Introduction
Phonological features may have neural correlates which are sensitive to underspecification.
There is an early ERP component is sensitive to differences between most, but not all, categories.
The Featurally Underspecified Lexicon (FUL; Lahiri and Reetz 2002, 2010) model uses underspecification (Archangeli 1988) to explain why strong differences are asymmetrically detected between, e.g., corals and labials.
Factors specified at the surface may be unspecifiable when stored.
Phonologically underspecified features evoke little or no difference with specified features, but specified features may conflict and evoke large MMN waves.
Surface [Coronal] → Labial = Mismatch
Labial → [?] = Nomismatch
Coronal underspecification (Avery and Rice 1989) is supported by FUL.
Laryngeals (i.e., [h]) are another type less specified articulation: no place (Goldsmith 1981, Clements 1985, McCarthy 1988)
FUL suggests a radical place for glottals (Lahiri and Reetz 2010).

Aim of Study
Test FUL for coronal and labial fricatives ([s], [f]).
Extend FUL for laryngeal laryngeal segments: [h].

Methods, Data Collection, Analysis
(2) Deviant [f] in Standard /s/
/s/ /s/ /s/ /s/ [f]
Nomismatch
(3) Deviant [s] in Standard /f/
/f/ /f/ /f/ /f/ [s]
Mismatch
(4) Deviant [h] in Standard /s/
/s/ /s/ /s/ /s/ [h]
Nomismatch
(5) Deviant [s] in Standard /h/
/h/h/h/h/h/h/h/s/

Results
-4µV
-100ms 0ms 100ms 200ms 300ms 400ms -100ms 0ms 100ms 200ms 300ms 400ms

Discussion
Deviant coronals elicit a larger MMN in a labial (i.e. specified) context than labials in a coronal (i.e. underspecified) context, as predicted by FUL.
Deviant coronals do, however, not elicit a large MMN in a laryngeal context (i.e. nomismatch) nor do laryngeals elicit a large MMN in a coronal context.
The phoneme /h/ does not have a stored place of articulation or articulator on-par with /f/; a [Radical] or [Laryngeal] feature is either underspecified when stored, or represented on an orthogonal tier or branch.
Fricatives without vocalic context may be useful in testing the predictions of FUL since they do not require a vocalic context like stop consonants.

Further Research
- Intervocalic context may replicate findings.
- Contrastive overspecification (Swedish and Norwegian stops; Beckman et al. 2011, Ringen and van Dommelen 2013) and other laryngeal contrasts (Hindi/Urdhu).
- Pharyngeal and pharyngealized segments (Arabic).
- Fricative features in English, Arabic, Tamil, and Malayalam.

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References