The Vowel Inventory of Tyrolean in Meran

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INSTITUTE OF PHONETICS AND SPEECH PROCESSING
ALPS Alpine Laboratory of Phonetic Sciences

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Background and Goals

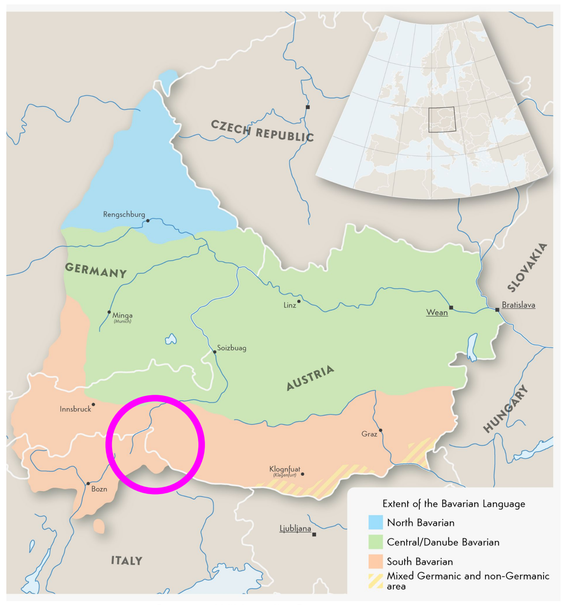
Distinct characteristics of Southern Bavarian German:
- Fewer monophthongs than SG, specifically lacking front rounded vowels
- Rich diphthong inventory; some monophthongization reported in Tyrolean in Austria
- /a/-/ɒ/ distinction in words like *Kabel* and *Gabel*
- A lack of a tense-lax distinction in vowel length

No current acoustic-phonetic description of the vowel inventory of Tyrolean in South Tyrol

Insam (1936):
- Used terms like open/closed or light/dark for vowel length - *implying quality difference?*
- /oi/ is disappearing
- Diphthongs /iə,iɒ/ and /uə,uɒ/ are in free variation
- Includes three-way /e:/-/e/-/ɛ/ distinction

Establish a synchronic and representative description of the vowel inventory of the greater region

Meran chosen due to status as cultural and political center



Source: Wikimedia Commons [https://commons.wikimedia.org/wiki/User:Cattette#/media/File:Austro_Bavarian_Languages-01.png]

Methods

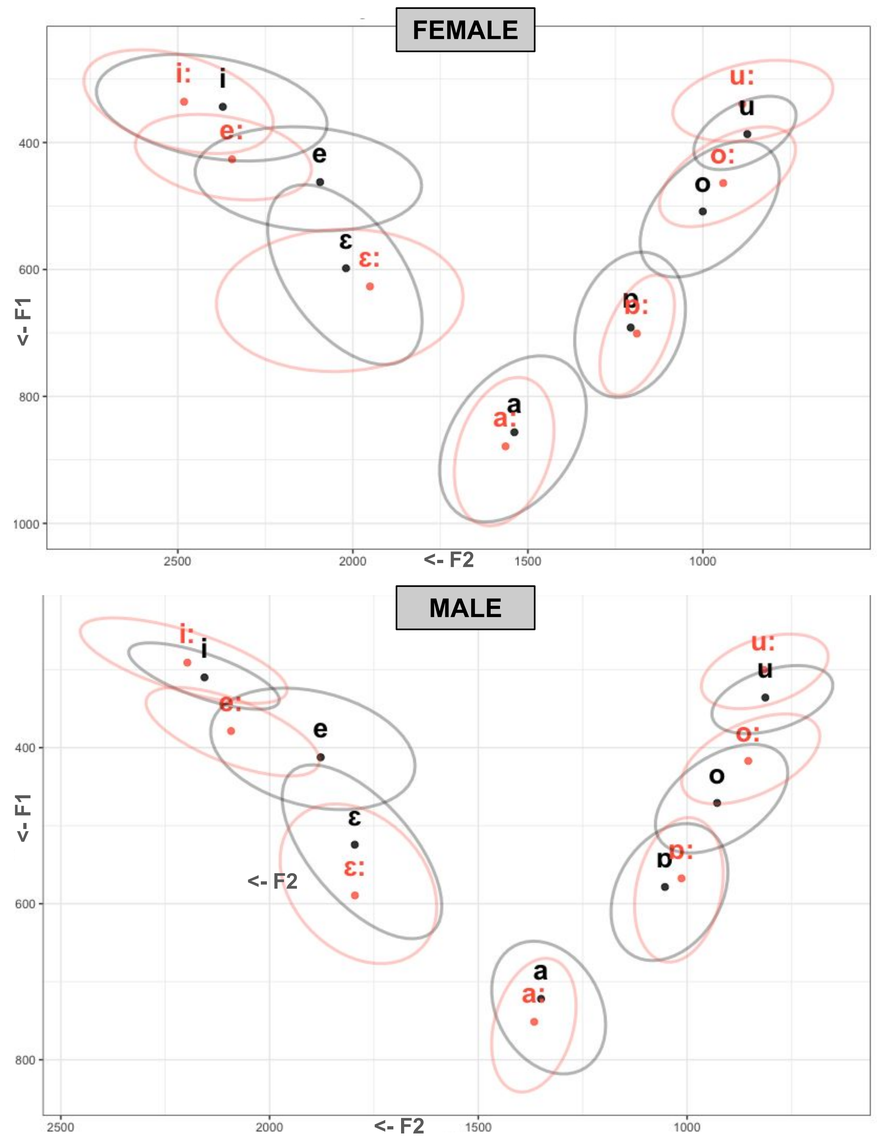
- **35 participants** (23F, 12M; 20-86 y.o.)
- **209 tokens** across **52 sentences** written in dialect with orthography developed in consultation with a native speaker

  Example: Fir di Probe miasmor heit zumittog an Raum unmiatn

- Recordings were manually segmented and formant tracking was done with FastTrack (Barreda, 2021).
- Monophthong measurements were taken at **midpoint**; diphthong onsets and offsets were taken at **20%** and **80%** points respectively
- Pillai scores calculated to assess distribution overlaps

Predicted Inventory	
Short (7)	i, u, e, ɛ, o, ɒ, a
Long (7)	i:, u:, e:, ɛ:, o:, ɒ:, a:
Diphthong (9)	ai, au, ia/iə, ua/uə, ea, ei, oa, ou, ui

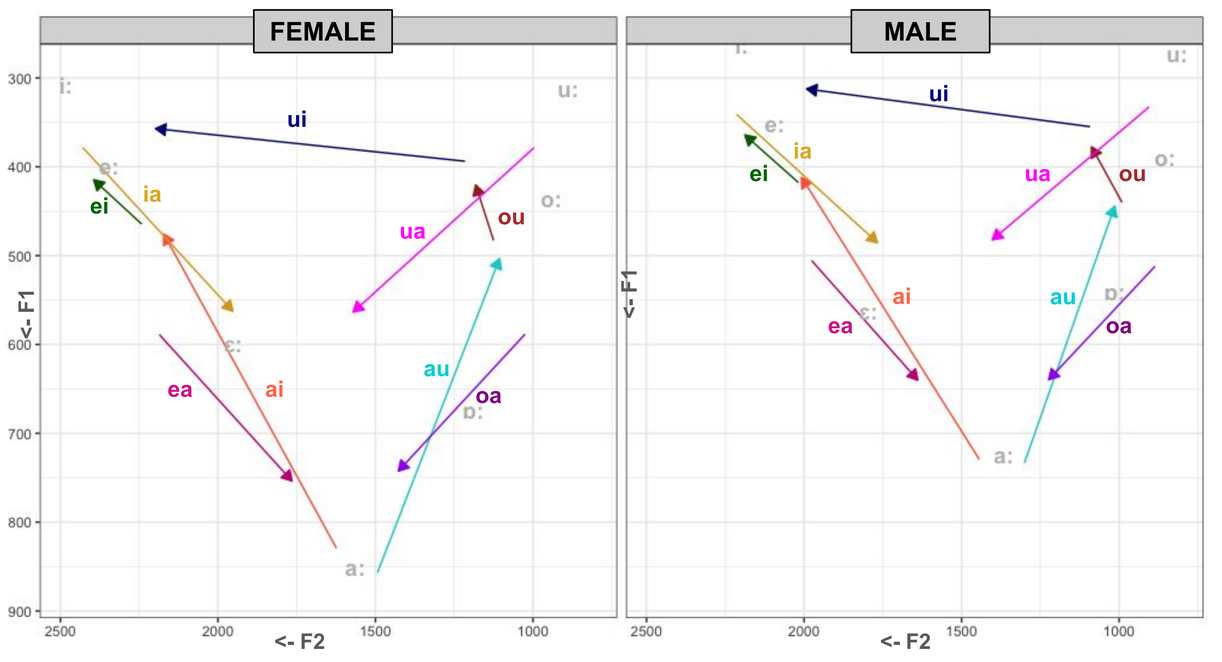
Results: Monophthongs



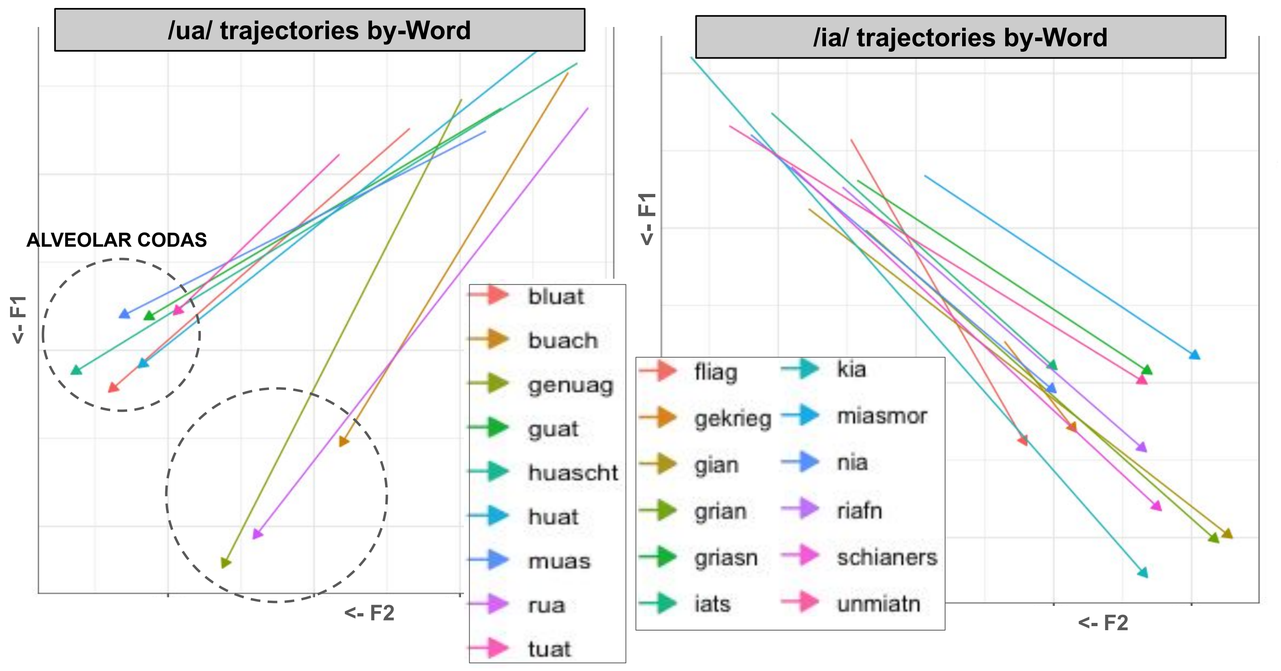
- Distinct distributions for:
  - /ɛ:/-/ɛ/-/e:/-/e/
  - /ɒ:/-/ɒ/-/a:/-/a/
- Vowel length contrast is durational, not qualitative
  - Long vowels were on average **44% longer** than short vowels
  - Low Pillai scores show low distinctiveness

Pair	Pillai	Cat.	Dur Ratio
/i:/-/i/	0.030	Low	1.96
/u:/-/u/	0.200	Mid	1.84
/e:/-/e/	0.286	Mid	1.98
/ɛ:/-/ɛ/	0.055	Low	1.55
/o:/-/o/	0.053	Low	1.38
/ɒ:/-/ɒ/	0.022	Low	1.45
/a:/-/a/	0.015	Low	1.43

Results: Diphthongs



- There were no instances of /oi/ found
- /ei/ and /ou/ not monophthongized to /e:/ and /o:/, despite shorter trajectories in some items



- Higher and fronter onsets for words with alveolar coda consonant - is /ua-uə/ variation *predictable*?
- /ia/-/iə/ variation not predictable by context, duration, or onset frequency

Conclusions

Vowel length is purely durational
- The large degree of overlap in the distribution of long and short vowels indicates that **vowel length is purely a durational contrast**, not linked to a tense-lax distinction like in Standard German.

/ɛ/ and /ɒ/ are distinct qualities
- As shown through distinct vowel and duration distributions, there appears to be both **four-way /e:/-/e/-/ɛ:/-/ɛ/ and /a:/-/a/-/ɒ:/-/ɒ/ distinctions**

Diphthong variation
- Previous descriptions stated /ua/-/uə/ were in free variation. However, because more centralized offsets reliably occurred before alveolar codas, this **could be evidence that /ua/ variation is predictable**. Contrastively, there is **little to no pattern between the two offset groups for /ia/**, despite /ia/ and /iə/ being positional allophones in a nearby dialect
- When comparing diphthongs to long vowels there was **no evidence for complete monophthongization**

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