

THE AWFULLY ELUSIVE GERMAN LANGUAGE: IN SEARCH OF A PROPERTY THEORY OF MID AND BACK CONTINUANTS

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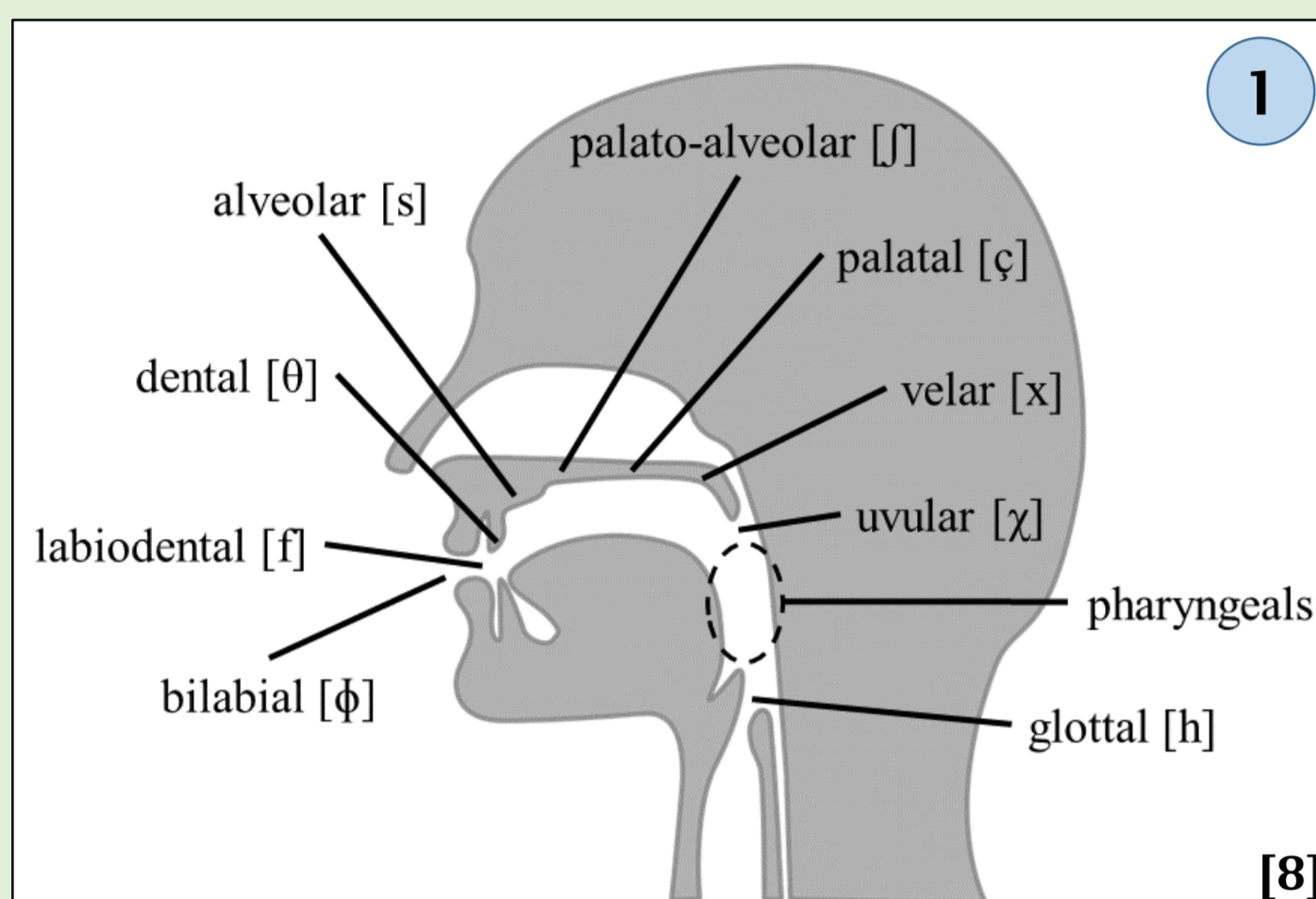
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Introduction

German mid and back continuants [s f ʒ ç x χ R h] are well-known in German
 ► especially Dorsal Fricative Assimilation (DFA) of [ç x χ] [14]
 ► also ban against *Coda-[h] [1]
 L2 German is prominent in the United States [3]
 ► representation & perception of these German sounds is of interest to L2 phonology

Research comparing mid/back fricatives within and between languages is uncommon, and arises from diverse approaches:
 ► phonetic [2, 9, 12]
 ► psycholinguistic [8, 13]
 ► neurolinguistic [10]
 ► German NSs are sensitive to violations of DFA in auditory stimuli [10, 13]
 [h] + back fricatives often omitted
 Theories of /h/ vary:
 (a) No phonological Place [1]
 (b) Pharyngeal primary place [6]
 (c) either or both (with implications for all back continuants) [7]



The special characteristics of nine voiceless fricatives (adapted from Stevens, 1960, p. 45)

Sounds	Articulation Group	Relative Intensity	Spectrum Length	Distinction between Members of the Group
f	FRONT (Labial & dental)	LOW	LONG (5000-6000 cycles)	lowest "centre of gravity"
s	MID (pre-velar)	HIGH	SHORT (3000-4000 cycles)	highest bottom limit, high top limit of frequency
ç				intermediate "centre of gravity"
x	BACK	MEDIUM	MEDIUM (4000-5500 cycles) with "formant-like" structure	highest bottom limit of frequency, intermediate bottom limit of frequency
χ				intermediate top limit of frequency, lowest top limit of frequency
h				lowest limit of frequency

Materials & Method

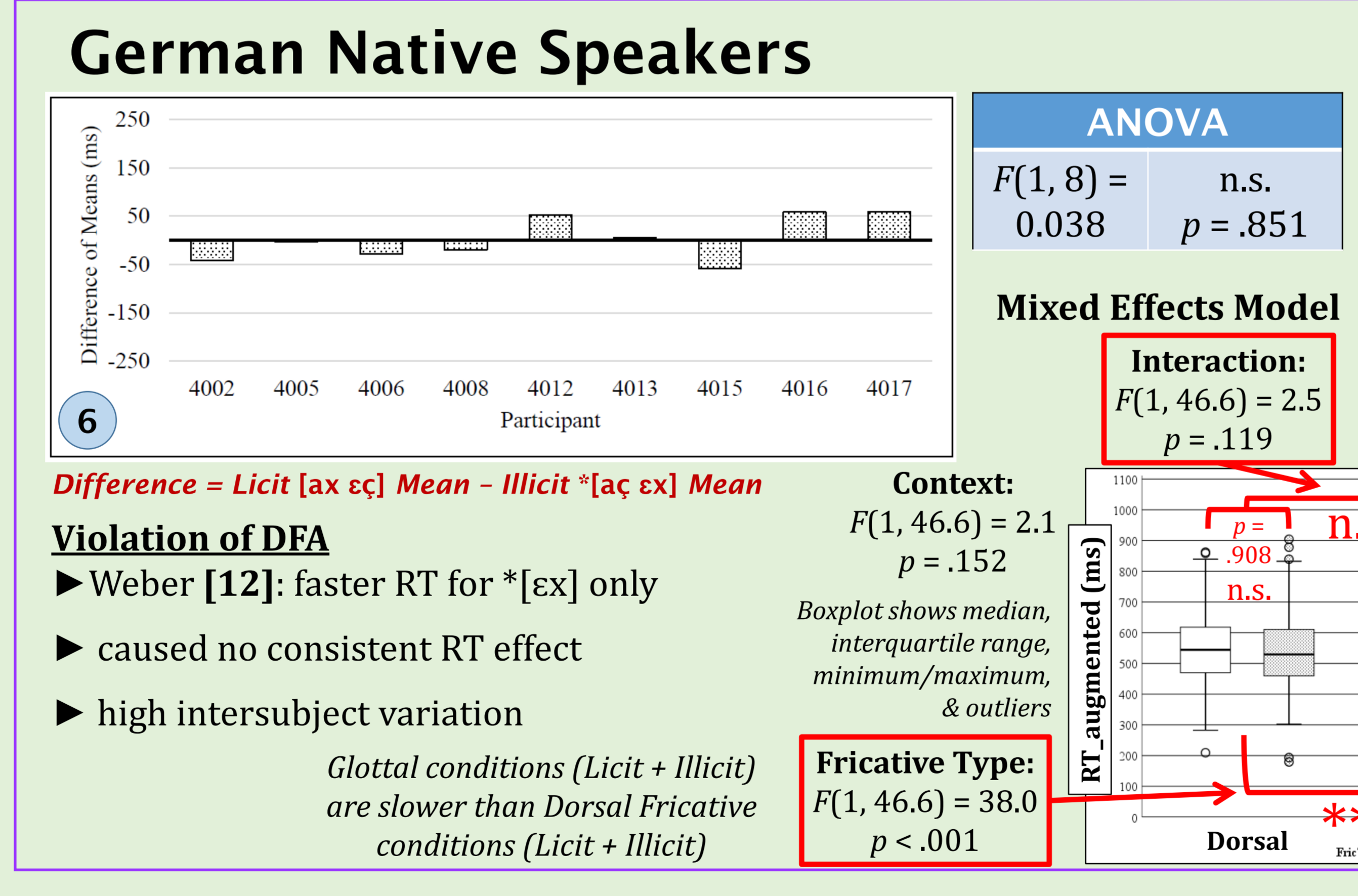
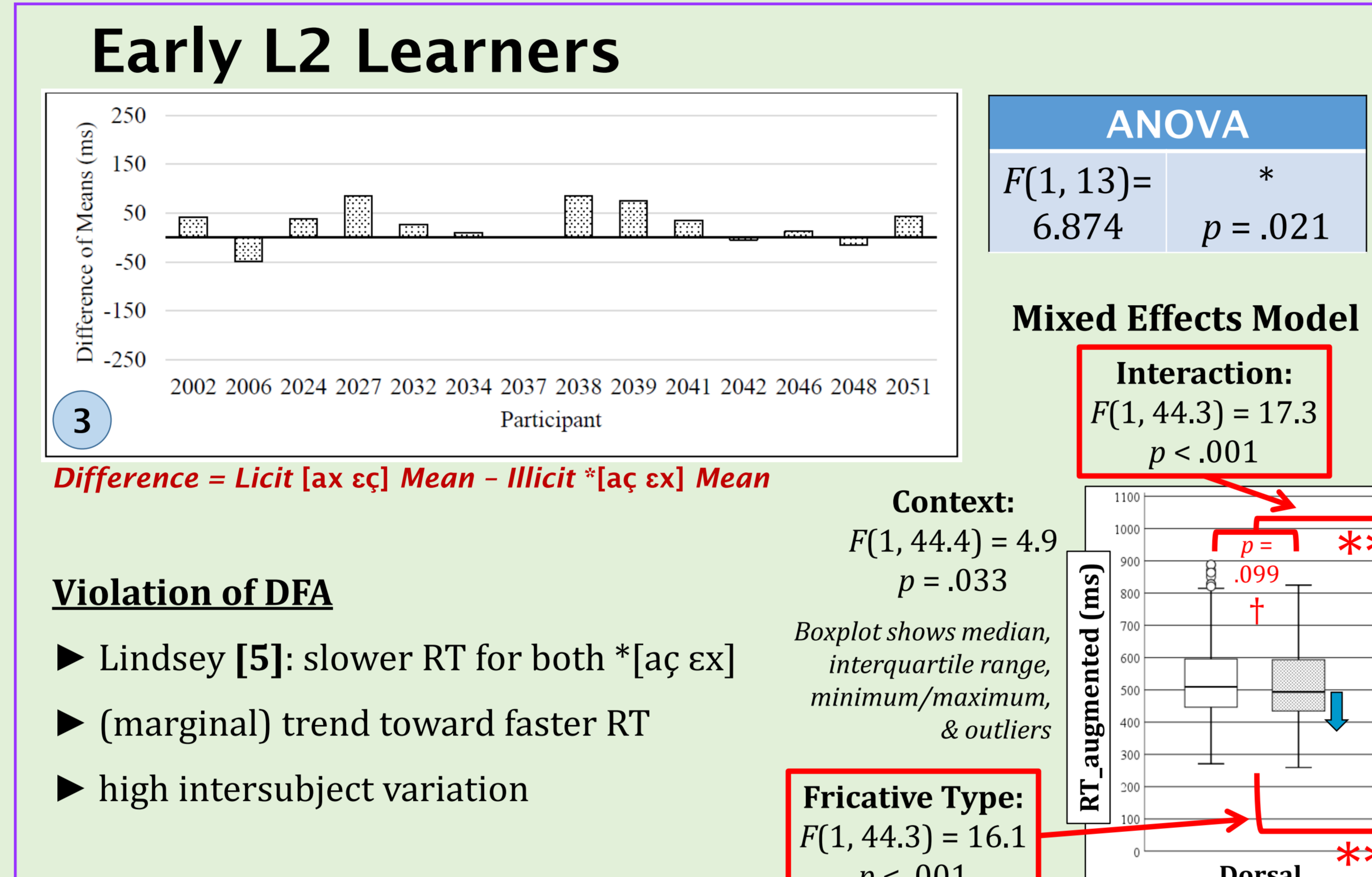
Do Early L2 Learners learn the rules that govern where novel speech sounds can appear in the L2? How do they compare to NSs of German?

Phoneme Detection Task: When you hear a T sound, press the Space Bar ASAP
384 Auditory Stimuli: Nonwords recorded by phonetically trained German NS (female)
CV_t context (32)
 16 Licit: V_t_ with [ç x] → 8 × Vçt_ (e.g., [glaxt]) + 8 × Vxt_ (e.g., [glæxt])
 16 Illicit: V_t_ with [ç x] → 8 × Vçt_ (e.g., [glæçt]) + 8 × Vxt_ (e.g., [glæxt])
[h]-conditions (16, balanced for vowels [a ε])
 8 Licit: Onset-[h] → 8 × Vht_ (e.g., [hamt], [helkt])
 8 Illicit: *Coda-[h] → 8 × Vht_ (e.g., [glaht], [gleht])
Participants

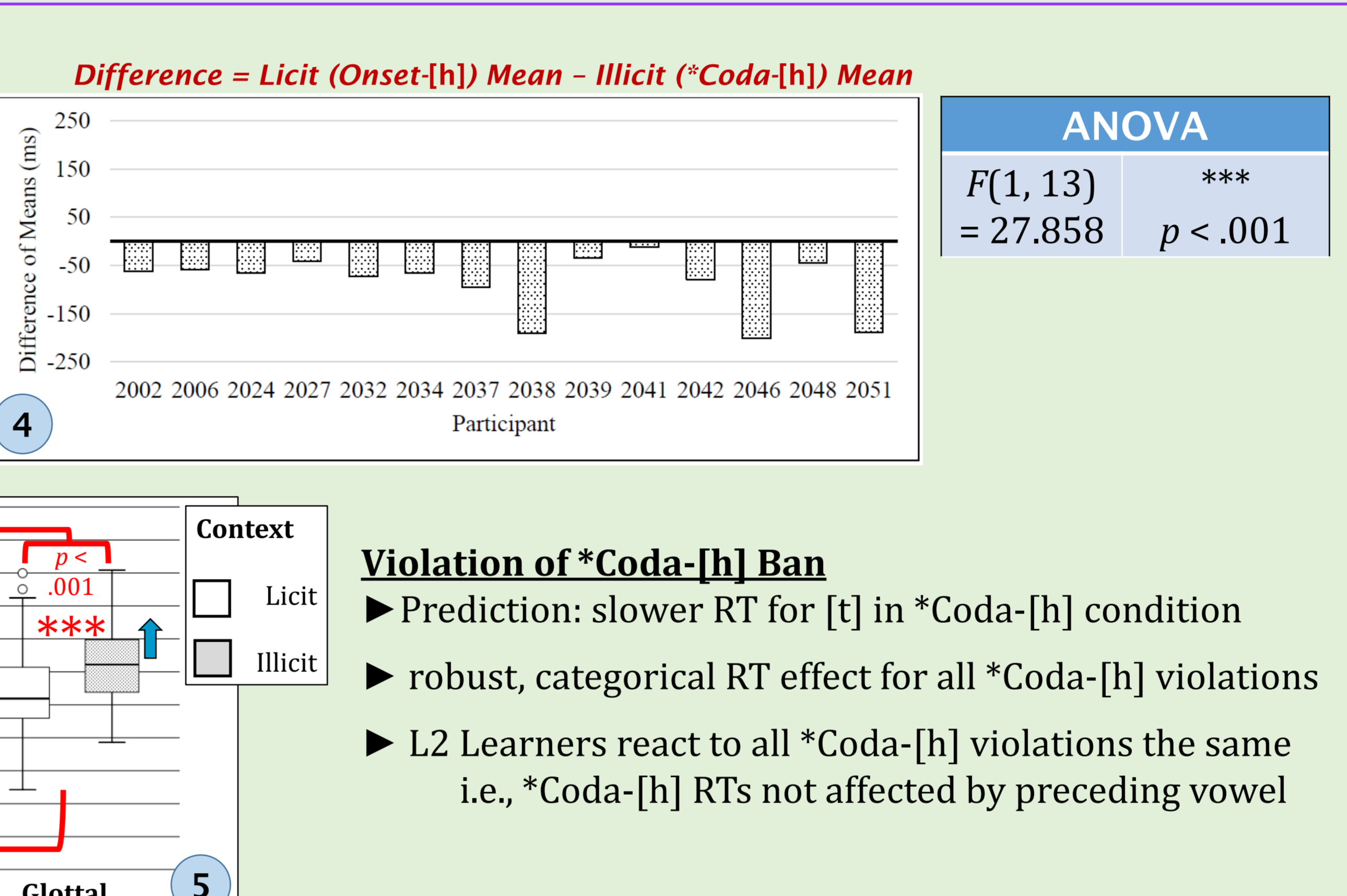
	L2 (2 nd sem)	German NSs
Age	18-23yo	20-29yo
Location	U.S. Midwest	Stuttgart

Fillers without [t] anywhere (192, balanced)
Dependent Variables: Reaction Time (augmented)
 Accuracy (5-Hit minimum threshold) → N = 14 (L2), N = 9 (NS)

Results Dorsal Fricative Assimilation



*Coda-[h] Ban



Conclusions

Do Early L2 Learners learn the rules that govern where novel speech sounds can appear in the L2?
 Yes! But individual variation is high, and rules differ.
Do Early L2 Learners exhibit sensitivity to violations of German DFA?
 Yes! Some L2 Learners show slightly faster Reaction Times to violations of DFA
 Early L2 Learners may not have automatized this yet [11]
Do Early L2 Learners overapply the *Coda-[h] ban to the [h]-like [ç] and [x]?
 No.
 Reaction Times to illegal *Coda-[h] violations are robustly slower than typical
 Legal [axt] and [εçt] do not show slower Reaction Times than typical
How do Early L2 Learners compare to NSs of German?
Early L2 Learners seem more sensitive to illegal *[aç ex] than NSs
But why?
 Is DFA boosted by prescriptive formal instruction?
 How is NS perception of [ç] and [x] affected by dialect background, dialect exposure, or even other L2 exposure?
 Is the subphonemic variation of [ç] and [x] less salient to NSs than L2 learners?
NS vs. Early L2 Learner Reaction Times patterns for *Coda-[h] tell us:
 ► Early L2 learners accept German [ç] and [x] as both legal sounds and not /h/
 ► NSs may phonotactically assimilate [h] to [x]/[ç] when vowel context favors it
German [ç x χ] interact with /h/ in perception for NSs and L2 Learners

Future Directions

What is going on in German?
 Do NSs actually phonotactically assimilate illegal *[ah] to legal [ax]?
 How do German NSs perceive Dorsal Fricative Assimilation? How salient is it?
 Why are DFA findings inconsistent? [5, 8, 10, 13] How much does dialect matter? [4]
Does "guttural" German have a guttural class? Pharyngeal Place?
 How do L1 English speakers perceive fricatives farther back than [ʃ] that are not [h]?
 Do they have or need the phonological features to represent gutturals?
 Traditionally, Germanic phonology ignores Pharyngeal Place [14]
 Broader phonological theory suggests German should have [Pharyngeal] Place [2, 6, 7]
 (cf. Semitic: Arabic, Hebrew, etc.; others, e.g., Coeur d'Alene, Chilcotin)

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Further Information

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