

L1 Phonetic Transfer in French-Accented English: A Review of Segmental and Prosodic Features

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Abstract. In the context of the normalization of international communication and the widespread teaching of second foreign languages, the causes of English accents in native French speakers have become a key research area in the field of phonetics. Existing studies show that mother tongue transfer, as the core cause of second-language accent formation, is closely linked to specific phonetic differences between English and French. This study, based on a review paradigm, systematically outlines the core phonetic differences between French and English in terms of vowels, consonants, and stress-rhythm systems. It integrates relevant findings from existing empirical research on the negative transfer of mother tongue phonetic habits and attempts to provide theoretical support for second-language phonetic instruction. The goal is to help optimize English pronunciation training programs for native French speakers, improve the research framework on cross-linguistic phonetic transfer, and offer directions for future empirical research.

Keywords: Mother tongue transfer, French-accented English, Phonetic differences, Second language phonetic acquisition, Prosodic transfer

1. Introduction

In the era of global communication, accents caused by mother tongue transfer have become one of the common factors influencing cross-linguistic interactions [1]. As a typical example of mother tongue phonetic transfer, the distinctive segmental and prosodic features of English pronunciation in native French speakers are easily recognized by native English speakers. This accent reflects the structural differences between the French and English phonetic systems. It also illustrates the widespread phenomenon of mother tongue transfer in second-language acquisition, making it a focal point for both phoneticians and second-language acquisition researchers. Investigating the causes of French-accented English holds both theoretical and practical significance [2]. Theoretically, it helps deepen the understanding of the mechanisms of cross-linguistic phonetic transfer, especially how the segmental (vowels, consonants) and suprasegmental (stress, rhythm) features of the mother tongue shape second-language pronunciation. Practically, relevant research findings can be used to develop targeted pronunciation teaching strategies for native French speakers, improving the comprehensibility and naturalness of their English pronunciation. This review addresses three core research questions: (1) How do key segmental differences (vowels, consonants) between French and English lead to negative mother tongue transfer in the English pronunciation of native French

speakers? (2) How do French prosody and rhythm patterns transfer to English, and does the level of second language proficiency affect this process? (3) Apart from inherent phonetic differences, what external environmental factors contribute to mother tongue transfer and shape French-accented English? To address these questions, the paper is structured as follows. First, core concepts such as mother tongue transfer and phonetic transfer are defined, relevant theoretical frameworks are outlined. Next, existing literature on segmental transfer, vowel system differences, prosodic and rhythmic transfer, and environmental influences is reviewed. Then, the consistency and contradictions in the literature are discussed, research limitations are identified, and key findings are integrated. Finally, the main contributions of the review are summarized, and tentative directions for future research are proposed.

2. Theoretical background

2.1. Core concepts

2.1.1. Native language phonological transfer

Native language transfer refers to the phenomenon whereby second-language learners unconsciously apply the phonetic, phonological, or prosodic features of their mother tongue to the production and perception of a second language [2]. In general, native language transfer can be classified into positive transfer, in which native language features facilitate second-language learning, and negative transfer, in which native language features hinder second-language acquisition and lead to errors. In the case of French–English phonological transfer, native language transfer is a major driving factor in accent formation. Most learners tend to rely on familiar native-language sound patterns when coping with an unfamiliar second-language system. The effects of such transfer are primarily manifested at both segmental and suprasegmental levels. At the segmental level, speakers may incorrectly apply native-language places or manners of articulation to second-language phonemes (e.g., replacing the English alveolar approximant /r/ with the French uvular fricative [ʁ]). At the suprasegmental level, transfer affects prosodic features such as stress, rhythm, and intonation (e.g., applying the syllable-timed rhythm of French to English, which is stress-timed).

2.1.2. Degree of accent and intelligibility

The degree of accent generally refers to the extent to which a non-native speaker's pronunciation in the target language deviates from native-speaker norms, whereas intelligibility concerns the listener's ability to understand the conveyed message. French-accented English is characterized by relatively stable and systematic phonological deviations. These deviations tend to increase the perceived degree of accent and, in some cases, impose greater cognitive processing demands on listeners, thereby reducing overall intelligibility.

2.2. Theoretical framework

2.2.1. Perceptual Assimilation Model (PAM)

The Perceptual Assimilation Model (PAM) focuses on phonological category assimilation and perceptual confusion in second language learners [3]. Its central claim is that, in learners' cognition, second-language phonemes are perceptually assimilated into corresponding or similar native-language categories. When two second-language phonemes are assimilated into the same native-

language category, learners are likely to confuse them, a process known as two-to-one assimilation. Conversely, when a second-language phoneme does not correspond to any native-language category, it is typically more difficult for learners to acquire, a pattern referred to as non-assimilation.

2.2.2. Speech Learning Model (SLM)

Building on PAM, the Speech Learning Model emphasizes second-language production and posits a dynamic interaction between native and second-language phonological systems [2]. The model predicts that second-language phonemes that differ substantially from native-language phonemes are easier for learners to acquire, whereas similar phonemes are more likely to trigger negative native-language transfer. This framework explains why native French speakers may produce subtle differences in the pronunciation of the English vowel /u/ compared with native English speakers, yet can accurately produce the French vowel /y/, which has no close counterpart in English.

2.2.3. Dynamic Systems Theory (DST)

Dynamic Systems Theory emphasizes the multiple factors influencing second-language acquisition, such as temporal dimensions and environmental variables, and focuses on the dynamic interactions among these factors [4]. Influential factors include native-language proficiency, amount of exposure to the second language, and the surrounding context. This theory accounts for phenomena such as assimilatory drift (a shift of native-language features toward the second language) and dissimilatory drift (an increasing divergence between native- and second-language features) observed in bilingual speakers.

2.3. Major controversies

A central debate in this field is the "similarity paradox": do phonemes that are similar in the native and second language facilitate or impede second-language acquisition? Some studies suggest that similarity promotes positive transfer, while others argue that category confusion can lead to pronunciation errors [3]. Another controversy concerns the persistence of native-language transfer. Some research indicates that transfer effects diminish as second-language proficiency increases [4]. However, other studies have found that even advanced learners continue to exhibit prosodic transfer.

3. Literature review

From a phonetic perspective, first-language (L1) transfer refers to the phenomenon whereby second-language (L2) learners unconsciously apply phonetic features of their native language to L2 pronunciation. This transfer can manifest across multiple dimensions, including place and manner of articulation as well as intonation patterns, often resulting in non-native-like pronunciation and phoneme confusion. A well-documented example of L2 phonetic transfer is the English accent of French L1 speakers, which has been extensively examined in the literature for its influence on English pronunciation and the processing difficulties it may pose for listeners. Drawing on existing studies, this review aims to comprehensively synthesize the major French L1 phonetic factors that affect L2 English pronunciation and to clarify the linguistic and perceptual effects associated with this transfer phenomenon [1].

3.1. Segmental transfer (consonants/vowels)

French L1 speakers often display distinctive segmental phonetic features in their English speech that contribute to a recognizable foreign accent. These features involve differences in place and manner of articulation, voicing, and the realization of specific consonants and vowels. For instance, the English dental fricative /ð/ is frequently realized as [z] by French speakers, reflecting a shift in place and manner of articulation. Similarly, the English rhotic /r/ is often produced as a uvular trill [ʀ] or fricative [ʁ], and vowels may undergo nasalization, such as the first vowel in random being realized as [ã] rather than the non-nasalized [æ] typically produced by native English speakers. These segmental cues play a crucial role in the perceptual identification of French-accented English and have been extensively documented in research on foreign-accented speech [2–4]. Vowel production also exhibits systematic cross-linguistic differences. Although French /u/ and English /u/ are acoustically similar, French speakers tend to produce English /u/ with a lower second-formant frequency (F2). Moreover, French /y/, which lacks a direct counterpart in English, constitutes a novel vowel category for English speakers and may give rise to perceptual and production difficulties. Empirical studies have shown that French /u/ produced by bilingual speakers has a higher F2 than that of monolingual French speakers, whereas English /u/ produced by L1 French speakers exhibits a lower F2 than that of native English speakers. In contrast, French /y/ is often produced in a native-like manner by both bilingual and L1 French speakers, lending support to the hypothesis that L2 phonemes without close L1 equivalents ("new" sounds) may be acquired more accurately than those that are phonetically similar to existing L1 categories [3,5-7].

3.2. Prosodic and rhythmic transfer

Prosodic features, such as stress and rhythm, are often transferred from French to English. L1 French speakers may impose French accentual phrase structures onto English, affecting syllable prominence and duration. Research has specifically investigated whether L1 French speakers produce prominence patterns organized according to French accentual phrase-like units when speaking English, and whether L2 speakers at different proficiency levels mark syllable prominence according to English norms or retain French patterns. These prosodic traces are particularly pronounced in less fluent speakers and can persist even within bilingual communities [4,8]. Rhythmic differences between French and English further contribute to perceptions of foreign accent. L1 and L2 speakers differ in their production of vowels, consonants, intonation, and rhythmic patterns, differences that are readily perceived by native listeners and play a significant role in accentedness [9].

3.3. Bilingual drift and environmental effects

In addition to phonetic factors, the environmental context in which individuals have long resided can also partially influence their accents. Experimental studies have documented both assimilatory and dissimilatory drift in bilingual speakers. For instance, French–English bilinguals living in the United States have been found to produce French VOTs that are longer and thus more English-like than those of monolingual French speakers, whereas experienced L2 speakers of French produce English VOTs that are shorter and more French-like. These examples illustrate classic cases of L1 assimilatory drift, in which the acoustic properties of L1 shift toward intermediate values between those of monolinguals. Dissimilation has also been observed, with L1 sounds becoming more distinct from their L2 counterparts [6,10,11].

3.4. Perceptual consequences and listener processing

Accented sentences require greater processing effort from native listeners. For example, native Dutch listeners have been shown to perceive English-accented vowels as significantly more difficult to process at the sentence level, equivalent to an additional 3–4 dB of noise compared to native speech. This finding underscores the impact of segmental and prosodic differences on both intelligibility and cognitive processing [12,13]. Listeners are often able to identify a speaker's native language based on accent cues. Acoustic features such as segmental pronunciation and prosodic patterns enable listeners familiar with French-accented English to recognize the accent with relative ease [2,14]. Overall, research indicates that segmental, prosodic, and rhythmic aspects of French phonetics are major contributors to the French accent in English produced by L1 French speakers. These features are well-documented and have measurable effects on perception, production, and processing by native listeners [2,7,6].

4. Discussion

4.1. Consistencies in research findings

To date, studies on French-accented English reveal several convergent findings. First, segmental transfer is a pervasive driving force in accent formation. Native French speakers show stable deviations in English consonant production (e.g., substituting [z] for [ð] and [ʁ] for /r/), and their English vowel production is likewise influenced by the first language (e.g., the second formant, F2, of /u/ produced by French speakers is lower than that of native English speakers) [7]. Second, prosodic and rhythmic transfer is strongly modulated by proficiency. Learners with low proficiency rely heavily on French syllable-timed rhythm and stress-phrase structure, whereas advanced learners partially adopt the stress-timed rhythm characteristic of English [4,8]. Third, environmental factors influence the extent and direction of L1 transfer. Bilinguals in an L2-dominant environment often exhibit assimilation drift, whereby L1 features shift toward those of the L2; in certain contexts, dissimilation drift may also occur, in which the differences between L1 and L2 features are amplified [6,10]. Another consistent finding concerns the "new phoneme vs. similar phoneme" acquisition pattern: L2 phonemes that lack direct L1 counterparts are acquired more accurately than similar phonemes (e.g., French /u/ vs. English /u/) [3,7]. This result supports the Perceptual Assimilation Model and the Speech Learning Model, highlighting the role of categorical perception in second-language phonetic acquisition. Finally, French-accented English significantly increases listeners' processing load; its effect is comparable to adding 3–4 dB of noise to speech, and in complex contexts it further reduces intelligibility [12,13].

4.2. Contradictions and divergences

However, several contradictions remain in the existing literature. One core point of divergence concerns the effect of L2 proficiency on segmental transfer. Some studies have found that higher-proficiency learners show a tendency toward reduced consonantal misarticulations, whereas others report that vowel-related deviations persist even among advanced learners. This discrepancy may stem from methodological differences: the former line of research focuses on measurements of voice onset time (VOT), while the latter places greater emphasis on analyzing vowel nasalization, suggesting that the manifestation of segmental transfer varies across phonetic features. Another contradiction involves the direction of assimilation drift. Cho and Lee [11] observed that French–

English bilinguals residing in the United States exhibit English-like characteristics in the voice onset time (VOT) of French plosives, whereas Takahashi [10] found that some bilinguals continue to show French-like tendencies in the VOT of English plosives. This inconsistency may be related to individual differences such as the amount of L2 exposure, age of acquisition, and frequency of language use—factors that are often insufficiently controlled in existing studies. A third debate centers on the relative importance of segmental versus suprasegmental transfer in accent identification. Kolly and Dellwo [2] argue that suprasegmental cues in the temporal domain are more critical for accent recognition, whereas Vieru, de Mareüil, and Adda-Decker [5] emphasize segmental pronunciation deviations as the primary cues. This divergence may be associated with listener familiarity: listeners familiar with French-accented English tend to rely more on segmental cues, whereas listeners without such experience attend more closely to suprasegmental rhythmic patterns [14].

4.3. Research limitations

Existing research on French-accented English exhibits three main limitations. First, sampling bias: most studies focus on European French speakers, while variants such as Canadian French are largely overlooked. These varieties may differ substantially in their phonetic characteristics from European French [8]. Second, methodological inconsistency: studies differ in acoustic measurement indices (e.g., F2 frequency and VOT), speech tasks (read speech vs. spontaneous speech), and proficiency assessment criteria, which makes cross-study comparisons difficult [3]. Third, neglect of individual differences: factors such as age of L2 acquisition, learning motivation, and learning context may modulate transfer effects, yet they are rarely incorporated into existing analyses. In addition, most existing studies focus on speech production, paying insufficient attention to English phoneme perception among native French speakers and to the mechanisms underlying production adjustment [9]. Finally, the number of longitudinal studies remains limited, making it difficult to reveal how L1 transfer evolves over time with increased L2 exposure [4].

4.4. Integration of core trends

Synthesizing the existing literature, French-accented English can be viewed as the dynamic outcome of interactions between three sets of factors: (1) the intrinsic phonetic differences between French and English (the structural basis of transfer); (2) L2 proficiency (which modulates the degree of transfer); and (3) environmental context (which shapes the direction of transfer). Segmental transfer is more persistent than prosodic transfer, particularly in the case of similar phonemes. Although prosodic transfer tends to weaken with increasing proficiency, it does not disappear entirely. Factors such as L2 exposure and bilingual environments may either reinforce or attenuate transfer, thereby giving rise to assimilation drift or dissimilation drift. In addition, the impact of French-accented English on communication is dual in nature: while it increases accentedness and processing load, it does not necessarily lead to a significant reduction in intelligibility for listeners who are familiar with the accent [14]. This suggests that pronunciation instruction should prioritize intelligibility rather than a nativelike accent, focusing in particular on high-impact segmental features (e.g., English /r/ and [ð]) and prosodic patterns (e.g., stress placement in English nouns and verbs).

5. Conclusion

This review systematically integrates existing research on the causes and characteristics of French-accented English, with particular attention to first-language phonetic transfer at the segmental, prosodic, and rhythmic levels, as well as to environmental factors that modulate transfer effects. The core findings confirm that negative transfer from French phonetic features, including consonantal misarticulations, shifts in vowel acoustic properties, and prosodic–rhythmic substitution, "constitutes a primary source of accent formation in English among native French speakers. These transfer effects are not isolated phonetic phenomena but rather the dynamic outcome of interactions among structural differences between the two languages, stages of learning, and usage environments. This review argues that future research should address the current limitations in several ways. First, studies should broaden their sampling scope to include regional varieties of French and more diverse learning contexts. Second, research should, where possible, adopt more unified methodological frameworks (e.g., standardized proficiency assessments and spontaneous speech tasks) to facilitate cross-study comparisons, while also incorporating individual-difference variables such as age of acquisition and learning motivation into analyses. When feasible, longitudinal designs should be employed to track the temporal development of transfer effects. Finally, future work should integrate both production and perception data to achieve a more comprehensive understanding of second-language speech acquisition mechanisms. In addition, future research may benefit from interdisciplinary approaches, such as using neuroimaging techniques to investigate the neural mechanisms underlying French–English phonetic transfer, or examining the effects of technologies such as speech recognition tools on English pronunciation training for native French speakers. By addressing these research gaps, future studies may further refine theoretical models of cross-linguistic phonetic transfer and contribute to the development of more effective second-language pronunciation teaching strategies.

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