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**The Role of Perception in Loanword Adaptation:
The Fate of Initial Unstressed Syllables
in American Finnish and American Hungarian***

Abstract

This paper examines one aspect of the phonological adaptation of American English loanwords in two contact varieties, American Hungarian and American Finnish, namely, the fate of unstressed initial syllables of borrowed English words. The two recipient languages both have initial word stress, which is retained in their respective immigrant varieties. American Hungarian and American Finnish exhibit striking similarities in their strategies of adaptation: either (1) the stress is moved to the first syllable (just like in the Old World varieties of these languages), or (2) the unstressed initial syllable is deleted. In this analysis in the framework of Optimality Theory, the role of perception is argued to be crucial in explaining the presence of the two parallel strategies of adaptation. In the perception of word boundaries, Strategy 2 relies exclusively on auditory (rather than visual) input, where the word boundary is perceived as marked through stress by the speakers of the immigrant varieties.

1. Introduction

This paper examines one aspect of the phonological adaptation of American English (AmE) loanwords in two contact varieties, American Hungarian (AH) and American Finnish (AF), namely, the fate of unstressed initial syllables of borrowed English words. The two recipient languages, Hungarian and Finnish, both have initial word stress, which is retained in their respective immigrant varieties as well. American Hungarian and American Finnish exhibit striking similarities in their strategies with which they adapt such English words: either (1) the stress is moved to the first

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syllable (just like it would be in the Old World varieties of these languages as well, cf. Hungary Hungarian [HH] *'konverter* and Finland Finnish [FF] *'konvertteri*, both from English *con'verter*) (cf. AH *'anaunszol* and AF *'ünaunssata* ← AmE *a'nounce*), or (2) the unstressed initial syllable is deleted (cf. AH *'pojntment* and AF *'pointmentti* ← AmE *a'ppointment*). (The two strategies sometimes produce doublets, cf. AH *'emördzsönszi rúm* and *'mördzsenszi rúm* ← AmE *e'mergency room*.) The two strategies are employed in the two languages in very similar ways: the type of syllable which is most commonly deleted in both languages is the onsetless syllable (i.e. the vowel-initial syllable, most commonly a V-, less commonly a VC- or, rarely, a VCC-syllable, e.g. AH *genszt* ← AmE *a'gainst*, AF *pout* ← AmE *a'bout*, AH *gédzsment* ← AmE *en'gagement*, and AH *kjúzmi* ← AmE *ex'cuse me*), while syllables with onsets, i.e. consonant-initial syllables, are not deleted at all in American Hungarian, and in only very few isolated cases in American Finnish (e.g. AF *puplikaani* ← AmE *re'publican*).

In our analysis of this case of loanword adaptation in the framework of Optimality Theory (Kager 1999, Prince and Smolensky 2004), we argue that the role of perception (Kenstowicz 2001, Peperkamp and Dupoux 2003, and Steriade 2001) is crucial in explaining the presence of the two parallel strategies of adaptation (i.e. stress movement and unstressed initial syllable deletion). In the perception of word boundaries, Strategy 2 relies exclusively on auditory (rather than visual) input, where the word boundary is perceived to be marked through stress by the speakers of the immigrant varieties. This phonological explanation is fully in accord with the sociolinguistic evidence, namely that the forms where Strategy 2 is employed are used only by immigrants, who typically learn English through speaking (rather than reading and writing it), and for whom, thus, the spoken (rather than the written) form of English would have been predominant. At the same time, forms where Strategy 1 is exclusively employed are used in Hungary Hungarian and Finland Finnish, where visual input plays a much more important role than does auditory input. The role of visual input cannot, of course, be excluded in the immigrants varieties either (it is evidenced by forms such as AH *polic* [ts] 'police' and AF *sessori* [s:] 'assessor' etc.), but, as we will argue, auditory input has priority over it.

The paper aims to demonstrate the following main points. First, the point that Hungarian and Finnish, two genetically related languages, continue to share their common property of word stress even in their faraway contact varieties (where the language they are in contact with is

the same). Second, even with genetic relatedness aside, the two languages have the same typological property in word stress, and this property may lead to predictable strategies in identical contexts – as indeed it is shown to do so in the two contact varieties. And third, the priority of auditory input to visual input is supported by our analysis of loanwords in the two contact varieties in question.

2. The data

The American Hungarian linguistic data used for the analysis comes from four sources: two corpuses of American Hungarian speech (one from South Bend, Indiana, cf. Kontra 1990; and one from McKeesport, Pennsylvania, cf. Fenyvesi 1995), as well as Bartha's 1993 findings from Detroit, Michigan, and Vázsonyi (1995), a dictionary of American Hungarian from the Calumet region in Illinois. (For a comprehensive description of American Hungarians and their language use, see also Fenyvesi 2005). The source of the American Finnish data is Virtaranta's 1992 dictionary of American Finnish.

Altogether the four American Hungarian sources yield approximately 1,400 loanwords, of which about 150 occur in more than one source. (Alternative forms of the same loanword, like *afic* ~ *ofic* ~ *ofisz* 'office,' are only counted once.) Among the total of 1,400 words there are 70 where in the English source form word stress is non-initial and the initial syllable is unstressed. In 52 of these words the same adaptation strategy is used in American Hungarian as far as their stress placement is concerned: the word stress is moved to the initial syllable (and all of the syllables are preserved).

Of the 70 words whose American English source word has non-initial stress, 17 get adapted into American Hungarian through the deletion of the unstressed syllable (and one word through morphemic substitution of an initial unstressed syllable morpheme, see below) – here, then, the Hungarian-like initial word stress is achieved in a different way, via a strategy not used either in Hungary Hungarian or in any other contact variety of Hungarian. A list of these words is presented in Table 1 below.

American English source word	American Hungarian loan
adopt	daptol
adoption	daptolás
against	genszt
allergic	lörcsik
aluminium	luminum
American	meriken
apartment	partment ~ apartment
appendix	peniksz
appointment	pojment ~ pojntment
arrest	resztol ~ le -resztol*
electric	lektrik
emergency room	mördzsenszi rúm ~ emördzsönszi rúm
engage	le -gédzsol
engagement	gédzsmment
especially	peseli ~ pesöl
excuse me	kjüzmi
interpreter	tropender
involve	bele -volvál**

Table 1. American Hungarian words where the unstressed initial syllable of the source word is deleted.

Virtaranta's 1992 dictionary contains 4,571 loans, out of these there are 164 whose English source word has non-initial word stress. In 135 of these 164 word-initial stress is achieved by moving the stress to the first syllable, and in 29 the unstressed initial syllable is deleted. These 29 words are listed in Table 2 below.

American English source word	American Finnish loan
about	pout
accommodate	komoteitata
accommodation	komoteessi
account	kounti
agreement	kriimentti
alarm	larmi
align	lainata
allow	lauata
allowance	lauanssi
amount	mauntata
appendicitis	penetsait
appoint	pointata
appointment	pointmentti
appraise	preissata
appreciate	priisieitata
around	raund
arrest	rästätä
asparagus	sparakus
assemblyman	semplimies
assessor	sessari
association	soseissöni
attach	tötsätä
attest	testi
autopsy	tapsi
economy	kaanami
emergency	meersensi
refinery	faineri
republican	puplikaani
surprise party	praispaarti

Table 2. American Finnish words where the unstressed initial syllable of the source word is deleted.

3. Analysis

3.1 The phonological facts

Now we turn to see what the distribution of the various syllable types is in the words where the initial unstressed syllable of the English source word is deleted vs. not deleted. Table 3 presents the numerical distribution of the words with different types of initial syllables in American Hungarian and American Finnish, respectively, and their proportion with each type.

Syllable type:	American Hungarian		American Finnish	
	deleted	not deleted	deleted	not deleted
V	12 (75%)	4 (25%)	26 (68%)	12 (32%)
VC	4 (24%)	13 (76%)	0	26 (100%)
VCC	1 (17%)	5 (83%)	0	15 (100%)
CV	0	29 (100%)	2 (3%)	56 (97%)
CVC	0	0	1 (5%)	19 (95%)
CCV	0	1 (100%)	0	7 (100%)
Total:	17 (25%)	52 (75%)	29 (18%)	135 (82%)

Table 3. Types and the fate of initial syllables of words whose English source word has non-initial stress in American Hungarian and in American Finnish.

As we can see in Table 3, in American Hungarian only V-initial unstressed syllables are deleted in the process of borrowing: in the greatest number (12 out of 17, or 71%) of words where an unstressed syllable is deleted, this syllable is V, with the remaining being VC or VCC syllables. No C-initial unstressed syllable is deleted at all in American Hungarian. In American Finnish the great majority (26 out of 29, or 90%) of the words where a syllable is deleted, this syllable is V, while in the remaining 3 cases, it is CV or CVC. No VC or VCC syllables are deleted in American Finnish at all.

To summarize the facts, the most prominent tendency in both languages is to delete V syllables – their deletion accounts for 71% of all deletions in American Hungarian and 90% of them in American Finnish. In addition to this, American Hungarian also allows the deletion of other onsetless syllables, while American Finnish marginally allows the deletion of syllables with onsets.

3.2 An Optimality Theory account

Phonologically speaking, in a language like Hungarian or Finnish where primary stress always falls on the first syllable,¹ phonetic content preceding the stressed syllable may not be interpreted as part of the prosodic word. Hungary Hungarian and Finland Finnish invariably re-integrate pretonic syllables by moving the stress onto them while American Hungarian and American Finnish also delete some of them. Our proposal uses Optimality Theory (Prince and Smolensky 2004) to account for the differences in loanword adaptation between the European and American varieties of the languages in question, paying special attention to the role of perception (cf. Kenstowicz 2001, Peperkamp and Dupoux 2003, Steriade 2001).

3.2.1 Accounting for the American Hungarian facts

The following three constraints will be used for both Hungary Hungarian and American Hungarian:

- (1) Align-Left
Primary Stress falls on the first syllable.
- (2) Max- σ
A syllable in the input has a correspondent in the output.
- (3) IDentity-Stress (ID-Stress)
A stressed syllable in the input should be a stressed syllable in the output.

In Hungary Hungarian, Align-L and Max- $\sigma\sigma$ are ranked above ID-Stress to avoid deletion:

- Align-L, Max- $\sigma\sigma$ >> ID-Stress

This is how American English *Alaska* [ə'læskə] becomes *Alaszka* ['ɒlɒskɒ] in Hungarian:

¹ Cf. Siptár & Törkenczy (2000: 21) for Hungarian and Turunen (1998: 62) for Finnish.

(4)

ə'læskə	AlignL	Max-σσ	ID-Stress
ɒ'lɒskɒ	*!		
☞ 'ɒlɒskɒ			*
'lɒskɒ		*!	

In American Hungarian, AlignL dominates Max-σσ and ID-Stress but Max-σσ and ID-Stress are not ranked with respect to each other:

- AlignL >> Max-σσ, ID-Stress

The following three tableaux illustrate how American Hungarian applies both stress movement and deletion. Tableau (5) gives an example of two attested winners, while (6) and (7) show attested winners with unattested alternative winners (marked with a parenthesized ☞).

(5) American English *a'partment* > American Hungarian *'apartment ~ 'partment*

ə'pɑ:tmənt	AlignL	Max-σσ	ID-Stress
ɒ'pɔ:tmənt	*!		
☞ 'ɒpɔ:tmənt			*
☞ 'pɔ:tmənt		*	

(6) American English *im'mediate* > American Hungarian *'immediet*

i'mi:diət	AlignL	Max-σσ	ID-Stress
im'mɛdiət	*!		
☞ 'imɛdiət			*
(☞) 'mɛdiət		*	

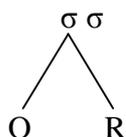
(7) American English *en'gagement* > American Hungarian *'gédzsmənt*

in'geɪdʒmənt	AlignL	Max-σσ	ID-Stress
ɛŋ'ge:dʒmənt	*!		
(☞) 'ɛŋge:dʒmənt			*
☞ 'ge:dʒmənt		*	

The choice between stress movement and deletion is not completely unpredictable. A syllable with an onset is never deleted in our American Hungarian corpus, which might be due to perceptual factors: a syllable with an onset is more salient than one without. An observation that might be related to the higher perceptibility of syllables with an onset as opposed to those without is that non-lexical hesitations tend to lack an onset as in British English [ʒ:] or American English [ʌm]. Lexical hesitations such as English well or Hungarian hát might begin with a consonant but note that both [w] and [h] lack supra-glottal consonantal features.

In structural terms, a syllable with an onset has a branching $\sigma\sigma$ node (as in 8), while one without only has a rhyme (9):

- (8) A syllable with an onset:



- (9) A syllable without an onset:



Note that a branching σ node is more salient than a branching rhyme. It does not matter whether an onsetless syllable has a coda or not: AmE en'gagement and in'terpreter as easily lose their initial unstressed syllable in American Hungarian as A'merican or a'luminum: en'gagement \rightarrow ['ge:dʒmənt], in'terpreter \rightarrow ['trɒpɛndɛr]; A'merican \rightarrow ['mɛrɪkən], a'luminum \rightarrow ['luminum].

The following constraint is motivated by the salience of a syllable with an onset:

- (10) Max-OR

Do not delete a syllable which is syllabified with a branching $\sigma\sigma$ node in the output.

Max-OR has to be ranked above ID-Stress to take effect and also above Max- $\sigma\sigma$ to allow for cases when syllables with an onset are not deleted but syllables without one are:

- AlignL, Max-OR >> Max- $\sigma\sigma$, ID-Stress

The tableau in (11) shows how English *police* [pə'li:s] becomes *polic* ['polits] in American Hungarian:

(11)

pə'li:s	AlignL	Max-OR	Max- $\sigma\sigma$	ID-Stress
po'lips	*!			
☞ 'polits				*
'lits		*!	*	

The tableau in (5), repeated as (12) below with an additional column, shows that the deletion of a syllable without an onset does not violate Max-OR.

(12)

ə'pɑ:tmənt	AlignL	Max-OR	Max- $\sigma\sigma$	ID-Stress
ɒ'pɔ:tmənt	*!			
☞ 'pɔ:tmənt				*
☞ 'pɔ:tmənt			*	

Note that a simpler constraint of Max-Onset, in place of Max-OR, would not yield the desired result because it would not prefer retaining the whole syllable to retaining only an onset:

(13) Max-OR replaced with Max-Onset

pə'li:s	AlignL	Max-Onset	Max- $\sigma\sigma$	ID-Stress
po'lips	*!			
☞ 'polits				*
☞ ?'plits			*	
'lits		*!	*	

While the deletion of an unstressed vowel without deleting the whole syllable is quite frequent in casual English (e.g. *p'lice* [p^h'lis] or *s'pose* [s'p^houz]), it has not been found in the American Hungarian data.²

3.2.2. Accounting for the American Finnish facts

The constraints proposed for American Hungarian properly account for most of the American Finnish data as well. The tableau in (14) shows the deletion of an onsetless syllable and the one in (15) shows that an unstressed syllable is not deleted if it has an onset:

(14) American English *a'ssessor* → American Finnish *'sessari*

ə'ses.ɹ	AlignL	Max-OR	Max-σσ	ID-Stress
a'ses:ari	*!			
(☞) 'ases:ari				*
☞ 'ses:ari			*	

(15) American English *po'lice* → American Finnish *'poliisi*

pə'li:s	AlignL	Max-OR	Max-σσ	ID-Stress
po'li:si	*!			
☞ 'poli:si				*
'li:si		*!	*	

However, American Finnish has some data which violate Max-OR but survive nevertheless: *'faineri* ‘refinery’, *'puplikaani* ‘republican’ and *'praispaarti* ‘surprise party’ (but note that AmE *surprise* is adopted as *'supraissi*).³

Demoting Max-OR just to allow *'faineri* and *'puplikaani* to win the race would not be a good idea because then we would lose a generalization that syllables with an onset are normally not deleted. Note that both *refinery* and *republican* begin with an [ɹ], an alveolar approximant. In a strictly structural approach, one could narrow the scope of Max-OR:

² Alternatively, one could claim that initial clusters may only appear on the surface to satisfy faithfulness constraints. Cf. Siptár & Törkenczy (2000: 98–103).

³ The deletion of the initial syllable of surprise in surprise party is affected by phrasal phonology and thus lies outside the scope of this paper.

(16) **Max-CR**

Do not delete a syllable with a non-approximant onset.

This constraint will still not allow the deletion of the pretonic syllables of words like *police* or *mechanic* but would not penalize the deletion of a syllable with an initial approximant. The tableaux in (17) and (18) show that a syllable with an initial approximant may be either deleted or become stressed:

(17) American English *re'finery* → American Finnish *'faineri*

ɹɪ'fainəɹi	AlignL	Max-CR	Max-σσ	ID-Stress
ri'faineri	*!			
(σ) 'rifaineri				*
σ 'faineri			*	

(18) English *re'ceipt* → American Finnish *'risiiti*

ɹɪ'si:t	AlignL	Max-CR	Max-σσ	ID-Stress
ri'siti	*!			
σ 'risiti				*
(σ) si:ti			*	

What Max-CR does not do is explain why *r*-initial syllables are only deleted in two words when there are 16 words (e.g. AF *rikoolata* ← AmE *recall*, AF *risaitata* ← AmE *recite*, AF *resortti* ← AmE *resort* etc.) in which they are not deleted but get stressed. In a perceptual approach, one would not necessarily change Max-OR. Instead, one could attribute the deletion of the initial syllables of *refinery* and *republican* to a failure to recognize an initial approximant as a consonant by native speakers of a language that does not have an alveolar approximant (Finnish *r* is a trill). What is perceived as the reduced vowel of *re-* is phonetically the transition from the rhotic to the following consonant. While the transition from [ɹ] to a following coronal involves tongue movement yielding a vocalic sound clearly distinguishable from the preceding rhotic, the transition from [ɹ] to a following labial does not require any tongue movement. Consequently, an onset–rhyme sequence of [ɹ] + neutral vowel (commonly transcribed as

[ɹ] ~ [ɹə]) may be phonetically identical to an onsetless syllabic [ɹ], which, like other onsetless syllables, may be perceived as non-lexical material that should be ignored. Perceptual input is neither raw phonetic material, nor invariable abstraction but individually varied interpretation. If initial unstressed *re-* is perceived as syllabic [ɹ] then it has no onset in the input. No initial consonant – no violation of Max-OR. Note that *re-* is followed by a labial in both *re'finery* and *re'publican*.

4. Discussion

In our analysis we have proposed an Optimality Theory account of the complex mechanism of the adaptation of loanwords with unstressed initial syllables in the source language. In the analysis we rely on recognizing the role of perception in the adaptation process and demonstrate that this perceptual approach tells more about the facts of the adaptation process in the two immigrant varieties – the similarities and the differences observed between them as well as the differences between the immigrant varieties and their respective Old World counterparts – than a strictly structural approach would.

The perceptual explanation of the differences in the adaptation strategies of the immigrant varieties with both stress-shifting and deletion and the Old World varieties with only stress-shifting is that speakers of Old World varieties have more visual input than auditory input while American Hungarians and American Finns have (had) more auditory input than visual input: while in today's European societies English loanwords enter the recipient language at least partly through writing and the written form of a loanword is at least as salient for speakers as its phonetic form, for the predominantly working-class and peasant origin Hungarian and Finnish immigrants in the US the phonetic form would have been far more salient. Even though both groups were among the groups of European immigrants with the highest literacy rates at the time – sources unanimously put the rate for Finns between 96 and 99 percent (Loukinen 1996, Spiegel 2005) and for Hungarians at 89% (Várdy 2000: 232), while the average immigrant literacy rate was 76% at the time (Spiegel 2005) – this is literacy in the first language, while literacy in English was beyond the reach of most of the immigrant generation of Hungarians and Finns, and, therefore, the oral channel must have been the dominant one for most of them.

As we all know, in written language, a word is a clear-cut unit between spaces perceived in its integrity, while in oral language stresses might be interpreted as word-boundaries by a listener whose first language is an initial-stress language.

5. Conclusion

In this paper we argue that perception plays a crucial role in the adaptation of English loanwords in Finnish and Hungarian, specifically, in the United States immigrant versus the Old World varieties of the two languages. The different strategies of loanword adaptation they apply produce different results in the phonological shape of the loanwords, which we explain by the predominance of auditory versus visual input in the two kinds of varieties, respectively.

The different adaptation strategies are modeled with different rankings of the same constraints in Optimality Theory. A constraint-based theory need not be unrelated to an explanation referring to auditory versus visual channels. One might relate constraints and channels by stipulating that integrity constraints like Max- σ are more likely to be undominated if speakers have more visual input than auditory input, while stress-faithfulness constraints like ID-Stress get strengthened when speakers have more auditory input than visual input.

In addition to the predominance of auditory vs. visual channels, the role of perception is highlighted in the analysis by perceptually motivated constraints like Max-OR, perceptually motivated hierarchies, like Max-OR above Max- σ , and perceptually interpreted inputs like initial unstressed *re-*.

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