

Measuring the Role of Hypoarticulation in a Sound Change in Progress in Southern German

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Als Team möchten wir diesen Beitrag dem Gedenken an unsere geschätzte Ko-Projektleiterin widmen:

Assoc. Prof. Dr. Sylvia Moosmüller († 2018)

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Our topic is **sound change**
in the context of **dialect leveling**

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Hypoarticulation

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Hypoarticulation – Compensation for hypoarticulation

The general idea: Hypoarticulation (e.g. arising from deaccentuation or fast speech) as a source for diachronic sound change to occur (e.g. vowel shortening, consonant lenition).¹
Hypoarticulated forms, over time, may become the norm.

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Hypoarticulation: all the time – Sound change: rarely

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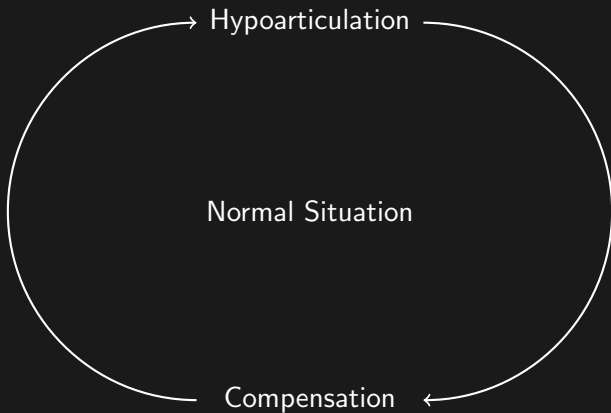
Hypoarticulation: all the time – Sound change: rarely

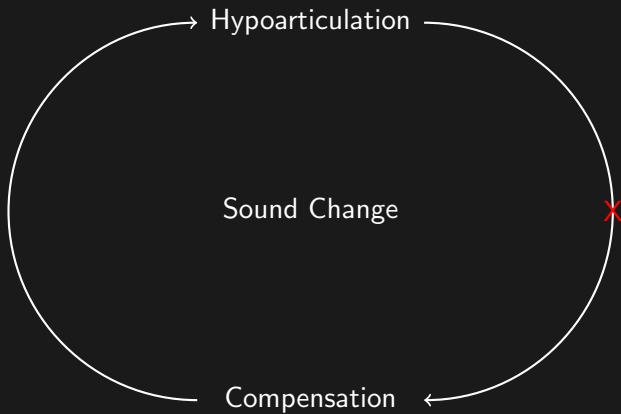
Compensation for hypoarticulation (prosody², speech rate³) usually works very well.

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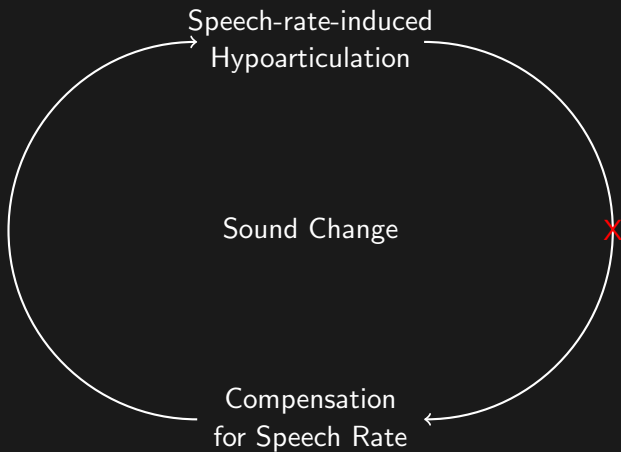
²Harrington et al. (2013)

³Reinisch et al. (2011)





Is compensation for speech rate diminished in listeners participating in a sound change in progress?



A particular sound change in progress

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- ▶ Central Bavarian has a phonotactic restriction that prohibits the combinations V:C: (long vowel-fortis obstruent) and VC (short vowel-lenis obstruent) in word-medial position.⁴

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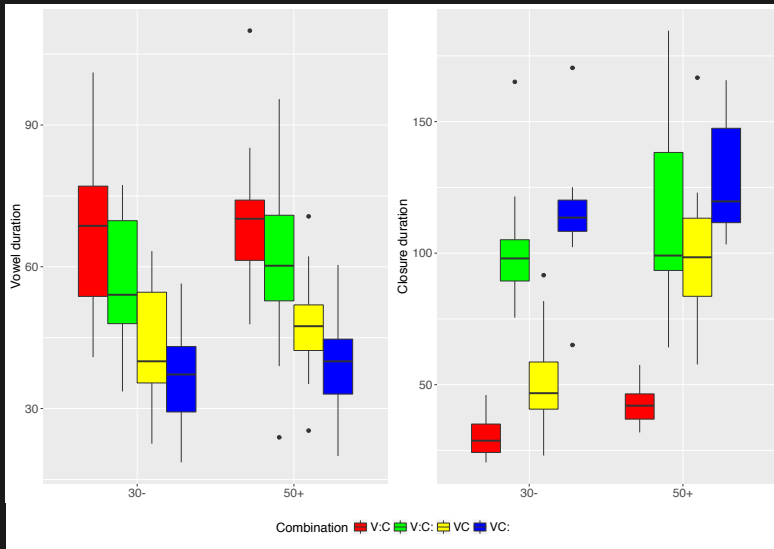
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- ▶ These combinations, however, appear to be becoming legal.⁵

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Apparent-time difference in Widder/Pudding (yellow):



16 Central Bavarian speakers from Bavaria.

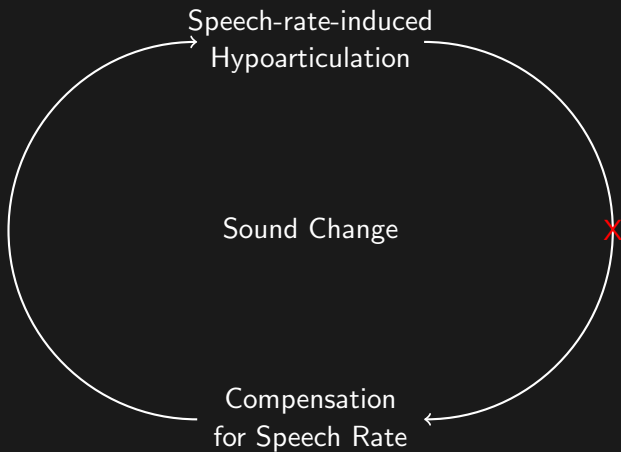
Words: wieder/Bieter/Widder/bitter + Puder/Pute/Pudding/Butter.

(Yet) Unpublished data.

Varieties

- ▶ Standard German (as spoken around Munich):
No sound change assumed
- ▶ Swiss Standard German/Schweizerhochdeutsch:
No sound change assumed
Has phonemic consonant quantity (unlike Standard German)
- ▶ Western Central Bavarian (Bavaria):
Sound change assumed
- ▶ Eastern Central Bavarian (Vienna):
Sound change assumed

Is compensation for speech rate diminished in listeners participating in a sound change in progress?



Method

- ▶ Forced choice categorization task:
short vs. long vowel phonem

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Masse - *Maße* /masə/ - /ma:ʰsə/ 'mass' - 'dimensions'

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short vs. long vowel phonem
- ▶ Standard German:
Masse - *Maße* /masə/ - /ma:ʒə/ 'mass' - 'dimensions'
- ▶ Central Bavarian and Swiss Standard German:
Bitter - *Bieter* /bite/ - /bi:te/ 'bitter' - 'bidder'

Method

Model speakers repeated the target words several times at two speech rates

⇒ Shortest vowels: bitter/Masse (/ɪ a/) at fast speech rate

⇒ Longest vowels: Bieter/Maße (/i: a:/) at normal rate

Normal
carrier sentence:

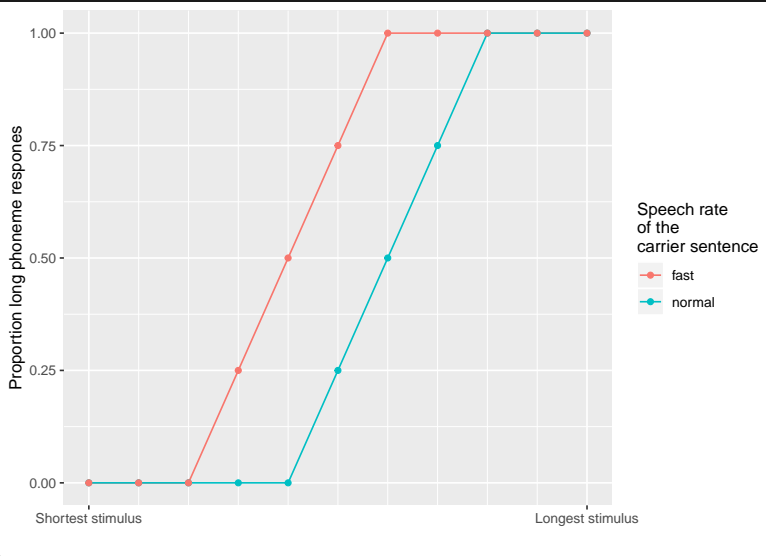
Der Peter hat b...er aufgeschrieben



Fast
carrier sentence:

Der Peter hat b...er aufgeschrieben

Construction of the continua for perception task



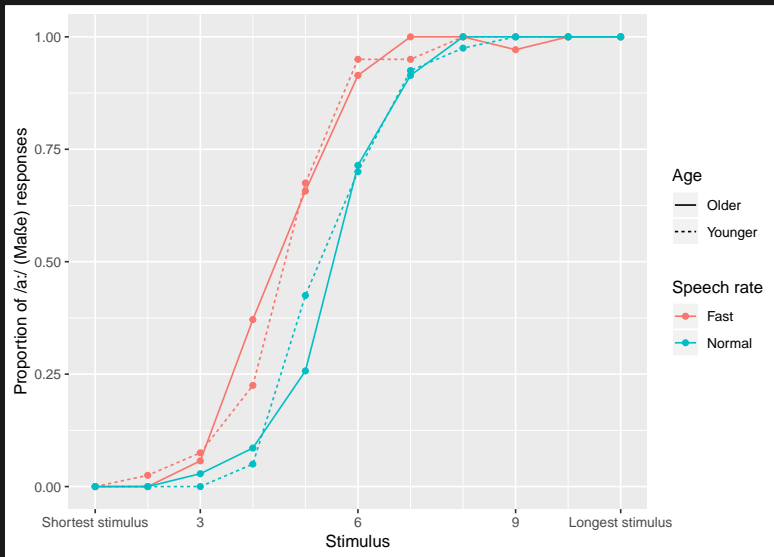
Model of two response curves with compensation for speech rate

Hypothesis

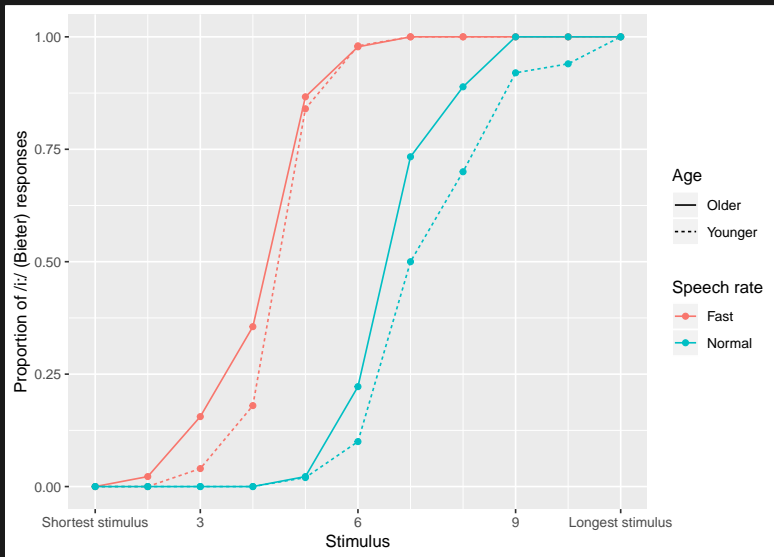
Standard German and Swiss Standard German participants compensate more for speech rate than Central Bavarian participants.

Participants

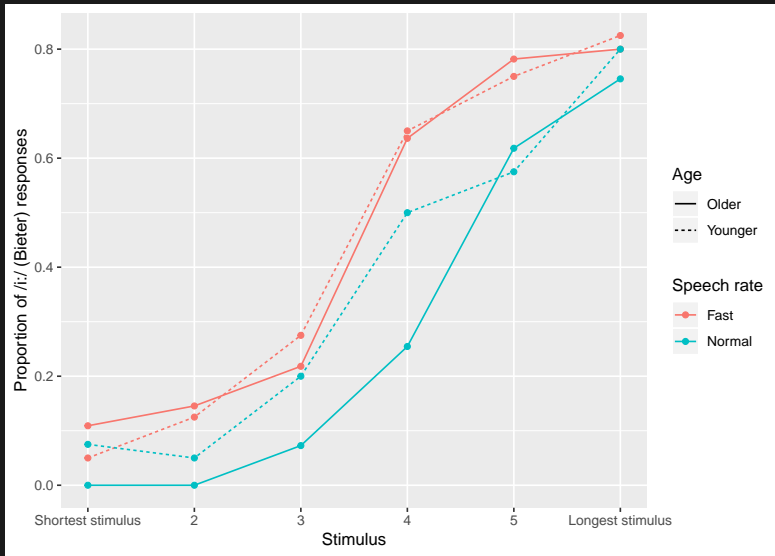
Variety	Younger < 30 years	Older > 50 years
Standard German	7	8
Western Central Bavarian	8	11
Eastern Central Bavarian	5	4
Swiss Standard German	10	9



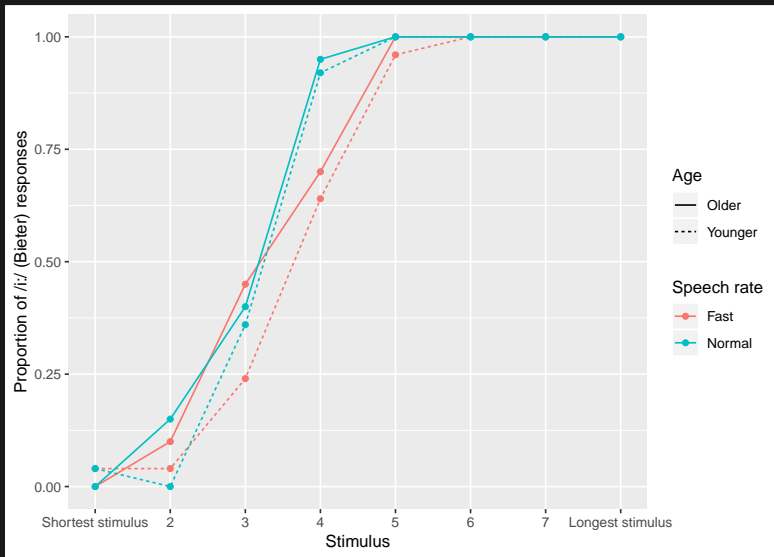
Response curves for Standard German listeners.
Well in line with the model expectation.



Response curves for Swiss Standard German listeners.
Even better in line with the model expectation.



Response curves for Western Central Bavarian listeners (from Bavaria). Older listeners in line with the model expectation; younger listeners less so.



Response curves for Eastern Central Bavarian listeners (from Vienna).
Not in line with the model expectation.

Discussion

- ▶ The hypothesis was:
Standard German and Swiss Standard German participants compensate more for speech rate than Central Bavarian participants.
- ▶ Indeed, CB participants do not compensate in Austria and in Bavaria, the older participants more than the younger. Both Standard German and Swiss Standard German participants do compensate, but more so in Switzerland.
- ▶ Results support the hypothesis
- ▶ But it remains unclear if/how we can compare effect sizes between different continua

Literature 1/3

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Literature 2/3

- ▶ Kleber, F. (2017). Complementary length in vowel-consonant sequences: acoustic and perceptual evidence for a sound change in progress in Bavarian German. *Journal of the International Phonetic Association*.
- ▶ Kohler, K. J. (1984). Phonetic explanation in phonology: the feature fortis/lenis. *Phonetica*, 41(3), 150-174.
- ▶ Moosmüller, S., & Brandstätter, J. (2014). Phonotactic information in the temporal organization of Standard Austrian German and Viennese dialect. *Language Sciences*, 46, 84–95.
- ▶ Pfalz, A. (1913). Die Mundart des Marchfeldes. In: *Sitzungsberichte der österreichischen Akademie der Wissenschaften in Wien*. Phil.-Hist. Klasse, Bd. 170, Abh. 6. Wien.

Literature 3/3

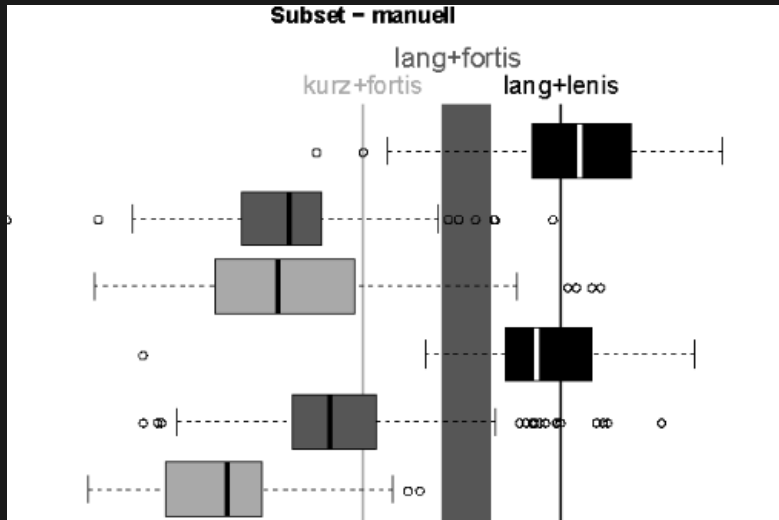
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<https://doi.org/10.1037/a0021923>
- ▶ Schikowski, R.(2009). *Die Phonologie des Westmittelbairischen*. Magisterarbeit, Fakultät für Sprach- und Literaturwissenschaften, Ludwig-Maximilians-Universität München.

Notizen für Diskussion

- ▶ Nach dem Doc-Koll haben wir uns gefragt, ob unser mittelbairischer Lautwandel vielleicht gar nicht so gut geeignet ist, da es sich weder um (1) vowel shortening noch um (2) stop lenition im eigentlichen Sinne handelt.
- ▶ Problem: Vergleichbarkeit über Varietäten hinweg
Speech-Rate-Unterschied zwischen langsam und schnell nicht kontrolliert zwischen den Kontinua - Warum nicht? Weil es eh schwierig genug war, die Kontinua überhaupt hinzukriegen.
Außerdem: Wir wollen natürliche fast speech modellieren.
Daher Trägersatz-Manipulation mit Psola keine Option.
ABER wir hätten die Modellsprecher besser instruieren/kontrollieren müssen!
- ▶ Backup slide: speech rate der Stimuli, Hörbeispiele.

Speech Rate of Carrier Phrases

Variety	Fast	Normal	Ratio
Western Central Bavarian	970	1382	1.42
Eastern Central Bavarian	1225	1500	1.22
Standard German	1294	1801	1.39
Swiss Standard German	1317	1884	1.43



Kisler & Kleber (in press). The top 3 boxplots are Austrian speakers, the bottom 3 are from Bavaria.