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Articulatory constraints on coarticulation in fricatives as a function of tongue involvement

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Numerous studies have shown coarticulatory effects of vowel rounding on the spectra of sibilants. However, the extent to which the tongue contributes to coarticulation is not clear because most studies have used only fricatives whose constriction is formed with the tongue. This study examines the effects of vowel environment on coarticulation in fricatives under two conditions: when the constriction is formed with the tongue (i.e., [s]) and when it is not (i.e., [f]), paired with the English vowels occurring at the extremes of the vowel quadrilateral. Preliminary results for adult native speakers of American English suggest that in the absence of tongue constraint (i.e., [f]), there is a greater effect of vowel context on the fricative spectrum. This result reinforces the importance of considering the freedom of an articulator to anticipate an upcoming gesture when examining the extent of coarticulation.