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Individual Differences in Memory Generalization Lea E. Frank, Stefania R. Ashby, Dasa Zeithamova

Background • Memory specificity is the ability to remember individual experiences • Generalization is the process by which we link across related memories to generate knowledge • It is unclear how we generalize¹⁻⁴: Specific Memory

- Many tasks are used to index generalization⁴⁻⁹
- Are they measuring a shared generalization process?

Pilot Version

Exploratory Factor Analysis n = 95

	Factor 1	Factor 2
Acquired equivalence	-0.19	0.86
Categorization (animals)	0.20	0.55
Source memory	0.62	0.16
Recognition	0.43	0.39
Pattern separation	0.75	-0.04
Word recall	0.77	0.02

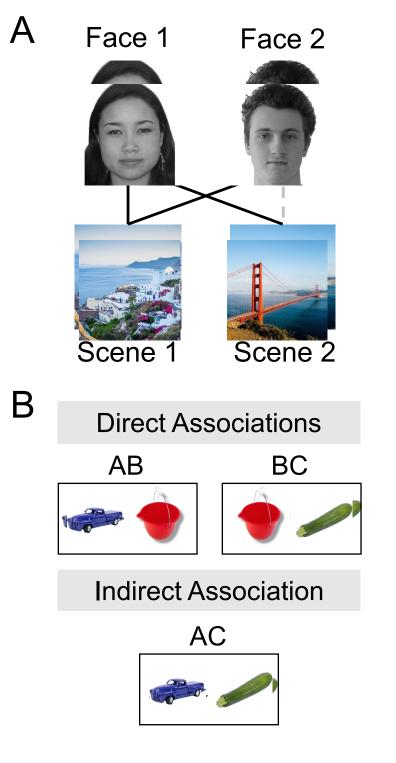
Version 2 (in progress):

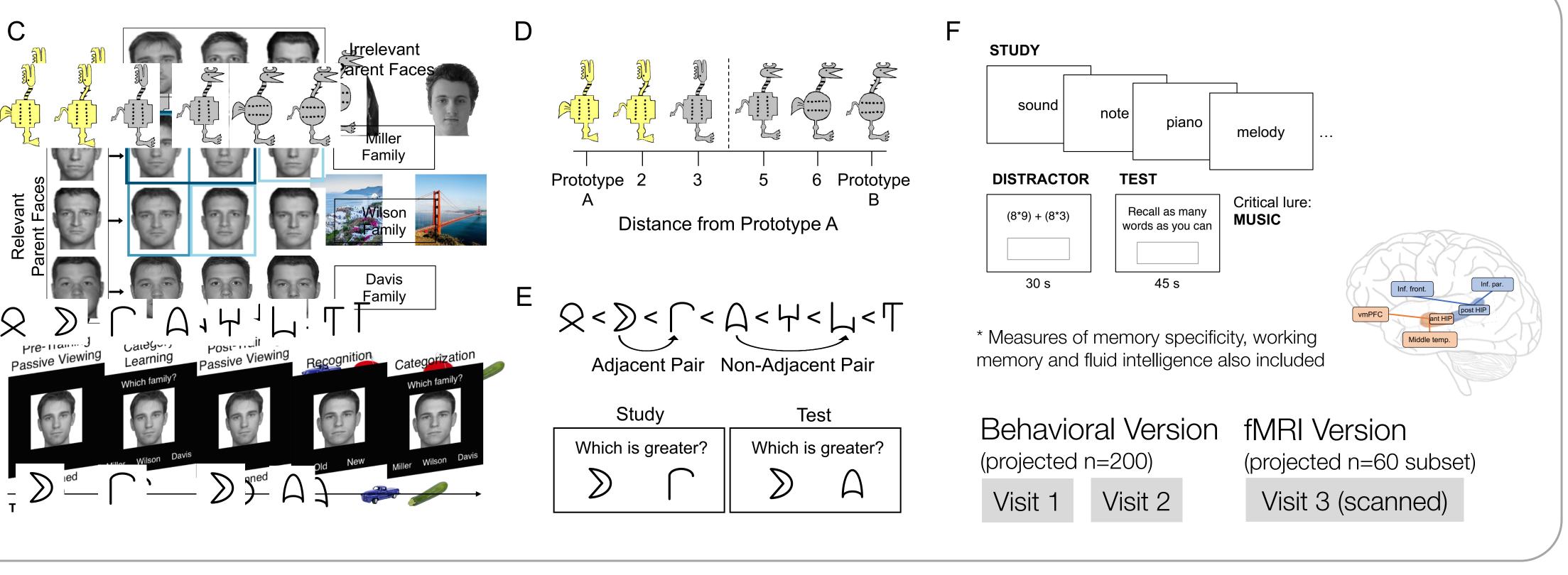
- Increased number of tasks
- Scanning category learning task and resting-state fMRI
- Added measures of cognitive function (e.g. working memory & fluid intelligence)

Preliminary Findings Underlying Factors Observed Variables Cattaces Acquired Equivalence Catlanimals Acquired equivalence (A) Associative Inference Associative inference (B) Categorization (faces) DRMFA Categorization (faces) (C) Memory Categorization (animals) 0.54 Generalization Categorization (animals) (D) **DRM False Alarm** Transitive inference (E) Source Memory 2 **0.18 0.4** 0 12-0.28 DRM false alarm (F) Face Recognition (CHR) 0.27 0.25 0.5 Source memory **Object Recognition (CHR)** 22 0.39 0.24 0.24 -0.36 0.46 0.42 1 Face recognition Pattern Separation 0.43 0.26 0.24 Object recognition Memory Word Pairs 2<mark>-0.44</mark>0.47 Specificity Pattern separation **DRM Recall** 0.21 | 0.16 | 0.2 - 0.37 | 0.32 | 0.4 | 0.4Word paired associates * New version of transitive inference was DRM recall -1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 recently added, thus not included in results

Integrated Memory

Procedures







Conclusion

- Putative generalization tasks seem to capture a shared process, but not clearly separable from memory specificity
- Tendency to false alarm in DRM does not track with generalization abilities, but does relate to worse memory specificity
- Future work will look at how individual generalization and memory specificity abilities relate to...
 - hippocampal connectivity networks
 - 2. established measures of cognitive function

References & Acknowledgements

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