

Back Vowel Shifting in Vietnamese-English

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This paper concerns a fellow student of mine whom we will call Kim. She was born in Vietnam and Vietnamese was her first language for the first six-or-so years of her life. Her family moved to Springfield, Illinois when she was around six and this is also when she began learning English. As for her memory of learning English, she says all she recalls is “sitting in class and not understanding what the teacher was saying.” She would have to “go to another classroom every so often” to study English separately from her classmates. Her twin sister was in the same situation, though Kim says she both speaks less Vietnamese and has a less pronounced accent.

Her speech patterns include several distinct traits, perhaps the least “interesting” of which is described here. The analysis will show that there is clear, definable case of the phoneme [ɔ] being realized as either [ɔ] or [ɑ]. As there are cases where ɑ is a phoneme in its own right and not merely an allophone of [ɔ], as is our hypothesis, we must restrict ourselves to the cases where a speaker of English would use [ɔ].

The following is the data collection through about an hour of conversation. If free variation is noted then it is the case that she was either heard using both pronunciations or explicitly asked if she could pronounce them both ways.

Word	Pronunciation	Kim	Word	Pronunciation	Kim
abroad	əbrɔd	əbrɑd	maul	mɔl	mɔl
Auburn	ɔbrɪn	ɔbrɪn	off	ɔf	ɔf
author	ɔθɹ	ɔθɹ	office	ɔfɪs	ɔfɪs
autumn	ɔrɪm	ɔrɪm or ɑrɪm	ought	ɔt	ɑt
augment	ɔgment	ɑgment	paw	pɔ	pɔ
awesome	ɔsɪm	ɑsɪm	pawed	pɔd	pɔd
caught	kɔt	kat	saw	sɔ	sɔ
cause	kɔs	kas	sawed	sɔd	sɔd
caulk	kɔk	kɑk	stalk	stɔk	stɔk
coffee	kɔfi	kɔfi	talk	tɔk	tɔk
cough	kɔf	kɔf	taut	tɔt	tɑt
gnawed	nɔd	nɔd	trough	trɔf	trɔf

There are some minor notes on the data. First, not included, aside from /sawed/, are conjugations of various verbs. In every instance they had no effect on the pronunciation of a [ɔ], even if the stress pattern is changed. This, along with the fact that most of the data is monosyllabic and stressed, makes it clear that stress patterns are *not* the primary cause for the realization of one or the other allophone. Moreover, these phonetic transcriptions are accurate. That is, the [t] is not glottalized as most speakers of English would in the word-final position.

The vowels occur in the following environments:

Vowel	Environments
[ɔ]	#_b, #_θ, #_r, #_f, -#, k_f, r_f, p_d, s_d, t_k, n_w, m_l
[ɑ]	#_g, #_t, #_s, k_t, k_s, k_k, r_d, t_t

To begin with note we note that [ɔ] and [ɑ] *are*, in fact, in complementary distribution and that there are no minimal pairs (excepting, perhaps, when [t] is realized as a [ɹ] – but

this turns out to not be a problem). This gives us more than enough reason to suspect these are allophones.

First we consider the word-initial environment. The only environments in which [ɔ] occurs are before inter-dentals, labio-dentals, and bilabials, excepting [ɔrɱ]¹. However, this is in free variation with [ɑ] and thus word-initially the rule can be: *Word-initially, [ɔ] is realized if the point of articulation is inter-dental or forward, and [ɑ] is realized elsewhere.* Likewise, from this data it seems that *word-finally, [ɔ] is always realized over [ɑ].*

Word-initially Kim's accent is determined completely by *point* of articulation. It would be ideal if we could come up with a rule which involved points of articulation that generalized into word-initial, word-internal, and word-final placings since these seem to be the three environments which “bear fruit,” so to speak. However, it cannot be the preceding consonant² or the following consonant only – save word-initial or word-final where one or the other is missing – as this causes big problems with our data. For example, Kim pronounced /talk/ as [tɔk] and /caught/ as [kɑt], but also pronounced /taut/ as [tɑt]. The preceding consonant can therefore not be the sole cause of this vowel shift. Likewise, /sawed/ is [sɔd] while /abroad/ is [əbrɑd], so the following consonant alone cannot be the cause of the vowel shift, either. What do we have left?

If Kim's focus is on points of articulation, then it stands to reason, perhaps, the distance between those points of articulation plays some role in her pronunciation. It might be uncomfortable for her to, for example, make the utterance [tɔk] for /talk/ because the point of articulation for /t/ is farther forward than /k/. I have never heard this explanation for a set of data before, but it seems to fit very well with the data collected. Looking at the IPA table of consonants, if we call c_1 and c_2 the two consonants and consider the following three-part rule:

1. If c_1 has a point of articulation farther forward than c_2 then [ɔ] is realized
2. Else, if c_1 and c_2 have the same point of articulation then if c_1 is more sonorous than c_2 a [ɔ] is realized
3. Otherwise [ɑ] is realized.

The only word uttered which does not fit this rule is /trough/ pronounced as [trɔf]. The point of articulation for the [r] is farther back than [f], which means Kim should realize a [ɑ] rather than a [ɔ]. If this is really the principle at work here, however, it might be argued that the preceding /t/ somehow dominates in the syllabic structure, and that point of articulation is the one used in the above algorithm. Regardless, this is the best rule which did not seem merely *ad hoc* given the relatively small set of data. To better understand her accent it would have been necessary to have her utter far more words, see what other, if any vowels shift, and to learn the vowel structure of Vietnamese. All of these except perhaps the first are beyond the scope of this paper, and so I leave whomever has to read this to read it and hope that my explanations were satisfactory or at least entertaining.

¹I tried to find other words where [ɔ] occurred before where [t] was realized as [r], but could not think of any.

²I cannot think of or find any words which surround [ɔ] with vowels, as the data indicated.