

# Within-group talker variation and memory asymmetries

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# Background

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## Memory encoding

- Speech episodes stored in memory.
- Basis of exemplar theory in speech perception.

### Sociolinguistics:

- Widely adopts exemplar theory.
- Limited discussion of theory's basis.



### Cognitive Psych:

- Original evidence for exemplar theory.
- Limited consideration of social info.

# Background

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Implicit assumption:  
Talkers are  
interchangeable.



*Swap out voices in an  
experiment; get the  
same result.*

Multiple talkers add  
generalizability and richness.

# Recent findings

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Replicated early findings with:

- Diverse talkers (Exp. 1).
- Sets of Black and white talkers/listeners (Exp. 2).

Stronger memory retention for white than Black talkers.

- Held across Black and white listeners.

*Language ideologies* contributed to results.

Clapp, Vaughn, & Sumner (2023)

# Current study

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*Do listeners remember talkers differently within a demographic category?*

Hypothesis: Participants remember words spoken by some talkers better than others: *Different accuracy in memory task.*

- Interplay between social info and cognition.
- The nature of categories.
- New patterns emerge with multiple talkers.

# Experiment – Design

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**Participants:** 527 native English speakers recruited on Prolific. Wide range of region, race, gender, age.

**Talkers:** 16; two of each combo: Black/white, female/male, Alabamian/Californian.

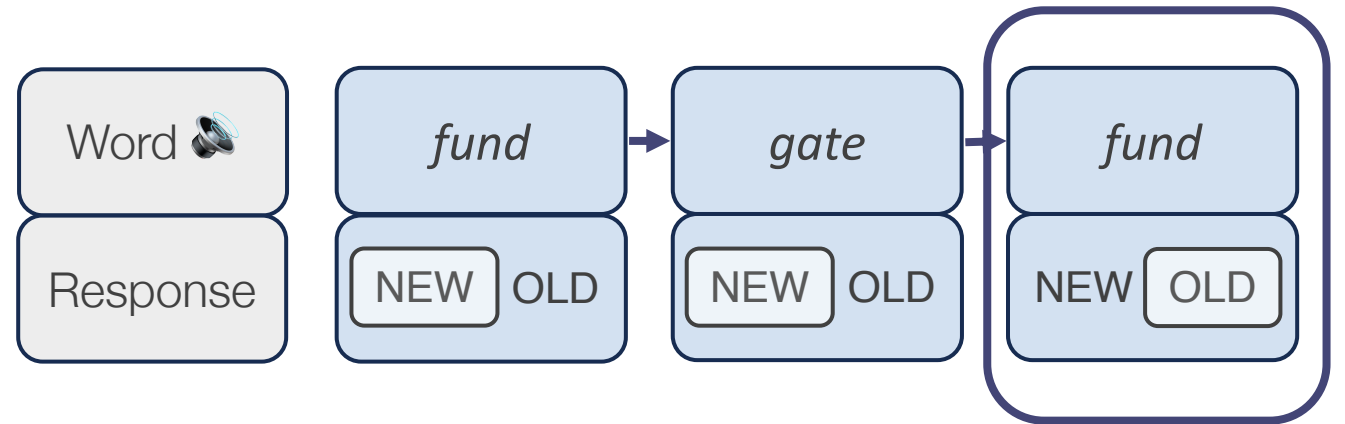
	<i>Race</i>	<i>Gender</i>	<i>Region</i>
<i>BFA-1/2</i>	Black	Female	Alabama
<i>BFC-1/2</i>	Black	Female	California
<i>BMA-1/2</i>	Black	Male	Alabama
<i>BMC-1/2</i>	Black	Male	California
<i>WFA-1/2</i>	White	Female	Alabama
<i>WFC-1/2</i>	White	Female	California
<i>WMA-1/2</i>	White	Male	Alabama
<i>WMC-1/2</i>	White	Male	California

**Norming:** Talkers were *reliably identified* by naïve listeners from voice alone for race, gender, and region.

# Experiment – Design

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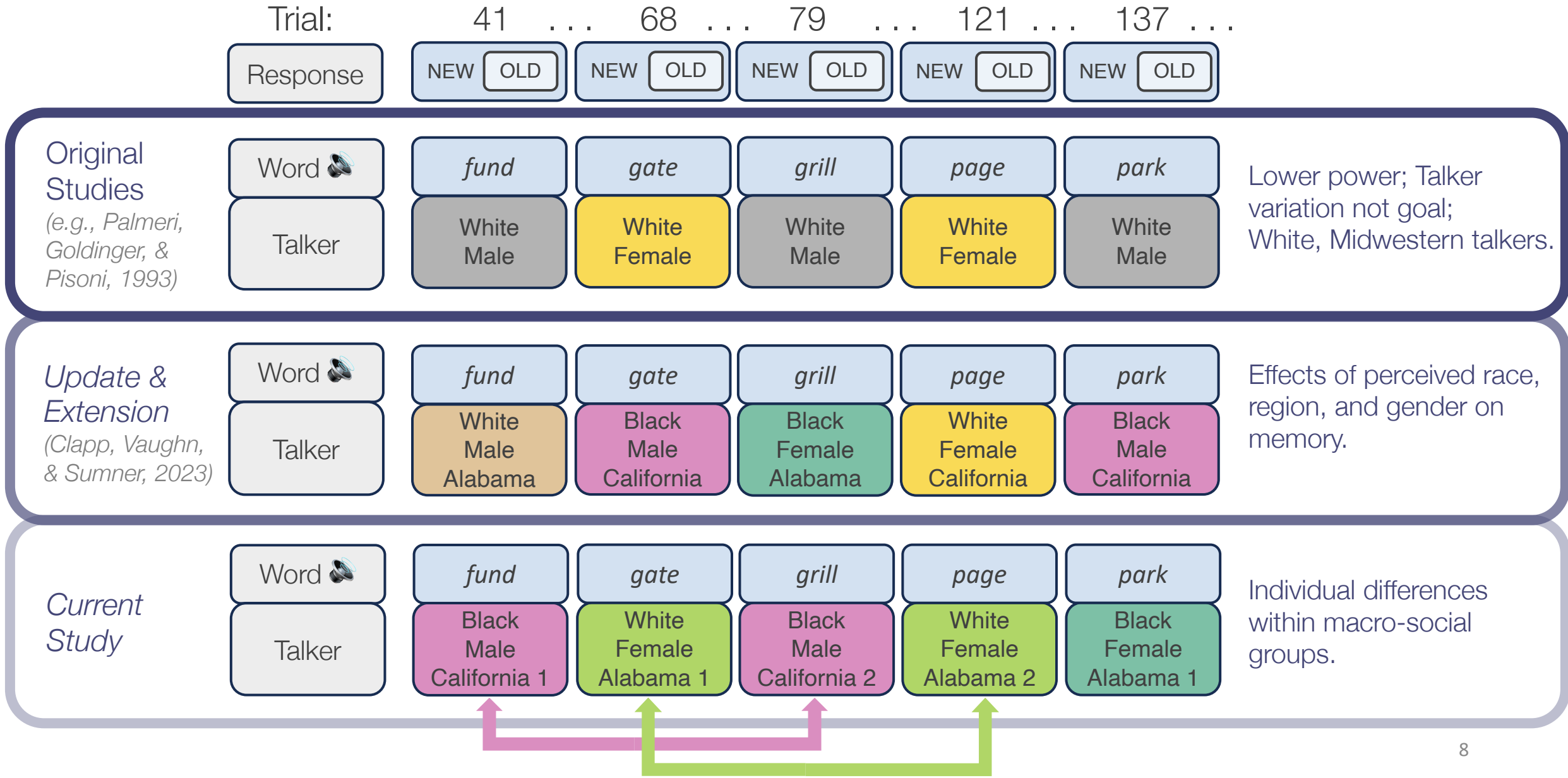
**Continuous recognition memory:** *Hear a word, decide OLD or NEW.*



**SAME** (50%): OLD words repeated in same voice.

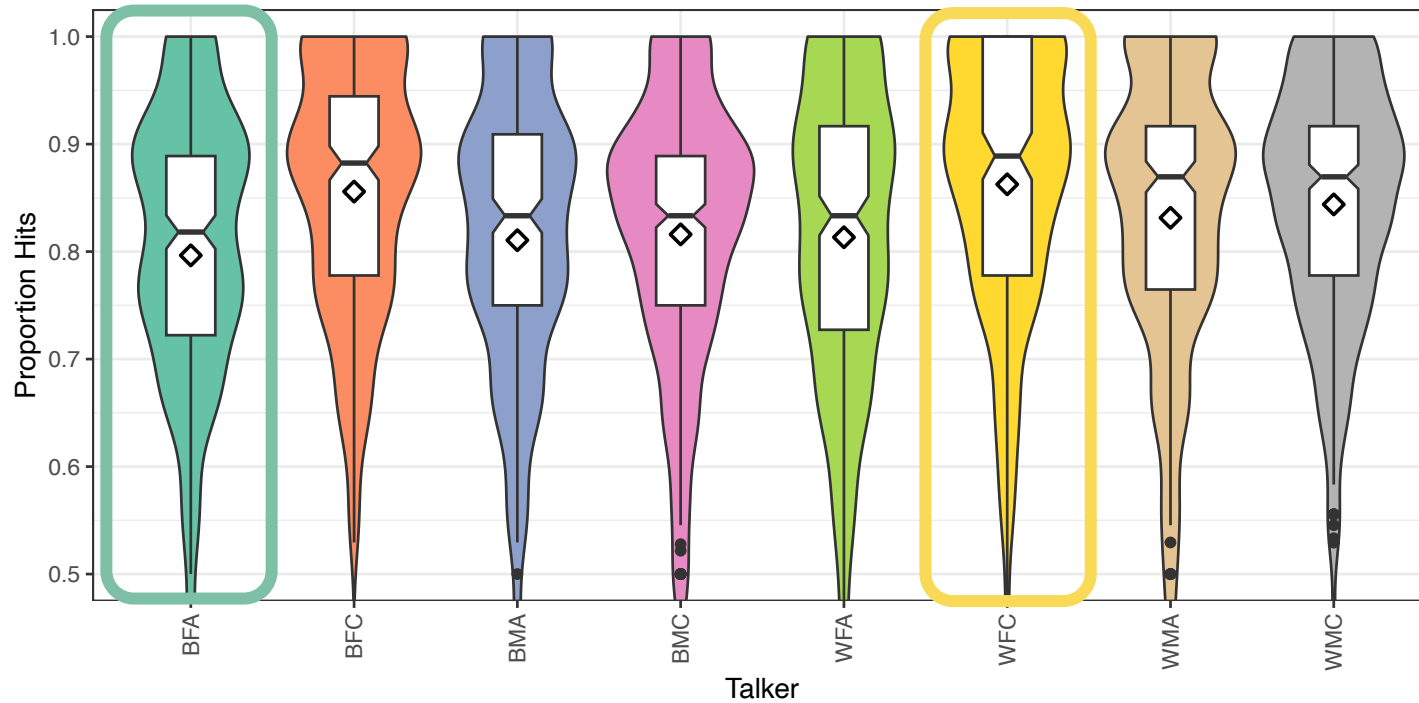
**DIFF** (50%): OLD words repeated in different voice.

# Today's focus: Second presentation of a word; Correct response = OLD





# Results – Hits across categories



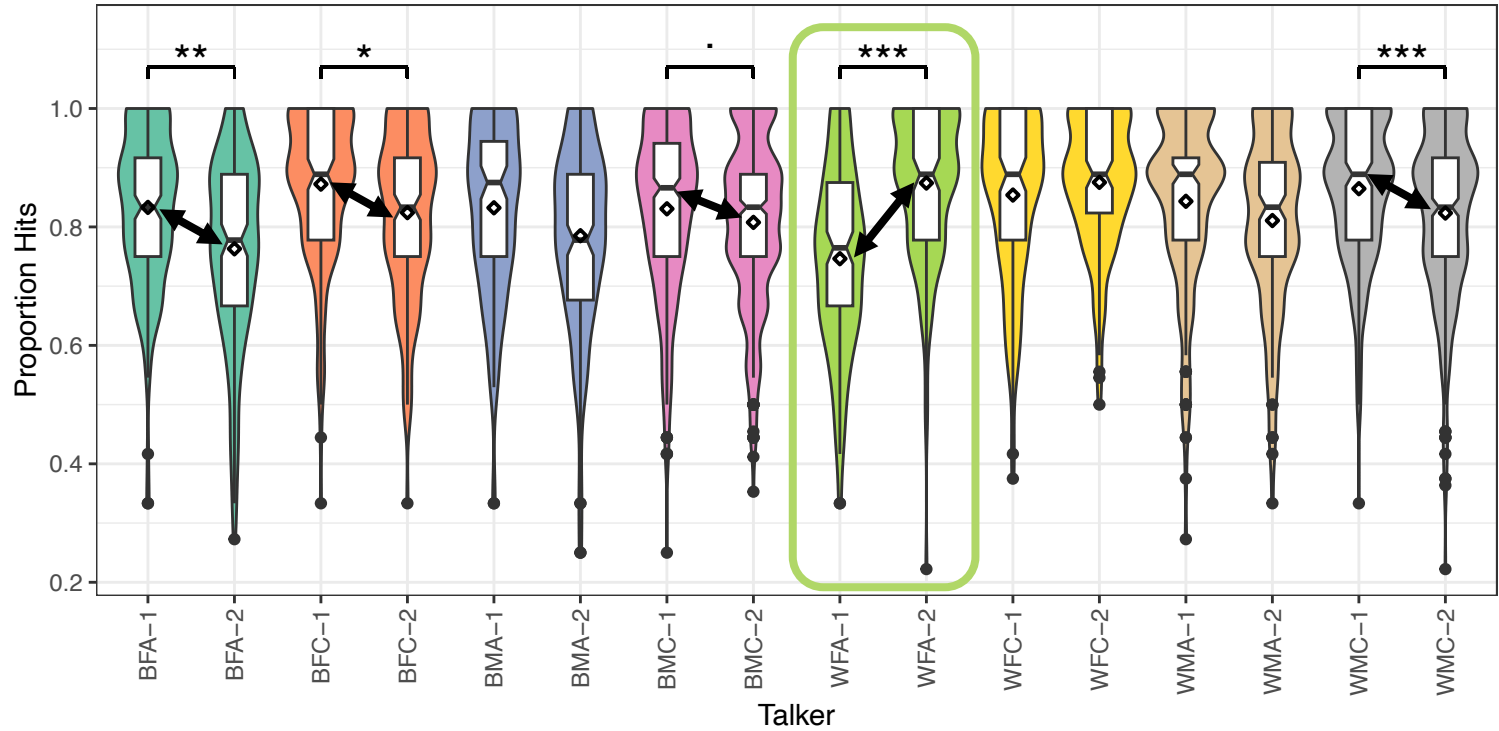
Diff. trials only: Correct OLD responses on repeated words.

Simple-coded results on Diff. trials:

	$\beta$	$SE$	$p$
<i>Intercept</i>	1.84	0.048	***
<i>BFC</i>	0.43	0.068	***
<i>BMA</i>	0.065	0.067	
<i>BMC</i>	0.17	0.055	**
<i>WFA</i>	0.11	0.067	.
<i>WFC</i>	0.51	0.071	***
<i>WMA</i>	0.25	0.067	***
<i>WMC</i>	0.39	0.057	***

B – Black      W – White  
 F – Female    M – Male  
 A – Alabama    C – California

# Results – Hits within category



Pairwise comparisons, only on Diff. trials:

	$\beta$	SE	$p$
<i>BFA-1 – BFA-2</i>	0.40	0.090	**
<i>BFC-1 – BFC-2</i>	0.41	0.10	*
<i>BMA-1 – BMA-2</i>	0.18	0.10	.
<i>BMC-1 – BMC-2</i>	0.23	0.061	.
<i>WFA-1 – WFA-2</i>	-0.86	0.10	***
<i>WFC-1 – WFC-2</i>	-0.19	0.11	
<i>WMA-1 – WMA-2</i>	0.22	0.099	
<i>WMC-1 – WMC-2</i>	0.37	0.068	***



B – Black      W – White  
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Individuals with shared demographic attributes in matching colors.

# Discussion

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## Main findings:

- Variability both *across* and *within* categories.
- Fine-grained social info guides perception.
- No hard-coded categories.
- Analyzing multiple talkers shows memory for spoken words is not uniform across voices.

Thank you!  
Questions?  
Email [wsclapp@stanford.edu](mailto:wsclapp@stanford.edu)

Thanks to Paul Reed for help recording stimuli and members of the Stanford Phonetics Lab for helpful comments.

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Read the full paper “The episodic encoding of talker voice attributes across diverse voices” in *Journal of Memory and Language* (Feb., 2023)

