THE PHONETICS AND PHONOLOGY OF FOCUS MARKING
An Integrated Perspective

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SFB 1252 PROMINENCE IN LANGUAGE

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BACKGROUND

Gradience [1]

Choice of category ~ phonological

Physical realisation ~ phonetic

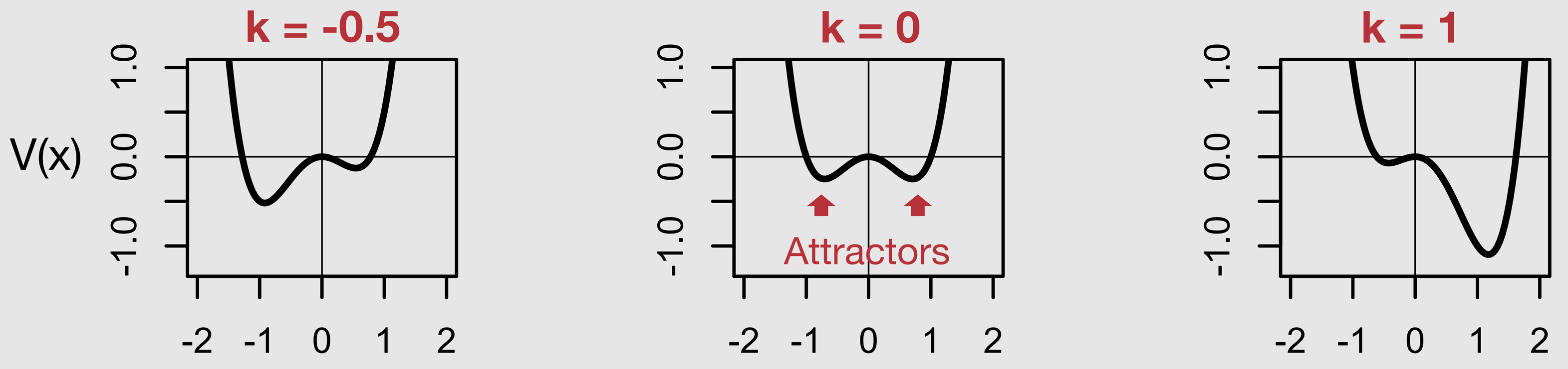
Previous work on nuclear pitch accents in German focus marking: Phonological + phonetic gradience seem to go in the same direction [2, 3].

Describe phonological + phonetic gradience in unified system?

DYNAMICS

Dynamic systems help to understand categories as attractors [4].

Everything in a dynamic system is continuous, but there are special stable states the system moves to.



$$V(x) = x^4 - \mathbf{k}x^3 - x^2$$

Control parameter **k** can be scaled to change the attractor landscape.

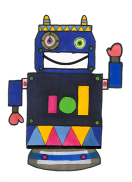
Dynamic systems have been used to model phonetic and phonological variation [e.g. 5, 6, 7, 8].

RESEARCH QUESTION

Can an attractor-based account model the phonological + phonetic gradience found in German focus intonation?

DATA

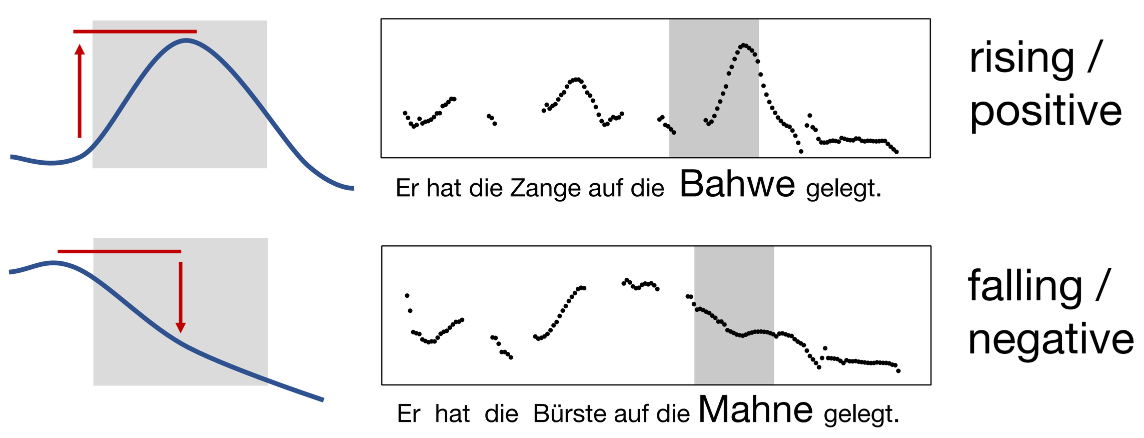
27 native German speakers produce focus structures in a game-like task.



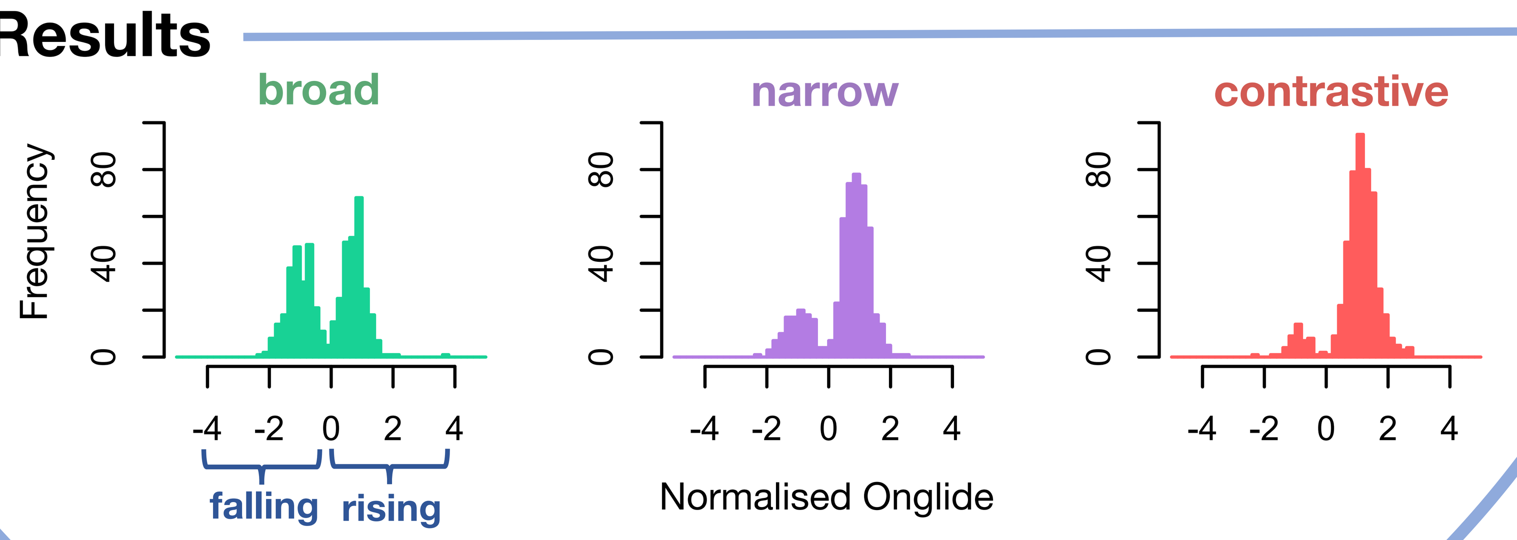
Sentence structure held constant, e.g. “Er hat den Hammer auf die Wohse gelegt”.

3 focus types: broad, narrow, contrastive

Measure:
Tonal Onglide
Speaker-normalised



Results

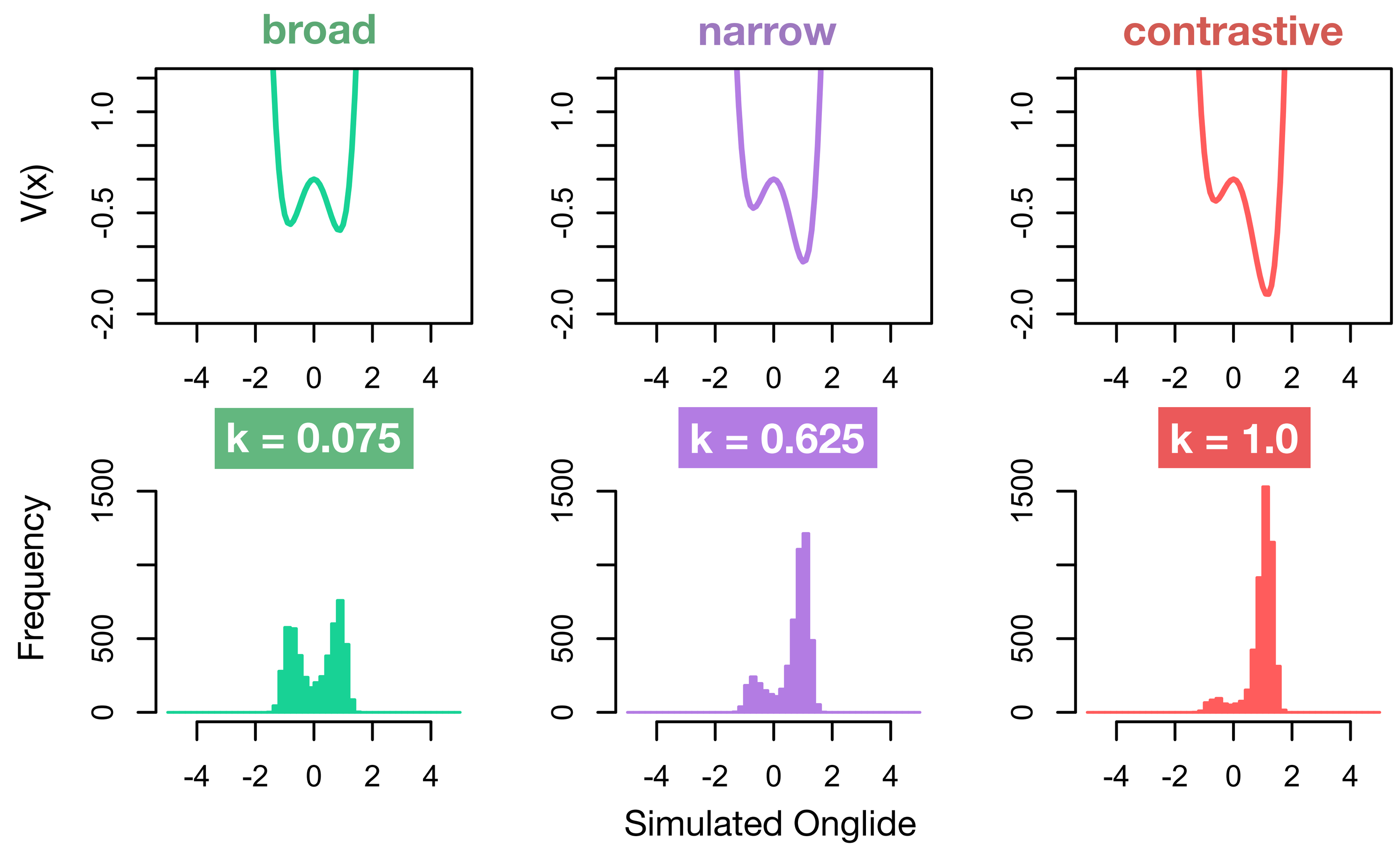


SIMULATION

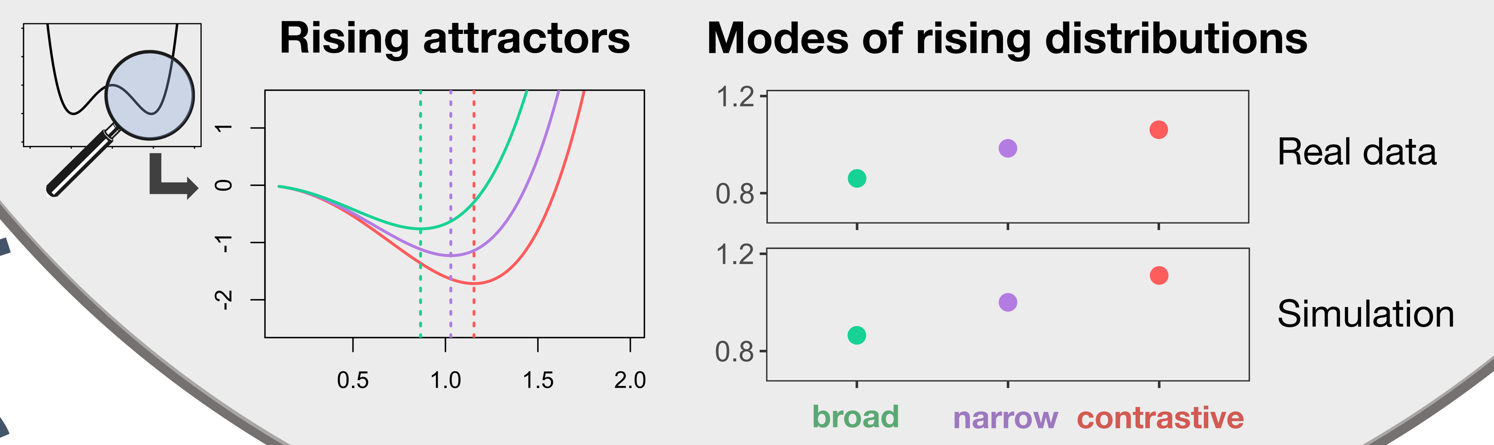
Code based on [9], implemented in R & C++.

Find best **k** by calculating overlap with real data.

$$V(x) = 1.4x^4 - \mathbf{k}x^3 - 2x^2$$



Phonetic gradience: Scaling of rising onglides



CONCLUSION

Nuclear pitch accents of our focus data can be modelled in a dynamic framework.

Both phonological and phonetic variation is accounted for in a unified system.

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