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Approaches to the phonological analysis of loanword adaptation[*]

0 Introduction

In the present paper I am making an attempt to classify some of the factors that have so far motivated the investigations of loanword phonology. I will raise some problematic points that characterize this branch of phonology and will try to show the different approaches adopted when one is examining the borrowing of words into different languages. This "list" of approaches is not at all exhaustive: in fact, I will concentrate on two viewpoints through which I can show what sorts of problems arise when examining assimilation processes. First, I am going to summarize the different theoretical frameworks that assume the existence of **phonological subsystems** in the lexicon of a particular language. In the second part, I will collect some considerations on the **role of perception** in loanword adaptation. In the remainder of the paper, I will introduce some miscellaneous questions that I have encountered so far.

1 Phonological subsystems in the grammar

1.1 Mazateco and Spanish

The first group of investigations is aimed at describing phonological subsystems within the grammar of certain languages. Many of these studies are concerned with the description of the subsystems of one language and do not intend to make general or universal statements.

The first investigations claiming that the phonological system of a language is not homogeneous were carried out in the 1940's and 1950's by structuralist linguists, and were, in fact used to test certain hypotheses about phonemehood. According to the research carried out by Fries and Pike (1949), the pronunciation of Spanish loanwords in Mazateco[1] suggests that there might be conflicting phonological systems within a language. The point they make is that loanwords help us find out more about the native phonology, thus they

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[1] The whole paper in fact mentions one example, *ciento* 'hundred'.

can be used as an external method of description. One way of using borrowings in the structural description of a language X is examining whether or not certain sounds in loanwords from Y are perceivable for the native speaker of X. If a speech sound of Y is consistently replaced by something else in X, then it is very likely that that given sound is not a phoneme in X.

Even though the issue of predicting phonemehood with such methods seems to be much more complex than this, Fries and Pike (1949) deserve the credit for recognizing the presence of phonologically conflicting systems in the grammar. Their work was the first one to deal with language–language interaction from a phonological – rather than a historical – point of view.

1.2 Subsystems in the lexicon of Russian: palatalization and vowel reduction

From the late 1950's through the 1970's there were several attempts made to describe Russian (and some other Slavic languages, too) as a language with phonological subsystems in it. These investigations were based on sociolinguistic surveys, supported by hundreds of examples. The most comprehensive survey was conducted by Glovinskaja in 1971, aiming at systematizing loanwords according to the occurrence of two "non-Russian" phonological features: the lack of palatalization of consonants before *e* and the lack of reduction of unstressed vowels (both consonant palatalization before *e* and unstressed vowel reduction being obligatory in Russian).

These works are mainly descriptive, but the phenomena examined by Glovinskaja are very important because they show that Russian chooses two rather salient features (palatalization, reduction) by means of which it separates loanwords from the native vocabulary (i.e., since palatalization and reduction are both very "strong" (obligatory) rules in Russian, it is very likely that items that are not subject to these processes are, in fact, non-Russian).

Palatalization[2] of consonants before *e* and *i* is obligatory in Russian except for two consonants: ʒ and *ts*[3]. Whether the yodding (palatal) element belongs to the vowel or to the consonant, is rather difficult to decide, and making such a decision is beyond the scope of this paper. (However, it is possible that the controversial distribution of certain vowels in Russian is best analyzed by determining well-formed "constellations", instead of assigning the yodding nature to either the vowel or the consonant.)

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[2] Palatalization here, in fact, means yodding; that is, a palatalized consonant is produced with the back of the tongue raised towards the palate.

[3] The consonant ʃ is not mentioned here, because it does have a palatalized counterpart (ʃʲ).

What is more important is the behavior of consonants before *e* in recent loanwords. It is clear from Glovinskaja (1971) that certain consonants fail to undergo palatalization before *e* (but interestingly, never before *i*). Glovinskaja's survey involves as many as 40 native speakers of Standard Russian who were asked to pronounce a few hundred Russian words that were labelled as [+foreign]. Her findings are further analyzed by Holden (1976). He examines the place of articulation of the consonants that are exempt from palatalization and finds that it is coronals and *r* that are most likely to avoid yodding while palatalization occurs in almost all cases when the consonant involved is a velar. For the actual data and statistics, the reader is referred to Glovinskaja (1971) and Holden (1976).

Considering that it is coronals that are capable of producing the most salient acoustic and perceptual contrast (between palatalized and non-palatalized versions) it is not surprising that they are often exceptions to palatalization before *e* in loanwords: this can be regarded as a special foreign feature of borrowings. However, the compulsory palatalization before *i* in borrowings can hardly be explained this way: if the language somehow makes it explicit that a word is a foreign element via preserving the non-palatalized feature of consonants before a certain vowel (*e*), then why does it fail to do so in the case of another vowel (*i*)? One possible explanation for the difference can lie in the nature of the vowel *i* in Russian. This is the only vowel with two, phonetically very distinct allophones, one occurring after non-palatalized consonants (a back, unrounded, high vowel often called *yeri* in the traditional descriptive works) and another appearing when the preceding consonant is palatalized (a front, unrounded, high vowel). Since yeri is a universally "marked" vowel and thus hardly ever occurs in the source languages where Russian takes its loanwords from, it is possible that it is avoided in the borrowings due to some faithfulness effect. Thus, since source language *i*-s are always translated as "plain" *i*-s in Russian, and since the palatalization of consonants before *i* is a must, all loans have to contain palatalized consonants. An investigation into the loanwords from Turkish languages into Russian – considering that many Turkish languages have a yeri-like vowel – would support or refute my hypothesis drafted above. This investigation is part of futher research.

Russian also exhibits lack of unstressed-vowel reduction in foreign words. In the native vocabulary, *o* and *e* automatically get reduced when becoming unstressed[4]. According to Holden's observations, the reduction of *o* and *e*

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[4] The description of Russian vowel reduction is, in fact, very complicated. It depends not only on the quality of the unstressed vowel but also on its distance from the primarily stressed syllable, and even on the palatalizedness of the neighbouring consonants.

proves to be unbalanced in loanwords: even within one word, *e* is more easily reduced than *o*. I do not consider it my task here to demonstrate the possible correlations between the constraints governing palatalization and vowel reduction. I just found it worth mentioning that two rather salient phenomena of Russian are suspended in borrowings: as if the lack of these features was a secure "brand" that shows that the given word is a foreign element. However, it also raises the question of what rules or constraints are violable – and actually violated – this way, and what are always obligatory. It seems as if palatalization before *e* was not as strong a rule as palatalization before *i*. Holden (1976) suggests that it is the domain of operation of a rule that decides whether or not it is easily violated. For example, Hungarian stress placement is a "word-level" rule, which is high-ranked enough not to be ever violated by loanwords. If this is the case, the different behavior of consonants before *e* and *i* is even more confusing: the domain of palatalization is the same in both cases (always within the syllable), still the former is sometimes violated while the latter is never.

1.3 Optimality Theory and the lexicon of Japanese

With Optimality Theory (OT) becoming more and more popular and widespread in the 1990's it seemed obvious to test this framework for handling borrowing phenomena. Since the adaptation process itself can be regarded as a "derivation" (from an "underlying" source language form to a "surface" form in the borrowing language), it became clear that adaptation cannot easily be analyzed in any representational model (e.g., CV, VC or Dependency phonology). In OT, universal phonological constraints can be ranked in a language specific fashion, and those that are high-ranked enough will filter out borrowings that cannot ever enter the language (or can do so only after some modification). Low-ranked constraints will allow certain loanwords into the language. In the following, I will illustrate Itô and Mester's (1995) lexicon model for Japanese.

In Japanese, Itô and Mester assumes the existence of at least four different layers of vocabulary (native Japanese words; Sino-Japanese words, i.e., words of Chinese origin; Mimetic words; and the latest borrowings), with different constraints holding in them. Instead of OT constraint ranking, the lexicon model expresses constraint effects by scopes: certain constraints (like those controlling syllable structure) are in force throughout the whole lexicon (have a big scope), while others refer to one or two layers only. So while native Japanese words have to conform to all the phonological rules / constraints of the language, mimetic and borrowed words can exhibit violations to some of

them. Thus, the structure of the lexicon of Japanese can be represented by a Venn-diagram[5] but with a very complicated one, which I do not intend to present here mainly due to typographic difficulties and lack of space.

It is very peculiar that apparently the most important constraint of Japanese is the strict CV structure of words. What this means is that there are basically no codas in the language except for nasals and the first members of geminates. All loanwords have to conform to this constraint, irrespective of their origin. There are, however, other constraints that can sometimes be violated. One of these is the *TI constraint, which excludes non-palatal coronals before *i* (that is, *ti*, *di*, *si*, and *zi* are illegal). In at least one layer of the lexicon we can find some elements that are ill-formed in this respect but only in the case of coronal stops. See the examples in (1).

(1) Eng. *party* > Jap. *paatii*
     Eng. *disco* > Jap. *disuko*

Coronal fricatives, however, are never allowed to be followed by *i*, not even in recent loans:

(2) Eng. *city* > Jap. *shiti*

Even though a constraint-based theory can represent the structure of the lexicon quite elegantly, the question about the correlations of the domain of phonological rules and their violability still remains unanswered. The *SI ~ *TI problem drafted above is very similar to the problem of palatalized consonants before *e* and before *i* in Russian: *TI and *SI seem to operate on the same domain (an intrasyllabic domain), still with different results in violability.

2 Perception in loanword phonology

Along with current developments in laboratory phonology, examining the role of phonetics and perception in loan phonology has become more and more popular. There are a lot of different positions in the recent literature, of which

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[5] Venn-diagrams are used in set theory to illustrate the possible mathematical relationships between groups of entities (sets). In the case of the Japanese lexicon model, the sets are word groups of the lexicon with different constraints holding in them. If a word does obey a constraint then it will be an element of the set representing that constraint, if it does not then it will be outside the given set. For a more detailed description the reader is referred to Itô and Mester (1995).

here I will present three. These investigations refer not only to the role of perception but also try to set up alternative models for the interaction of native and loan phonology.

2.1 Context free segment mapping in Cantonese

The first view is represented by Silverman (1992), in a case study from Cantonese. He examines a number of English borrowings into Cantonese and claims that (1) the perceptual mapping of English segments happens in a context-free fashion, and (2) adaptation is realized at two levels, a Perceptual Level and an Operative Level. The first level is responsible for providing a "raw linguistic representation" (Silverman 1992: 290), and as such, it is restricted by the native phonological inventory of Cantonese only. Phonotactic constraints start to operate at the Operative Level, where we already have the perceptual representation but the ill-formed sequences need to be adjusted to the system of Cantonese. This is illustrated in Figure 1 (based on Silverman 1992: 291).

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┌──────────┐      ┌──────────────┐      ┌──────────────┐      ┌────────┐
│ incoming │      │  Perceptual  │      │  Operative   │      │        │
│ acoustic │ ───▶ │    Level     │ ───▶ │    Level     │ ───▶ │ output │
│  signal  │      │representation │      │representation │      │        │
│  (input) │      │              │      │              │      │        │
└──────────┘      └──────────────┘      └──────────────┘      └────────┘
                         ▲                      ▲
                         │                      │
                         │               ┌──────────────┐
                         │               │  Operative   │
                         │               │    Level     │
                         │               │  processes   │
                         │               └──────────────┘
                         │                      ▲
                  ┌──────────────┐       ┌──────────────┐
                  │   segment    │       │              │
                  │ inventory of │       │    native    │
                  │     the      │       │ phonotactic  │
                  │  borrowing   │       │ constraints  │
                  │   language   │       │              │
                  └──────────────┘       └──────────────┘
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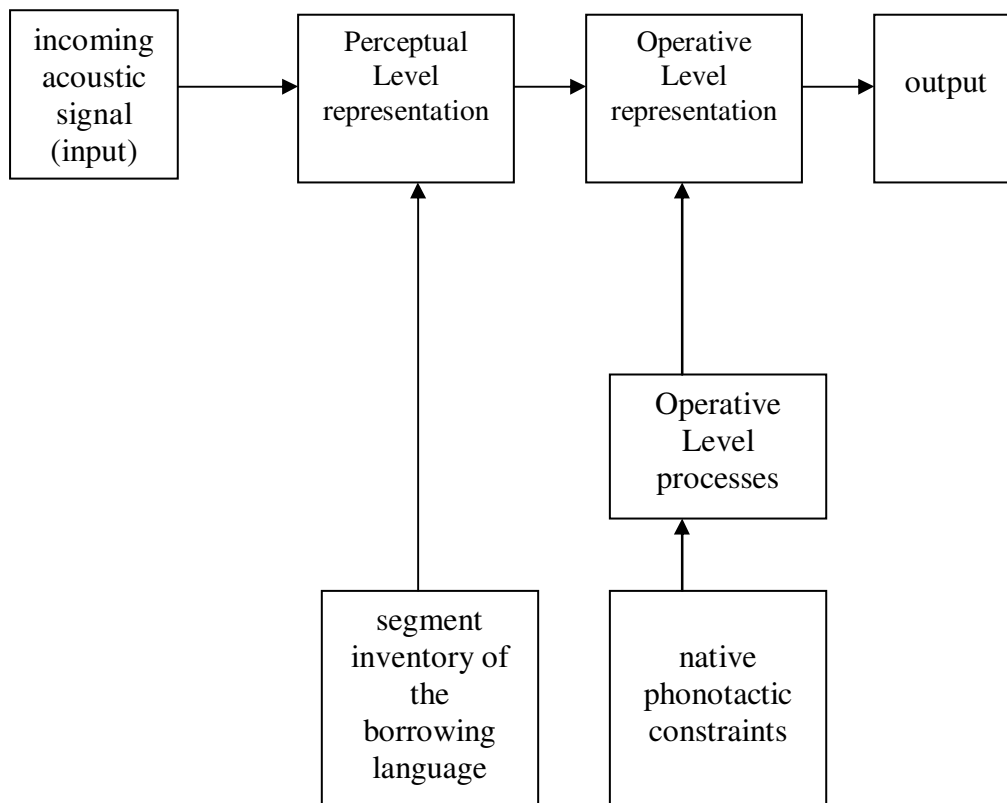
Figure 1.: Segment mapping at two levels

According to Silverman, the sound sequences in the words of a different language are in fact, unanalyzed acoustic signals for the native speakers' ears. This does not, of course, mean that they remain so throughout the derivaton: at the Perceptual Level they are interpreted, according to the possibilities allowed by the native segmental inventory. The consonantal inventory of Cantonese is shown in (3)[6].

$$\begin{array}{lllll}
\text{(3)} \quad p & t & ts & k & k^w \\
p' & t' & ts' & k' & k^{w'} \\[6pt]
f & s & & & h \\[6pt]
m & n & \eta \\
& l \\
y & w
\end{array}$$

After the segmental representation is done, the phonological system of Cantonese comes into play – since there might be ill-formed sequences in the internal representation of the word. Apparently, there are no phonological alternations in Cantonese – all relevant processes take place in the loanword phonology. Thus, basically, it is only phonotactics that can influence the output form at the Operative Level. The syllable structure is quite strict in the language: neither branching codas, nor branching onsets are allowed. Any consonant, in fact, can stand in a simple onset but the set of possible codas is quite limited (shown in (4), Silverman 1992: 294). Codas allow unaspirated stops, nasals, and glides.

(4) p t k m n ŋ w y

Cantonese employs different repair strategies in order to prevent certain segments from getting into coda position. An ill-formed coda can be repaired in different ways. Coda /l/ and /s/ are saved by epenthesising a vowel after them as is shown in examples in (5). Coda-clusters are dissolved via epenthesis as well.

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[6] The sign ' indicates aspiration on the given consonant.

(5) *film*[7] → [fey lɐm], *file* → [fay low], *bus* → [pa si], *tips* → [tip si]

It seems to be a must to salvage *s* and *l* somehow; since they are not permitted to occur in codas, after vowel epenthesis they are parsed into the onset of the following syllable.

Illegal codas other than *s* or *l* behave in different manners. Complex codas are simplified by deleting their second consonant:

(6) *warrant* → [wɔ røn]

Note that since the most typical source of borrowing in the case of Cantonese is English, and in English branching codas very often contain a nasal as a first segment, it is very likely that a complex coda input will receive a simple nasal coda output in Cantonese. I have not been able to find English loanwords in Cantonese that originally have a branching coda with no sonorant member.

If there is a fricative in the coda other than *s*, it undergoes occlusivisation. Silverman (1992) illustrates this as in (7). The source-language coda *t* is deleted (since complex codas are illicit in Cantonese); the remaining coda-fricative turns into a (homorganic) stop:

(7) *lift* → [lif] (at the Perceptual level) → [lip] (at the Operative level)

The phenomenon is often described as a segment merger (Silverman 1992: 300), where the original fricative (*f*) provides place of articulation and the stop provides manner of articulation for the new segment (thus becoming a labial stop).

There are, however, some problems with this representation of the process. It is quite unclear why the /t/ in the above example is not present in the perceptual representation, i.e., why is it deleted at the Perceptual and not the Operative level if it is true that a -*ft* cluster in a branching coda is merely a phonotactic violation (and not, say, a non-perceivable acoustic signal from which no segment is recognizable). Apart from this problem, Silverman seems to be quite inconsistent as to why certain segments are recoverable for Cantonese speakers in certain positions and why others are not. The question why /s/ and /l/ are saved as opposed to other illicit coda consonants is also a relevant one. Silverman explains the behavior of *s* with its relative phonetic

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[7] The source of these Cantonese words is English unless otherwise indicated.

salience. In fact, regarding the controversial behavior of *s* in almost all languages, it may come as no surprise that *s* is not deleted during the derivation. However, it is rather difficult – if not impossible – to explain the presence of *l* in the output with similar arguments.

2.2 Arguments for context-dependent segment mapping

A response to Silverman's position is given by Kenstowicz (2001), who does agree with the existence of two separate levels in the adaptation process (a Perception and a Production level) but refutes Silverman's claim about the context-free segment mapping. He provides evidence from three languages: Fon (a dialect of Ewe), Korean, and Mawu (a Manding language of Ivory Coast) to support his claim that segment mapping is in fact, context-dependent. He concentrates on the adaptation of liquids in these languages.

2.2.1 Fon

Fon has one liquid phoneme (Gbéto, 1997, Kenstowicz 2001: 4). During the adaptation, source language laterals are translated as laterals (8):

(8) Eng. *dollar* → [dala][8]
Eng. *flower* → [flowa] *lift* → [lif] (at the Perceptual level) → [lip] (at the Production level)

Source language rhotics show a twofold behavior when adapted by Fon. When followed by a vowel, they are realized as /l/ with an additional dorsal component pre-attached thus producing [ʁl]. They are deleted preconsonantally or word-finally:

(9) French *rideau* 'curtain' → [ʁlido], Fr. radio → [ʁladio]
Fr. *gare* 'station' → [ga]

Following Gbeto (1997) and Paradis and Prunet (2000), Kenstowicz describes the emergence of [ʁl] as a split of the features of French /ʀ/: the place feature is preserved in the obstruent [ʁ], and sonority is represented by [l]. This "unpacking" (Paradis and Prunet 2000) is quite common in adaptation processes – we can find examples in Hungarian, too, where certain VN

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[8] For typographical reasons Fon tones are ignored in the transcription.

sequences coming from Slavic languages are, in fact, unpacked nasal vowels (*gal<u>amb</u>* 'pigeon', *sz<u>om</u>széd* 'neighbor', *p<u>én</u>tek* 'Friday'). Note that the phenomenon is an exact inverse of what we have seen in the case of Cantonese, where instead of the features of one segment being unfolded into two segments, in Fon it is one segment that united two features of two segments.

2.2.2 Korean

The only liquid phoneme of Korean has two positional variants: it is lateral word-finally and pre-consonantally and rhotic when followed by a vowel. In loanwords, however, the language does distinguish between source *r*-s and *l*-s, although they are not separate phonemes in the language. Word-initial #ClV clusters can optionally be adapted as having a single rhotic, or a geminated lateral:

(10) Eng. *glass* → [kirasi] or [killasi]

Interestingly, word-initial #CrV clusters do not allow the geminated variant:

(11) Eng. *dry* → [tirai], but never *[tillai]

Not only can Korean speakers perceive the difference between two segments that are allophones in their language but they are also able to recognize them when they occur in environments in which they could never occur in Korean. That they truly recognize the difference between *l* and *r* is suggested by the fact that these clusters are treated differently in Korean.

2.2.3 Mawu

The language only has one lateral liquid but it quite systematically distinguishes between source language C+*r* and C+*l* clusters. Since word-initial clusters are illegal in the language, these consonant sequences are repaired via epenthesis. But, while in C+*r* clusters a copy vowel is epenthesised, C+*l* clusters are repaired with a default high vowel. We have no data, unfortunately, on how liquids are adapted when they appear in other positions.

The above examples suggest that the mapping can hardly be imagined to be context-free. Instead, Kenstowicz assumes that besides language specific constraints, universal tendencies are intervening both at the Perceptual and the Production Level. The ultimate claim is that adaptation processes cannot be

described with merely language specific properties. However, he does not clarify what kind of Universal tendencies are at work in, say, the case of Korean or Mawu.

2.3 Optimality Theory and Perception

The third view presented here is that of Jacobs and Gussenhoven (2000), which is concerned with both perception and the makeup of the Lexicon. They again refute Silverman's point on context-free mapping and perceptual salience, because it suggests that salience is "determined on a language-specific basis" (Jacobs and Gussenhoven 2000: 197), which, they claim, is very unlikely.

Following Yip (1993) they claim that it is possible to describe loan phonology with constraints that are needed for the native grammar anyway. Strictly speaking, this statement contradicts all the above described models assuming different layers or strata within the phonological lexicon. Jacobs and Gussenhoven (2000:197) present the following tableau (12) to explain why /s/ is saved in Cantonese when the word *bus* is borrowed from English.

(12)

/bʌs/	OK-σ	Faithful	MinimalWord	Parse (salient)	Fill
pas.	*!		*		
☞ pa.si		*			*
pa.<s>		*	*!	*	

OK-σ is basically a group of phonotactic constraints: it means that a syllable must be well-formed, i.e., must not contain a branching onset or coda, and must not contain a coda consonant which is not an unaspirated stop, a glide or a nasal. (Recall the "coda-inventory" from (4)). A minimal word in Cantonese is at least bisyllabic; MinimalWord is a constraint that excludes words that do not conform to this requirement. Parse (salient) requires salient elements to be parsed, that is, should not be deleted, while Fill excludes epenthesis.

However, several problems arise in this analysis. Miklós Törkenczy (personal communication) pointed out to me that Yip as well as Jacobs and Gussenhoven assume the existence of two constraints (Parse and Fill), which are responsible for deletion and epenthesis in OT, as being part of the Cantonese grammar. However, as it became clear from Silverman's analysis,

there are absolutely no segmental alternations in Cantonese, which means that they might be present in the grammar but they never get a role, as if they were vacuous. In other words, it is only the loan phonology that provides evidence for the constraint ranking presented in Tableau 1. and therefore the argumentation is somewhat circular. Also they offer an analysis for the controversial behavior of fricatives in Cantonese loanwords – in some loans coda /f/ is saved, in others it becomes a stop. However, the only way they can manage is varying constraint ranking for each word, which results in different grammars, although this is exactly what they wanted to avoid. For the actual Tableaux, the reader is referred to Jacobs and Gussenhoven (2000).

3 Typology, universal tendencies, and some non-linguistic factors to consider

Probably the most interesting and important result of examining adaptation in certain languages would be drafting a rough typology of loanword phonology: beyond the extremely exciting processes in particular languages that still have to be described there must be some regular pattern in the way languages borrow elements from other languages. But the more languages are examined, the less regularities – or what are believed to be regularities – seem to hold.

   A basic assumption regarding constraint violations is that languages tend to be more "tolerating" on the periphery than in the core stratum; that is, elements that are not part of the native core vocabulary (like mimetic words and borrowings) are allowed to violate certain constraints. There are, however, examples that contradict this assumption: in some languages we find phenomena that suggest that there might be foreign elements which have to conform to some restrictions – sometimes not even present in the native stratum – instead of exhibiting violations to them. One such example comes from Hungarian and is usually referred to as the **Heavy Syllable Requirement** (cf. Nádasdy 1989, Törkenczy 1989).

   In a number of foreign words Hungarian has to meet a peculiar requirement: they have to contain a heavy syllable, and if the source form contains a short vowel followed by a short consonant, then the latter undergoes gemination, especially if it is a voiceless stop. Some examples are shown (13).[9]

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[9] Some of the examples are from Nádasdy (1989) and Törkenczy (1989), others are my collection.

(13) *csekk* 'cheque'   *vicc* 'joke'
    sakk 'chess'   *plüss* 'plush'
    matt 'checkmate'   *sokk* 'shock'
    Polysyllables:
    rabbi 'rabbi'
    hobbi 'hobby'

The native phonotactics of Hungarian does not employ this requirement: there are several monosyllables that are well-formed without having a heavy syllable. Another problem is that the source languages (usually English and German) do not have geminates – at least in their standard dialects. It means that faithfulness is violated during the adaptation – though it must be mentioned that it is usually voiceless obstruents that undergo gemination, which are often claimed to behave like geminates in, say English (Péter Szigetvári, personal communication).

Even though the phenomenon is claimed to be an analogical extension of a borrowing process (László Kálmán, personal communication) from a dialect of German that does have geminates (Nádasdy 1989), it must be somehow handled in a lexicon model different from that of Itô and Mester (1995, 1999). The elements that have to conform to the requirement – not only loanwords but internal "derivations", acronyms, etc. – must be somehow marked.

A borrowing phenomenon in Italian seems to show similar effects. Italian is a language that does not tolerate word-final consonants except for certain function words and loanwords. However, certain monosyllabic words ending in a short consonant in the source language are borrowed into Italian by geminating the final consonant – not only voiceless stops but even sonorants as the data in (13) illustrate (Passino 2004):

(14) E. *fan*   → It. [fan:]
    Jeep   →   [dʒip:]
    top   →   [top:]
    speech   →   [spit:ʃ]

Ádám Nádasdy's suggestion (personal communication) is that there is a prevailing constraint in Italian requiring the stressed syllable to be heavy. This constraint seems to be ranked higher than the one that rules out word-final consonants. It is still unclear, however, why it is not satisfactory to preserve the long vowel of the donor language form, in, say, *Jeep* or *speech*, and why geminate the consonant instead. Needless to say, the gemination process leads

to Faithfulness violations again. Since there are similar geminating phenomena in Japanese loan phonology, too (Itô and Mester 1995), one cannot ignore the suspicion that gemination is some sort of a universal tendency – participating in adaptation processes – that comes to the surface now and then in certain languages that allow geminates.

Finally, I would like to list a few other factors – some of them are non-linguistic – that can influence adaptation processes.

Probably the most controversial one is the role of "spelling pronunciation", which is said to be especially prominent when there is a shift from one alphabet to another (as in the case of English to Russian borrowing). The problem with the assumption is that it is very hard to determine whether it was the spelling that influenced pronunciation or vice versa. An often cited example is the Japanese syllabary used for transcribing foreign elements (the *Katakana*), which only allows CV syllables to transcribe. It is claimed that the reason why Japanese only permits CVCV sequences in loanwords is that that is what they can transcribe with the Katakana. The author of the present paper, however, believes that it works the other way round: the Katakana syllabary has only CV elements because they are satisfactory for the language to transcribe all possible foreign elements (that always have a CVCV structure, the CVCV constraint being very strong in the language).

Another, more justifiable factor is the frequency of use. It hardly fits into any modern model of phonology, but it is doubtless that the assimilation rate of a borrowing depends on how frequently it is used and how long it has been around in the language. Sociolinguistic factors, like age groups, the linguistic environment of a speaker, social and individual mono- and bilingualism, etc., cannot be ignored. Finally, an important linguistic notion, namely paradigm uniformity must be considered: sometimes the presence of a foreign feature in an element can only be explained by the behavior of another member of its paradigm, which already contains the given feature.

4 Summary

In the present paper I described different approaches to loanword phonology. The first group of approaches investigate(d) the presence of phonological subsystems within the grammar of a particular language. The first studies of that kind were written in a structuralist framework, and, in fact, used loanwords as external evidence for phonemehood. In the 1960s and 1970s several attempts were made to describe phonological subsystems in Russian. The details of these studies are found in 1.2. in this paper. Finally, a lexicon model for Japanese was discussed, which handled loanword adaptation fairly elegantly in a simplified version of Optimality Theory.

The second group of investigations includes studies that are concerned with the role of perception during adaptation. The most controversial point seems to be whether or not segment mapping from one language to another happens in a context free fashion. Silverman (1992) argues – with data from Cantonese – for the context free version, whereas Kenstowicz (2001) and Jacobs and Gussenhoven (2000) claim it must be context dependent.

In the last chapter of the paper I mentioned some phenomena that contradict the "traditional" intuitive views on the operation of loan phonology.

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