Running or speed-walking?
Simulations of speech production at different rates
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1 BACKGROUND
Speakers can vary their speaking rate at will. How do they do this?
Presumably, different cognitive ‘regimes’ are engaged to produce different speaking rates.
How do these cognitive regimes relate to each other? Possibilities:
- Regimes entirely discrete (and differ qualitatively)
- Regimes qualitatively similar (and differ quantitatively)
- mixture (‘gaits’ of speech planning)
Our approach: construct a computationally implemented model of speech planning, model parameters ≈ cognitive dimensions

2 CONNECTIONIST MODEL

3 SPEECH CORPUS
Multiple picture naming (Dutch disyllables) to elicit controlled productions at three speaking rates.

4 PARAMETER LEARNING

5 HOW DID MODEL VARIANTS PERFORM?

6 ARE GAITS PRESENT?
- Model learns to fit temporal properties of speech.
- Evidence for two gaits: a ‘dawdle’ gait for slow speaking, and a ‘walk’ gait for medium and fast speaking rates.

7 CONCLUSIONS