

# The French Learners Audio Corpus of German Speech (FLACGS)

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## Introduction

► The pronunciation of a foreign language is conditioned by the phonological system of the L1.

► Mastering the phonological system of the L2 improves the communication with native speakers.

► Research shows that L2 speech production is linked to the phonemic inventories of both the L1 and L2.

► The *French Learners Audio Corpus of German Speech* (FLACGS) was recorded to investigate where pronunciation of German differs between German native (GG) speakers and French learners of German (FG).

► contains repeated, read, semi-spontaneous speech of German L1 and L2 speakers

► In the following: production study of /ŋ/

► The long term aim of our research is to develop a training method that improves pronunciation quality in FG.

## Corpus Summary

### NAME

*French Learners Audio Corpus of German Speech*

### LANGUAGE

German

### SPEAKERS

40 speakers (20 male and 20 female)

- 20 L1 German

- 20 L1 French, L2 German (A2-C2)

### VOLUME

ca.7 h of speech (35 250 words)

### CONTENT

repeated, read and semi-spontaneous speech

### TRANSCRIPTION

manual using the German orthography

### ALIGNMENT

webMAUS (automatic) and manual checking

## References

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## Research questions

1. Where does German pronunciation on a segmental and supra-segmental level differ in German native speakers and German L2 speakers with French as a L1?
2. To what extent German L2 speakers with French as a first language are able to rectify their erroneous German pronunciation with appropriate training?
3. To what extent can the erroneous German speech production in German L2 learners with French as a L1 be explained by non-contrastive perception of German segmentals and supra-segmentals?

## Case study - the consonant /ŋ/

► Figure 1: respective productions of the German word *singen* by a native speaker [zɪŋən] and by a French learner of German [zɪŋgən] (/ŋ/ in a VCV context).

► The /ŋ/ is realized as a smooth voiced segment, as shown in the spectrogram of the native speaker (left).

► The labelled [ŋ] segment in FG's spectrogram (right) shows two distinct parts which could be more precisely described as a nasal consonant [ŋ] followed by a voiced plosive consonant [g].

► In French, the /ŋ/ sound between vowels does not exist, FG tend to add an homorganic plosive.

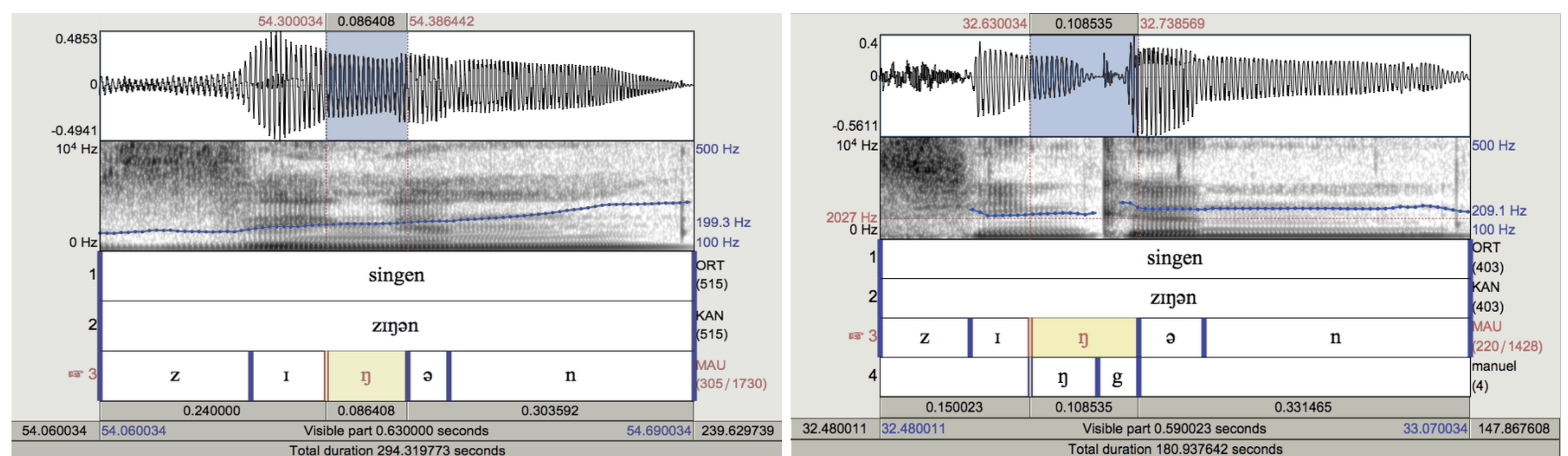


Figure 1: Spectrograms *singen*, left: GG, female, velar nasal, right: FG, female, velar nasal followed by an obstruent [g]

## Results

► Table 1: percentages of [ŋ] and [ŋg] productions in German L2 learners.

► Figure 2: duration means of the engma realizations across the three speech production tasks.

► GG are plotted in blue and FG are plotted in two shades of yellow.

► FG: [ŋ] and [ŋg] realizations; GG: [ŋ] only.

► Statistical analyses were carried out using a two-way ANOVA with unequal sample sizes.

1. for both GG and FG no task effect on durations for [ŋ] and [ŋg]
2. except for the repetition task native like production of [ŋ] in FG
3. across all tasks significant duration difference between GG [ŋ] and FG [ŋg]

TASK	(Tokens)	[ŋ]	[ŋg]
repetition	(80)	55%	45%
reading	(60)	32%	68%
description	(78)	45%	55%

Table 1: Overview of /ŋ/ realizations in FG speakers

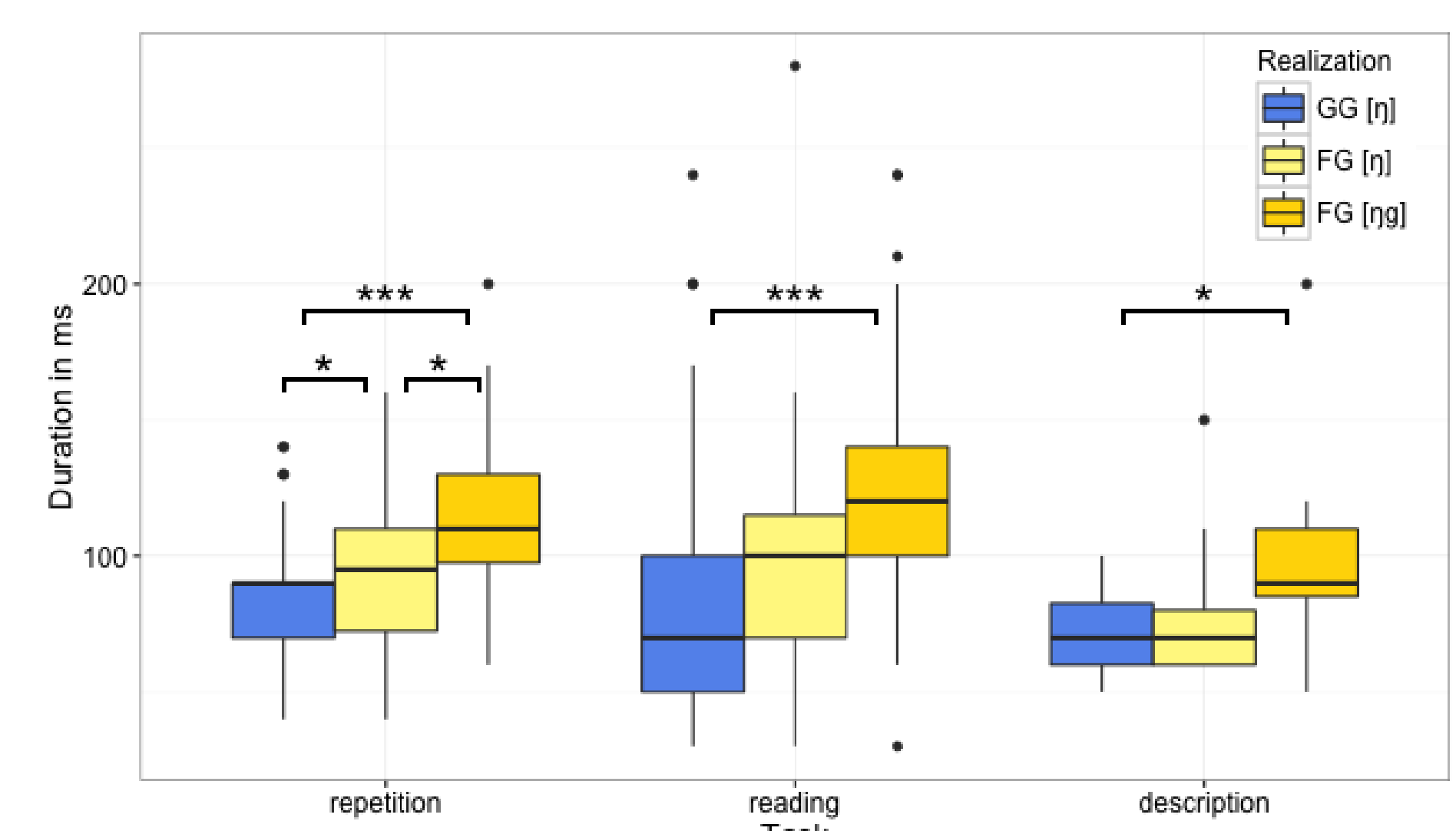


Figure 2: Duration of [ŋ] and [ŋg] in respect to L1  
\*  $p \leq 0,05$ ; \*\*  $p \leq 0,01$ ; \*\*\*  $p \leq 0,001$

## Discussion and Perspectives

► Engma: high rates (ca. 50%) of homorganic plosive insertion (higher in reading task) in FG (VCV context).

► Durations between German natives [ŋ] and French learners [ŋg] are significantly different in all three speech production tasks.

► Duration can thus be used as a cue to decide whether FG produced [ŋ] or [ŋg] compared to a German native control population.

► Duration for FG [ŋ] and [ŋg] are not significantly different within the group means.

► Further studies on the FLACGS corpus: acoustic differences between the fricatives /f/ and /ç/, vowel quality in GG and FG and lexical stress realization in FG.

► Resource distribution is planned in 2017/18.

► Ressource can be used for analyses regarding second language learning, automatic accented speech recognition etc.