Contrasts and phonotactics in the diffusion of vowel shortening in Thai
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Lexical diffusion refers to the phenomenon in which a sound change originates in a subset of words and then gradually extends its scope to affect an increasingly larger portion of the lexicon (Wang 1965; Chen and Wang 1973). While usage-based approaches to sound change (Bybee 1998; Phillips 1984) holds that frequency is the most important factor in the spread of sound change through the lexicon, generative views (Goldsmith 1995; Kiparsky 1995; Bermúdez-Otero 2007) emphasizes the importance of phonological knowledge.

The case of vowel shortening that occurred in Thai is an illuminating example of a diffusing sound change in which phonological and usage-based factors interact. A large subset of Thai words that used to have long vowels in the 19th century came to be pronounced with corresponding short vowels in contemporary Thai. While both tones and codas clearly favored shortening (Brown 1979), the outputs of the sound change are far from regular, as shown in Table 1. In this paper, I argue that phonological contrasts and phonotactics are primary factors governing the diffusion of the vowel shortening, with frequency playing a secondary role.

Firstly, I show that the semi-regular process of vowel shortening only affected items having low vowels /ɛː/ and /ɔː/, e.g. /kɛn₂/ ‘core’, /pɔm₃/ ‘fortress’, and /hɔj⁵/ ‘shellfish’. Cases with other vowels are best explained as analogy, e.g. /cʰaŋ₃/ ‘artisan’, or reduction of grammatical morphemes, e.g. /tʰan⁵/ ‘2PL’. Given that the /eː/~/ɛː/ and /ɔː~/ɔː/ contrasts in Thai are marginal, this finding is consistent with the insight that lexical diffusion tends to involve marginal contrasts only (Goldsmith 1995; Bermúdez-Otero 2007). Secondly, I show that the vowel shortening is completely blocked in open syllables regardless of vowel quality. This can be straightforwardly accounted for by the well-attested phonotactic requirement in Thai that stressed syllables be heavy (Bennett 1994). When a stressed syllable does not have a coda, shortening its long vowels would result in an illegal light syllable, i.e. */kɛː²/ ‘old’ > */kɛ²/. This finding suggests that a diffusing sound change cannot create outputs that are not allowed by the phonotactics of the language. Lastly, it shows that only monosyllables carrying Tone 2, Tone 3, or Tone 5 underwent vowel shortening, e.g. /kɔŋ²/ ‘box’, /pɛn³/ ‘board’, and /tʰew⁷/ ‘line’. However, the sound change did not affect all words with the right phonological make-up; words with very high token frequency resisted the vowel shortening, e.g. /kɔːn²/ ‘before’ and /ʔɔːn²/ ‘soft’. Most importantly, lexical items that do not meet the contrast and phonotactic criteria did not go through the vowel shortening, regardless of their frequency. This finding thus suggests that frequency effects only show up in environments that are permitted by phonological factors.

Putting the three findings together, the case of vowel shortening in Thai suggests that phonological contrasts and phonotactics may be primary factors in lexical diffusion, with frequency playing a secondary role. Therefore, this study provides support for the importance of phonological knowledge in sound change.
Table 1. Contemporary Thai reflexes of words with earlier long vowels

<table>
<thead>
<tr>
<th>Earlier word structure</th>
<th>Tone 1</th>
<th>Tone 2</th>
<th>Tone 3</th>
<th>Tone 4</th>
<th>Tone 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVV</td>
<td>No shortening</td>
<td>No shortening</td>
<td>No shortening</td>
<td>No shortening</td>
<td>No shortening</td>
</tr>
</tbody>
</table>

S = sonorants; O = obstruents

References