

## THE PHONOLOGICAL STRATEGY OF LEXICAL BORROWING IN MODERN ICELANDIC

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In the last forty years, Modern Icelandic has borrowed extensively from American English. However, the phonological systems of the two languages differ greatly and extensive phonological changes are required when American English forms are adopted. Accordingly, the correspondences between individual sound types in the respective languages are described and the notion "permissible segment string" is discussed for Modern Icelandic. Further, the role of syllabic structure in the process of lexical borrowing is investigated. In Modern Icelandic, it appears that considerations of syllabic structure dictate the site of insertion for the "minimal consonant" /h/ in certain borrowed forms. This leads to an apparent paradox between the phonological and psycholinguistic analyses of the data<sup>1</sup>.

### 0. Introduction

It has often been said that Icelandic has remained unchanged for a thousand years. Although this is not literally true, the language has changed surprisingly little since the settlement of Iceland in the ninth century. Massive vowel shifts have occurred, but orthographic representations have remained the same and speakers of Modern Icelandic understand Old Icelandic texts almost as easily as the morning paper.

Still, during the last forty years, Icelandic has undergone extensive lexical changes, and in this sense, one could say that the language has changed more since World War II than during the preceding millenium. Since the establishment of an American military base at Keflavík, Icelanders have been exposed to American English to an unprecedented degree via contact with native speakers, published material, the American radio station and American television programs. Of course, lexical borrowing has been accompanied by cultural borrowing as well, and many new forms represent concepts and articles not found in the native culture, e.g. [p'aRti]<sup>2</sup> 'party'; [sjou:körtL] 'showgirl'; [t'öff kjai:] 'tough guy'. Nontechnical discussions of word borrowing in Modern Icelandic are provided in Jones 1964 and Groenke 1966 and 1975. In many cases, it appears that a given form was first encountered in print, where imprecise knowledge of English orthography has led to unwitting sound changes in borrowed forms, cf. [mu:sik'] 'music'; [si:karshta] 'cigarette'; [sjamp'ou:] 'shampoo'; [sjohp-a] 'shop' (INF)<sup>3</sup>. If the forms had first been encountered aurally, the expected Icelandic renditions would be

\*[mju:sIk'], \*[sI:karehta], \*[sjamp'u:] and \*[sjahp-a], respectively. In other cases, it appears that a given borrowing was, in fact, encountered aurally, cf. [t'ðff kjai:] 'tough guy'; [tsjAss] 'jazz'. Phonetically, these forms are as close to the AE forms as can be expected, given the Icelandic sound system.

Note that in Modern Icelandic, primary stress always falls on the first syllable of the form. Thus, in the adoption of AE polysyllabic forms with noninitial stress, primary stress is shifted leftward to the initial syllable. Further, secondary stress is assigned to subsequent odd-numbered syllables, cf. the following forms.

1	2	1	2
[ɛ:lɛxt'rɔ:n]	'electron'	[si:karehta]	'cigarette'
1	2	1	2
[k'rɛ:at'i:v]	'creative' (NSF)	[akrɛsi:v]	'agressive' (NSF)

(In one case, though, the AE form is truncated, cf. the following form.

1
[pɛRkjIl] 'tuberculosis' (AS)

Here, the AE secondary stress appears as a primary stress in the MI form.)

Clearly, the AE and MI sound systems are at variance. Differences are found both in the segmental inventories and stress patterns observed. Further, the permitted segment sequences in the two languages are also at variance. Thus, numerous phonological adjustments must be made when AE forms are adopted. The remainder of this article is concerned with the correspondences between AE and MI sound types and the nature of the phonological changes required. Section 1 contains a discussion of sound types and segment strings per se, while in Section 2, the role of syllabic structure in the borrowing process is investigated.

## 1. Sound types and segment strings

At this point, we can turn to the strategies employed by speakers of Icelandic in adjusting individual AE sound types to the requirements of the Icelandic system. Consider first the borrowing of consonants. The underlying consonantal inventory of Modern Icelandic is presented in TABLE 1.

TABLE 1  
Underlying Consonantal Inventory of Modern Icelandic

p	p'	t	t'	k	k'
f	θ	s		x	h
v	d			g	
M		N			
m		n			
		L			
		l			
		R			
		r			

The semivowel /j/ also occurs. There is only one significant distinction between the underlying and surface inventories: before a velar, /N/ and /n/ surface as [ŋ] and [ɲ], respectively.

We can now return to the question of lexical borrowing. As one might expect, phonetically similar or identical sound types are adopted without significant change, other things being equal. Thus, AE initial [p' t' k'] appear as MI [p' t' k'], respectively. However, as AE forms are borrowed, new sound types are generally not adopted. Instead foreign segments are replaced by native "equivalents". Thus, AE initial prevoiced stops appear as MI unaspirated [p t k], with voice onset time zero. Frequently, neutralizations occur. For example, the Icelandic inventory includes no voiced alveolar fricative. Thus AE [s] and [z] both appear as MI [s], cf. [si:roup'] 'syrup'; [sɛpra] 'zebra'. Similarly, AE [š], [ž], [č'] and [ǰ] may all appear as MI [sj], cf. [sjei:k] 'milkshake' and [sjou:] 'TV show'; [sjɛns] 'chance' and [sjarmI] 'charm'; [sjahket] 'jacket'; [i:lusjou:n] 'illusion'.

Surprisingly, though, the appropriate equivalent for a given AE sound type in a given position is not always constant throughout the lexicon. Thus, AE initial [č'] appears not only as MI [sj], but may also appear as MI [t'j], cf. [t'jɛhk-a] 'check' (INF) and [t'jɛhkjI] 'Czech' beside [sjɛns] 'chance'. The choice of MI [t'j] vs. [sj] appears to be random, but speakers agree in the pronunciation of individual lexical items. Further, positional variants do occur. Thus, AE final [č] appears as MI [tsj], cf. [spitsj] 'speech'. Turning next to AE initial [ǰ], that segment appears not only as MI [sj], but may also appear as MI [tsj] or [tj] in free variation, cf. [tsju:s] or [tju:s] 'juice'; [tsjou:k] or [tjou:k] 'joke' beside [sjahket] 'jacket'. Again, the choice of [tsj] or [tj] vs. [sj] appears to be random, but for individual lexical items, speakers agree.

Similar phenomena occur in the borrowing of vowels. The underlying vocalic inventory of Modern Icelandic is as follows.

TABLE 2  
Underlying Vocalic Inventory of Modern Icelandic

i		u
ɪ	Y	ɔ
ɛ	ø	a

The vowel heights indicated are motivated by phonological considerations, cf. Richter 1982. On the surface, the same vowels occur, but they may appear either long or short. Surface vowel length is derived by rule. Also, numerous surface diphthongs occur.

As with the consonants, phonetically similar or identical vowels are adopted without significant change, cf. [hou:t'ɛl] 'hotel'; [pɪsnɪs] 'business'. However, foreign segments are replaced with native "equivalents". Thus, AE [ʌ] appears as MI [ø], cf. [t'øffI] 'tough character'. Again, as with the consonants, neutralizations frequently occur. Thus AE [A] and [ɛ] may be neutralized, cf. [sjɛns] 'chance' beside [retti] 'ready'. However, variation between

speakers is clearly possible. Thus AE [A] may appear not only as MI [ɛ], but also as MI [a], cf. [sjans] 'chance' beside [sjens], cited above. Here, speakers do disagree in their pronunciation of individual forms. In addition, AE [A] may also appear as [A] in Modern Icelandic, cf. [tsjAss] 'jazz'. This is the only form in which the adoption of a new sound type was observed. Note, though, that the form also alternates with [tsjass], [tsjess], [tjass], [tjess] and the spelling pronunciation [jass].

Finally, it should be noted that certain AE segment strings are apparently blocked in Modern Icelandic. When such strings are encountered, phonological changes are required in addition to those mentioned above. Apparently, AE segment strings are regularized on analogy with permissible segment strings already occurring in the language. Consider the following examples.

1. The cluster /rl/ does not occur in native Icelandic forms and /rtl/, the closest equivalent, is substituted, cf. [sjou:körtl-ar] 'showgirl' (NP).
2. The cluster /sθ/ does not occur in native Icelandic morphemes, and /st/ is substituted, cf. [ɛstet'Isk] 'esthetic' (NSF).
3. The segment sequence /kai/ does not occur in native Icelandic forms, and many speakers substitute /kjai/, cf. [kjai:] or [kjai:jI] 'guy', resembling native [kjai:v-a] 'choke', etc. Still, speakers disagree, and some do produce [kai:] 'guy'.
4. The cluster /sl/ does not occur in native forms and is replaced by /stl/, cf. [stlaits] 'photographic slides'. Similar, the cluster /sn/ fails to occur initially in native forms and is replaced by /stn/, cf. [stnOpp-a] 'be a snob'.
5. In native Icelandic morphemes, adjacent stops fail to occur. Thus, in borrowed forms, the first of two AE stops in direct succession is replaced by a MI fricative. Thus, AE /kt/ corresponds to MI /xt/ and AE /pt/ corresponds to MI /ft/, cf. [k'axtYs] 'cactus' and [ɛ:lɛxt'ron] 'electron'; [k'onsɛft] 'concept' and [k'aftein] 'captain' (AS). Note that MI [kt'] and [pt'] do occur in native compounds, e.g. [k'ðip-t'ɔrk] 'marketplace'; [k'ðip-t'axstI] 'sales tax'. Apparently, though, pronunciations such as \*[k'apt'ein] are impossible since speakers are aware that the foreign forms are not compounds. In fact, certain native forms appear to be losing their compound status, as suggested by the replacement of [p] by [f], cf. [k'ðip-t'u:n] or [k'ðif-t'u:n] 'market town', 'village'.

In summary, then, speakers of Modern Icelandic nearly always agree as to the correct equivalent for a given AE sound type in a given form. For example, AE [č'] consistently corresponds to MI [sj] in certain forms, while it corresponds to MI [t'j] in others. However, borrowings reflecting the AE vowel [A] have not been consistently lexicalized and the forms appear to be in a state of flux. Further, it appears that the notion "permissible segment string" plays a role in the borrowing process. Thus, given an impermissible AE segment sequence, epenthesis

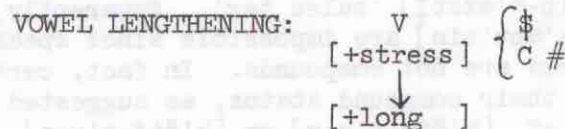
of new segments or feature change within a given segment may be required.

## 2. Syllabic structure

The most interesting phenomena observed in the process of lexical borrowing involve factors of syllabic structure. In particular, considerations of syllabic structure appear to account for the occurrence patterns of geminate stops and preaspirated stops in MI loan forms. Hooper (1976) has suggested that SSCs play a major role in the adoption of foreign forms cross-linguistically. In Japanese and Spanish, for example, SSCs dictate the points of insertion for the "minimal vowels" of the respective languages. In Spanish, the minimal vowel is [ε] and in Japanese, the minimal vowels are [i] and [u], cf. Spanish [εslabo] 'Slav' and Japanese [bureeki] 'brakes', where the underlined vowels are accounted for by rule. As will be discussed below, Icelandic adopts no rules of vowel insertion, but instead, considerations of syllabic structure appear to dictate the insertion site for the "minimal consonant" /h/.

As discussed in Section 1, in word initial position, AE [p' t' k'] appear as MI [p' t' k'], while AE prevoiced stops appear as MI [p t k]. Following MI tense vowels or MI diphthongs, the same patterns are evident, cf. [si:roup] 'syrup'; [k'ju:t] 'cute' (NSF); [mei:k'-a θad] 'make it', 'succeed', with MI [p' t' k'] for AE voiceless stops; [li:pəra:li] 'liberal'; [li:tər] 'leader'; [si:kəʁhta] 'cigarette', with MI [p t k] for AE voiced stops. Paradoxically, though, following MI lax vowels, AE voiceless stops correspond to MI preaspirated stops, cf. [trɔhp-a Inn] 'drop in' and [p'ɔhp] 'pop music'; [si:kəʁhta] 'cigarette'; [p'lhk-a u:t] 'pick out' and [rɔhk] 'rock music', with MI [hp ht hk] for AE voiceless stops. Further, in the same environment, AE voiced stops appear as MI geminates, cf. [tsjɔpp-a] 'do odd jobs'; [rɛtti] 'ready'; [tsjɔkk-a] 'jog', with MI [pp tt kk] for AE voiced stops.

Apparently, an explanation can be found in the prosodic structure of the Icelandic syllable. In polysyllabic forms, a single intervocalic consonant is assigned to the subsequent syllable, but syllable boundary occurs between adjacent consonants. Surface long vowels derive from underlying vowels by the rule of VOWEL LENGTHENING (cf. Richter 1982).



Thus, the surface strings ...[V:C], ...[V:\$CV] and [VC\$CV] are possible, but \*...[V\$CV] and \*...[V:C\$CV] can never occur. It appears that AE diphthongs and tense vowels are perceived as phonologically long, while AE lax vowels are perceived as phonologically short. Loan forms with a stop following a diphthong or tense vowel already fall neatly into the preexisting patterns ...[V:C] and ...[V:\$CV], recall [tsjou:k] 'joke'; [li:pəra:li] 'liberal', etc. Now consider the AE forms with a voiced stop following a lax vowel. Since \*...[V\$CV] cannot occur in Icelandic,

MI pronunciations such as \*[tsjɔpp-a], \*[rɛstɪ] and \*[tsjɔsk-a] are blocked. The closest existing surface structures are ...[V:\$CV] and ...[VC\$CV]. However, in the MI forms, the retention of perceived AE vowel length apparently takes precedence over the retention of AE consonant length. Accordingly, the structure ...[VC\$CV] is taken as correct, and the consonants in the forms just cited undergo gemination -- recall the correct forms [tsjɔpp-a] 'do odd jobs', etc. Finally, recall the AE forms with a voiceless stop following a lax vowel. Again, given the prosodic structure of the Icelandic syllable, MI pronunciations such as \*[trɔsp-a Inn] and \*[p'ɪsk-a u:t'] are blocked. Again, vowel length is taken as basic, and the structure ...[VC\$CV] is taken as correct. Thus, we would initially expect solutions such as \*[trɔsp-a Inn] and \*[p'ɪsk-a u:t']. Recall, though, that the gemination strategy has already been employed in the representation of AE voiced stops following lax vowels. Accordingly, in the adoption of the AE forms with voiceless stops following lax vowels, the "next best strategy" seems to be preaspiration -- recall the correct forms [trɔhp-a Inn] 'drop in', etc. This solution seems well suited to the forms in question. Thus, although the AE voiced/voiceless distinction cannot be maintained, this solution allows the adoption of a MI geminate/preaspirate distinction in its place. Since the syllabic structure of MI requires the presence of a consonant in forms of the structure just discussed, it appears that the "minimal consonant" /h/ is inserted in the appropriate position.

Finally, note that the lexical borrowing data discussed above confirm Garnes' 1976 instrumental findings. In Garnes' perception tests, synthesized [V:C:] was perceived as [V:C] and synthesized [VC] was perceived as [VC:]. That is, it is the duration of the vowel which was taken as "correct" and from which the duration of the consonant was inferred. On the surface, though, the system is ambiguous since vowel length can be inferred from consonant length and vice versa, other things being equal. At this point, then, motivation must be provided for the claim that the feature value [+long] is, in fact, assigned to vowels and not to consonants, and that the rule of VOWEL LENGTHENING is correct as formulated. Consider the derivation of the following forms under two distinct grammars: [menn] 'men'; [mɛ:n] 'necklace'; [mɛn-s] 'necklace' (GS). In Grammar A, underlying consonant length is adopted, while in Grammar B, underlying vowel length is assumed.

#### GRAMMAR A:

menn	men	mɛn-s
----	VOWEL LENGTHENING	-----
[menn]	[mɛ:n]	[mɛn-s]

#### GRAMMAR B:

men	mɛ:n	mɛ:n-s
CONSONANT LENGTHENING	----	VOWEL SHORTENING
[menn]	[mɛ:n]	[mɛn-s]

Clearly, where Grammar B requires two rules -- CONSONANT LENGTHENING and VOWEL SHORTENING, Grammar A requires only one rule -- VOWEL LENGTHENING. Phonologically, then, we can propose that consonantal length is

basic and that vowel length is derived. Thus, it seems paradoxical that in the process of lexical borrowing, vowel length is taken as basic. However, this is probably a pseudoproblem. Clearly, the positing of long underlying consonants is phonologically justified. Árnason (1978) agrees with this position:

The paradox between the formal analysis that length of vowels is predictable on the basis of...the following consonantism, and Garnes' experimental results is natural and only to be expected. The formal analysis can be seen as an abstraction...whereas the analysis of vowel [length] as distinctive is relevant to psychological linguistics. Both are valid.

### 3. Conclusions

In Section 1, the correspondences between individual sound types in American English and Modern Icelandic were investigated. It was shown that while certain AE sound types always correspond to a single MI equivalent, in other cases, two or more MI equivalents are in competition. For most lexical items, an accepted Icelandic form has emerged, and speakers are in agreement. For lexical items reflecting AE [A], though, speakers are in disagreement. However, it is possible that unified lexical representations may eventually arise. Further, it was shown that Modern Icelandic resists the adoption of segment sequences not occurring in native morphemes and that phonological changes occur on analogy with existing forms. In Section 2, the role of syllabic structure in lexical borrowing was investigated. It appears that in Modern Icelandic, considerations of syllabic structure dictate the point of insertion for the "minimal consonant" /h/. This enables the AE voiced/voiceless distinction to be maintained in the form of a MI geminate/preaspirate distinction. Finally, an apparent paradox between the phonological and psycholinguistic analyses of the data was discussed. For speakers of Modern Icelandic, it appears that perceived vowel length rather than consonant length is distinctive, but phonologically, the length distinction must be posited for consonants. Surface vowel length is accounted for by rule.

### Footnotes

<sup>1</sup>The analysis is based on original field work in Reykjavík, September through December, 1981. This research was supported by a UCSD Dissertation Fellowship.

<sup>2</sup>Below, unless otherwise indicated, nouns are cited in their nominative singular forms and verbs are cited in their infinitival forms. Phonetic representations appear in [ ] brackets, while underlying representations are enclosed in slashes. In phonetic transcriptions, standard IPA symbols are adopted with the following exceptions: a=a; A=æ; ö=œ; d=ð; g=ǵ; MNHLR=voiceless mnɲlr, respectively. Aspiration is indicated with an apostrophe. In Icelandic forms, primary stress invariably falls on the first syllable.

<sup>3</sup>Abbreviations are as follows: AE=American English; AS=Accusative Singular; GS=Genitive Singular; INF=Infinitive; MI=Modern Icelandic; NP=Nominative Plural; NSF=Nominative Singular Feminine; SSC=Syllable Structure Condition; \$=Syllable Boundary.

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### Prologue

The vowel system in English changed the quality of long and short vowels. These two different changes — the one touching short vowels, the other long ones — occurred at two different times in the history of the language.

While English was open syllable lengthening (OSL). Short vowels in open syllables lengthened, with long vowels one step later in length: e.g. *DE* *who* > *ME* *weak*; *was* > *is*; *heart* > *beard*; *bat* > *barren*; *lake* > *wide*; *wood*; *closer* > *closer*.

In early Modern English occurred the Great Vowel Shift (GVS). The diphthongs that affected stressed long vowels are well-known.