another structure with relatively high periphery utilization at 78% in the intrasyllabic context. The periphery utilization shrank in the intersyllabic context due to the phenomenon of l-deharmonization, which suggests that the preservation of the original Swedish /l/ had more to do with code-switching than with the utilization of the Turkish periphery. As for the generally high adaptation of the [k^j] into the Turkish core at over 90%, the lack of code-switching or periphery extension had to do either with low phonetic salience or with the lack of original phonemic contrasts in Swedish. The measures to improve the phonotactics of the j-final coda clusters in the data turned out to be highly context-sensitive. The most common adaptation was the realization of the /j/ as a secondary palatal articulation on the preceding coronal, which can possibly have its origin in existing but under-researched variation in native Swedish speech. Otherwise j-deletion and metathesis within the coda cluster were alternative adaptations attested in the data. A general pattern was that adaptations tended to be more drastic for the preconsonantal context and for clusters with greater negative sonority distance.

APPENDIX 1: Questions for the background interviews (translated from Turkish)

- 1) How did you learn Turkish?
- 2) How did you learn Swedish?
- 3) Are there any other languages you know very well? How did you learn these?
- 4) How old are you?
- 5) Where is your family originally from?
- 6) Are there dialectal features in your family's speech typical for that/those area(s)?
- 7) Where have you lived until now?
- 8) Which languages did you speak with your friends at different points in your life?
- 9) Where were these friends and their families from?
- 10) Are there people with whom you exclusively speak Turkish?
- 11) What is your level of education and what is your occupation?
- 12) How often do you speak Turkish?
- 13) How often do you speak Swedish?
- 14) Are there people with whom you exclusively speak Swedish?
- 15) To what extent have you lately used your languages in terms of percentage?
- 16) In which languages do you watch TV, read and write in terms of percentage?
- 17) Is there a language in which you can express yourself best orally? Is there a language in which you can express yourself best in written form? Or do you have the same level in all your languages?
- 18) Did you have mother tongue education in school?

APPENDIX 2: The Turkish morphophonology test

Complete the sentences below **orally** by using the words in parentheses **with appropriate suffixes**.

1. Bu sabah dışarı çıktığımda (ev) önünde bir tavşan yavrusu gördüm.

When I went outside this morning, I saw a baby rabbit in front (house).

2. Leman, müdürünün hakaretlerini (gurur) yediremediği için istifa etti.

3. Kardeşimle yaptığım gergin konuşmada borçları tartışma (konu) oldu.

4. Bugünlerde o kadar çok kişiyle problemim var ki hiç (huzur) kalmadı.

5. Anneannem bugün Ankara'dan (İzmir) taşınıyor.

6. Bu konuları daha sağlıklı konuşabilmek için ortak bir tartışma (zemin) bulmamız gerek.

7. Metroyla Globen'e gitmek için yeşil (hat) bindim.

8. Erkeğin (kalp) giden yol midesinden geçer.

9. Polis ekibi, kaza (mahal) geldiğinde tüm cadde cam parçaları ile kaplıydı.

10. Annesiyle babasının yeni yaptırdığı villada arkadaşımın kendi (kat) olacaktı.

11. Ali kediyi kurtarmak için kendi (hayat) tehlikeye attı.

12. Güney Afrika'daki Robben Island cezaevinin en meşhur (mahkûm) Nelson Mandela olmuş.

13. Antrenör, oyuncularını bir takım (hal) getirmek için çok uğraştı.

14. Ayrılmamızın başlıca nedeni onun aşırı (gurur).

15. 1912-1914 seneleri arasındaki Balkan (harp) birçok akrabam çarpışmış.

16. Suna, Orhan'ın değil (Kemal) kız kardeşidir.

17. Türkiye'de zengin olmak için parayı (emlak) yatırmak en iyi yol.

18. Merkez bankası, önümüzdeki aylarda enflasyonda (*zam*) bağlı bir yükselme bekliyor.
19. Amerikan(*halk*) geçen seçimlerde yine George W. Bush'u başkan seçti.
20. Sabancı Holding son yaptığı yatırımlardan sonra (*kâr*) %15 arttırmış.
21. Ben (*emin*) ki restorana bu yoldan gidiliyor.
22. Atatürk 10 Kasım 1938 günü (*hayat*) gözlerini yumdu.
23. Kalp krizine (*kalp*) giden damarların tıkanması yol açıyormuş.
24. İki bülbül, rüzgârın salladığı bir söğüt (*dal*) tatlı tatlı şakıyordu.
25. Ahmet'in bugün buraya gelecek (*zaman*) yokmuş.
26. Bir Kıbrıslı Rum, Birleşmiş Milletler güvenlik (*hat*) aşip Türk tarafına geçmeye çalışmış.
27. Türkçe öğrenen yabancılar Türk alfabesinde en çok "ı" (*harf*) garipsiyorlar.
28. Fazla gürültü çıkararak mahallenin (*huzur*) bozan gençler uyarıldı.
29. Arkadaşım Nigâr (*Yaşar Kemal*) yazdığı kitaplara bayılıyor.
30. Bu son akaryakıt (*zam*), işe arabayla gidenlerin bütçesine büyük bir ek yük getirecek.
31. Kökten dincilerin evrim teorisini (*inkâr*) Amerika'da büyük tartışmalar yarattı.
32. Asansöre binince (*zemin*) inmek için Z düğmesine bastım.
33. İsveç vatandaşı olunca İsveç'te oy kullanma (*hak*) kazandım.
34. Senin manasız suçlamaların annemin (*kalp*) gerçekten çok kırdı.
35. Uzun bir hastalık döneminden sonra vefat edip (*huzur*) kavuştum.
36. İlerlemiş yaşından dolayı dedemin (*idrak*) eskisi gibi değildi.
37. Seni iyi duyamıyorum, telefon(*hat*) çok parazit var.
38. Ailesini geçindiremez duruma düşmesi aile reisinin (*gurur*) kırdı.

39. Maalesef çok yorgunum, hiç dışarı çıkacak (*hal*) yok.
40. Ben (*hayat*) hayvanları korumaya adamaya karar verdim.
41. Biz karargâhtan cephaneyi geride bırakarak ayrılmak istediğimize (*emin*).
42. Havalar güzelleşti, artık tatile çıkmanın (*zaman*) geldi.
43. Bazı balık türlerini gözlemlemek için iyice (*derin*) dalmak gerekir.
44. Yazlığımızı bu deniz beldesinin (*sükûnet*) nedeniyle buradan aldık.
45. Deneyimli şövalye uzun yola çıkmadan önce (*at*) yemek ve su verdi.
46. Evini Akdeniz tarzında yaptırdığı için (*dam*) kiremitlerini turuncu renk seçti.
47. Tarlanın ortasına yığılmış olan (*saman*) ahıra taşıyacağız.
48. Bu dünyada kimse birbirinin (*hak*) yememelidir.
49. Bu projenin başarılı olması için tecrübeli kişilerin(*iştirak*) şart.
50. Çalışmalarımıza devam edebilmemiz için bu sorunun (*hal*) şart.

APPENDIX 3a: The translation task (the Swedish original)

*Läs igenom nedanstående text först. Sedan ska du läsa den högt för inspelning. Sista uppgiften innebär att översätta texten **munligt** till turkiska utan att utelämna information. Det är särskilt viktigt att ha med alla plats- och personnamnen i översättningen! Om du inte kan hitta turkisk motsvarighet till ett visst ord kan du använda det svenska ordet i översättningen. Du är fri att använda de svenska namnen på platser och organisationer.*

Från Svenstavik till Stockholm

Jag kommer ursprungligen från Svenstavik. Svenstavik ligger söder om Östersund i Bergs kommun och har bara 1000 invånare. Jag älskar verkligen Svenstavik men det finns inte så mycket att göra där. Eftersom Östersund är den närmaste staden flyttade jag dit efter gymnasiet och jobbade i några månader som servitör på den kända krogen Champagne. Staden var inte så spännande och jag insåg att Champagne inte var så trevligt heller. Så bestämde jag mig för att flytta till Stockholm. De första veckorna bodde jag hos min kompis Dan i Gröndal. Hans födelseort är Jokkmokk men han har bott på många olika ställen inklusive Svenstavik. Som norrlänning visste han precis hur svårt det är att hitta bostad i Stockholm. Två år tidigare hade han flyttat från Jokkmokk, först till Hudiksvall och sedan till Stockholm. Hudiksvall var nog inte så intressant. När jag kom till Stockholm läste Dan fortfarande på Konstfack. Han lät mig bo hos honom i Gröndal tills jag hittat någon egen bostad.

Jag kommer aldrig att glömma mitt första intryck av Stockholm. Jag hade aldrig varit i en riktig storstad förut. Innan vi åkte båt till Århus på semester en gång hade jag sett Göteborg en kort stund. Kattegatt var dessutom det första hav jag såg. Mitt på Kattegatt hade jag även blivit sjösjuk för första gången i mitt liv. Århus är inte så stort men större än Östersund i alla fall. Kort sagt var jag inte riktigt förberedd för Stockholm. När jag såg Sergels torg för första gången blev jag verkligen rädd. Jag hade aldrig sett så många alkoholister och knarkare tidigare i mitt liv. Jag stod mitt på Sergels torg och undrade om jag skulle klara mig här i storstaden. Det var inte lätt för mig att flytta från en av Bergs kommuns lugnaste orter till huvudstaden. Flytten hit var alltså ett stort steg.

Så bodde jag i Dans lägenhet i Gröndals vackraste område i 5 veckor. Han hade en trevlig flickvän som hette Josefin. Jag kunde låna Josefins cykel och upptäckte många fina ställen söder om Södermalm. Jag brukade först cykla till Blommenberg och handla lite grejer där i Konsum. Sedan brukade jag åka till Trekantens bad och gå igenom alla bostadsannonser vid sjön. Västerbron var också ett speciellt ställe för mig. Jag brukade cykla till Västerbron och njuta av utsikten därifrån. Allt det här var skönt men bostadssökandet var mycket jobbigt. Till slut såg jag en annons om ett uthyrningsrum. Lägenheten låg i Mörbylund och tillhörde en gammal kvinna vid namn Lillemor Warg. Hon är förresten inte någon släkting till kokboksförfattaren Kajsa Warg. Hon hade stark reumatism och kunde inte handla själv. Lillemor sade att hon skulle sänka hyran om jag handlade lite åt henne varje vecka. Jag tackade ja och bodde i Lillemors uthyrningsrum i sammanlagt två år.

I mitt andra år i Mörbylund började jag jobba på Café Emalj på Södermalm. Cafét hade stadens absolut bästa stämning men jag tyckte att det tog för lång tid att åka från Mörbylund till Södermalm. Så när jag blev heltidsanställd på cafét bestämde jag mig att flytta till något nytt ställe i närheten av Café Emalj. Då hade Dan börjat jobba som designer på Lundgren & Borg på Östermalm. En av ägarna till arkitektbyrån var en före detta lärare till honom på Konstfack. Ibland träffades vi på lunchpausen och åt i Östermalms Saluhall. En dag sade han att en bekant till honom letade efter inneboende. Hyresvärden Fred var lite konstig men hade stadens grymmaste lägenhet på Södermalm. Så flyttade jag till Freds lägenhet mitt på Zinkensdamm. Zinkensdamm hade länge varit ett av mina favoritområden. Det tog bara 10 minuter att cykla från Zinkensdamm till Café Emalj. Det var härligt att bo så centralt. När Fred bytte från nattid till dagtid på jobbet fick vi problem hemma eftersom han alltid var på dåligt humör. Därför har jag börjat leta efter en ny bostad. Vi får se hur det går den här gången.

APPENDIX 3b: The translation task (in English translation)

*First, read the text below. Then you will be asked to read it out loud for recording. The final task involves an **oral** translation of the text into Turkish without leaving out information. It is particularly important that you include all place names and personal names in your translation! If you cannot find the Turkish equivalent of a certain word, you can use the Swedish word in your translation. You are welcome to use the Swedish names of places and organizations.*

From Svenstavik to Stockholm

I originally come from Svenstavik. Svenstavik is situated south of Östersund in the Berg municipality and has only 1000 inhabitants. I really love Svenstavik but there is not so much to do there. Since Östersund is the nearest city I moved there after high school and worked as a waiter for a few months at the famous pub Champagne. The city was not so exciting and I realized that Champagne was not so nice after all. So I decided to move to Stockholm. During the first weeks I stayed at my friend Dan's place in Gröndal. His birth place is Jokkmokk but he has lived in many different places including Svenstavik. As a fellow northerner he knew exactly how difficult it is to find a place to live in Stockholm. Two years before he had moved from Jokkmokk, first till Hudiksvall and then to Stockholm. Hudiksvall was probably not so interesting. When I came to Stockholm Dan was still studying at Konstfack (the art academy). He let me stay with him in Gröndal until I found a place of my own.

I will never forget my first impression of Stockholm. I had never been to a real big city before. I had seen Gothenburg shortly before we took the boat to Århus on holiday once. Besides Kattégatt was the first sea I saw. I had also become seasick in the middle of Kattégatt for the first time in my life. Århus is not so big but still bigger than Östersund. To keep matters brief, I was not really prepared for Stockholm. When I saw Sergels Square for the first time I got really scared. I had never before seen so many alcoholics and junkies in my life. I stood in the middle of Sergels Square and wondered if I would make it here in the big city. It was not easy for me to move from one of Berg municipality's calmest towns to the capital. Moving here was thus a big step.

So I lived in Dan's apartment in the most beautiful area of Gröndal for 5 weeks. He had a nice girlfriend whose name was Josefin. I could borrow Josefin's bike and discovered many beautiful spots south of Södermalm. I used to first ride to Blommenberg and do some grocery shopping there at Konsum (a supermarket chain). Then I used to go to the Trekanten beach and go through all housing ads by the lake. Västerbron was also a special place for me. I used to ride to Västerbron and enjoy the view from there. All this was nice but the housing search was very difficult. Finally, I saw an ad about a rental room. The apartment was situated in Mörbylund and belonged to an old lady by the name of Lillemor Warg. By the way she is not a relative of the cookbook writer Kajsa Warg's. Lillemor had strong rheumatism and could not do her own grocery shopping. She said that she would lower the rent if I did some grocery shopping for her every week. I accepted the offer and lived in Lillemor's rental room for a total of two years.

In my second year in Mörbylund I started working at Café Emalj in Södermalm. The café had absolutely the best atmosphere in the city but I thought it took too long from Mörbylund to Södermalm. So when I got employed full-time at the café I decided to move to a new place that was closer to Café Emalj. By then Dan had started working as a designer at Lundgren & Borg in Östermalm. One of the owners of the architecture office was an old teacher of Dan's at Konstfack. Sometimes we met during lunch break and ate at Östermalm's market hall. One day he said that an acquaintance of his was looking for a lodger. The landlord Fred was a bit weird but had the coolest apartment in the city in Södermalm. So I moved to Fred's apartment in central Zinkensdamm. Zinkensdamm had for a long time been one of my favorite areas. It took only a 10-minute bike ride to get from Zinkensdamm to Café Emalj. It was wonderful to live so centrally. When Fred changed from night shift to day shift at work we got problems at home since he was constantly in a bad mood. Therefore, I have begun looking for a new place. We will see how things go this time.

APPENDIX 4: The back-up questions (in the Turkish original)

Please try to answer in full sentences and with as much detail as possible.

1. Metnin yazarının geldiği yer neresi?
Which is the place that the author of the text comes from?
2. Burası İsveç'in neresinde bulunuyor?
In which part of Sweden is this place?
3. Yazar liseden sonra nereye taşınıyor?
Where does the author move after high school?
4. Yazar orada hangi barın garsonu olarak çalışıyor?
5. Yazar buradan nereye taşınmaya karar veriyor?
6. Yazar orada ilk zamanlar kimin yanında kalıyor?
7. Bu arkadaşının dairesi nerede bulunuyor?
8. Arkadaşı aslen nereden geliyor?
9. Arkadaşı daha önce nerelerde oturmuş?
10. İlk dönemde yazarın arkadaşı nerede okuyor?
11. Yazar daha önce tatildeyken hangi şehirleri görmüş?
12. Yazarı nerenin ortasında ilk defa deniz tutuyor?
13. Yazar nerenin ortasında dururken korkuya kapılıyor?
14. Yazarın arkadaşı nerenin en güzel kısmında oturuyor?
15. Yazar kimin bisikletini ödünç alıyor?
16. Yazar bisikletle nerenin güneyinde değişik yerler keşfediyor?
17. Yazar bisikletle nereye gidip nereden alışveriş yapıyor?
18. Yazar nereye gidip göl kıyısında ilânlara bakıyor?
19. Yazar sonra buradan nereye taşınıyor?
20. Yazar burada kimin dairesinde bir oda kir alıyor?
21. Ev sahibi hangi meşhur kişiyle akraba değilmiş?
22. Yazar alışverişlerinde kime yardım ediyor?
23. Yazar çalışmak için nereye gidiyor?
24. Yazarın arkadaşı hangi mimarlık bürosunun tasarımcısı olarak çalışıyor?
25. Yazarın arkadaşının iş yeri şehrin neresinde?
26. Mimarlık bürosunun sahibi arkadaşının nereden eski hocası?
27. Ara sıra öğlen yemeği için beraber nereye gidiyorlar?
28. Yazar son olarak nereden nereye taşınıyor?
29. Yazar kimin dairesine taşınıyor?
30. Bu daire hangi muhitin göbeğinde?
31. Buradan nereye bisikletle gitmek 10 dakika alıyor?

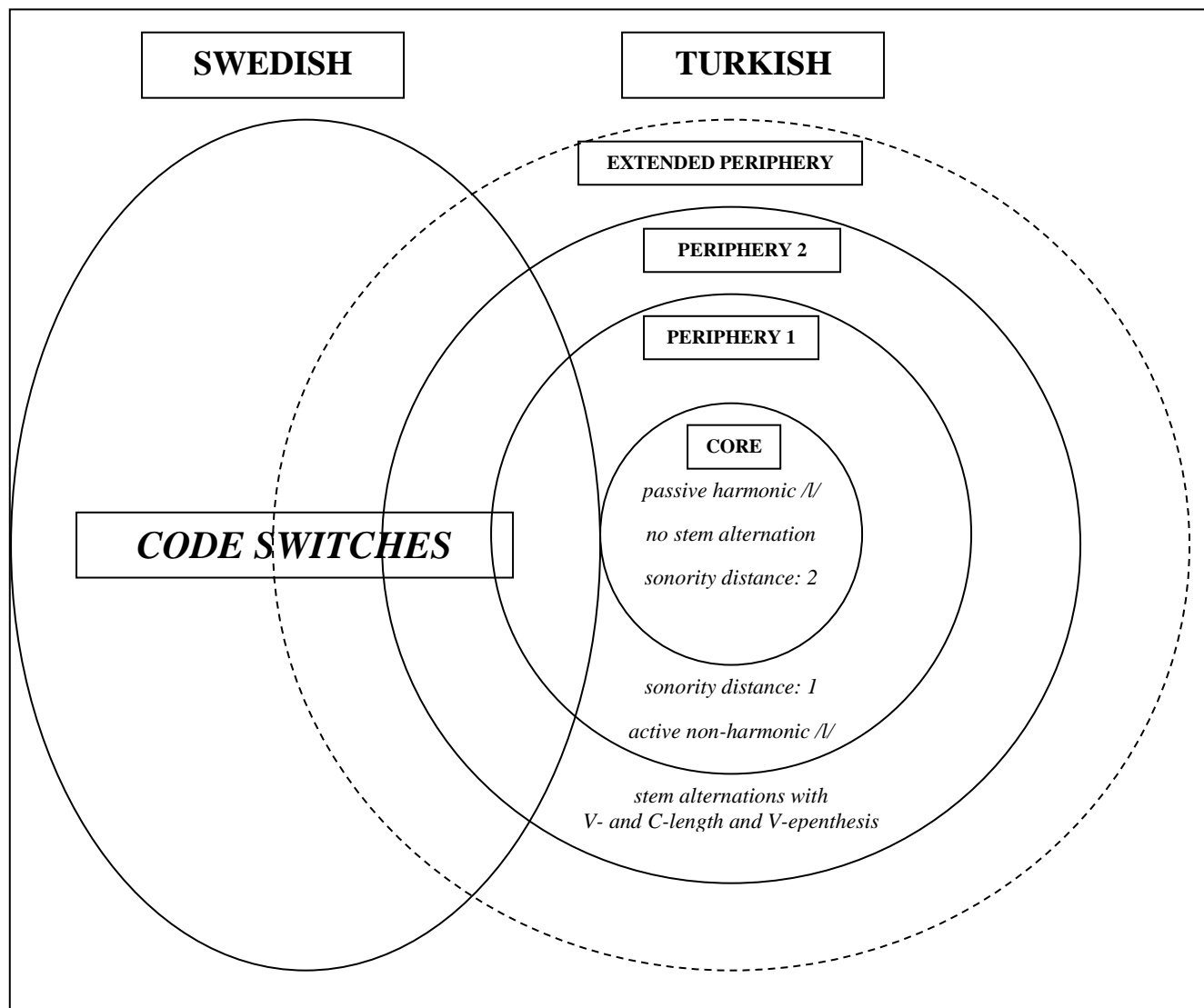
APPENDIX 5: Detailed data on the participants profile in Swedish

Table 14. The participants' profiles for Swedish

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P14	P16	P17
Age of onset	0	3	6	7	5	6-	6-	14-	6-	7	0	4	0	0	0
time spent outside Sweden (between ages)	17-20	6-8	4-6	6-7	-	6-20	-	-	8-15	-	3-24	5-10	-	-	-
Natural speech standard?	1	3	0	2	2	0	0	0	0	2	0	0	3	1	1
Natural speech dialect?	0	0	1	1	1	0	0	1	0	1	1	0	0	0	2
Natural speech foreign?	2	0	2	0	0	3	3	2	3	0	2	3	0	2	0
Recitation standard?	1	1	1	0	1	0	0	0	0	1	0	1	3	2	1
Recitation dialect?	0	0	1	1	2	0	0	1	0	0	0	0	0	0	2
Recitation foreign?	2	2	1	1	0	3	3	2	3	2	3	2	0	1	0
Recitation with text comparison standard?	0	0	1	1	2	0	0	0	0	3	0	0	3	2	1
Recitation with text comparison dialect?	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2
Recitation with text comparison foreign?	3	3	2	2	0	3	3	3	3	0	2	3	0	1	0
native? TOTAL	2	4	4	5	9	0	0	2	0	7	2	1	9	5	9
Mean of foreign accent	2.7	2.3	1.7	1.3	0	3	3	2.7	3	0	1	1.7	0	0.3	0

Legend: *P* stands for participant. The scores for nativeness represent the number of panelists that deemed the participant to be a native speaker. The sample type Natural speech was a short commentary on a given topic. The sample type Recitation was the recitation of a short text passage. The sample type Recitation with text comparison was the recitation of another short text which was presented to the panel in advance for comparison of text and pronunciation. The row TOTAL summarizes the scores from the first three rows. Mean of foreign accent stands for the evaluation of the participants Swedish by the panel.

APPENDIX 6: Overview of all relevant structures and integration loci in the data



Legend: See Figure 4 for comparison and section 5 for an overview of peripheral aspects and the criteria for peripheral strata.

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