

Extending communication games to more players

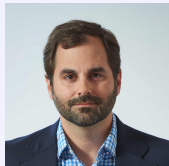
Veronica Boyce

LangCog Lab Meeting

Extending communication games to more players

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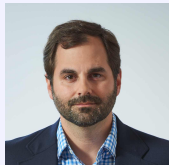
LangCog Lab Meeting



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Why study communication?

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Some of this is conventionalized, but some is dynamic.

Partner-specific adaptation

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- Interactive Alignment Account – bottom up priming (Garrod & Pickering 2009)

Partner-specific adaptation

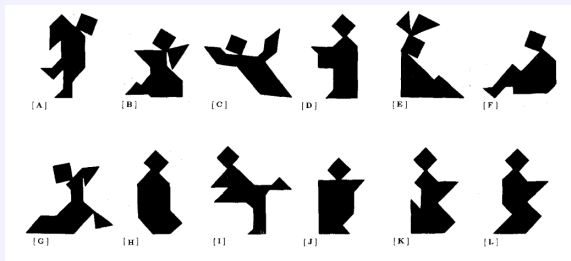
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Theoretical angles:

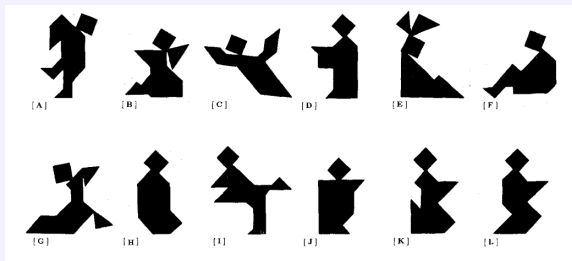
- Mental modelling (ex. RSA) (Clark & Wilkes-Gibbs 1986, Goodman & Frank 2016)
- Interactive Alignment Account – bottom up priming (Garrod & Pickering 2009)
- Audience Design (Yoon & Brown Schmidt 2019)

Clark & Wilkes-Gibbs 1986

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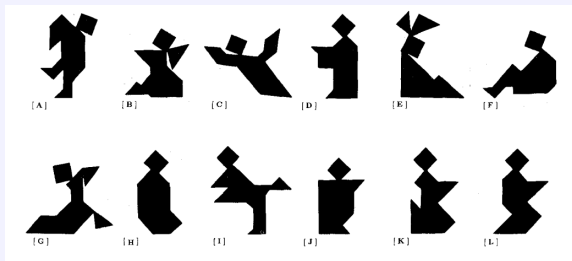


Clark & Wilkes-Gibbs 1986



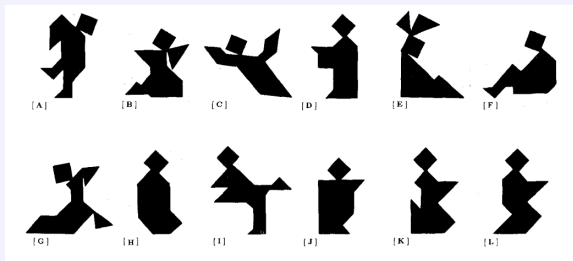
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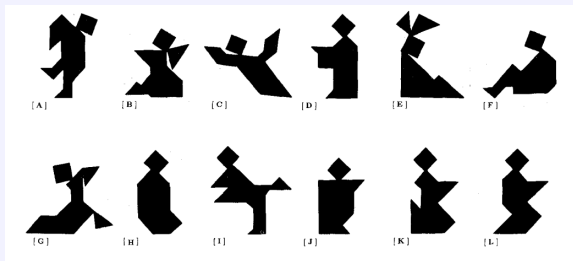
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- 2 Um, the next one's the person ice skating that has two arms?

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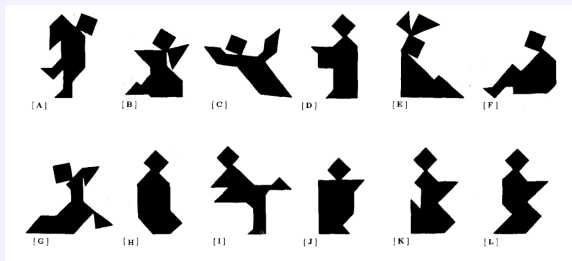
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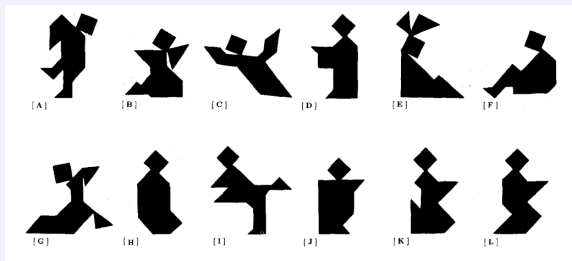
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- 4 The next one's the ice skater.

Clark & Wilkes-Gibbs 1986



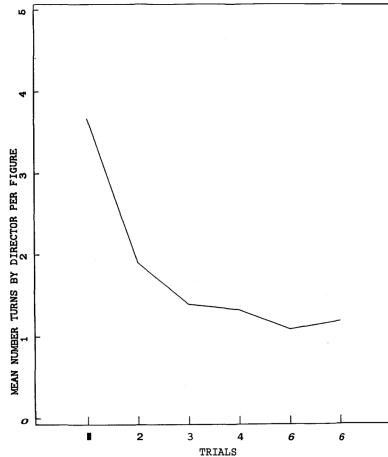
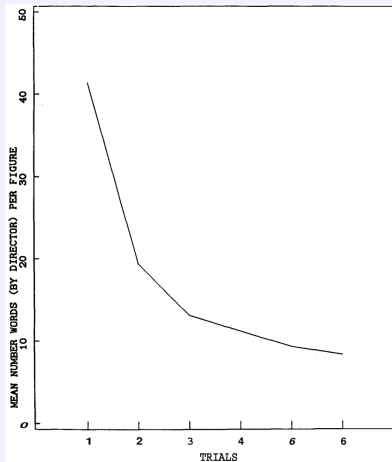
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Hawkins, Frank, & Goodman 2020

Scaling up with web-based experiments

- Cued version with feedback on each trial

Hawkins, Frank, & Goodman 2020

Scaling up with web-based experiments

- Cued version with feedback on each trial
- Message with a chat box

Hawkins, Frank, & Goodman 2020

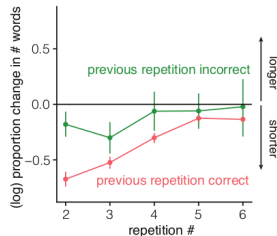
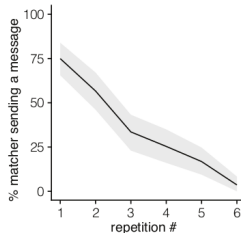
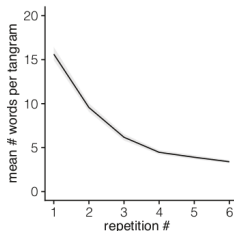
Scaling up with web-based experiments

- Cued version with feedback on each trial
- Message with a chat box
- After all exclusions, 83 dyads

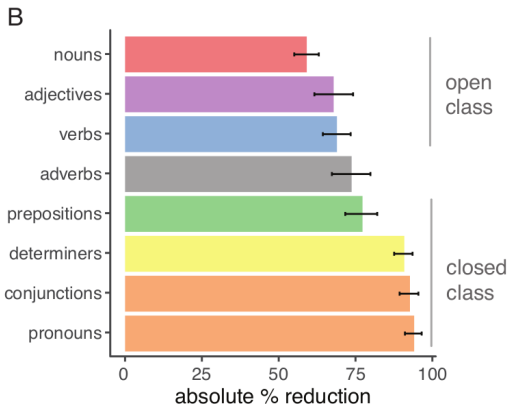
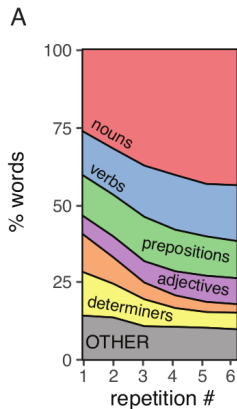
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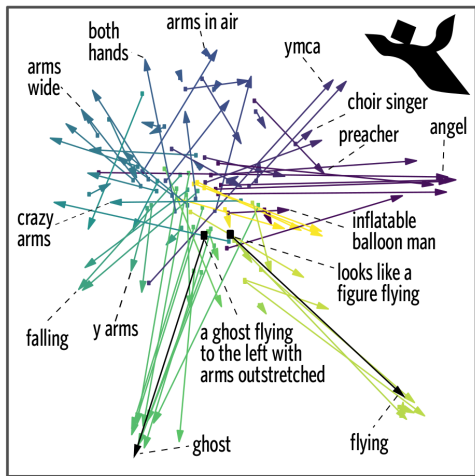


Hawkins, Frank, & Goodman 2020



Words tend to drop out in syntactic units

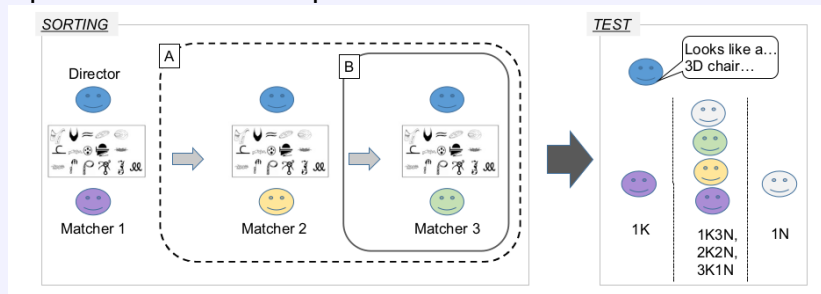
Hawkins, Frank, & Goodman 2020



Semantics converge within and diverge between groups

Yoon & Brown-Schmidt 2019

Speaker talks to multiple matchers



Examine speaker's utterance length, elaborations, disfluencies

First Year Project

Dynamics of pact formation in larger groups

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Compare groups of 2/3/4 communicators

- Look for differential reduction

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Rotate who is the knowledgeable speaker

- Chosen for participant experience
- Stronger measure of alignment

Experiment Framework

Implemented in Empirica (Almaatouq et al 2020)

Round 1 / 6 > Target 1 / 12













 Laju (You)  Repi (Listener)  Minu (Listener)

Timer
01:43

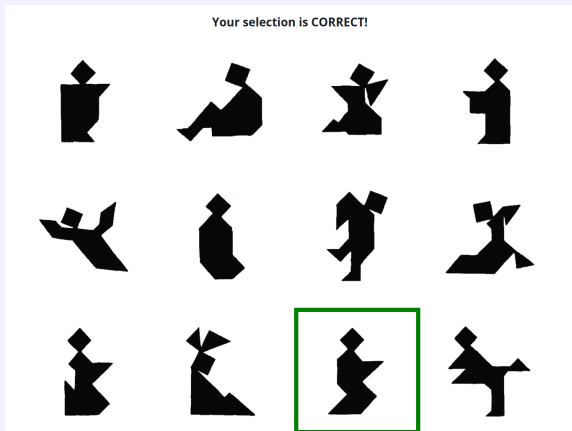
Score
\$0.00

No messages yet...

You are the speaker. Please describe the picture in the box to the other players.

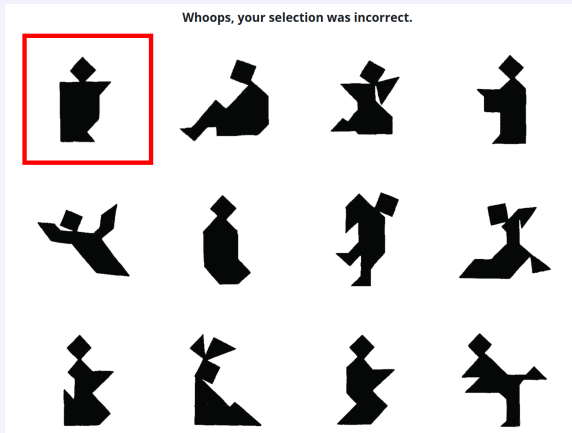
			
			
			

Experiment Framework



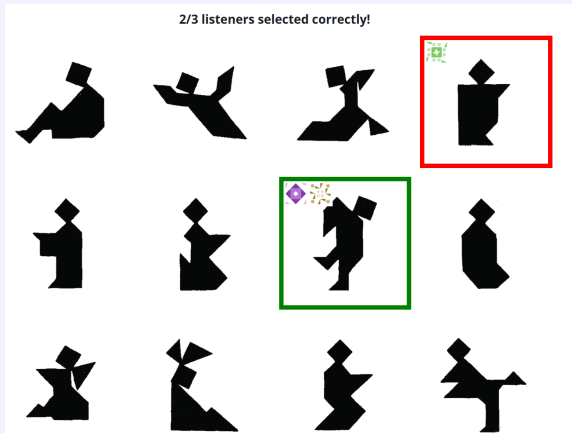
Bonus: 4 points

Experiment Framework



Bonus: 0 points

Experiment Framework



Bonus: Average of listeners = $(2/3) * 4$ points

Recruitment

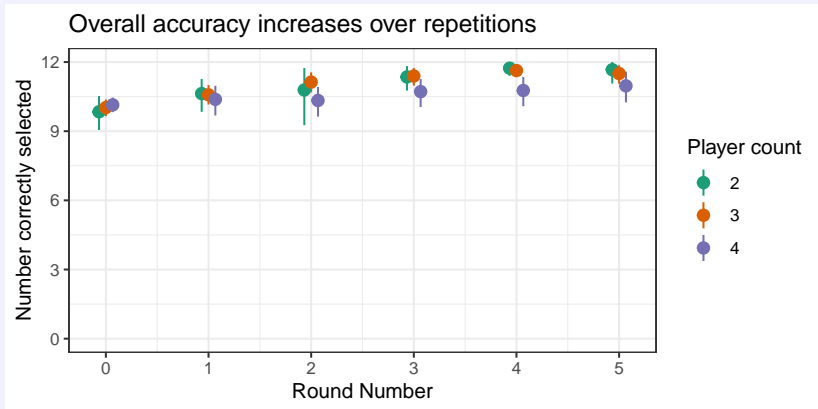
Goal: 20 games in each of 2/3/4 player
Each game has 6 blocks of 12 tangrams

Actual recruitment:

- 15 2-player games (+ 4 partial)
- 18 3-player games (+ 2 partial)
- 20 4-player games (+ 1 partial)

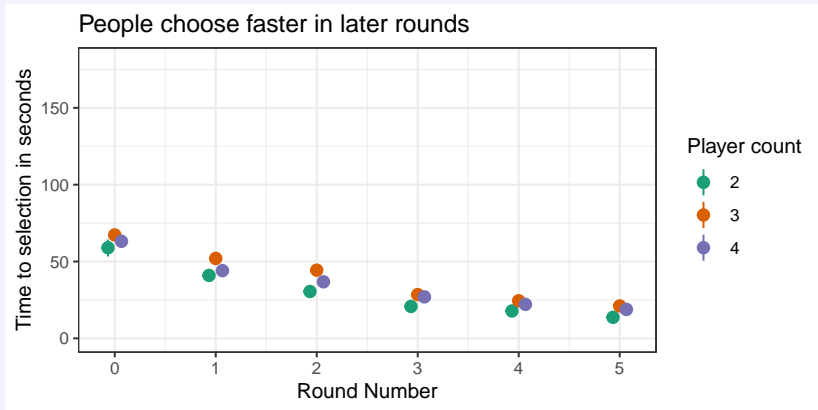
Include all complete blocks

Results – Accuracy



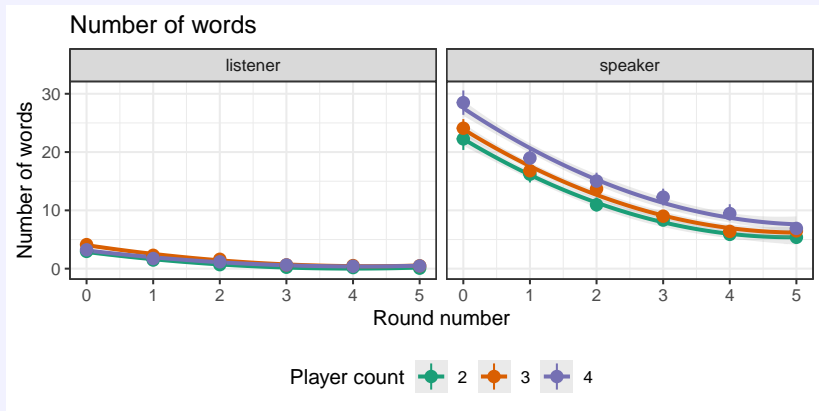
Accuracy is high and increasing

Results – Speed



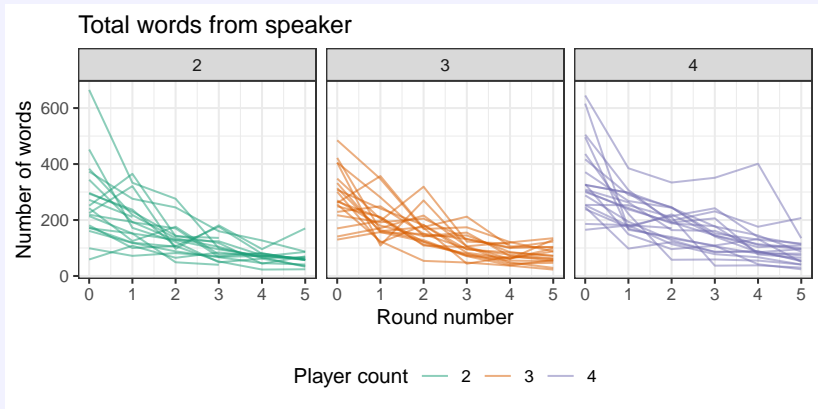
Listeners choose faster in later rounds

Reduction



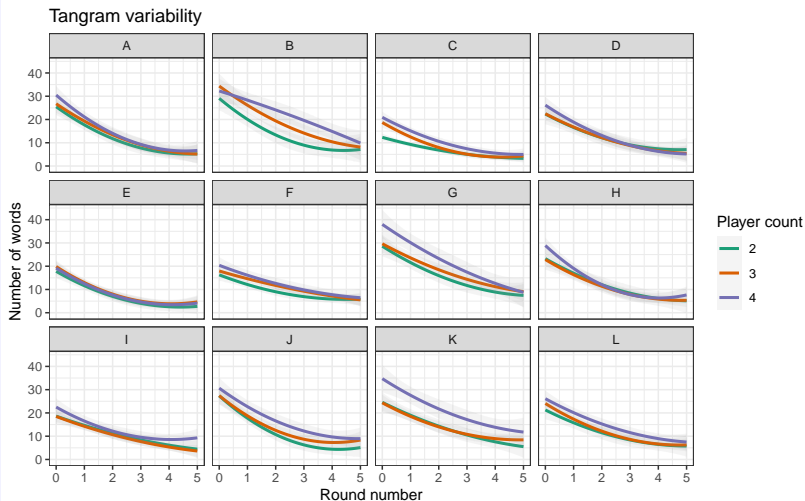
Number of words reduces over rounds Caution:
Non-referential utterances not yet removed

Reduction



Group variability

Reduction



Tangrams vary in nameability

Planned Analyses

- Remove chit-chat, model reduction
- Semantic convergence in games
- Impact of speaker accuracy

Possible future directions

Want to understand how references are formed more generally

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Possible directions:

- Different target images
- Curriculum learning

Comments, Questions?

Looking for feedback on

- What analyses would be interesting?
- What's the next study?