Models of Phonological Loanword Adaptation: The Optimality Model as Opposed to the Perceptual and Phonological Models

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ABSTRACT:

Borrowing in linguistics refers to the process whereby a group of speakers incorporates certain foreign linguistic components into their home language via a process known as linguistic borrowing. The process by which these foreign linguistic elements, known as loanwords, go through phonological, morphological, or semantic changes in order for them to fit the grammar of the recipient language is referred to as loanword adaptation. Loanwords go through these changes in order for them to become compatible with the grammar of the recipient language. One of the most divisive topics in loanword phonology is whether adaptations occur at the phonemic or phonetic levels, and current literature distinguishes three primary viewpoints: nativization-through-perception, nativization-through-production, and the Optimality Model. This article provides an overview of lexical borrowing and then presents a detailed account of the three models of phonological loanword adaptation.

Keywords: *borrowing, loanword adaptation; phonological adaptation; optimality theory; constraint-based*

1. Introduction

Linguistic borrowing is the process by which a community of speakers integrates some foreign linguistic elements into their native language (Thomason & Kaufman, 1988, p. 37; Malmkjær, 2002, p. 238). According to Haugen (1950, p. 212), linguistic borrowing may also be defined as "the attempted reproduction in one language of patterns previously found in another," Haugen further distinguishes two basic types of borrowing. First, there is *lexical borrowing*, also referred to as *substitution* by Haugen (1950), and *material borrowing* (Haspelmath, 2009)*,* which pertains to the phenomenon whereby foreign structures /sound meaning pairs are replaced by native ones. The other type of linguistic borrowing is *structural borrowing*, also

referred to as *importation* by Haugen (1950) and *pattern borrowing by* Haspelmath (2009), which refers to the process in which certain (syntactic, morphological, or semantic) patterns of the donor language are introduced into the recipient language.

Haugen (1950) classifies borrowings into three major categories based on the degree of morphemic substitution found in various types of loans. These categories are loanshifts, loanblends, and loanwords. The first category of borrowed items is loanshifts. Loanshifts exhibit full morphemic substitution. In other words, none of the donor language morphemes are imported. Instead, only morphemes local to the target language are employed, e.g., Spanish *rasca-cielos* from English *skyscraper*. Or English *blue-blood* (meaning noble birth) from Spanish *sangre azul*. There are two types of loanshifts. First, there is loan translations (calques) where a source item is not imported but translated into an equivalent combination of native morphemes. The other type of loanshifts is semantic loans, whereby a polysemy pattern of a donor language word is copied into the recipient language.

Loanblends, on the other hand, are hybrid borrowings composed of a portion of borrowed material and a portion of indigenous material (Haspelmath, 2009, p. 39). This means that only a portion of the morphemic form in the donor language is imported, and a native morpheme is replaced for the remaining portion. Haspelmath (2009) continues to point out that loanblends are not that widespread and that most hybrid-appearing terms are loan-based creations, which are words generated in a language using material that has already been borrowed (e.g., the English word *desk lamp* is a compound consisting of two separate words that were borrowed from Greek). Such terms are etymologically linked to loanwords, although they themselves do not qualify as loanwords.

Finally, loanwords are characterized by the lack of morphemic substitution, which means that a given loanword's morphemes are imported during the process. While no part of the source item is replaced with a native morpheme, the loanword itself frequently undergoes modifications with respect to its phonemic shape in that borrowers replace foreign sounds with closest native equivalents (Haugen, 1950, p. 214). Another common change that is made is to the spelling of such words and phrases to make them consistent with the orthography of the borrowing language (Paradis & LaCharite, 2011, p. 757)

2. Models of Phonological Loanword Adaptation

Loanword adaptation refers to the changes introduced to loanwords in order for them to fit the grammar of the recipient language. These changes may be *semantic* (changes in the meaning of a loanword), *morphological* (making loanwords conform to L2's

inflectional system), or *phonological* (changes in the sound structure of loanwords) (Radomski, 2019, p. 6).

Paradis & LaCharité (2011, p. 763) define phonological adaptation as "the modification or replacement (i.e., repair) of an L2 sound or structure to comply with one or more L1 phonological constraints". These changes may affect both the segmental and suprasegmental aspects of the phonological organization (Uffmann, 2015, p. 644). In segmental adaptation, illicit phonemes in the source language are usually substituted with their closest native counterparts. Suprasegmental adaptation, on the other hand, ensures that loanwords adhere to L1 phonotactic restrictions, as well as their native tone or stress system.

One of the most contentious topics in loanword phonology is whether adaptations occur at the phonemic or phonetic levels. According to the level of significance accorded to the debated distinction between the roles played by phonetics and phonology in loanword adaptation, the present literature differentiates between three primary perspectives: nativization-through-perception, nativization-through-production, and the Optimality Model (Kenstowicz, 2010).

2.1 The Perceptual/Phonetic model

The purely phonetic adaptations approach, or nativization-through-perception, assumes that the adaptation of loanwords occurs entirely in perception and that loanword adaptations are "phonetically minimal transformations" (Peperkamp, 2005, p. 1). Proponents of this viewpoint believe that speakers of the receiving language have no access to the phonology of the source language and that adaptation occurs because of the borrower's misinterpretation of the foreign source term.

According to this model, borrowings are accomplished by monolinguals or bilinguals in monolingual L1 mode who lack L2 categories and structures since "perceptual deafness," according to Peperkamp and Dupoux (2003, p. 367), demands a low degree of L2 proficiency. They must consequently adjust phonetic L2 outputs to L1 categories and structures without regard for L2 categories (Paradis & LaCharité, 2011, p. 755). In other words, these borrowers fill a gap in their language by adopting a vocabulary item from a foreign language that they are just vaguely familiar with or do not understand at all.

In this scenario, the speaker will need to acquire the vocabulary item first, and once this item is said in public or even quietly by the speaker to himself, it is referred to as a loanword. Since the speaker does not have a strong command of the second language, the term will undergo changes and adaptations. This model assumes that these alterations have already occurred during perception and learning (Calabrese & Wetzels, 2009, p. 1). In other words, borrowers

perceive the incoming raw phonetic signal and then locate an underlying representation in their language that produces phonetically equivalent output to the original form (Uffmann, 2015, p. 792).

Supporters of this view argue that loanwords lack phonological representation and that the input to loanword phonology is essentially a superficial non-linguistic acoustic signal. As borrowing-language speakers hear foreign forms, they create native phonological representations on the acoustic signal, fitting the surface input as nearly as possible into the native phonological system (Silverman, 1992, p. 289).

2.2 The Phonological Model

The purely phonological adaptations approach, or nativization-through-production, assumes that competent bilingual speakers who are functioning in bilingual mode fill a gap in their L1 by borrowing a word from their L2. These speakers have a comprehensive understanding of both phonological systems and accordingly access categories and structures of the second language to transfer them into the categories and structures of the first language (Paradis & LaCharité, 2011, p. 755). In other words, the speakers receive the borrowed word's underlying representation from their mental dictionary for L2 and construct its surface representation while speaking L1. Since the term's surface representation is created by L1's phonological or grammatical system, the word is adapted and nativized according to L1's grammar (Calabrese & Wetzels, 2009, p. 2). This model may be traced back to Haugen (1950) and Hyman (1970), among others, and it has been defended and refined in Paradis and LaCharité (1997), LaCharité and Paradis (2002, 2005), and Paradis and Tremblay (2009), among others.

According to Uffmann (2015, p. 13), the core concept of the phonological approach is that phonological equivalency, rather than perceptual similarity, is what is important in determining similarity. The key concept is that L2 phonemes are found and matched with L1 phonemes that have been assessed as equivalent. When considering the very uncontroversial premise that phonological representations are anchored in phonetics, the perceptual similarity account and the phonological equivalence theory make similar predictions in many circumstances since phonologically analogous structures should also be phonetically similar. However, these two models diverge in other circumstances, and LaCharité and Paradis (2001, p. 19) support their purely phonological adaptations viewpoint by identifying adaptations that do not opt for the identical phonetic match but seem to lean towards sounds that are phonologically equivalent.

Thus, in the cross-linguistic identification of rhotics despite phonetic variability, Paradis and LaCharité (2001, p. 19) demonstrate

the persistence of underlying phonological distinctions despite a possible perceptual pressure toward neutralization by the fact that Arabic possesses uvular fricatives that are perceptually extremely near to the French rhotic, French /ʁ/ is taken as [r] in Arabic. Variable adaptation is another challenge for the perceptual model since the English consonant sounds /θ, ð/, for instance, are variably pronounced as /t, d/, and /s, z/ across the world. Using the perceptual method, it would have to be shown that the relevant option would, for some reason, be the closer perceptual model. What makes this even more problematic is that it is /f/ the closest perceptual match to the English consonant sounds /θ, ð/, and not /t, d/ or /s, z/ (Uffmann, 2015, pp. 13-14),

Paradis and LaCharite's (1997) *Theory of Constraints and Repair Strategies Loanword Model (TCRS-LM)* assumes that loanwords are typically introduced by bilinguals who thoroughly comprehend both phonological systems and hence employ both L1 and L2 phonology. Consequently, loanword integration uses an underlying phonological (basically phonemic) representation of the l2 item as input rather than the surface phonetic form. This implies that borrowers can quickly distinguish L2 phonemic categories and utilize this information while executing modifications. When the phonological structures of the two languages do not match, the loan form is changed to the next-closest substitution depending on the recipient language's phonological properties. Because the nativization process is heavily focused on phoneme detection and matching, the phonetic forms of source items and surface variations of phonemes in L2 are of low importance in loanword adaptation.

2.3 The Optimality Model

A third model, known as the Optimality Model, agrees with the perceptual model that the donor language's surface representation serves as the input but believes that adaptation takes into consideration the phonological categories and limitations of the native system and probable orthographic effects to create the optimum fit. Kenstowicz (2010), Yip (2006), and Boersma and Hamann (2008) are among those who advocate this technique.

The Optimality Model, according to Kenstowicz (2010, p. 1), suggests that both phonetic and phonological representations play a role in the adaptation process of loanwords. In other words, this approach agrees with the perceptual model that the input is L2's surface representation with some adaptations applied in perception but argues that adaptation also takes into consideration the phonological categories and constraints of the native system as well as possible orthographic effects to achieve the best match. Thus, the Optimality model, with its faithfulness constraints, enables both donor language

phonetic features and native grammar phonotactic limitations to interact in forming the loan, making it the most thorough and informative approach to loanword adaptation. Supporters of this "in-between" model include Silverman (1992), Kenstowicz (2003), Yip (2006), and Boersma & Hamann (2008).

Apart from the nature of the input representation issue, whether perceptual or phonological, the channel via which loanwords enter the recipient language is also important for phonological loanword adaptation research. The input to the loan adaptation process may be oral or written (or a mixture of both). The former highlights issues of perception and their role in adaptation, while the latter draws attention to the influence of spelling. While researchers differ on the magnitude of orthography's effect on loanword adaptation, they agree that spelling is significant when written input is provided while still agreeing with Dohlus (2005) and Crawford (2009) that it is difficult to discern the impact of orthography in many situations since phonological and orthographical adaptation mechanisms produce comparable loanword assimilation patterns.

3. Conclusion

To conclude, phonological loanword adaptation is influenced by several linguistic and extra-linguistic elements. With so many variables involved in phonological loan adaptation, it is no wonder that the outcomes are so variable, often displaying strange patterns (Kang, 2011) that native phonological processes or constraints cannot explain. It may be safe to say that research supports the phonetic, phonological, and orthographic input views of loanword assimilation. Due to the wide range of nativization patterns and the multiple factors influencing the process, it seems reasonable to accept that multiple speakers can adapt a foreign item simultaneously, using phonetically, phonologically, and orthographically based adaptation strategies, depending on factors like the channel of borrowing or their proficiency in L2.

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نماذج التكيف الصوتي للالفاظ الدخيلة: نموذج الأفضلية مقابل النموذج الإدراكي و نموذج النظام الصوتي (الفونولوجي)

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الملخص

يشـير مصـطلح الاقتـراض فـي علـم اللغـة إلـى العمليـة التـي يقـوم مـن خلالهـا مجموعـة مـن المتحـدثين بادمـاج عناصـر لغويـة أجنبيـة معينـة فـي لغـتهم الأم وتُسـمى العمليـة التـي تمـر مـن خلالهـا هـذه العناصـر اللغويـة الأجنبيـة (والمعروفـة باسم الالفـاظ الدخيلـة) بعـدد مـن التغييـرات الصـوتية أو الصـرفية أو الدلاليـة مـن أجـل ملاءمتهـا لقواعـد اللغـة المتلقيـة باسـم تكيـف الالفـاظ الدخيلـة. حيث تمـر الالفـاظ الدخيلـة بهـذه التغييـرات لكـي تتوافـق مـع قواعـد اللغـة المتلقيـة. وأحـد أكثـر الموضـوعات إثـارة للانقسـام فـي الدراسـات الصـوتية للالفـاظ الدخيلـة هـو مـا إذا كانـت هـذه التكيفـات تحـدث علـى المسـتوى اللفظـي الإدراكـي أو علـى مسـتوى النظـام الصـوتي، وتُميـز الدراسـات الحاليـة ثـلاث وجهـات نظر أساسـية: التكيـف مـن خـلال الإدراك، و التكيـف مـن خـلال الإنتـاج، ونمـوذج الأفضـلية. وتقـدم هـذه المقالـة نظـرة عامـة عـن الاقتـراض المعجمـي ومـن ثـم تقـدم عرضًـا تفصـيليًا للنمـاذج الثلاثـة للتكيـف الصـوتي للالفـاظ الدخيلة.