

Contextual Characteristics of Concrete and Abstract Words

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Take Home Message

In comparing concrete and abstract words, **Distributional Semantics** is not completely in line with **Grounding Theories** of cognition

- ✓ concrete words
- ✗ abstract words

We show that:

- Distributionally similar words have a similar range of concreteness scores (**Study 1**)
- Target and context words share similar concreteness scores both at type (**Study 2**) and token level (**Study 3**)
- Concrete targets have more variable contexts (concreteness) than abstract targets (**Study 3**)

Concrete vs. Abstract Words

Grounded Theory of Cognition → Both concrete and abstract words should co-occur with concrete words:

- Concrete: grounded in the sensory motor system
- Abstract: mapped to concrete concepts

Distributional Hypothesis → Represent the meaning of a word in terms of its linguistic context

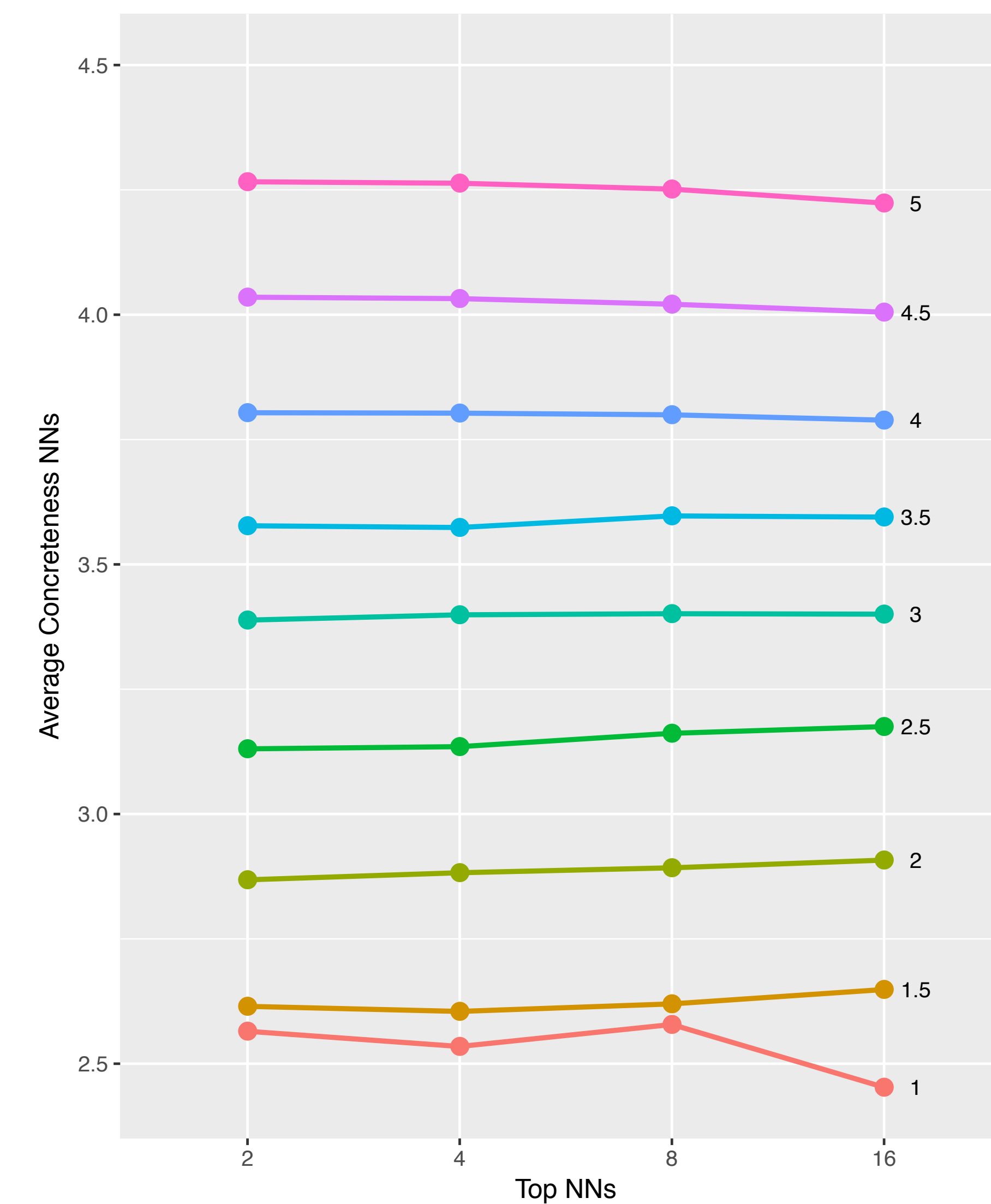
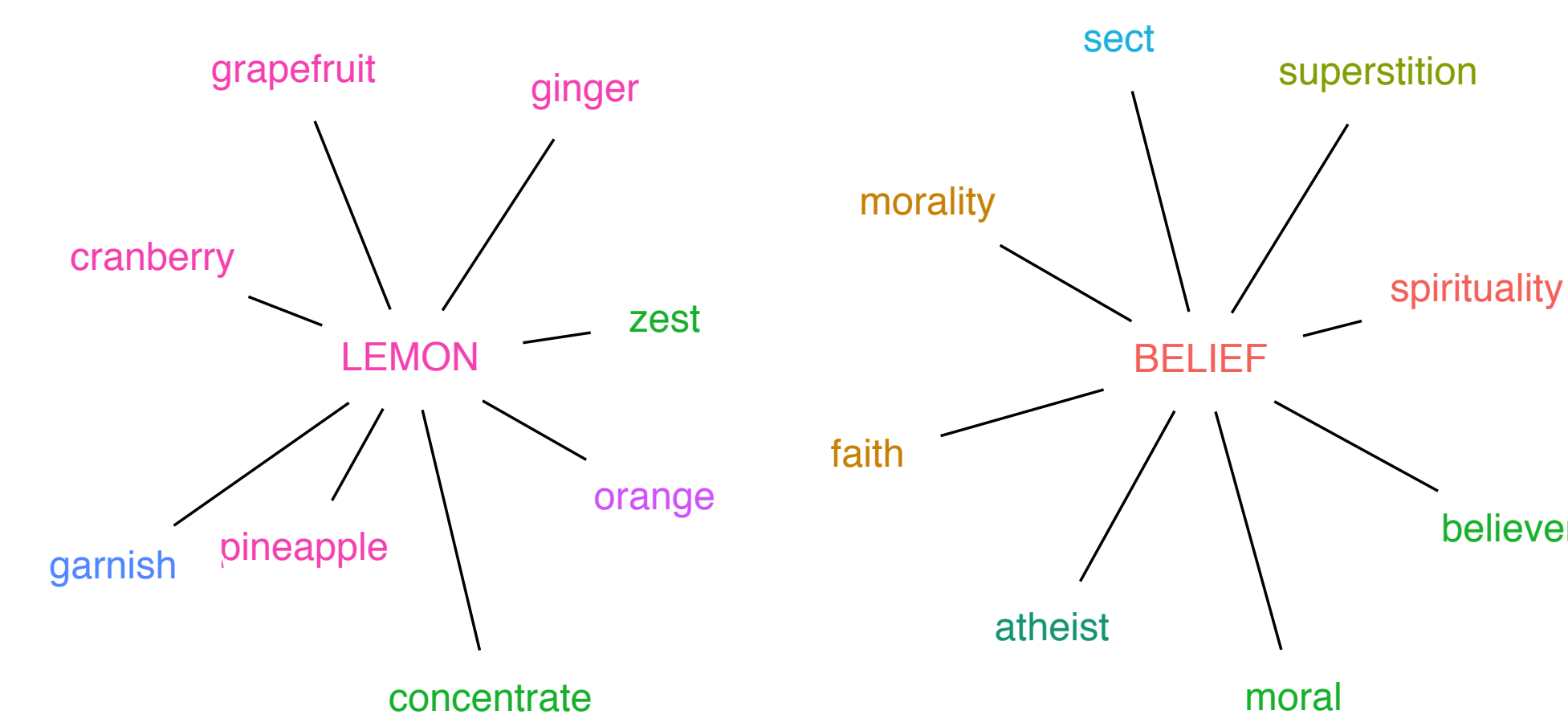
- Targets as vectors of co-occurrences
- Cognitively plausible representation

Materials

- 9,241 target nouns
- 9,241 context nouns (dimensions)
- Measures:
 - Co-occurrences: ENCOW14A corpus with symmetric window ± 20
 - Concreteness scores: 1 - 5 (Brysbaert et al., 2014)

Study 1: Concreteness in Distributionally Similar Words

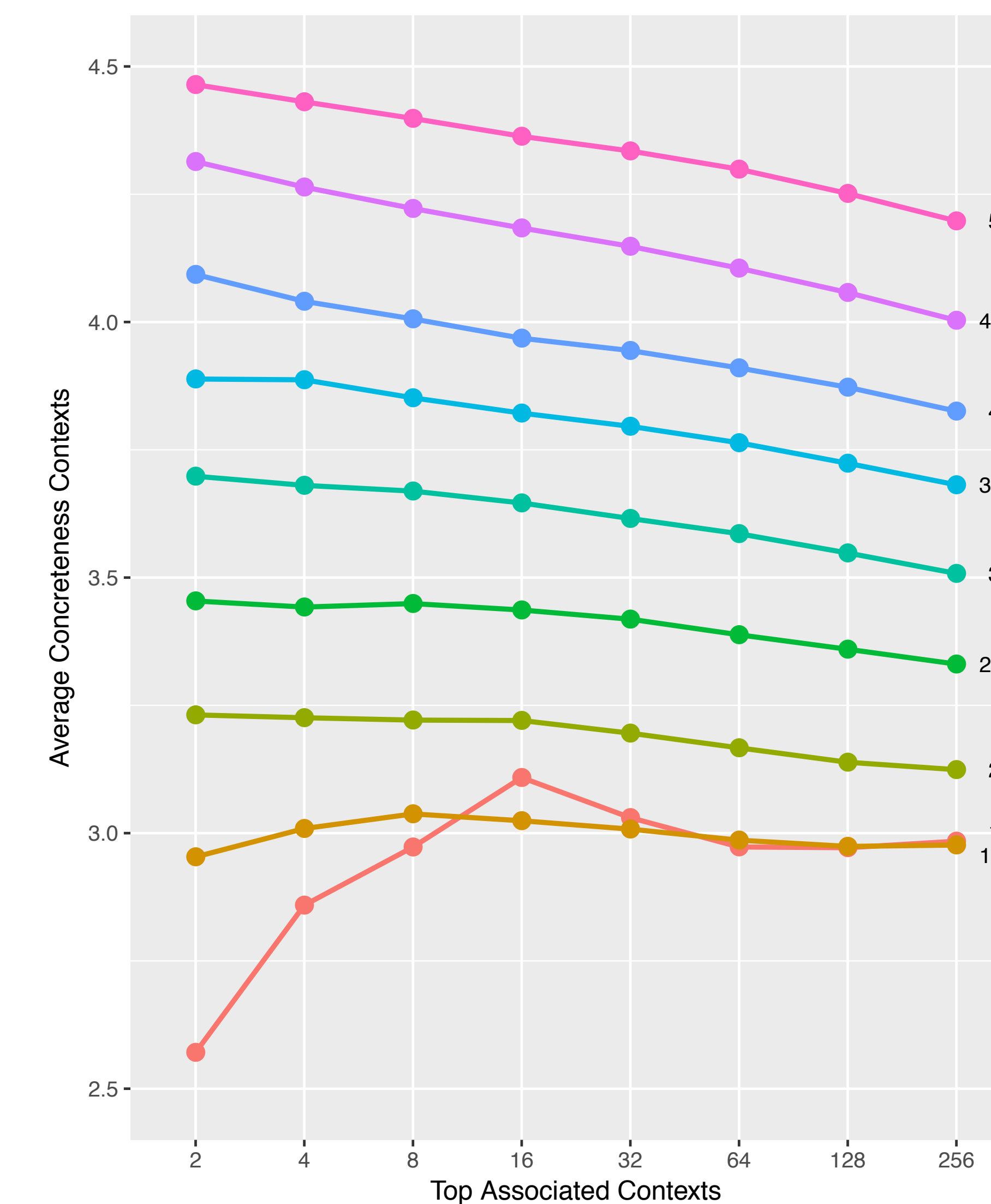
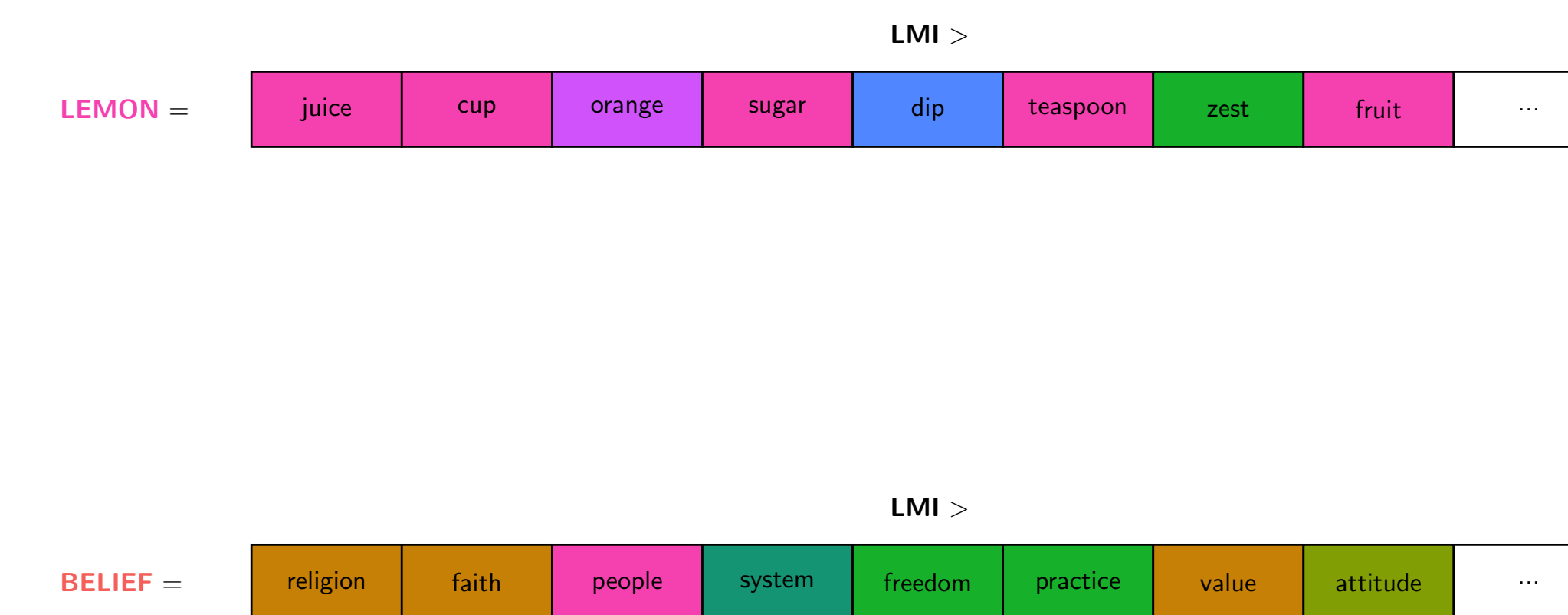
Do distributionally similar words have also similar concreteness scores?



Increasing concreteness of target → increasing concreteness of the nearest neighbours (NNs)

Study 2: Concreteness of Context Words - Type Level

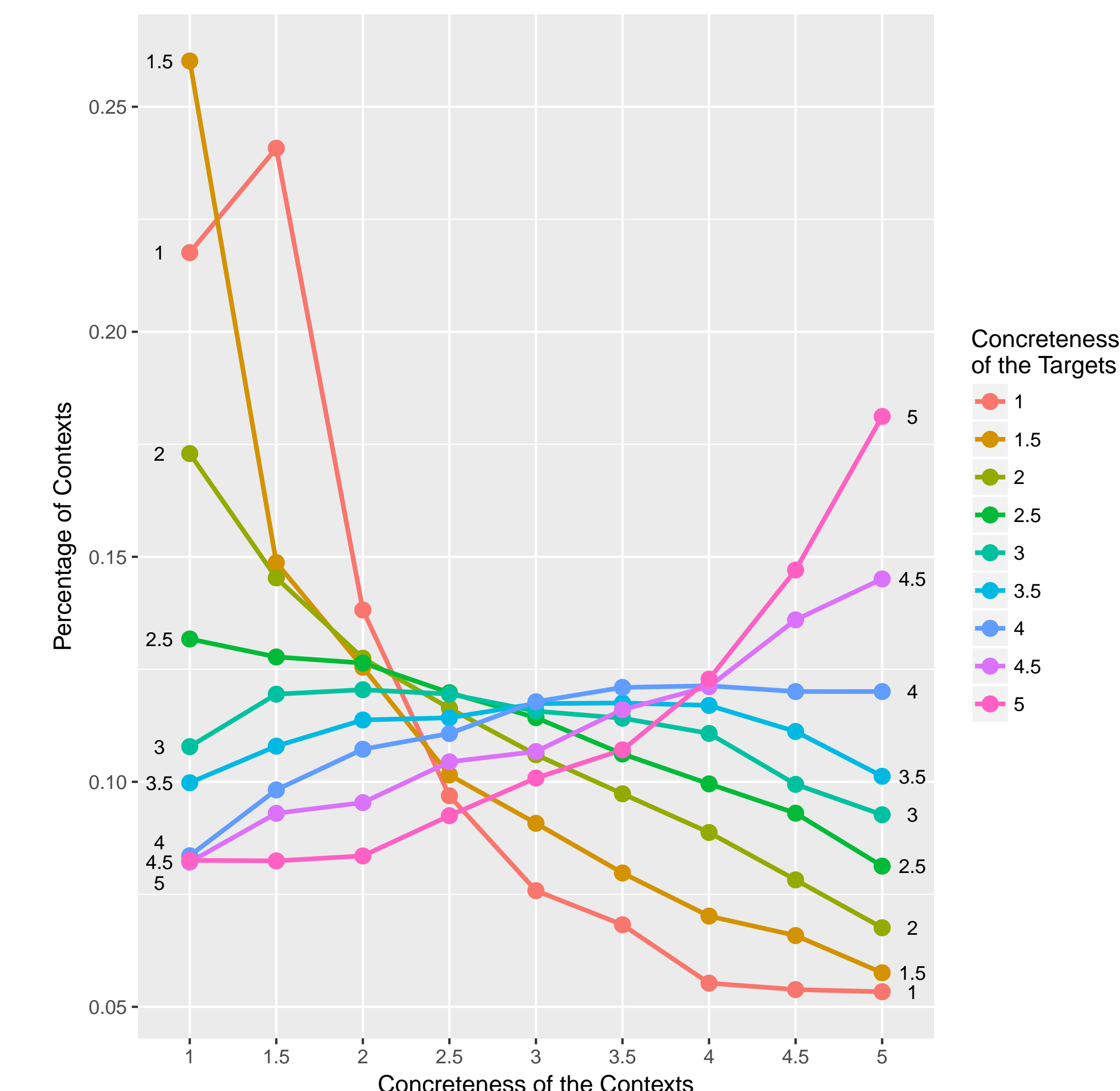
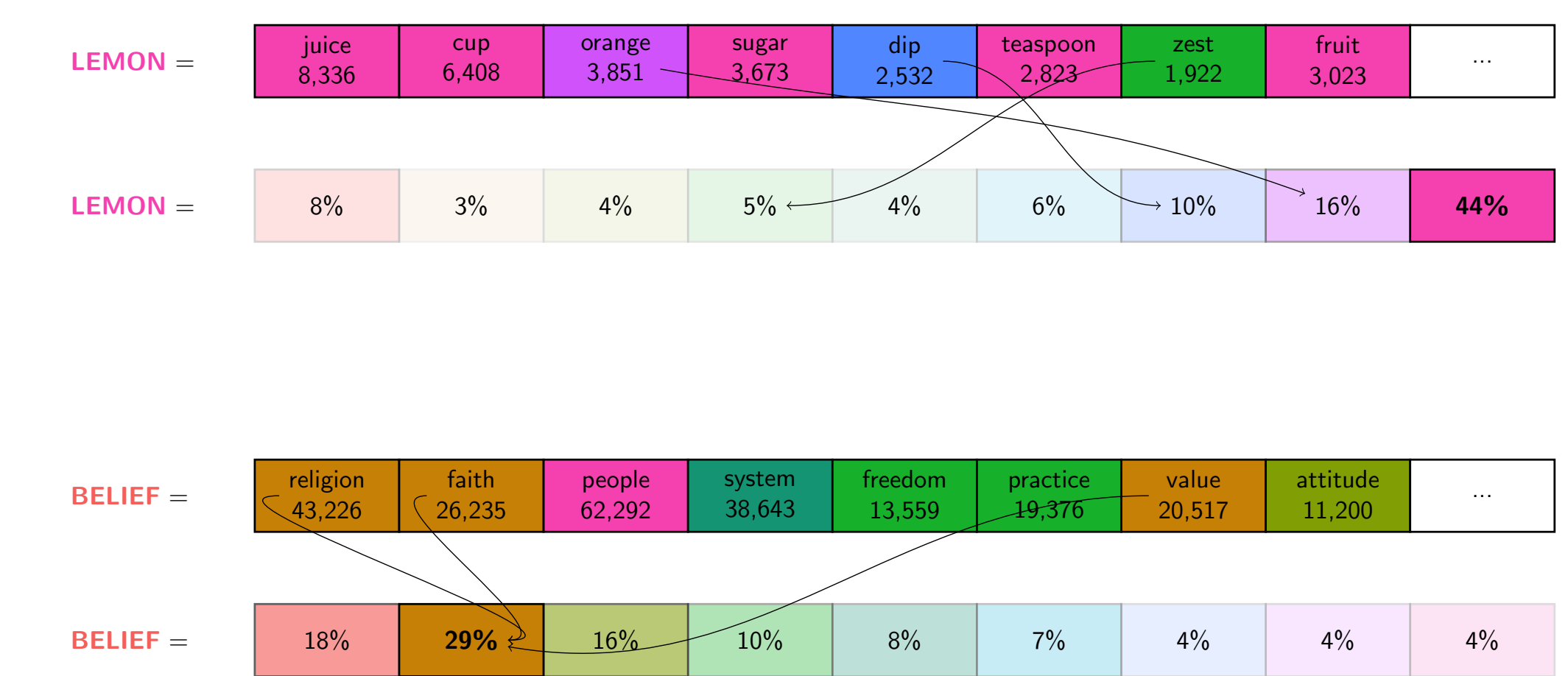
What is the nature of the contexts of concrete and abstract words?



Increasing concreteness of target → increasing concreteness of their context

Study 3: Concreteness of Context Words - Token Level

What is the nature of the contexts of concrete and abstract words when considering their frequency?



Concrete words → mainly concrete contexts
Abstract words → mainly abstract contexts