

Testing the hypercorrection theory of dissimilation

Nancy Hall, California State University Long Beach

Dissimilation is one of the less-understood types of sound change: far more rare than assimilation, it tends to be sporadic and unpredictable in its application. Its cause is debated. Ohala 1993 proposes that dissimilation originates from perceptual hypercorrection for assimilation. Certain features, such as rhoticity, have acoustic effects spanning several syllables, potentially causing perceptual masking of similar nearby sounds. For example, in American *surprise* /səˈpraɪz/, listeners may misinterpret the rhoticity of the first vowel as anticipatory assimilation to the later rhotic, and posit the representation /səˈpraɪz/. Ohala's proposal has rarely been empirically tested. As Garrett & Johnson 2011:21 note, "there are almost no controlled observations suggesting that listeners hypercorrect in speech perception." It has proven difficult to produce perceptual dissimilation in laboratory settings (Abrego-Collier 2013, Harrington et al. 2016).

Design. We test how perception of American /r/ (phonetically [ɹ] or [ɚ]) in nonce words is affected by a) presence of a second /r/ in the same word, and b) presence or absence of /r/-coarticulation on the segments between the two /r/s. Naturally produced syllables were spliced to create 34 sets of 4 stimuli (see Table 1). In each set, a consistent 'target /r/' was followed by syllables with or without /r/-coarticulation, having been extracted from tokens with or without nearby /r/s. The final portion contained either a 2nd /r/, as a potential trigger of perceptual dissimilation, or no /r/, as a control condition. 60 listeners heard the nonce words (one condition per set, counterbalanced across 4 groups of participants) embedded in natural sentences such as 'pass me the [maɪˈnɪkjələ]'. They were asked to type the unfamiliar word, and we coded the presence of each /r/ in the orthographic forms (e.g. *monicular*). We predicted that perceptual masking would cause listeners to miss the first /r/ most often in tokens with two /r/s plus intervening /r/-coarticulation.

Results. Target /r/ showed the highest rates of dropping in words with a 2nd /r/ and *no* intervening /r/-coarticulation. Logistic regression finds that presence of a 2nd /r/ is a significant predictor of dropping the 1st /r/ ($p = .03$), while the presence/absence of /r/-coarticulation is not ($p = .12$).

Discussion. These results suggest that r-dissimilation may indeed have a perceptual origin, since it can be triggered in an experimental setup that involves no speech production task. However, it is not clear that long-range coarticulation plays exactly the 'masking' role that Ohala's theory assigns it. Perceptual dissimilation actually tended to happen *less* in tokens where coarticulation was present. If this trend becomes significant, it would suggest that dissimilation is caused when some members of the speech community have less than the expected amount of long-range coarticulation. In a community where many speakers have strong long-range r-coarticulation, and listeners have learned to expect this, those speakers who do *not* strongly coarticulate /r/ may be heard as producing fewer /r/s than they intended. In this theory, coarticulation is still crucially relevant to the inception of dissimilation, but the mechanism also involves inter-speaker variation in a way not mentioned in the original hypercorrection theory.

Tables

Table 1: Structure of spliced stimuli: sample set of 4

Target	Middle	Trigger / control	Stimuli
maɪ	'nɪkjəl (with /r/-coarticulation)	ə	maɪ'nɪkjələ
		əm	maɪ'nɪkjələm
	'nɪkjəl (without /r/-coarticulation)	ə	maɪ'nɪkjələ
		əm	maɪ'nɪkjələm

References

Abrego-Collier, C. (2011). Liquid dissimilation as listener hypocorrection. In Annual Meeting of the Berkeley Linguistics Society (Vol. 37, No. 1, pp. 3-17).

Garrett, A., & Johnson, K. (2011). Phonetic bias in sound change. In *UC Berkeley Phonology Lab Annual Reports*

Harrington, J., Kleber, F., & Stevens, M. (2016). The relationship between the (mis)-parsing of coarticulation in perception and sound change: evidence from dissimilation and language acquisition. In *Recent advances in nonlinear speech processing* (pp. 15-34). Springer, Cham.

Ohala, J. J. (1993). The phonetics of sound change. *Historical linguistics: Problems and perspectives*, 237-278.