

Online Experiments for Language Scientists

Lecture 9: Zipf's Law of Abbreviation

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Upcoming strike action, 24th, 25th, 30th November

Little impact on this course since we are basically done, but

- Might delay return of marks from Assessment 1 (due 1st December)
- I won't respond to emails on those dates
- (No drop-in labs on those dates)

Assessment 2 Q&A

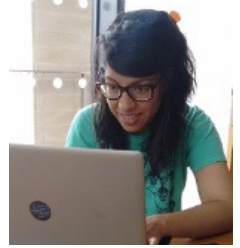
- Due on 8th December
- Read the assignment brief (<https://kennysmithed.github.io/oels2022/assessment/AssignmentBrief2022.pdf>)
- **Happy to answer questions now**
- We can help with basic coding stuff in extra drop-in labs (see times on github course page)
- No questions after 10am on Monday 5th December (other than in drop-ins)

Kanwal et al (2017)

Kanwal, J., Smith, K., Culbertson, J., & Kirby, S. (2017). Zipf's Law of Abbreviation and the Principle of Least Effort: Language users optimise a miniature lexicon for efficient communication. *Cognition*, 165, 45-52.

A dyadic interaction experiment using a miniature language

- Does Zipf's Law of Abbreviation arise from competing pressures to communicate accurately but efficiently?



Jasmeen Kanwal
(now at St Andrews)



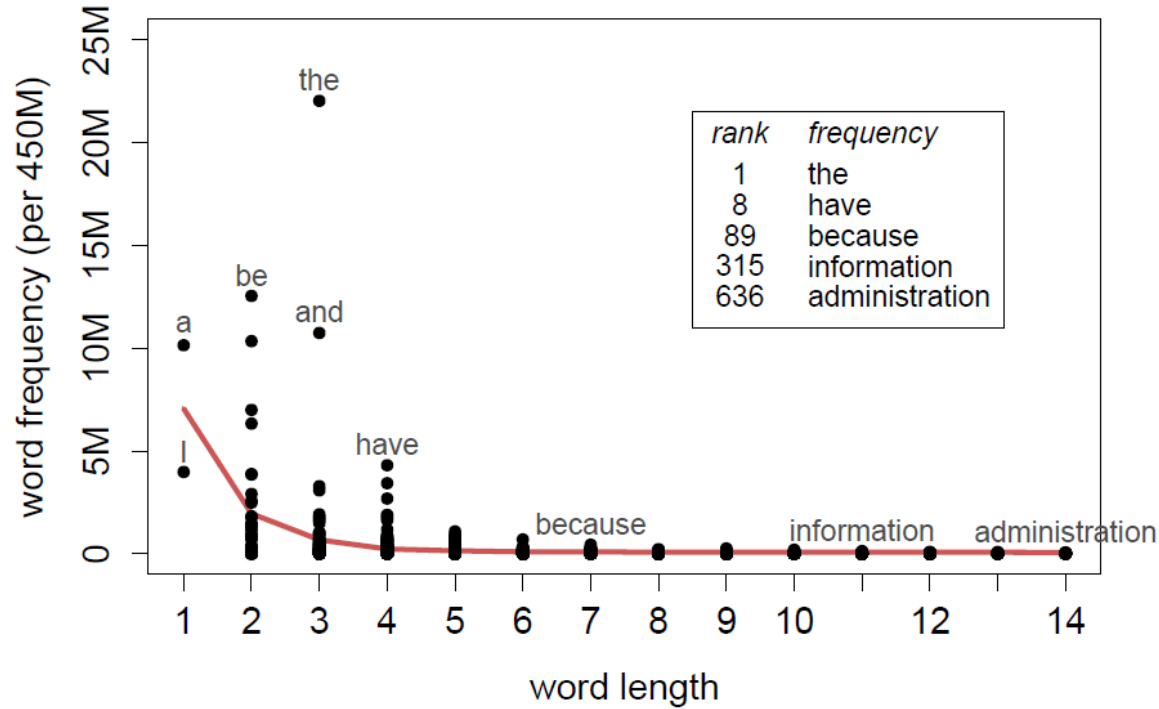
Jenny Culbertson
(Edinburgh)

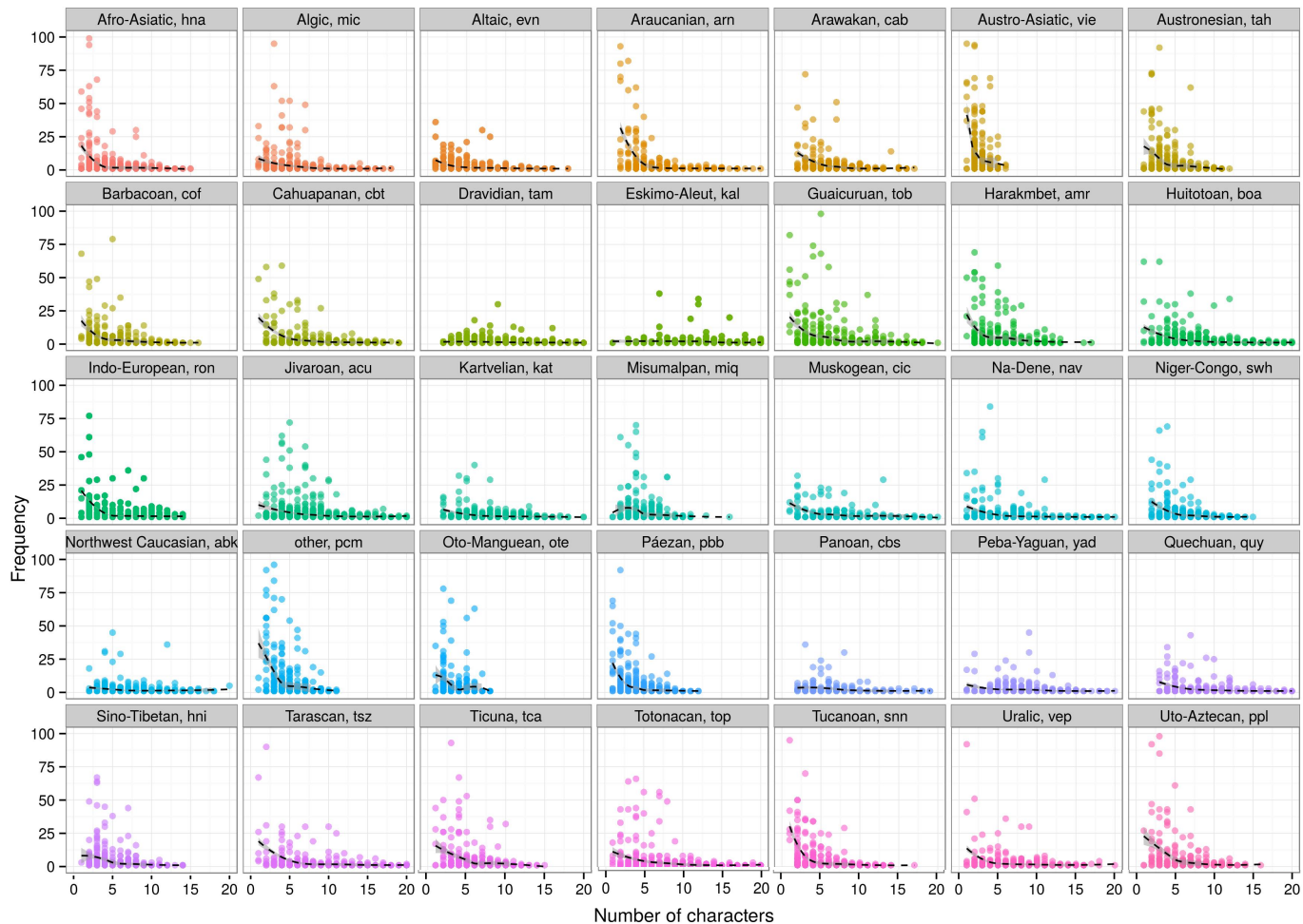


Simon Kirby
(Edinburgh)



Zipf's Law of Abbreviation: frequent words are short





Manipulating communicative need and production effort



zop x 4
zopekil x 4



zop x 12
zopoudon x 12

- Communicative task **or** asocial recall task
- Production effort depends on length **or** it doesn't

Waiting for partner

Choose a name to describe this object to your partner.



zopekil

zop

Production effort?

yes

no

Communication pressure

yes

Combined
condition

Accuracy
condition

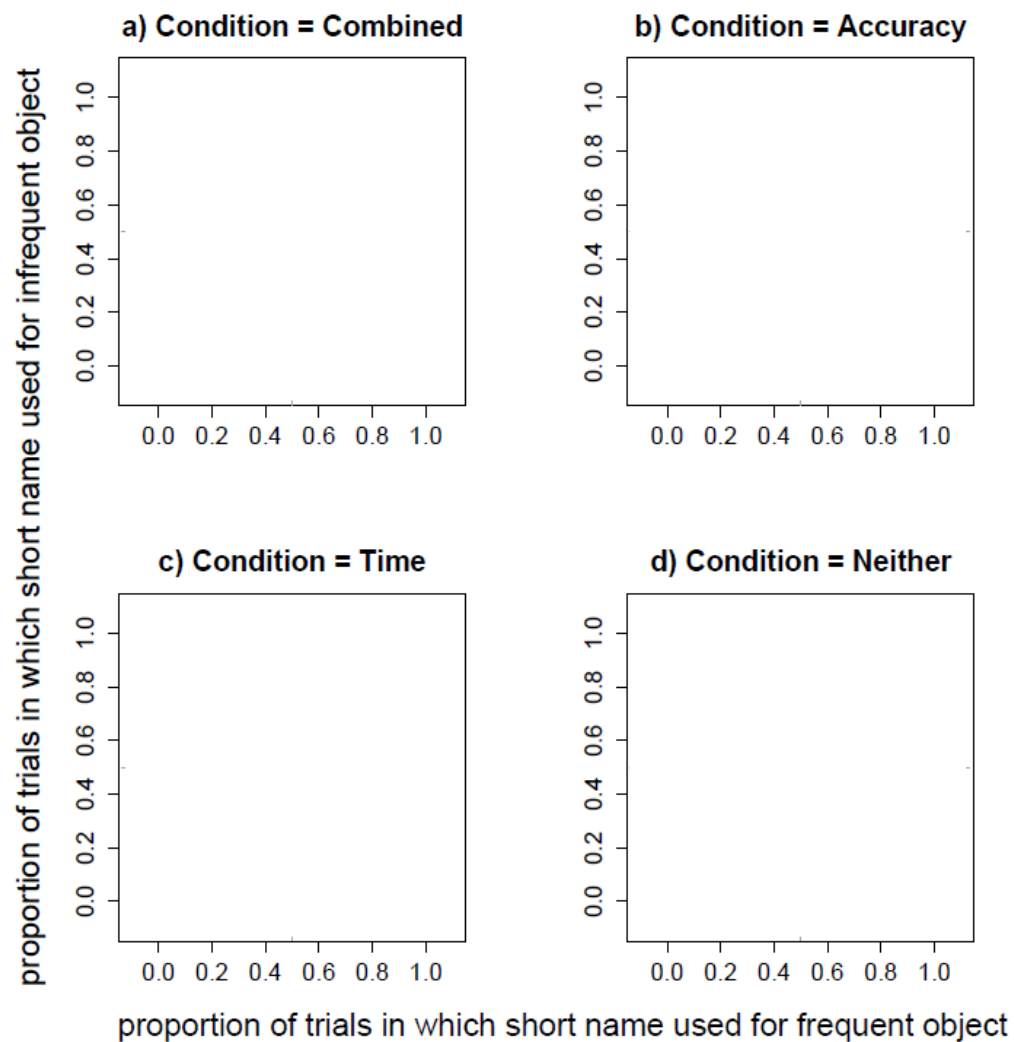
no

Time
condition

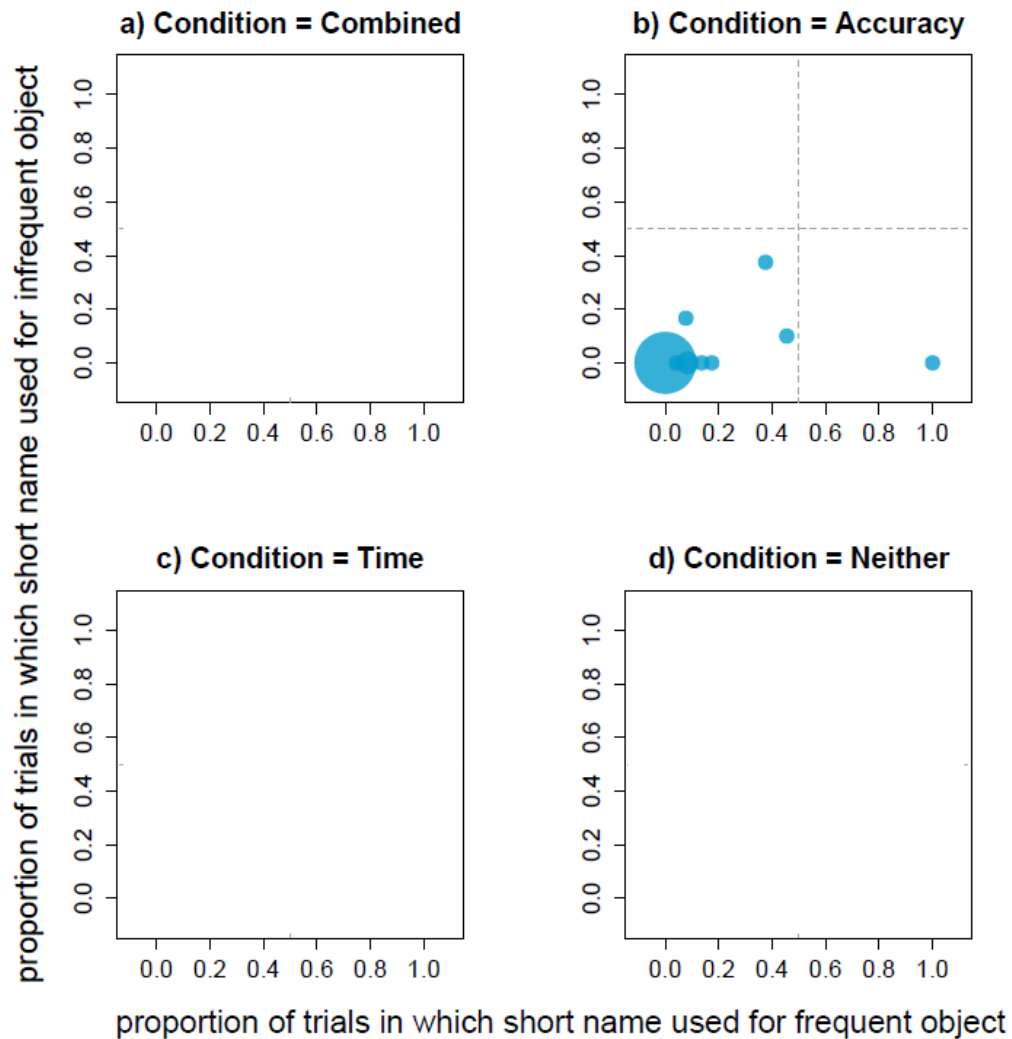
Neither
condition

	yes	no
yes	Combined condition	Accuracy condition
no	Time condition	Neither condition

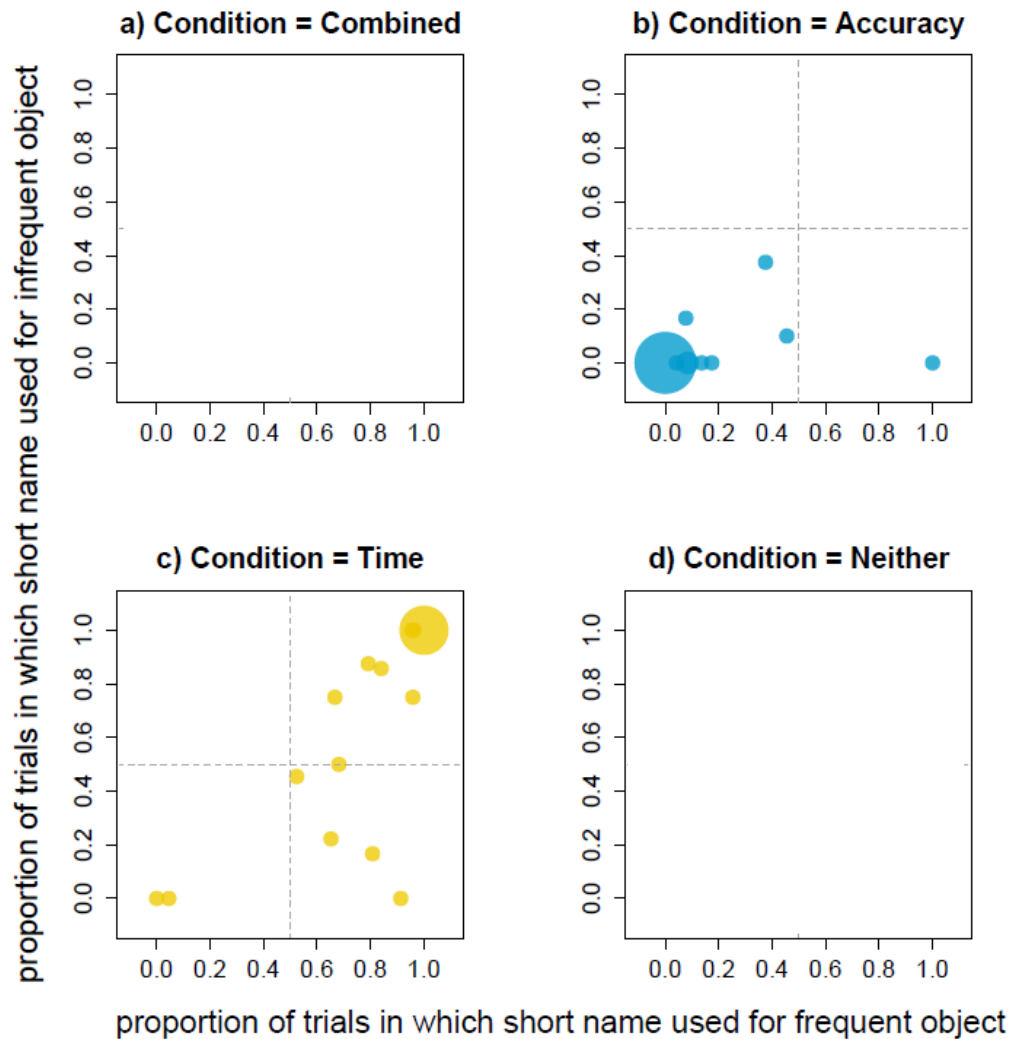
Results



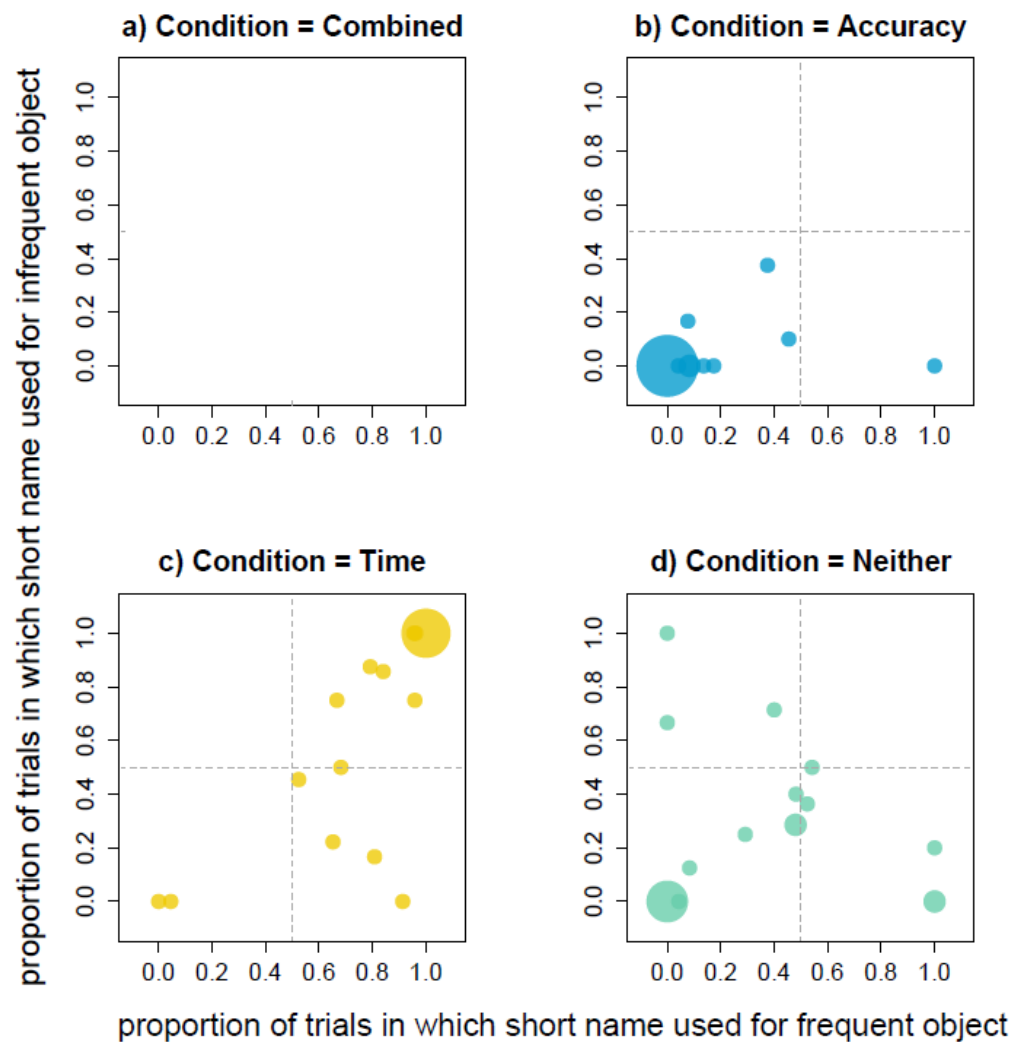
Results



Results



Results

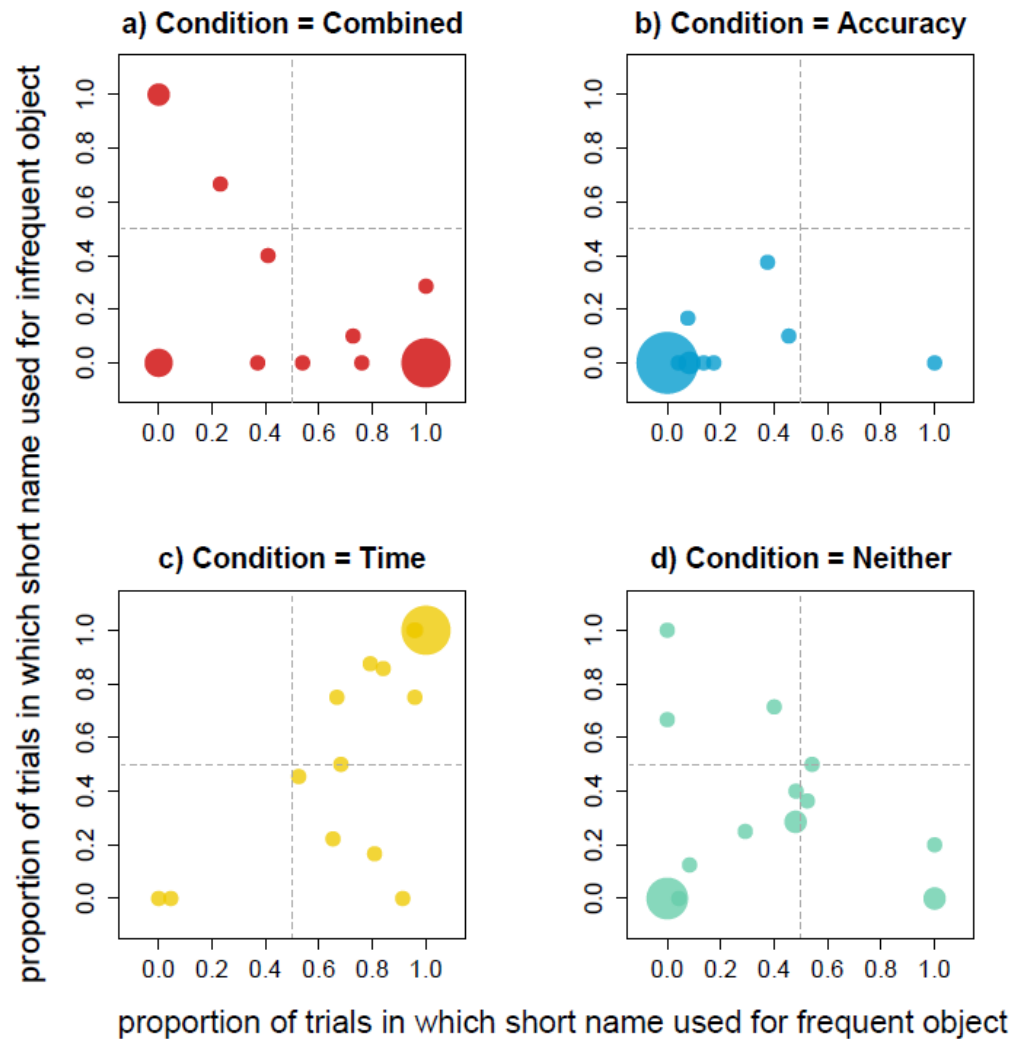


10

5

1

Results



Kanwal et al.'s conclusions

Zipf's law of abbreviation is a result of jointly optimizing competing pressures to communicate both accurately and efficiently

- Just accuracy or just efficiency is not enough

Time for additional Q&A/discussion on this week's reading

Next up

Wednesday, 9am: our last lab!

- A dyadic interaction experiment

Subsequently: optional drop-ins for debugging help with Assessment 2 code, see github page for details