

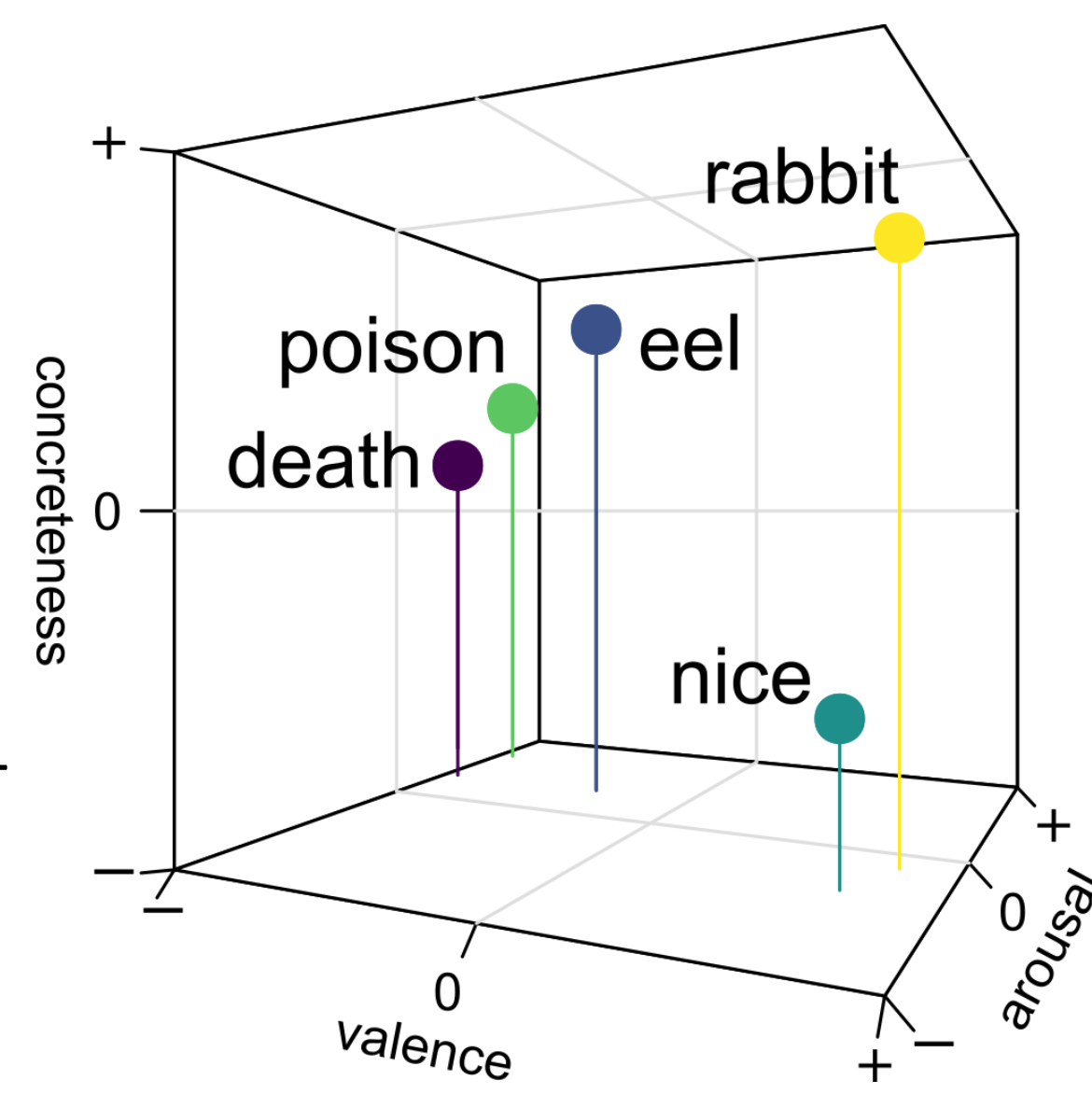
Long-term effects of valence, concreteness, and arousal on lexical reproduction

Does long-term population-level behavior of words mimic small-scale emotional cognitive biases?

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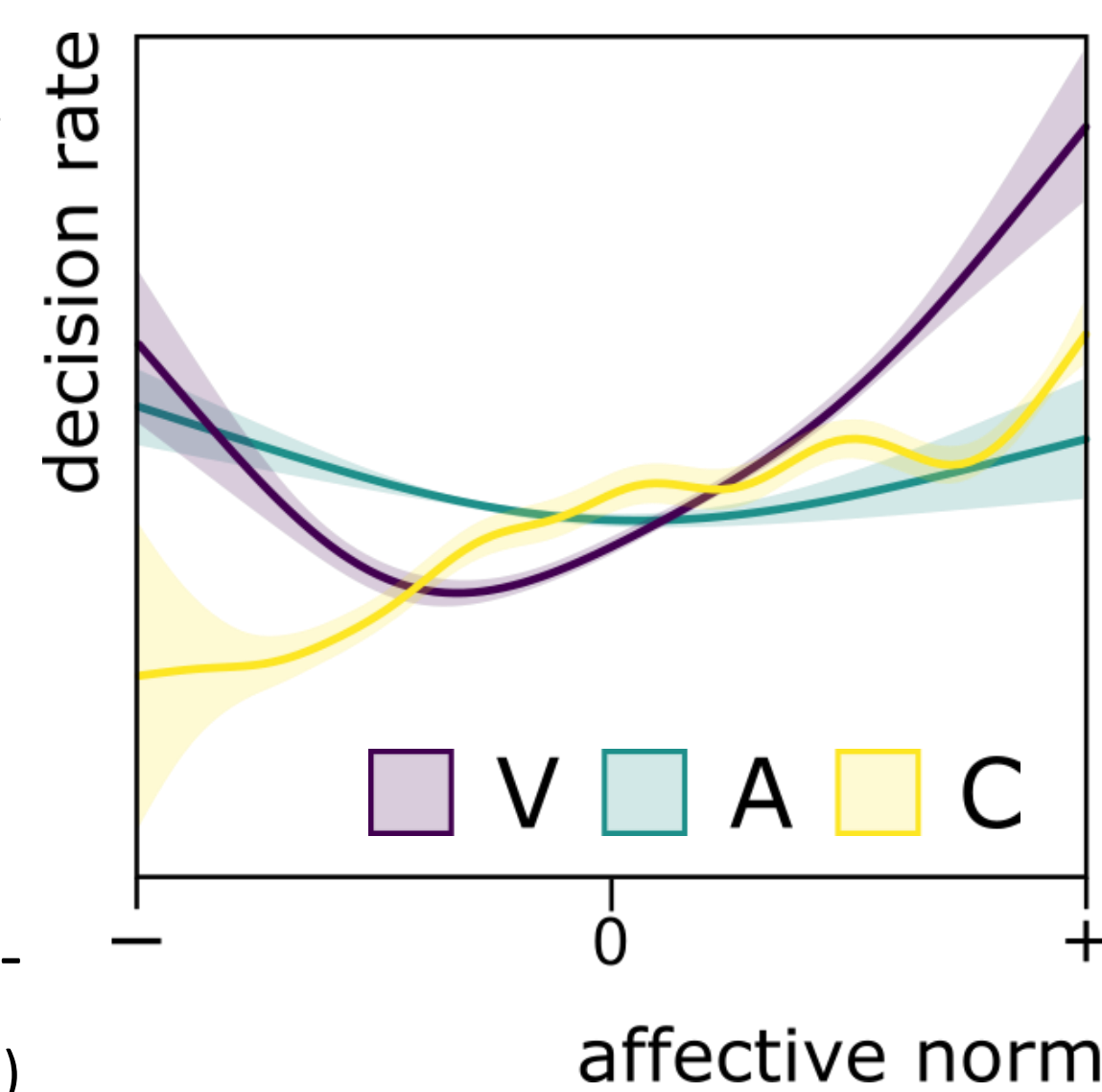
Affective dimensions of words

- × The **emotional content of words** can be modeled by means of affective dimensions (Russel 1980)
- × **Valence, arousal** and also **concreteness**
- × **Data:** crowd-sourced affective and concreteness norms (Warriner et al. 2013; Brysbaert et al. 2014)



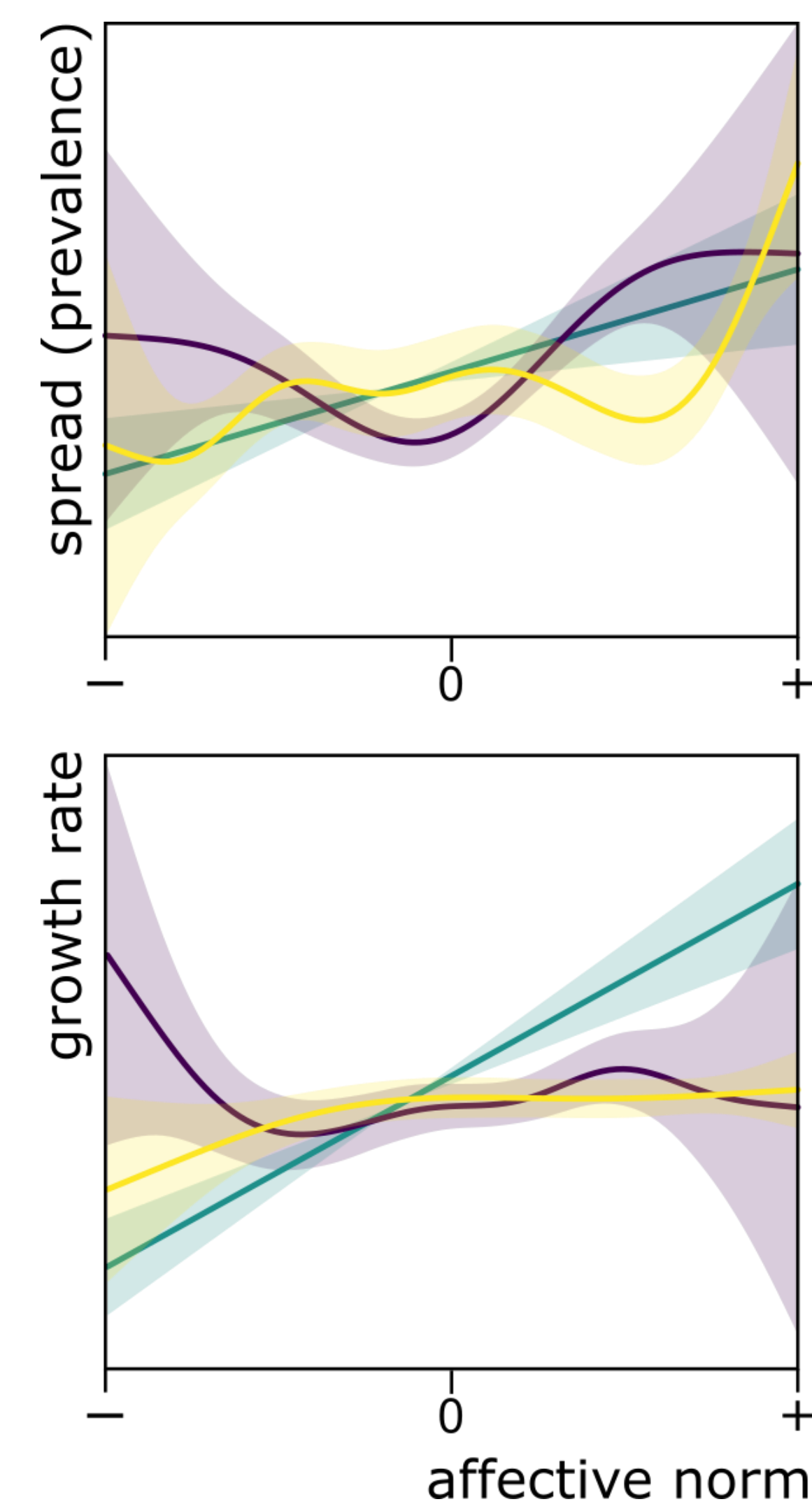
Small-scale processing biases

- × Affective dimensions induce **biases** on lexical processing (Kuperman et al. 2014)
- × Bias for **positive/negative** words
- × Bias for **concrete** words
- × **No clear arousal bias**
- × **Data:** RT from LDT (lexical decision task), English Lexicon Project (Balota et al. 2007)



Lexical reproduction: long-term behavior in populations

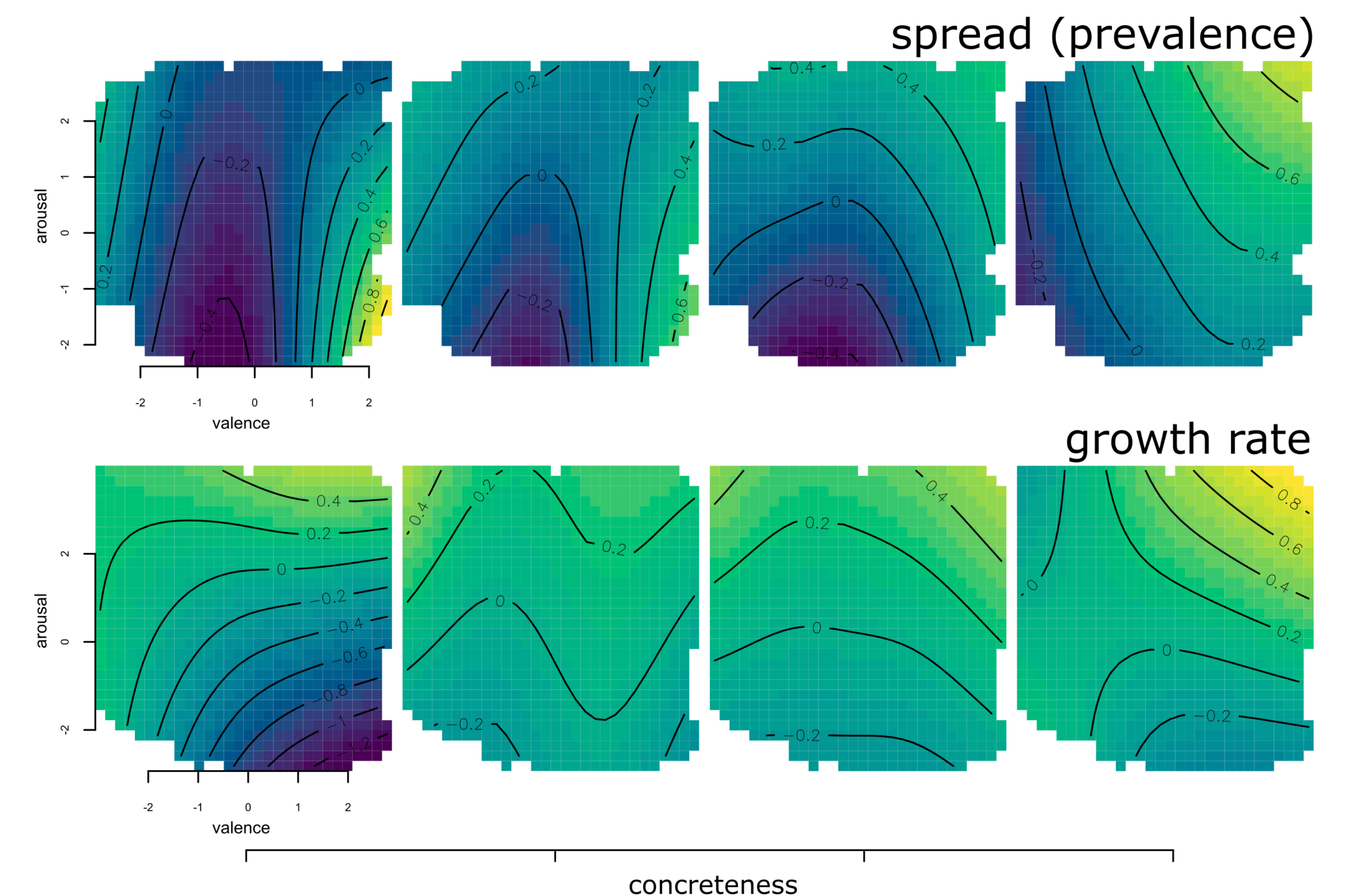
- × Words are **transmitted** through speaker populations and across generations (Croft 2000; Ritt 2004)
- × Words show differential **reproductive** success: some words spread, others vanish
- × Do the effects of emotion on lexical processing mimic **effects of emotion** on the reproductive success of words?
- × Two ways of **measuring** reproductive success:
 - × **Growth rate:** growth/decline in diachronic frequency development: COHA, 1960-2010, controlled for semantic change (Davies et al. 2010; Kutuzov et al. 2017)
 - × **Spread:** equilibrium prevalence of words in the speaker population; diachronically stable words (Kuperman et al. 2012; Brysbaert et al. 2019)
- × **Methods:** Generalized additive models with VAC as smooth predictors (Wood 2017)
- × **Results:** mildly **positive/negative** effects of valence, **concreteness bias**, but **advantage for high arousal** of words!



■ Valence
■ Arousal
■ Concreteness

Explaining the mismatch: interactions or age-specific effects?

- × Can this mismatch be accounted for by interactions among affective dimensions?
- × Effect of arousal is **generally positive** except for positive and abstract items (calm words like *belief* and *spirituality* are more widely used than words like *hope* and *luck*—does this have socio-cultural reasons?)
- × Is it that enforcing effects of arousal are **more prominent in children** (which could explain the mismatch between adult LDT and population-level observations)? (cf. Bahn et al. 2018)



Not always. Valence and concreteness show consistent effects, but arousal enforces lexical reproduction.