Morphology affects loanword phonology[*]

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1.   Introduction

Loanwords often exhibit non-native sounds. Typically, once a non-native sound is allowed in a root, it can appear in all loanwords containing that root. This paper, however, focuses on those foreign sounds that are allowed in bare roots, but must be replaced by the corresponding native sounds in morphologically complex loanwords.

Consider the example in (1). Some speakers of Dutch can pronounce [ɹ] in recent loanwords from English, as long as they lack a suffix. In suffixed words, the rhotic is replaced by the native [ʀ]. I term this pattern "the Oprah effect", as exemplified by the alternation *Op[ɹ]ah ~ Op[ʀ]ah-tje*.

(1)   Dutch affixation: ɹ → ʀ

BARE ROOT ɹ		AFFIXED ʀ		
Op[ɹ]ah	'Oprah'	Op[ʀ]ah-tje	*Op[ɹ]ah-tje	'DIM'
Ba[ɹ]ack	'Barack'	Ba[ʀ]ack-se	*Ba[ɹ]ack-se	'ADJ'
[ɹ]eading	'Reading'	[ʀ]eading-je	*[ɹ]eading-je	'DIM'
Flo[ɹ]ida	'Florida'	Flo[ʀ]ida-tje	*Flo[ɹ]ida-tje	'DIM'

The Oprah effect is found in many other languages, which differ from Dutch in interesting ways. This paper provides empirical evidence that the foreign sounds may differ in what kind of morphologically complex words they appear, both across and within languages. As we will see, some foreign sounds are possible in suffixed, but not prefixed, words. Other sounds are possible in inflected, but not derived, words.

The Oprah effect can be attributed to a markedness constraint. The idea is that a particular sound is only licensed in words with a particular morphological structure. I make

use of a directional variant of positional licensing constraints, termed Licensed Alignment (LA). This constraint prohibits a foreign sound from appearing in those roots that are followed by an affix within a larger domain, but not in other positions. LA predicts the attested typological differences, including the distinction in terms of affix position and domain size.

This paper is organized as follows. § 2 provides some background regarding morphological effects in loanwords. § 3 presents the cross-linguistic typology. § 4 provides an analysis based on LA. § 5 addresses a few additional predictions of this constraint. § 6 concludes the paper.

2.   Background

The Oprah effect has been previously observed in the phonological literature, albeit to a limited extent. This section outlines three major observations found in the literature.

The literature has long recognized that the Oprah effect presents a case where a phonological alternation is morphologically conditioned. More specifically, the Oprah effect falls under a broader umbrella of Derived Environment Effects (henceforth, DEEs; Kiparsky 1973, 1993, Mascaró 1978, 2003, McCarthy 2003b, Wolf 2008). DEEs are phonological alternations that are found only in suffixed, but not unsuffixed forms. In Finnish, for example, *t* assibilates to *s* before an *i* only across morpheme boundaries, but not within roots. The input /tilat-i/ 'she ordered' maps to [tila_s-i], not *[_silas-i], as we would expect if assibilation applied regardless of morpheme boundaries (Kiparsky 1973:60). The Oprah effect differs from the canonical cases of DEEs in two crucial respects. First, it applies at any distance from the suffix, not only at the morpheme boundary. Second, the Oprah effect obtains regardless of the segmental content of the suffix; all that matters is its presence.

More recently, the Oprah effect has been considered together with other cases of exceptionality, particularly in Optimality Theory (Inkelas and Zoll 2007). This approach is based on an idea that morphologically complex loanwords involve two different (co)phonologies. Loanword roots take the foreign cophonology, whereas affixes take the native cophonology. Whenever both kinds of morphemes appear in the same word, the affix trumps the root, and the native cophonology applies to the whole word (2).

(2)   Cophonologies

$$\text{WORD}_{\textit{Native}}$$
$$\text{ROOT}_{\textit{Foreign}} \qquad \text{AFFIX}_{\textit{Native}}$$
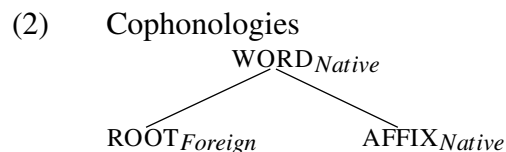
This solution faces several challenges. To start with, not all affixes have the same effect. In particular, a foreign structure that is allowed in bare loanword roots, may be prohibited only in a subset of affixed forms. It is unclear how a cophonology-based approach could exempt some kinds of affixation from having the nativization effect. As we will see, this challenge is more severe because a single language may exhibit several patterns that are sensitive to different types of affixes (see § 5). In short, even if we accept cophonologies as a way to interpret the data, there needs to be a mechanism to decide when the native cophonology prevails. Furthermore, the present cross-linguistic survey suggests that morphology can affect only individual segments, but generally not sequences. If the reasoning

is that the pattern involves simply switching cophonologies, we would expect all kinds of phonological patterns to be affected. Instead, only a very small subset of all possible nativizations are attested.

Finally, the Oprah effect has been discussed together with other issues in loanword phonology (Holden 1976, Franks 1991, Paradis and LaCharité 1997, LaCharité and Paradis 2005, Kubozono 2006). One general idea in this literature is that morphologically integrated loanwords are more likely to be nativized than bare roots (e.g. Bloomfield 1933: 447ff.). This points out to the inherent variability of the Oprah effect. In all examined languages, only a subset of speakers show the Oprah effect. Others do not distinguish the phonology of loanwords based on their morphological structure: one group of speakers always allows the exceptional segments, whereas another group never does. Moreover, all speakers variantly permit the nativized pronunciation in bare roots. Variability across and within speakers is consistent with any conventional OT approach to variation, and is beyond the scope of this paper which focuses on the alternation.

The following analysis of the Oprah effect takes from the previous literature the idea that morphological domains affect the phonological content of loanword roots. More specifically, the exceptional loanword segments are licensed only in words with a particular morphological structure.

3.   Typology

This section provides a typological study of the Oprah effect. The survey includes 19 cases, most of which were obtained directly from the native speakers; the rest were taken from the literature. Henceforth I limit the discussion to two typological distinctions: affix position and type.

3.1   Affix position

The conventional wisdom would lead us to believe that the Oprah effect is observed in all morphologically complex words. Indeed, that does seem to be the case in some languages. We first consider the position of the affix. Tagalog exhibits a pattern that involves labiodentals {f, v} in bare roots alternating with labials {p, b} in affixed words.[1] In Tagalog, any affixation triggers nativization (3).

(3)   Tagalog affixation: f → p (Zuraw 2006, p.c.)

		'Filipino'		'feast'	
BARE ROOT	f	filipino		fiesta	
PREFIXED	p	mag-pilipino	'language'	pam-pista	'INSTR'
		*mag-filipino		*paŋ-fiesta	
SUFFIXED	p	pilipino-ŋ	'DEF'	pista-han	'festival'
		*filipino-ŋ		*fiesta-han	

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[1]This alternation was first reported by Bloomfield (1933:447–448).

Perhaps surprisingly, not all languages behave like Tagalog. As we have seen in (1), Dutch exhibits an alternation between [ɹ] in bare roots and [ʀ] in affixed words; [ɹ] is not allowed in suffixed words.[2] Prefixed words, however, behave like bare roots (4). The Oprah effect does not obtain with prefixes.

(4)   Dutch suffixation only: ɹ → ʀ

		'Oprah'		'Florida'	
BARE ROOT	ɹ	Op[ɹ]ah		Flo[ɹ]ida	
PREFIXED	ɹ	Hoofd-op[ɹ]ah	'main, true'	Wan-flo[ɹ]ida	'bad'
SUFFIXED	ʀ	Op[ʀ]ah-tje	'DIM'	Flo[ʀ]ida-tje	'DIM'
		*Op[ɹ]ah-tje		*Flo[ɹ]ida-tje	

We have now seen that the Oprah effect can differ with respect to affix position. Table (5) summarizes the typology. Two different types are attested.

(5)   Foreign structure allowed?

	BARE ROOT	PREFIXED	SUFFIXED	LANGUAGE
I	✓	✗	✗	Tagalog (3)
II	✓	✓	✗	Dutch (4)

Two observations are in order. First, there is no Anti-Dutch which would have the Oprah effect with prefixation only. This may be accidental (the language sample in this paper is limited, and prefixation is generally much rarer compared to suffixation) or systematic (prefixes display other asymmetries). I remain agnostic as to which of the two options is correct. Second, the table in (5) does not include infixation. In the examined languages, infixation always patterns with suffixation (English) or prefixation (Tagalog). We know of no language in which only infixes trigger nativization. This may be related to the fact that infixes in these languages are always close to one of the edges of the root (Yu 2007), and hence invariantly pattern with either prefixes or suffixes. I leave this point for further research.

3.2   Suffix type

In the preceding subsection we have seen that the position of the affix is relevant to the Oprah effect. Now I turn to another typological distinction: inflection as opposed to derivation. We generally expect that most languages do not show any difference between the two types of suffixation. Ukrainian presents such a situation (6). Some Ukrainian speakers can pronounce words borrowed from English with a [w], but only as long as they remain unsuffixed. This foreign labiovelar sound is replaced by the native [v] in all suffixed words, whether the suffix is inflected or derived.[3]

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[2]To the best of my knowledge, this alternation was first mentioned by Simonović (2009:fn.30). — The native rhotic in Dutch is highly variable, but is transcribed as [ʀ] here for simplicity.

[3]The loanword [w] is clearly distinct from the Ukrainian native v-sound, which is nevertheless somewhat variable across speakers and contexts. For simplicity, I transcribe the native sound consistently as [v].

(6)   Ukrainian suffixation: w → v

		'Walt (Disney)'		'Walker'	
BARE ROOT	w	[w]olt		[w]oker	
INFLECTED	v	[v]olt-u	'DAT.SG'	[v]oker-u	'DAT.SG'
		*[w]olt-u		*[w]oker-u	
DERIVED	v	[v]olt-chyk	'POSS'	[v]oker-iv	'POSS'
		*[w]olt-chyk		*[w]oker-iv	

Yet not all languages exhibit the same pattern. Recall that Dutch shows an alternation ɹ ∼ ʀ in some English loanwords. [ɹ] is possible in bare roots (1) and prefixed words (4), whereas [ʀ] surfaces in suffixed words. Upon closer examination, it turns out that the Oprah effect is limited to derivational suffixes, like the diminutive. The plural inflectional morpheme, on the other hand, has no effect and can co-occur with [ɹ], as shown in (7). Notice that the Dutch plural suffix is invariantly realized as voiceless and never shows the allomorphy of the English plural suffix.

(7)   Dutch derivation only: ɹ → ʀ

		'Oprah'		'Florida'	
BARE ROOT	ɹ	Op[ɹ]ah		Flo[ɹ]ida	
INFLECTED	ɹ	Op[ɹ]ah'[s]	'PL'	Flo[ɹ]ida'[s]	'PL'
DERIVED	ʀ	Op[ʀ]ah-tje	'DIM'	Flo[ʀ]ida-tje	'DIM'
		*Op[ɹ]ah-tje		*Flo[ɹ]ida-tje	

To summarize, there are two attested patterns: one in which the Oprah effect obtains with any suffixation and another with derivation—but crucially not with inflection. Table (8) provides the typology.

(8)   Foreign structure allowed?

	BARE ROOT	INFLECTED	DERIVED	LANGUAGES
I	✓	✗	✗	Ukrainian (6)
II	✓	✓	✗	Dutch (7)

Two observations are in order. First, there is no Anti-Dutch showing the Oprah effect with inflection, but not derivation. Second, the observed distinction with respect to the Oprah effect does not seem to follow from any general properties of the languages in question. For instance, inflection in Dutch appears to be very similar to inflection in English, yet Dutch has the Oprah effect only with derivation, whereas English displays the effect with inflection and derivation (McCarthy 2003b, Wolf 2008). The unified analysis of the Oprah effect must account for these typological facts.

4. Analysis

The Oprah effect involves phonological and morphological components. It is a phonological process in which foreign sounds alternate with the corresponding native ones. The Oprah effect is morphologically conditioned in that bare roots differ from affixed words. Both of these two components have their own markedness hierarchies. On the one hand, foreign sounds are more marked than the native ones, for any given language. On the other hand, polymorphemic words violate several markedness constraints that monomorphemic words do not. For example, an affixed word violates an alignment constraint that refers to the same edges of a morpheme and word, whereas a non-affixed word does not. What is curious is that the two hierarchies correlate inversely. A marked, foreign sound is licensed only in morphologically simpler words.

I attribute the Oprah effect to a markedness constraint that restricts the distribution of sounds in affixed words. Such restrictions can be captured by at least two well-established constraints: positional licensing and alignment.

Phonological patterns are often sensitive to position and Positional Licensing captures this tendency (Steriade 1995, Zoll 1998a,b, Crosswhite 2001, Walker 2001, 2004, 2005, 2011, Smith 2005, Kaplan 2008). The reasoning behind positional licensing is that a feature which is realized in a prominent position has a different status compared to that feature realized in a non-prominent position. In terms of constraints, positional markedness constraints may require a feature to be associated with a morphologically, prosodically or psycholinguistically prominent position.

The Oprah effect is generally found in roots, which are prominent positions (McCarthy and Prince 1993, Beckman 1998). However, this does not explain why the same root allows a foreign sound in some instances, but not others. What is required, is additional reference to the position of the root within a larger domain. For example, a particular foreign sound can appear in the root as long as no suffix follows, within the same word. Put differently, the foreign sound is licensed in roots not followed by a suffix.

We now see that licensing in the Oprah effect is in some way intertwined with alignment. An adequate analysis must then capture both licensing and alignment into one constraint. There are two other, independent arguments to support such a conclusion.

First, if we look at the patterns with positional licensing effects, we can observe an asymmetry in terms of licensing control and directionality. Prominent positions can license both preceding and following non-prominent positions. Many cases of vowel harmony are root-controlled and bidirectional. On the other hand, non-prominent positions always license unidirectionally. For example, while there are many cases of affix features targeting stressed vowels, there are no known patterns in which both prefixes and suffixes would have the same effect (Walker 2011).

Second, classic alignment constraints are gradient and have been shown to cause pathologies (McCarthy 2003a). In response, Hyde (2012) proposes a new version of alignment constraints that are formally categorical but can nevertheless capture the gradience of classic alignment. These constraints may refer to multiple domains in particular configurations. For example, an alignment constraint can penalize a combination of a syllable that precedes a foot, within a word. If the same approach is extended to features, the resulting

constraints resemble directional licensing. For instance, a constraint can be violated by a combination of a segment that precedes a segment with a particular feature within a word (Jurgec 2011, 2012, 2013).

The current analysis joins both ideas—licensing and alignment—into a single constraint family, termed *Licensed Alignment* (henceforth, LA). LA constraints penalize triplets of a domain, a feature (F) and a third category (γ), whenever F precedes γ within the domain (9).

(9)   *domain[F, γ]

    a. $*\langle$domain, F, $\gamma\rangle$ / domain

                F γ

    b.   Assign a violation for every triplet $\langle$*domain*, F, $\gamma\rangle$, when F precedes γ within the *domain*.

LA constraints can be satisfied in several ways. Most often, they are satisfied by spreading of a feature to all (following) targets γ with the domain. Alternatively, the feature can be changed or deleted whenever a target γ is present. This latter situation is what happens in the Oprah effect.

Recall that in Dutch, [ɹ] is allowed in bare roots (1), prefixed (4) and inflected (7) words. In words with a derivational suffix, however, only the native rhotic [ʀ] is allowed. This can be captured in terms of LA: the English rhotic cannot appear in a root that is followed by a derivational suffix.

The question is whether LA or any other constraint can refer to a particular class of affixes (such as prefixes, derivational or inflectional suffixes). I make no such claim, but rather opt out for an alternative based on domains. In particular, the root and any derivational affixes (to the exclusion of inflectional affixes) form a common domain. The established view in phonology is that the root and the following derivational affixes constitute a stem (Mohanan 1986, McCarthy and Prince 1993, Downing 1998, inter alia).

The relevant LA constraint will then prohibit some feature (or a combination of features) of the English rhotic when followed by an affix, within a stem. For simplicity, the relevant features of the rhotic are henceforth replaced with "ɹ". The constraint active in Dutch is *stem[ɹ, affix] (10). This constraint is violated by triplets $\langle$stem, ɹ, affix$\rangle$, when [ɹ] precedes the affix, within the stem.

(10)   *stem[ɹ, affix]

      $*\langle$stem, ɹ, affix$\rangle$ /   stem

             ɹ   affix

Put differently, the LA constraint is violated whenever a root containing an [ɹ] precedes a derivational suffix (11). Candidate (a) violates LA because all these conditions are met: the root [ɹ] is followed by the affix [tʲə], within the stem. Candidate (b) has no [ɹ], which does not meet the first condition, and hence satisfies the LA constraint.

(11)   Dutch: ɹ not possible with derivational suffixes

/floɹida-tʲə/		*stem[ɹ,affix]	IDENT
a.	[floɹida-tʲə]$_{stem}$	⟨stem,ɹ,tʲə⟩!	
b. ☞	[floʀida-tʲə]$_{stem}$		*

Bare roots have no affixes within the stem, and hence satisfy the LA constraint, regardless of whether they contain [ɹ] or not (12). The faithful candidate (a) is chosen by the low ranked faithfulness constraint IDENT.

(12)   Dutch: ɹ possible in bare roots

/floɹida/		*stem[ɹ,affix]	IDENT
a. ☞	[floɹida]$_{stem}$		
b.	[floʀida]$_{stem}$		*!

Finally, prefixed and inflected words also satisfy the LA constraint (13). Even under the assumption that prefixes are part of the stem, prefixation has no effect because the precedence relations are reversed. An affix that precedes a root cannot violate any LA constraint that refers to the opposite precedence relationship. Moreover, inflections fall outside the stem, which is the domain of LA. The low ranked faithfulness constraint prefers the faithful candidate (a).

(13)   Dutch: ɹ possible with prefixes and inflections

/hoft-floɹida-s/		*stem[ɹ,affix]	IDENT
a. ☞	[hoft-floɹida]$_{stem}$-s		
b.	[hoft-floʀida]$_{stem}$-s		*!

The LA approach can be easily extended to capture other languages. When the precedence relations are reversed, prefixes trigger nativization. In Tagalog (3), prefixes and suffixes trigger nativization, which means that two mirror LA constraints are required. Finally, when LA refers to words rather than stems, inflectional affixes also have an effect, as in Ukrainian (6).

5.   Further predictions

LA makes several other predictions about the Oprah effect. Four such predictions are examined in this section.

The first prediction concerns the distinction between inflectional and derivational affixes. These two types of affixes display an asymmetry in our typological survey (§ 3.2). In particular, all languages show the Oprah effect with derivational, but not with inflectional, suffixes (8). This is predicted by the present approach, which is based on two different domains: (i) an affix within (ii) a stem or word. Since there is no domain common to roots

and inflectional affixes to the exclusion of derivational affixes, there can be no language in which only inflectional, but not derivational, suffixes trigger nativization.

The second prediction is about variation within a single language. If a language exhibits multiple Oprah effects, the general intuition is that they should behave uniformly. This, however, is at odds with the predictions of LA. In particular, each LA constraint refers to a single segment or a feature; multiple Oprah effects thus require multiple LA constraints, and there is no reason why they should all have the same domain or directionality.

One predicted language would have the Oprah effect with one segment only with derivation, but another segment with any suffixation. Such a language is attested. Slovenian exhibits one Oprah effect with any affixation (14). In particular, some Slovenian speakers can pronounce the English [ɹ] in bare roots, but not in words with inflectional or derivational suffixes. Notice how the same words also exhibit an alternation in ATR: {ɛ, ɔ} in bare roots become {e, o} in suffixed words (Jurgec 2010).

(14)   Slovenian suffixation: ɹ → ɾ

		'Robin'		'Reagan'	
BARE ROOT	ɹ	ɹɔbin		ɹɛgan	
INFLECTED	ɾ	ɾobin-u	'LOC.SG'	ɾegan-i	'NOM.PL'
DERIVED	ɾ	ɾobin-ow	'POSS'	ɾegan-tʃək	'DIMINUTIVE'

Another Oprah effect in Slovenian, however, is not found with inflectional suffixes (15). Schwa that appears in bare roots is retained in inflected words, but is replaced with [e] in derived words.

(15)   Slovenian derivation only: ə → e

		'Massachusetts'		'Tenesse'	
BARE ROOT	ə	mɛsetʃusəts		tɛnəsi	
INFLECTED	ə	mesetʃusəts-a	'GEN.SG'	tenəsi-jem	'LOC.SG'
DERIVED	e	mesetʃusets-tʃan	'demonym'	tenesi-ski	'ADJ'
		*mesetʃusəts-tʃan		*tenəsi-ski	

The Slovenian data strongly suggest the same variation that has been observed cross-linguistically can also occur within the same language. This sort of variation is predicted by LA, since each segment comes with its own set of LA constraints, which may be sensitive to different domains.

The third prediction of LA constraints is that only morphemes (i.e. affixes) trigger the Oprah effect. Epenthetic segments have no morphological affiliation, and hence cannot be triggers. The supporting data comes from velar nasals in English roots borrowed into Slovenian. These loanwords typically retain velar nasals. However, velar nasals are not possible in Slovenian unless they are followed by a velar obstruent. To resolve this conflict, a velar stop is inserted after the velar nasal (e.g. [swiŋk] 'swing', [bɹidiŋk] 'breeding'). Such epenthetic stops do not trigger the Oprah effect, regardless of the position within a word (16). Forms with an epenthetic stop can be compared with forms in which a different repair for velar nasals is observed. When epenthesis is not possible because of phonotactic restric-

tions (e.g. sonority sequencing), the nasal assimilates in place to the following obstruent. In derived words, the Oprah effect obtains regardless of epenthesis.

(16)   Epenthetic segments do not trigger the Oprah effect

/tuɹiŋ/   →   [tuɹiŋ]$_{root}$k   '(Alan) Turing'
/tuɹiŋ-ʃki/   →   tuɾin-ʃki   *tuɹin-ʃki   'Turing-ADJ'

The failure of epenthetic segments to trigger the Oprah effect is predicted by LA constraints, as they are violated only by an affix; epenthetic segments have no morphological affiliation and hence cannot create a violation of an LA constraint.

Finally, LA refers to a single segment or feature rather than a sequence. The surveyed languages invariantly involve individual segments that alternate depending on the morphological environment. Consider a language in which palatalization would apply anywhere in native words and derived loanwords, but not within bare loan roots. The in-depth examination of the languages at hand failed to uncover any such patterns.

We can conclude that LA constraints make many additional and correct predications about the Oprah effect.

6.   Conclusions

This paper provides the first cross-linguistic study of how morphological structure affects loanword phonology. These effects are attributed to Licensed Alignment constraints that refer to features and morphological domains. These constraints correctly predict that (i) prefixes and suffixes can act differently, (ii) derivational affixes have stronger effects than inflectional affixes, (iii) a single language can exhibit multiple patterns that are sensitive to different domains, and (iv) epenthetic segments never trigger nativization because they are not affixes.

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