Perceptual evidence for blocking in Slovenian sibilant harmony

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Blocking is exceedingly rare in consonant harmony (Hansson 2001; Rose & Walker 2004), with only a handful of cases reported. For instance, retroflex harmony in Kinyarwanda is blocked by non-sibilant coronals (Walker et al. 2008). Another case is found in Slovenian. Regressive sibilant harmony optionally applies within a word (1-a), but is blocked by coronal stops (b).

(1) Regressive sibilant harmony in Slovenian (Jurgec 2011)

a. Most consonants are transparent (variable)

sux	'dry'	**ʃ**uʃ-i	'dries'
spi	'sleeps'	**ʃ**pi-ʃ	'(you) sleep'
sl-ux	'hearing'	**ʃ**l̲-iʃ-i	'hears'
pozabi	'forgets'	po**ʒ**ab̲i-ʃ	'(you) forget'

b. Coronal stops are blockers (no variation)

sit	'full'	na-**s**it̲-iʃ	*na-**ʃ**it-iʃ̲	'(you) make full'
zid	'wall'	**z**id̲a-ʃ	*__ʒ__ida-ʃ	'(you) build'
zdi	'seems'	**z**d̲i-ʃ	*__ʒ__di-ʃ	'(you) seem'

These data present one of the clearest cases of blocking in consonant harmony. However, one challenge is that sibilant harmony in Slovenian has considerable inter- and intraspeaker variation, which makes any generalizations based solely on production/elicitation less reliable.

To address this problem, the present study investigates two questions related to blockers in Slovenian sibilant harmony, both of which are fundamentally about whether blocking effects could be due to perception. First, we ask whether blocking effects are present in the perception of sibilant contrasts by Slovenian speakers, and second, we examine whether any such blocking effects appear in perception with speakers who have no exposure to Slovenian.

We investigate these questions using a forced-choice s∼ʃ categorization task. A group of Slovenian speakers and a group of English speakers categorized six different 11-step s∼ʃ continua in each of two conditions: non-local and local. In the non-local condition, the continuum was in initial position of SaCaʃ nonce words, where the final consonant was the potential harmony trigger [ʃ] and the intermediate consonant was either a blocker {t d} or not a blocker {n m p b}. The local condition involved CaSaʃ nonce words where the final consonant was again [ʃ], but in these forms, the continuum appeared in the middle of the word, and the first consonant was one of the six non-sibilant consonants {t d n m p b} used in the non-local condition. The continua were created in the Matlab program STRAIGHT (Kawahara et al. 2008) from natural productions by a male native speaker of Slovenian; both English and Slovenian speakers heard the same stimuli.

Pilot results suggest that Slovenian and English speakers differ in their categorization of the non-local blocking contexts. For English speakers, the local and non-local conditions patterned similarly, with few differences among the different consonant contexts. In contrast, for Slovenian speakers, the differences among the consonant conditions are much larger for the non-local condition than for the local condition. In particular, in the non-local condition, the context [t] has higher [ʃ] response, while [d] has higher [s] response, compared to the non-blocking contexts with the nasals and the other voiceless-voiced pair {p b}.

The lack of effect for English speakers suggests that the blocking effect in Slovenian is not due to a cross-linguistic perceptual tendency. However, the results for Slovenian speakers suggest that sibilant harmony blocking is linked to perception. Interestingly, the two coronal stops seem

to have the opposite effect. With the non-blocker consonants, long-distance harmony is possible, and we expect to see those effects in perception. Ozburn (in press) found that when categorizing the initial consonant of SVCV nonce forms, where S is an s∼ʃ continuum, English speakers respond with [ʃ] more often when C is [ʃ] compared to when it is a non-sibilant. Based on her findings, we expect that if harmony and blocking both appear in perception by Slovenian speakers, there should be greater [ʃ] response in non-blocking contexts, but greater [s] response in blocking contexts. Indeed, the blocking [d] has more [s] responses, which is what we would expect given that [sadaʃ] does not alternate with [ʃadaʃ]. On the other hand, [t] does not clearly behave as a blocker, since speakers give more [ʃ] responses than in the non-blocking contexts. The higher [ʃ] response rates could be a compensatory effect, along the lines of Ohala (1993). Under this analysis, the language-independent effects of sibilants on each other are in competition with the Slovenian-specific effects. In general, [ʃataʃ] could be a harmonized form for [sataʃ], but not in Slovenian. It is therefore possible that with [t], Slovenian speakers overcompensate for language-particular effects, "correcting" responses where Slovenian exposure might make an [s] response more likely, but doing so more than would be necessary to correct for the effect. The result is more [ʃ] response for [t]. It therefore seems that blocking in Slovenian harmony could arise from different perceptual mechanisms, hypocorrection for [d] and hypercorrection for [t], despite the fact that the end result in the language is a similar pattern for both blockers.

These data provide further evidence for the blocking effect in Slovenian sibilant harmony, by showing that the effect is also present in perception. However, it seems that similar blocking effects for different consonants arise from different perceptual mechanisms. Further, given that such effects do not appear for English speakers listening to the same stimuli, these results raise questions about how and why blocking effects exist in Slovenian. In summary, this experiment shows that blocking effects do exist perceptually in Slovenian sibilant harmony, but that they are not a property of cross-linguistic perception of sibilants in blocking contexts.

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