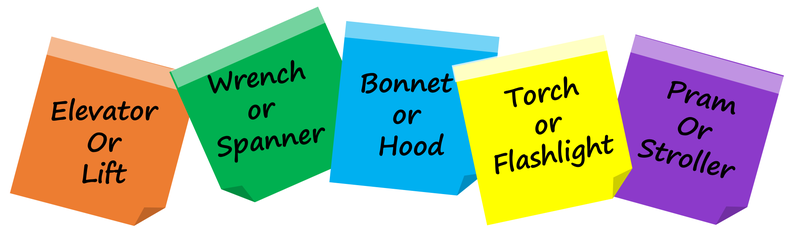
University of Dundee



Lexical competition is not dependent on picture familiarization: evidence from codeability effects

Alissa Melinger, University of Dundee a.melinger@dundee.ac.uk

Introduction

Picture naming experiments typically familiarize participants with the stimuli prior to testing.

Gauvin, et al. (2018) recently demonstrated that semantic interference in the picture-word interference paradigm (PWI) depends on the familiarization phase of the experiment.

Nozari & Hepner (2018) suggest that familiarization may also be key to **codeability effects**, as familiarization prioritizes accuracy over speed.

Codeability effects: pictures with low name agreement are named more slowly than pictures high name agreement.

Question 1: Is familiarization necessary to observe codeability effects?

Origins of Name Agreement

Name agreement refers to number of different labels participants give to an image. High name agreement means most speakers provide the same label for a picture. Low name agreement means different speakers provide different labels.

Low name agreement can have different origins.

- *Shortening*: airplane – plane; frying pan – pan
- *Misidentification*: hamster – gerbil; beer – pint
- *Synonymy*: sofa – couch; taxi – cab
- *Dialectal differences*: nappy – diaper; tin – can
- *Register differences*: cigarette – fag; house – gaff

Different origins of low name agreement may arise from different processes. Vitkovitch & Tyrell (1995) found misidentification and shortenings did not result in slower naming while synonymy did.

Participants rarely offer sociolinguistically-marked picture names in experimental contexts. Some pictures have high name agreement despite having valid alternative dialectal or register label.

Question 2: Do dialectal alternatives slow picture naming, producing codeability effects?

Predictions

Q1: If familiarization prioritizes accuracy over speed, we should see codeability effects only with familiarization. If competition from alternative labels is automatic, codeability effects should be observed even without familiarization.

Q2: If dialectal alternatives are automatically activated and compete for selection, they too should produce codeability effects, even for 'high agreement' pictures.

Stimulus Creation

- 72 pictures, 24 from each picture type (dialectal, synonym, and high agreement), were selected.
  - Dialectal items taken from British – American varieties
- Preferred labels were identified in a norming study. Labels were matched for lexical variables, see Table 1.

Variable	Dialectal	Synonymous	High Agreement
T Frequency	3.8	3.9	4.07
# Syllables	1.75	1.62	1.79
# Phonemes	4.5	4.5	4.3
Familiarity	435	535	546
C Frequency	2.9	3.7	

Table 1. Mean values for zipf frequency, syllable and phoneme length, familiarity for target words in each picture type and competitor zipf frequency.

- Images were scaled and embedded onto grey background, see Fig 1.

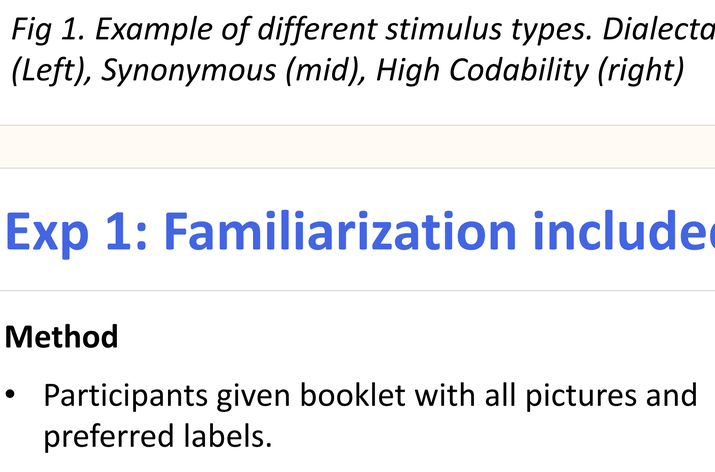
Fig 1. Example of different stimulus types. Dialectal (Left), Synonymous (mid), High Codability (right)

Exp 1: Familiarization included

Method

- Participants given booklet with all pictures and preferred labels.
- Familiarization phase followed by practice session. Naming errors were corrected by experimenter.
- 32 British participants named each picture 2x
- Responses were checked for accuracy with CheckVocal. Only target responses were included in the analysis

Results



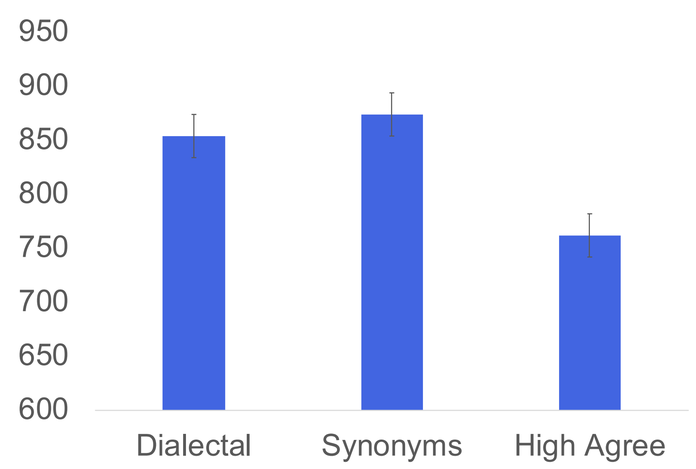
- Both dialectal and synonym pictures were named significantly slower than the high name agreement pictures (ps <.000)
- Errors were very low: 2% in the Dialectal condition, 6% in the Synonym condition, and 1% in the High Agreement condition (1%).

Exp 2: No Familiarization

METHODS

- Free naming; First presentation was a practice. No indication that certain labels were preferred.
- 30 British participants named each picture type 2 times.
- Responses were checked for accuracy with CheckVocal. Only target responses were included in the analysis

Results



- Both dialectal and synonym pictures were named significantly slower than the high name agreement pictures (ps <.000)
- Errors in the Dialectal condition (12%) and the Synonym condition (27%) were significantly higher than the High Agreement condition(2%). Synonym error rates also significantly higher than Dialectal condition.

Discussion

Codeability effects were observed with and without familiarization, contrary to the suggestion by Nozari & Hepner (2018). Even when accuracy is not prioritized, lexical competition is observed.

➢ Contrary to Gauvin et al (2018) lexical competition is observed without priming for endogenous competitors.

Codeability effects were observed for pictures with dialectal alternatives, despite being high name agreement stimuli.

➢ Consistent with Melinger (2018), endogenous dialectal competitors compete for selection

References

Gauvin et al. (2018). *QJEP*.
Melinger, A. (2018).. *Cognition*.
Nozari, N., & Hepner, C. R. (2018). *Cognitive Neuropsychology*.
Vitkovitch, M., & Tyrrell, L. (1995). *QJEP*

* This work was part of Chloe Unger, Kelsey McWhirtle, & Kelsey Waugh's final year projects with assistance from the fabulous Mindyourlanguage Research Assistants team.