What Did You Say? A Web-Based Validation of a Speech-In-Noise Task

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BeOnline 2021

Closed vs. Open-Set Tasks

- Open-set

PLAY

Closed vs. Open-Set Tasks

- Closed-set
  - Fall
  - *Ball*
  - Shawl
  - Wall

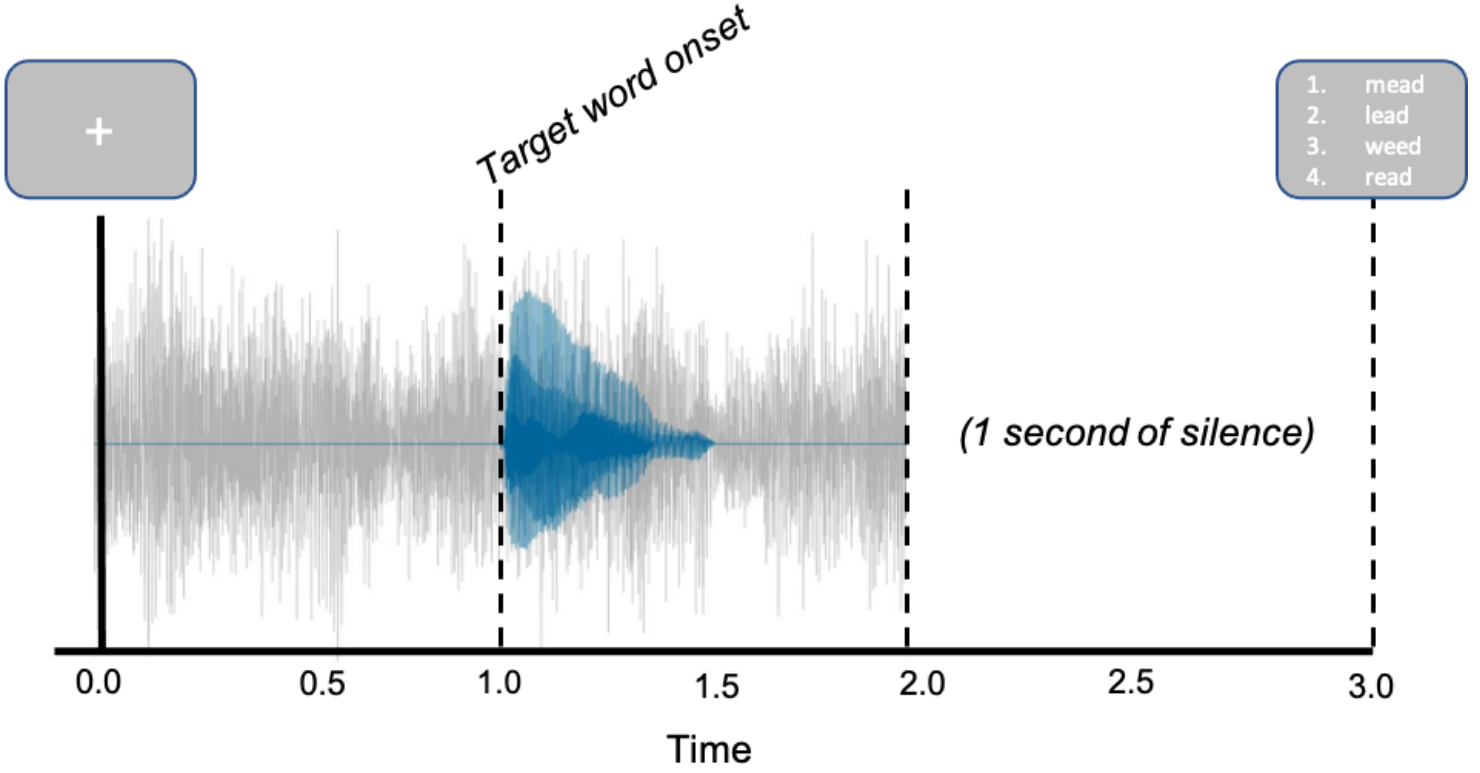
Issues

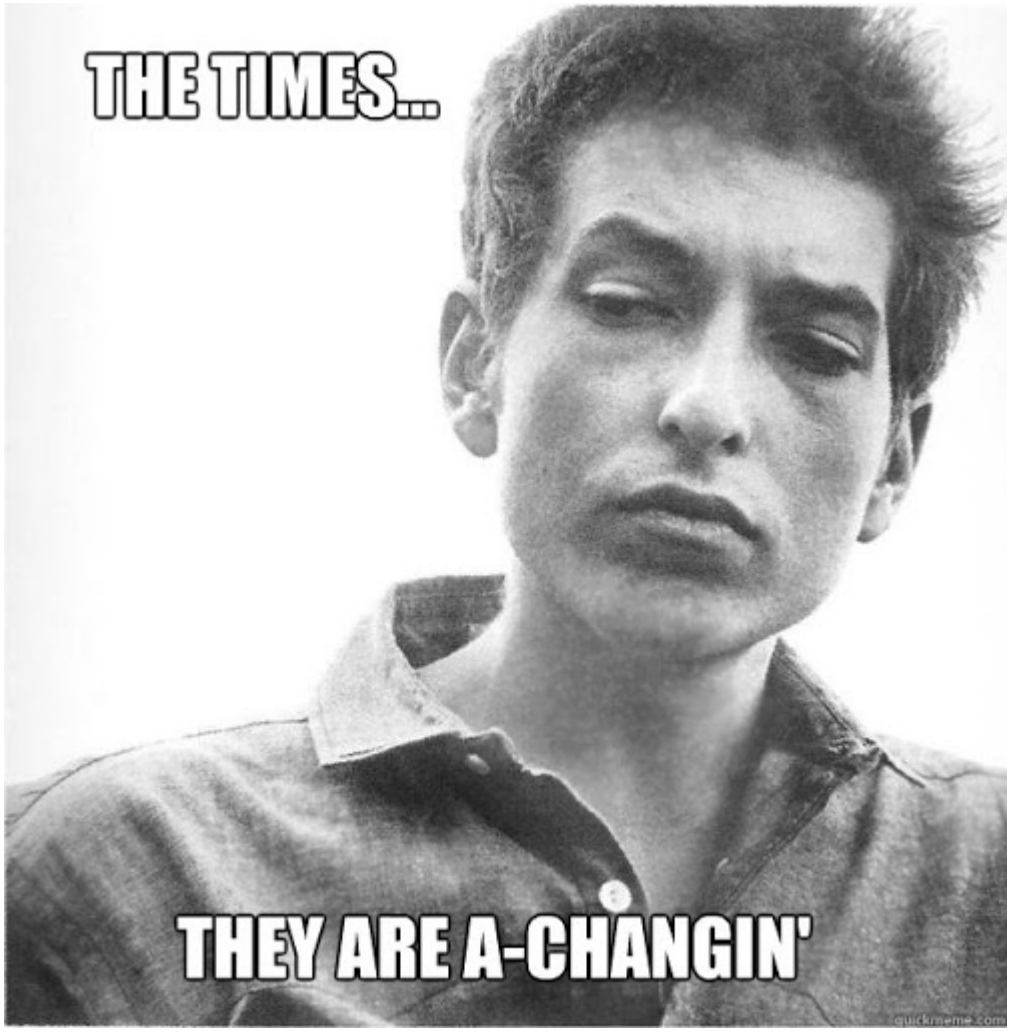
- Sentence based (open-set) tasks are generally preferred as they are the most ecologically valid
- However:
  - Open-set tasks are difficult to use experimentally
    - Engages a whole host of processes not related to speech perception
- We need a closed-set task that better approximates everyday listening situations
  - Lexical competition
  - Talker variability

Iowa Test of Consonant Perception

- 4-AFC closed-set (single word) SiN task
  - 120 target words
    - Each target word belongs to a set and within the set appears as target and foil
    - Each word spoken by 4 speakers (2 women)
  - Minimal pair foils differing by first consonant
- Uses multi-speaker babble
- All analysis scripts, materials, and data are available on our OSF page.

Iowa Test of Consonant Perception



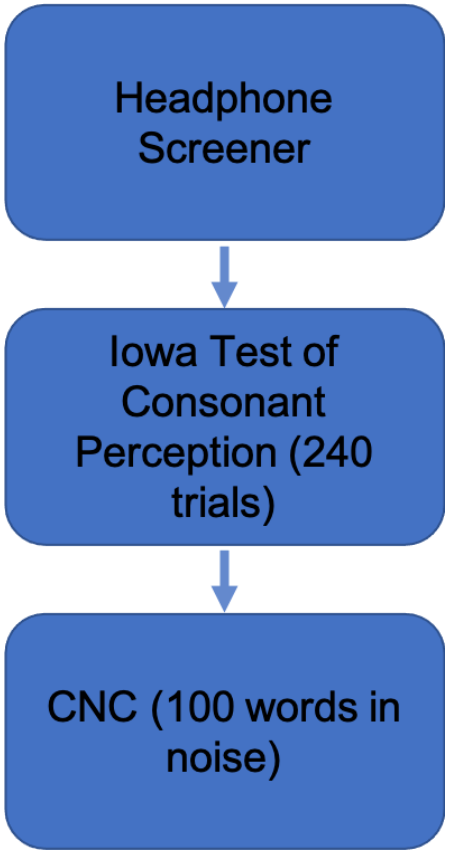

THE TIMES...
THEY ARE A-CHANGIN'
quickmeme.com

Procedure

- Two sessions (1 week apart)
  - Used Gorilla and Prolific

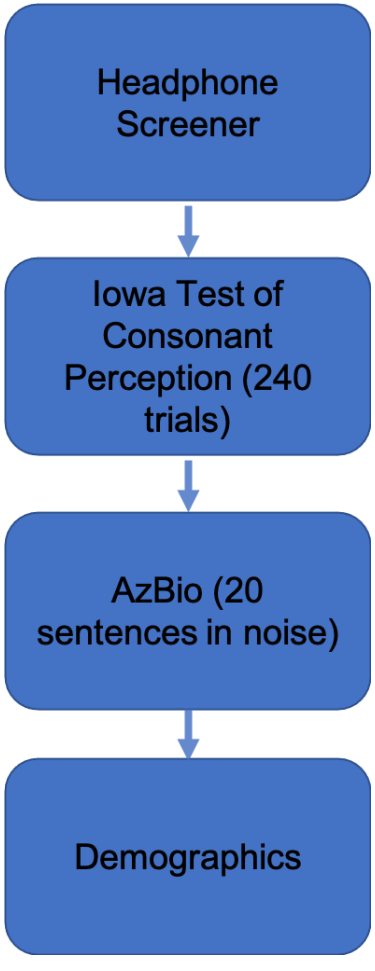
Procedure

- Session 1 (N=199)



Procedure

- Session 2 (N = 98)



Procedure

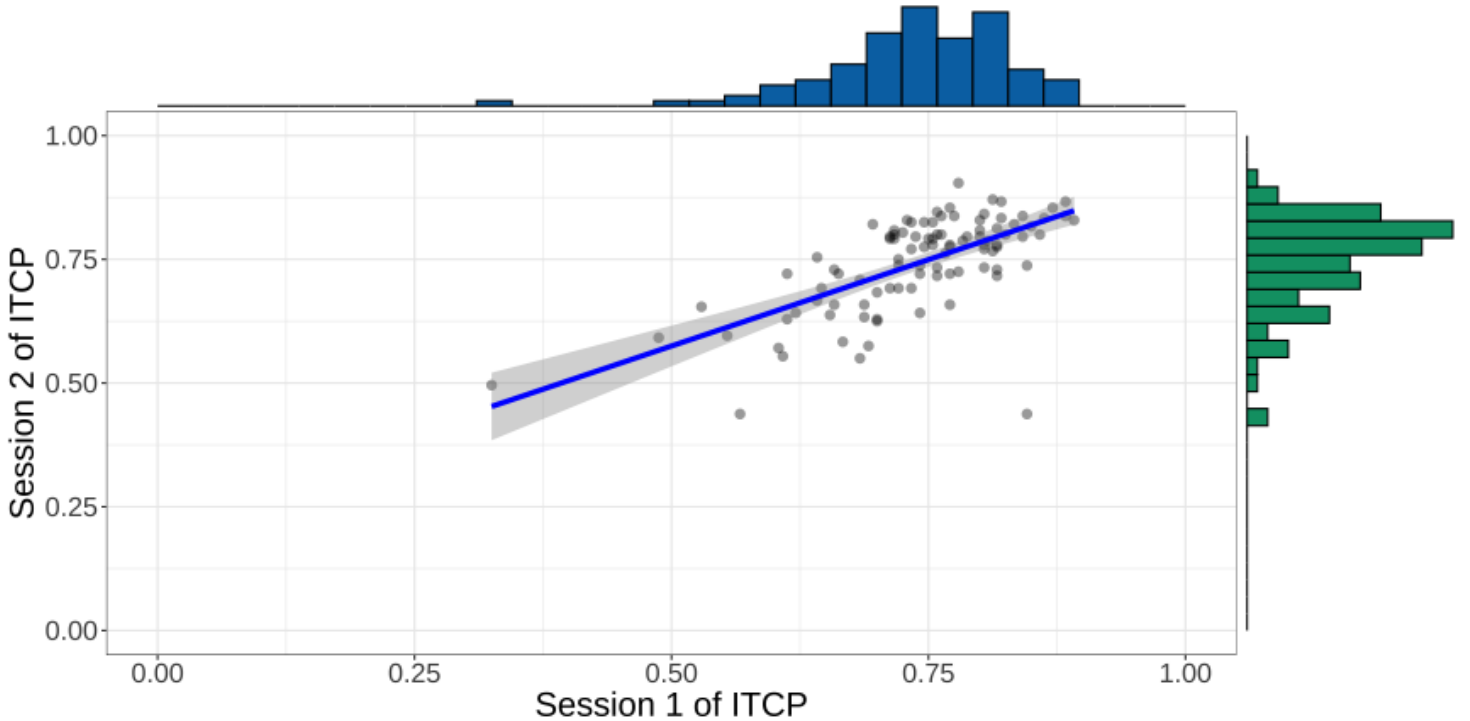
- Let's try it out! https://app.gorilla.sc/openmaterials/97811

Pilot

- Performance in Silence
  - $N = 50$
    - $M = 95\%$

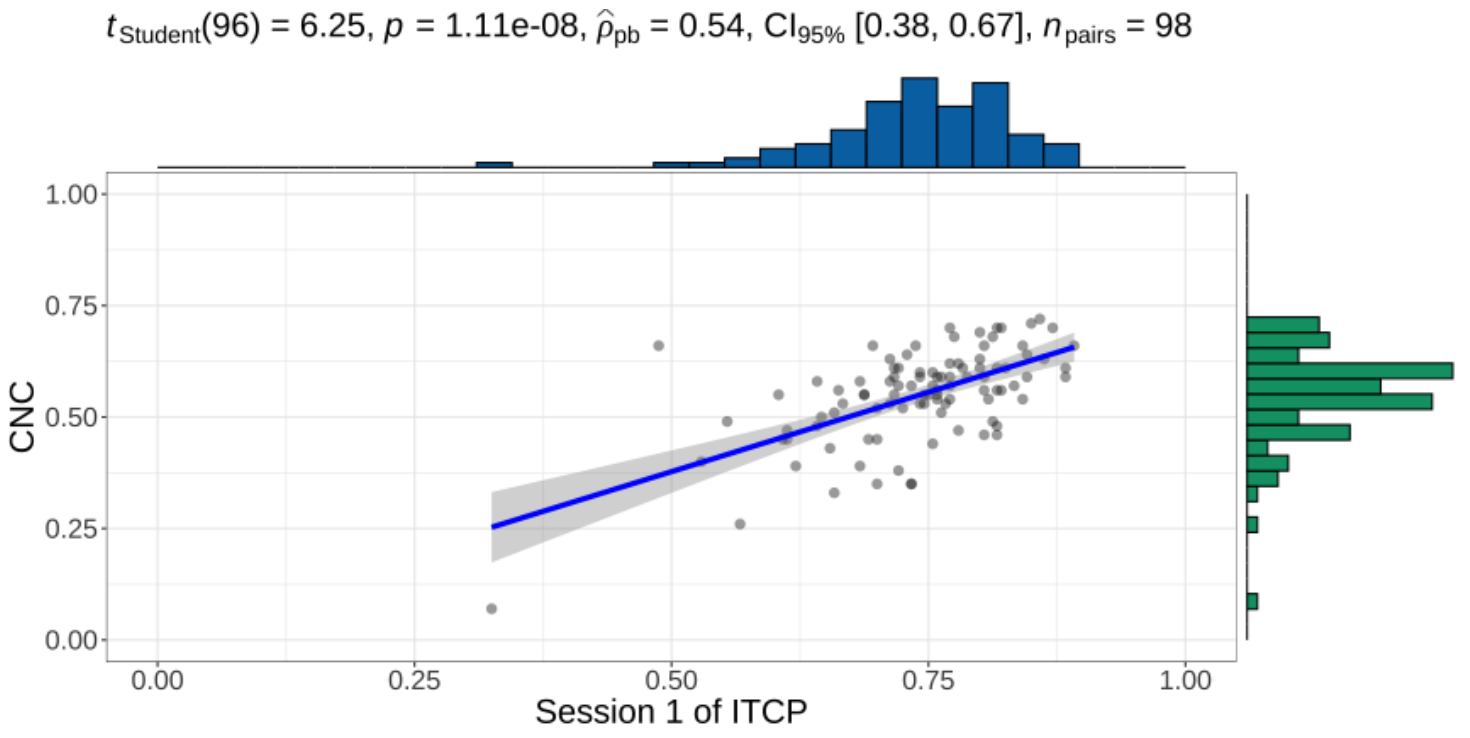
Reliability

- Test-Retest
  - ICC = .80



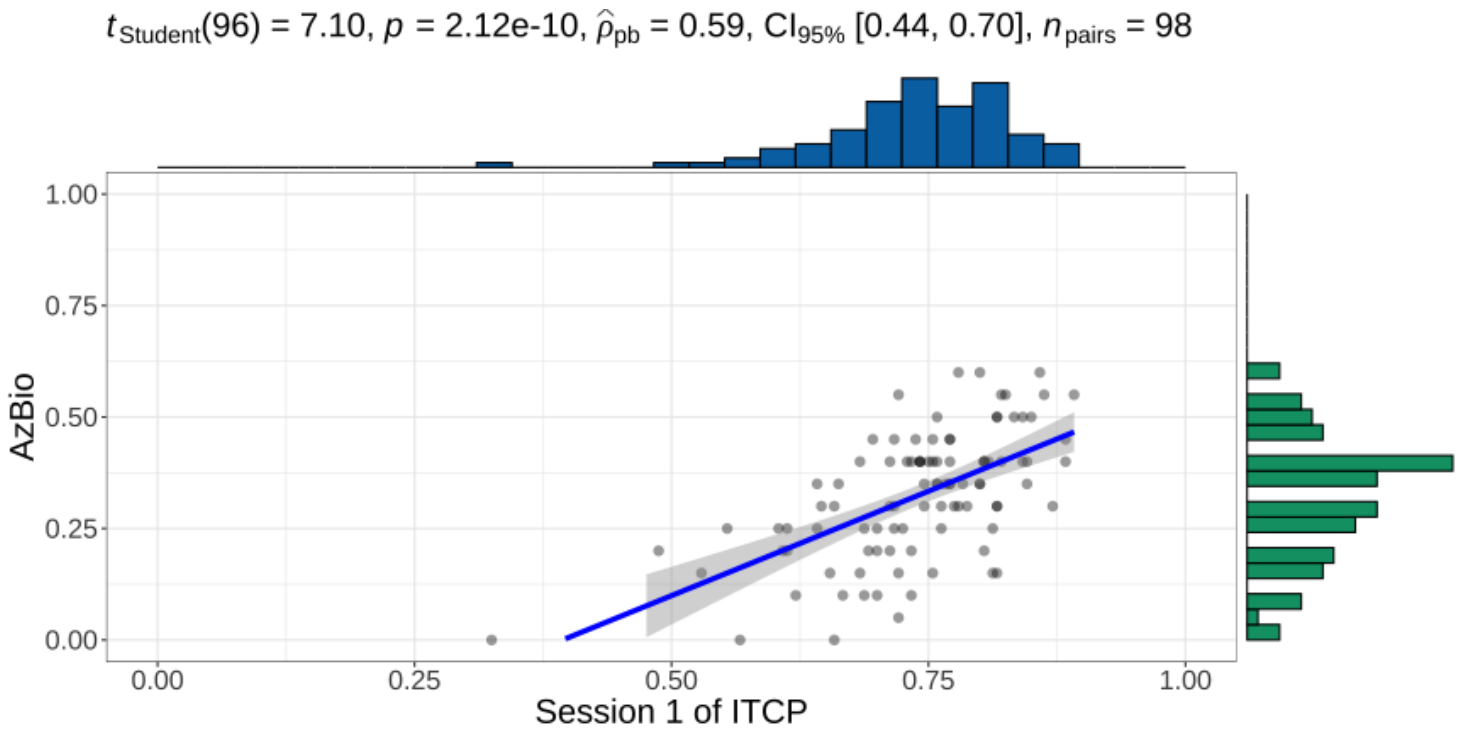
Validity

- Session 1 of ITCP and CNC

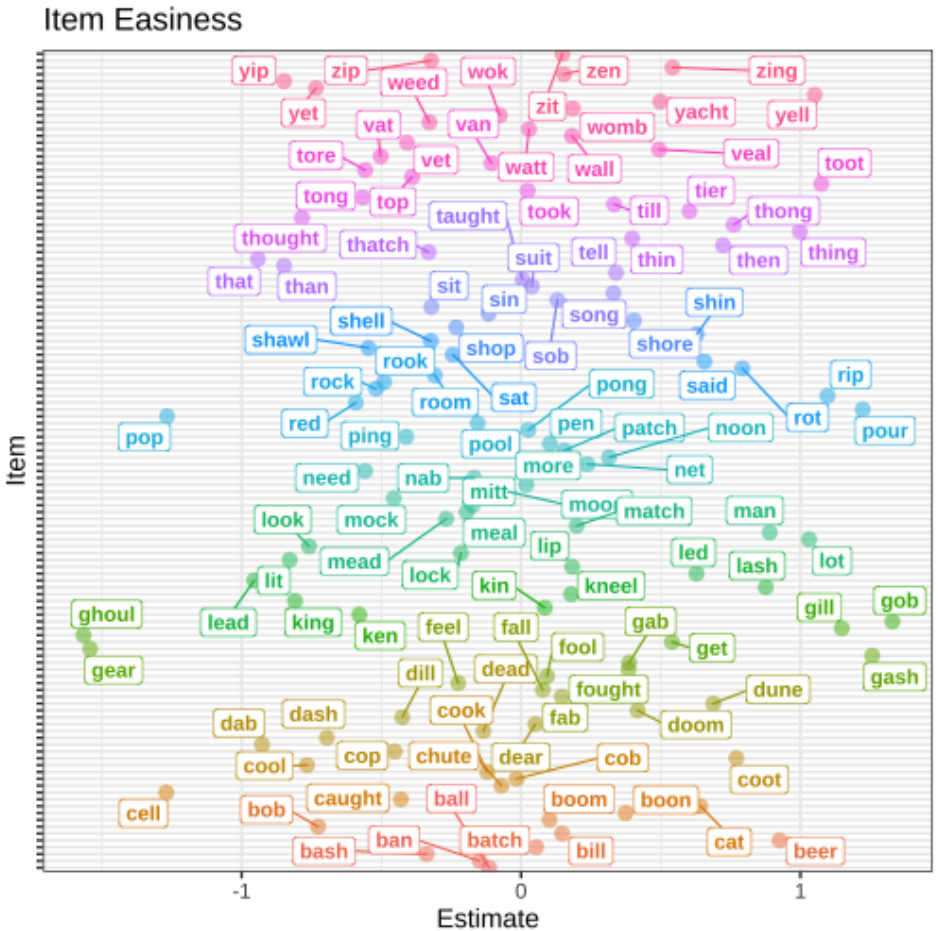


Validity

- Session 1 of ITCP and AzBio



IRT Model


Item Easiness
Item
Estimate
-1
0
1
yip
zip
weed
wok
zen
zing
yet
zit
yacht
yell
vat
van
womb
tore
vet
watt
wall
veal
toot
tong
top
tier
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thought
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gob
ghoul
lead
king
ken
feel
fall
gab
fool
get
gear
dill
dead
fought
dune
gash
dab
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cook
fab
doom
cop
chute
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cob
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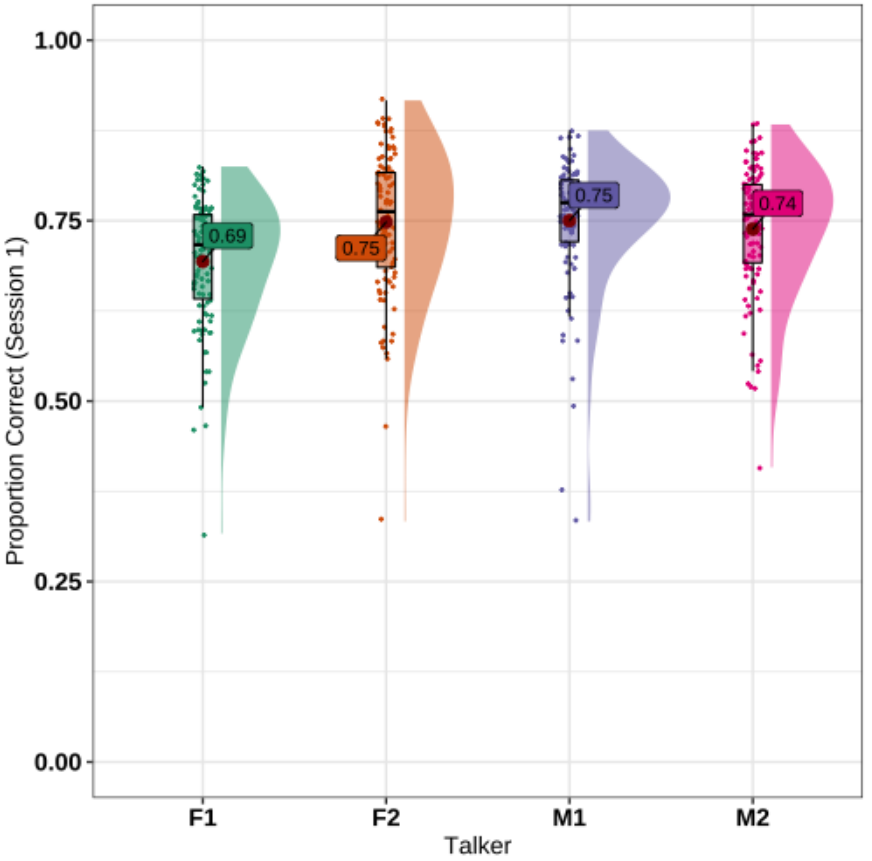
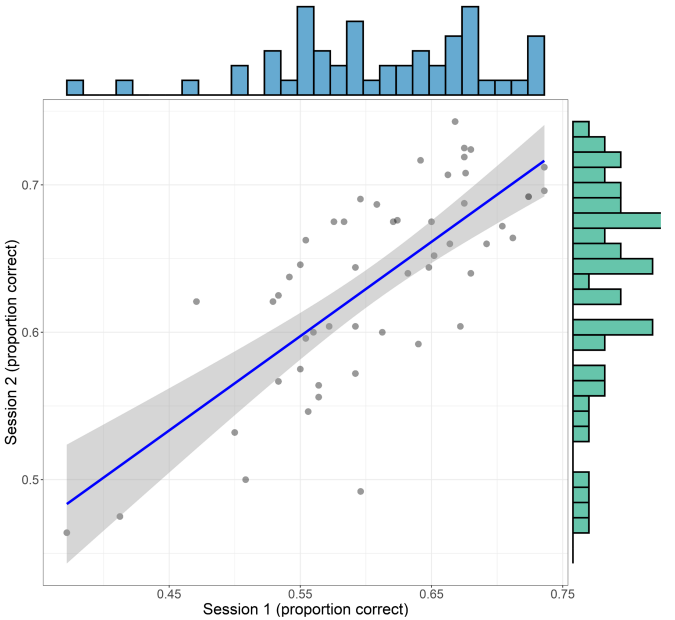
coot
cell
bob
caught
ball
boom
boon
bash
ban
batch
bill
cat
beer

Talker


1.00
0.75
0.50
0.25
0.00
Proportion Correct (Session 1)
0.69
0.75
0.75
0.74
F1
F2
M1
M2
Talker

Future Plans

- Validate in lab
    - We have data from 50 participants and data look comparable.
- Can we use this type of online testing for patients (e.g., cochlear implant patients)
- Use it Experimentally
    - Already being used in EEG and PET



What Present Me Learned From Past Me

- Give bonuses for completing second session - *set up separate studies on recruitment platform.*
- Be explicit in your study description.
- Email subjects multiple times to remind them of an upcoming session.
- Try to make experiment length reasonable

Thank You

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