

Subjective vividness ratings of pictures predict exemplar-specific similarity between encoding and recall activity patterns

Matthew R. Johnson

Society for Neuroscience



The **RAP** Lab
Reflection Attention Perception

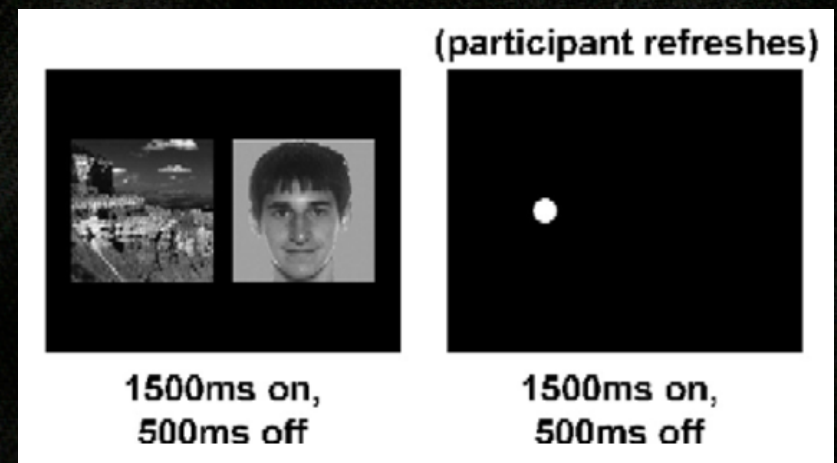
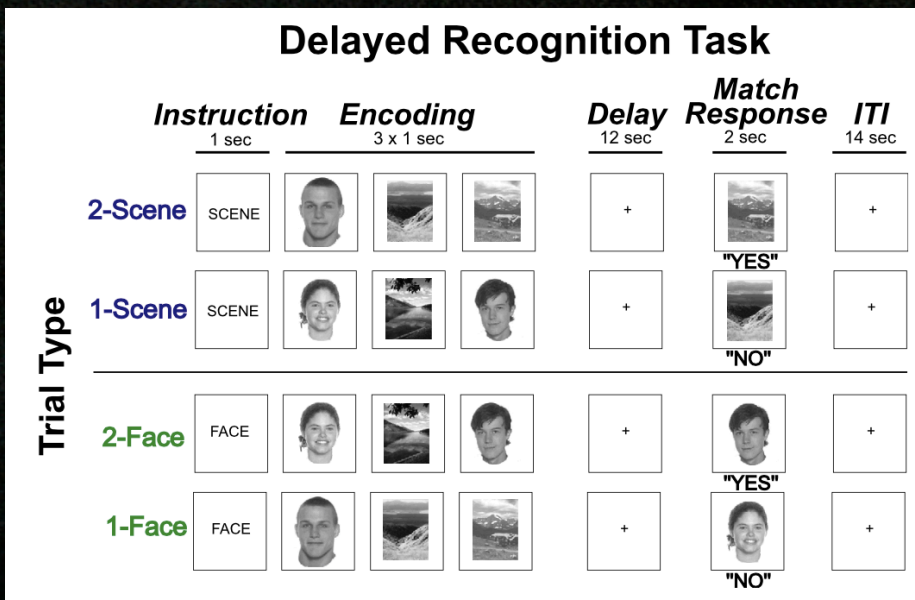
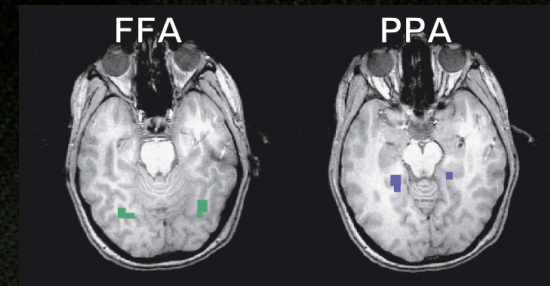
UNIVERSITY OF
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Lincoln

Acknowledgements

- ✦ Original study & data collection
 - ✦ Marcia Johnson, Brice Kuhl, Karen Mitchell, Lizzy Ankudowich, Kelly Durbin, Nayeon Kim
- ✦ Current analyses
 - ✦ Marcia Johnson, Karen Mitchell
 - ✦ Helpful feedback from Johnson & Chun labs at Yale

Background

- Perceptual activity patterns are reinstated during reflection

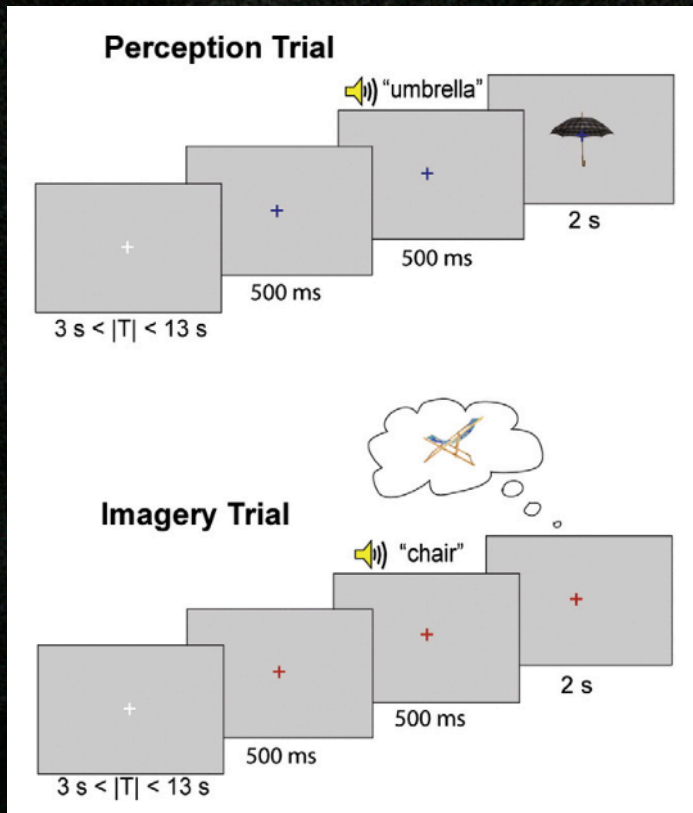


Ranganath, DeGutis, & D'Esposito, 2004

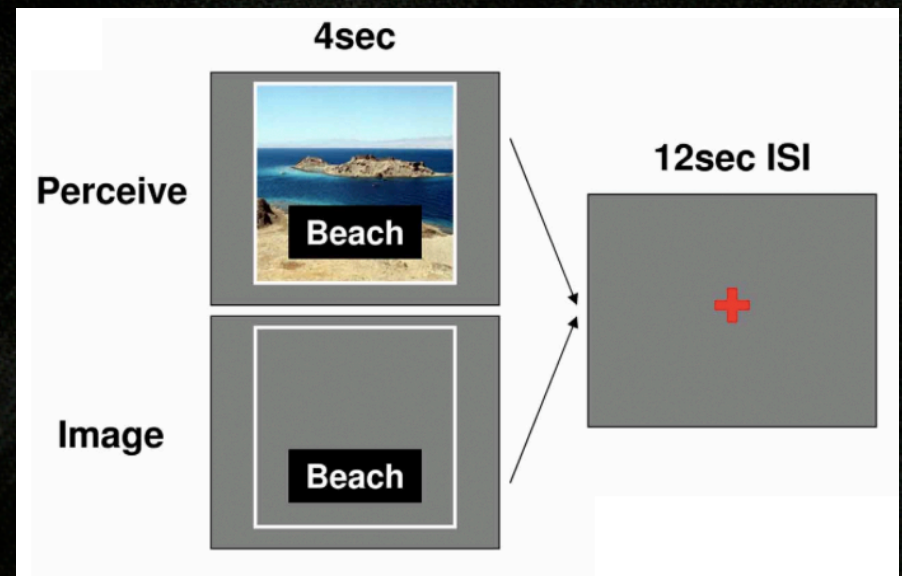
M.R. Johnson, Mitchell, Raye, D'Esposito, & M.K. Johnson, 2007

Background

- ✦ ... for exemplars as well as broader categories



Lee, Kravitz, & Baker, 2012



M.R. Johnson & M.K. Johnson, 2014

Question

- How does perceptual activity reinstatement during reflection relate to the subjective vividness of perceiving and/or remembering?

Psychological Bulletin
1993, Vol. 114, No. 1, 3–28

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0033-2909/93/\$3.00

Source Monitoring

Marcia K. Johnson, Shahin Hashtroudi, and D. Stephen Lindsay

Source monitoring and vividness



Source monitoring and vividness



Perceptual detail



Contextual detail



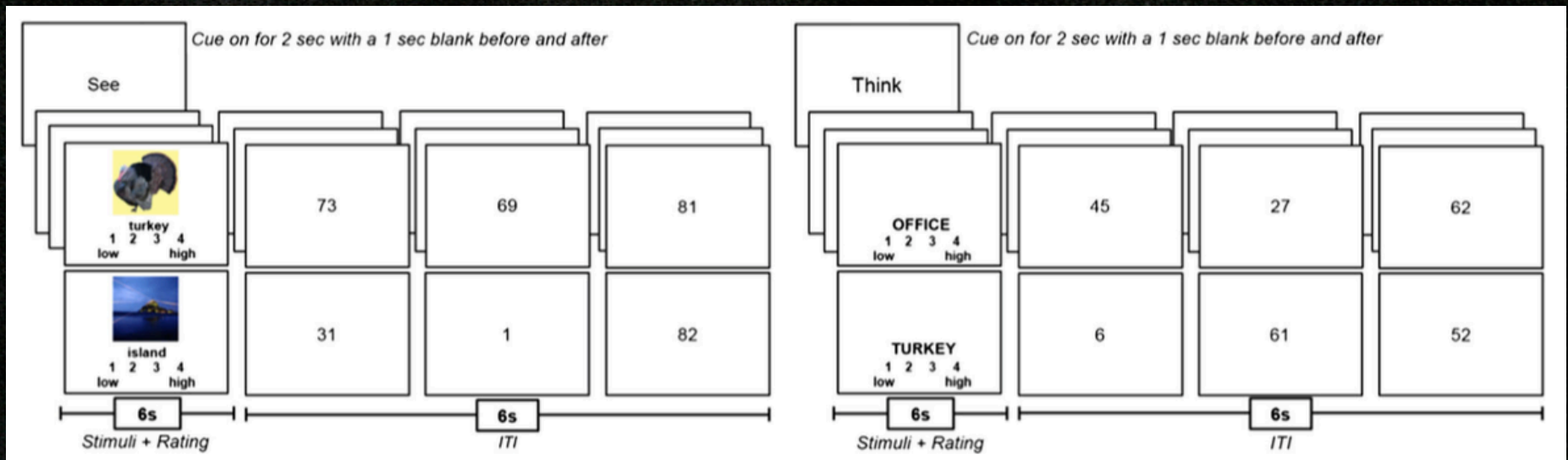
Affective detail



...etc.

Source judgment

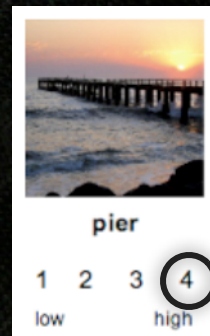
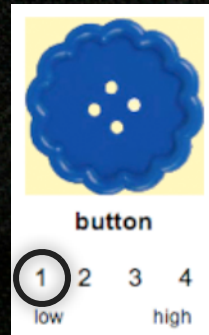
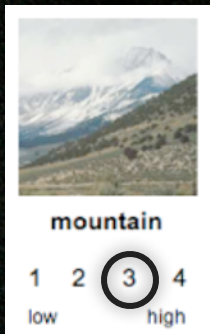
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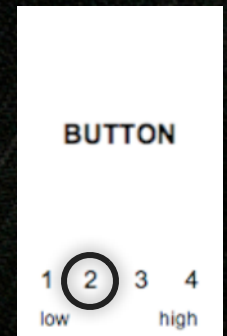
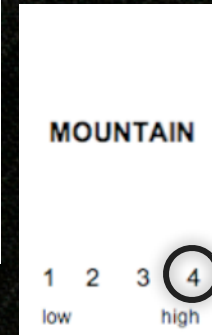
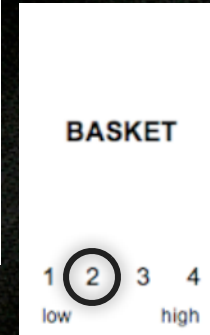
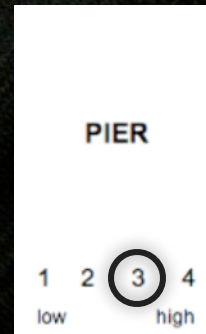
M.K. Johnson, Kuhl, Mitchell, Ankudowich, & Durbin, 2015

Pattern similarity analysis

SEE

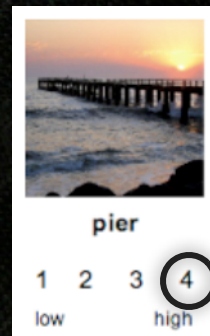
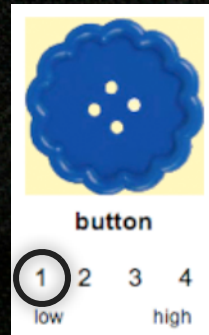
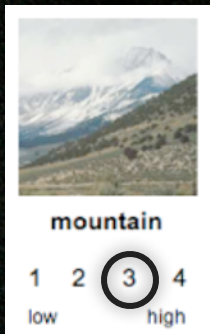


THINK

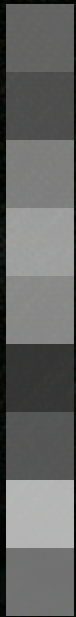
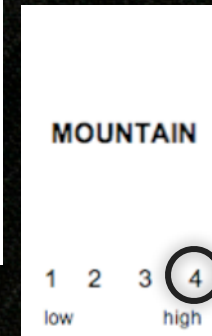
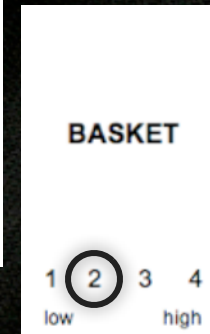
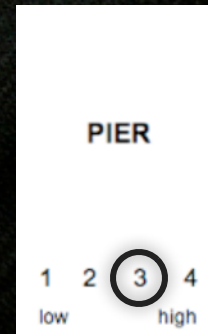


Pattern similarity analysis

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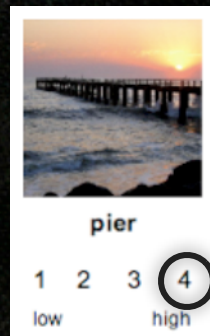
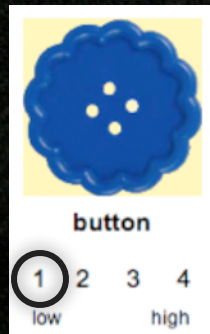
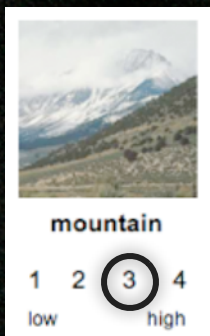


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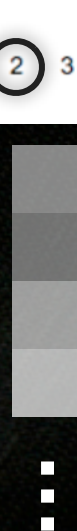
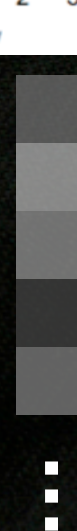
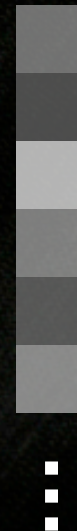
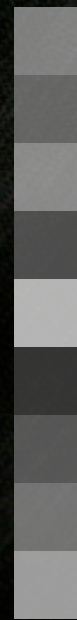
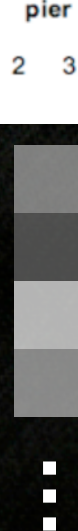
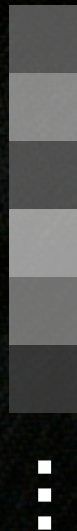
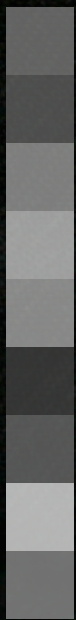
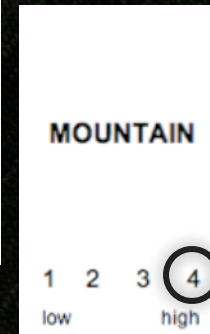
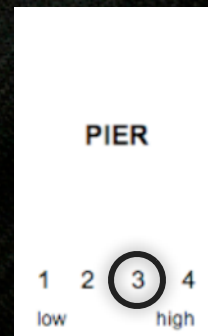


Pattern similarity analysis

SEE



THINK



⋮

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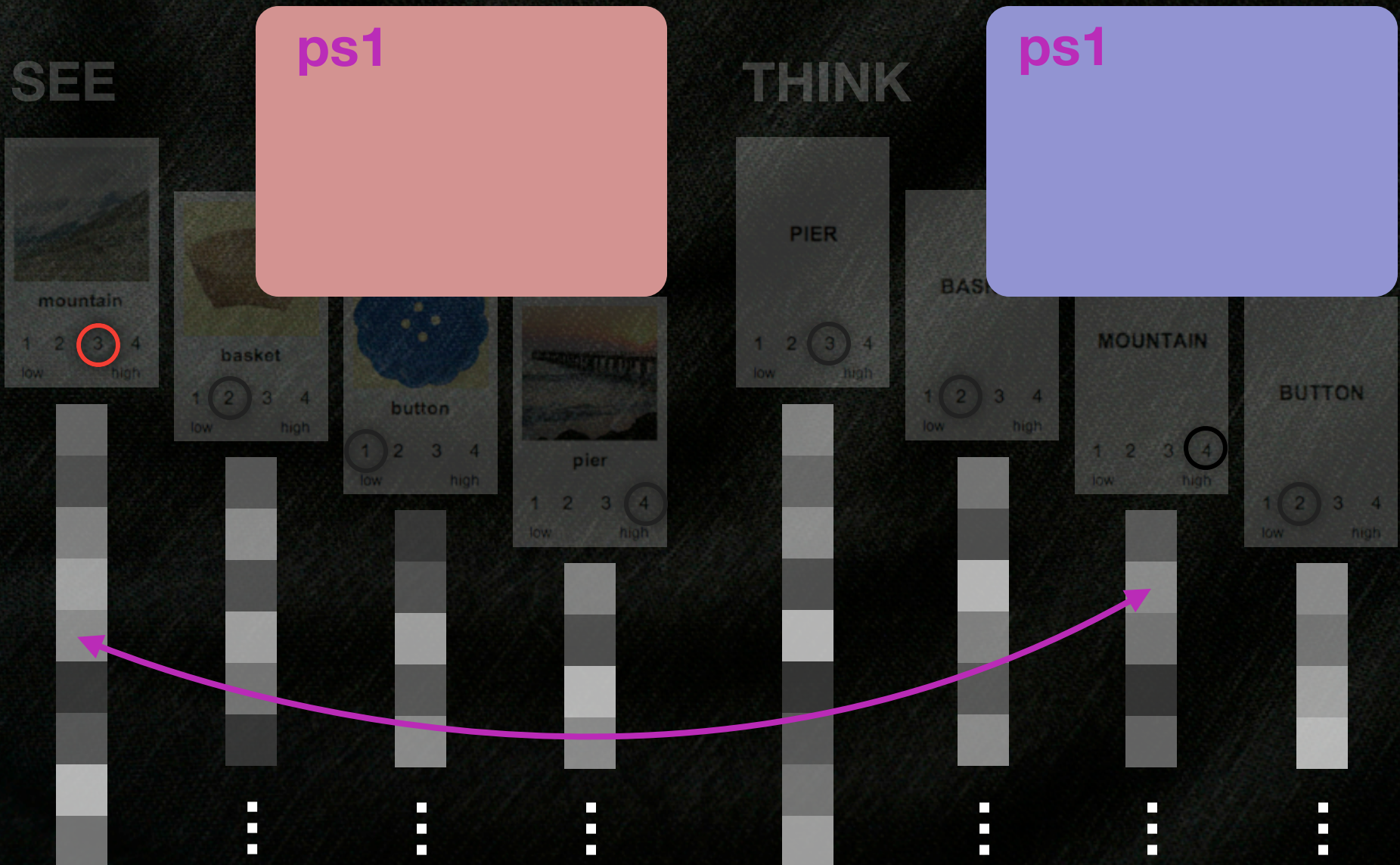
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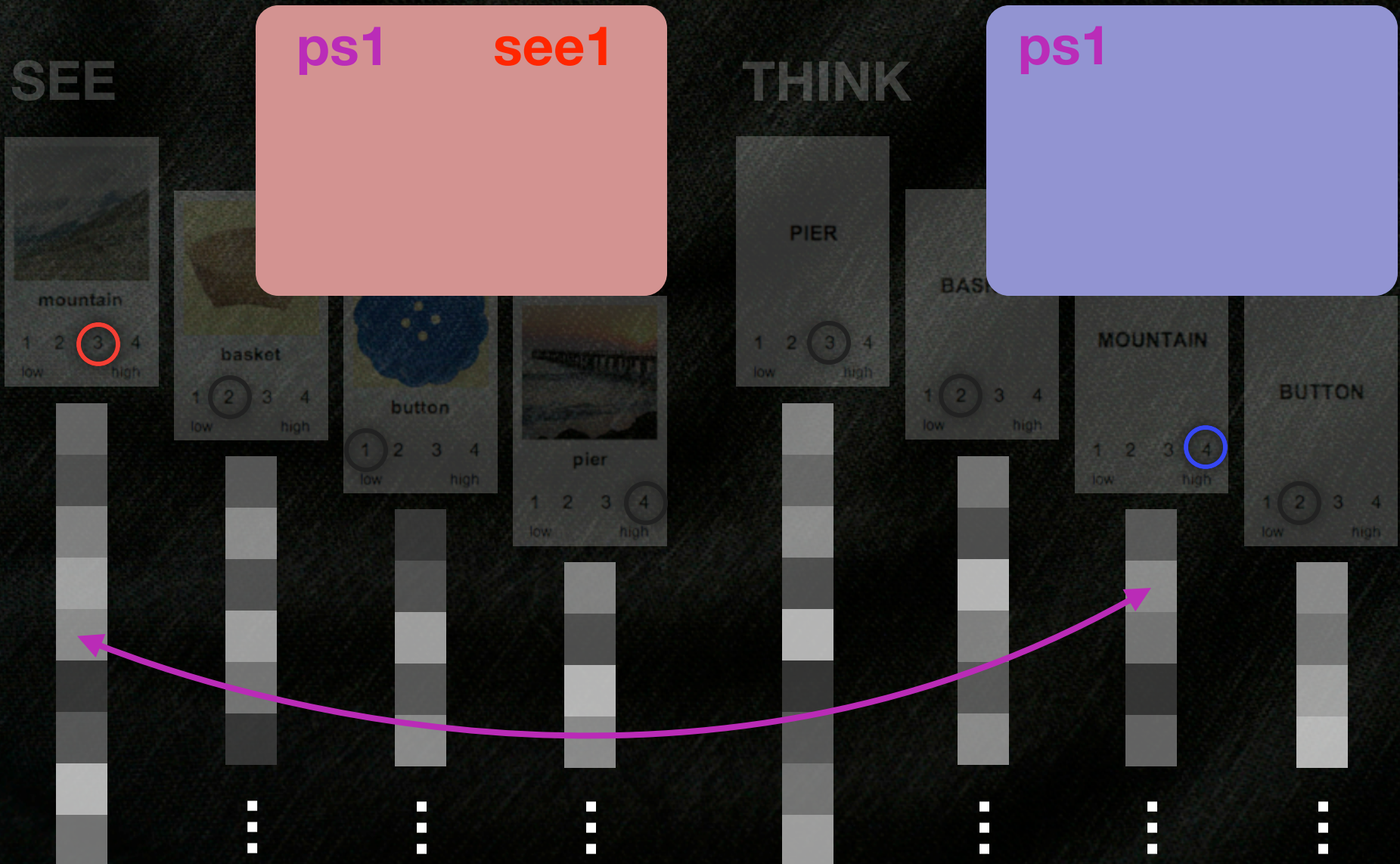
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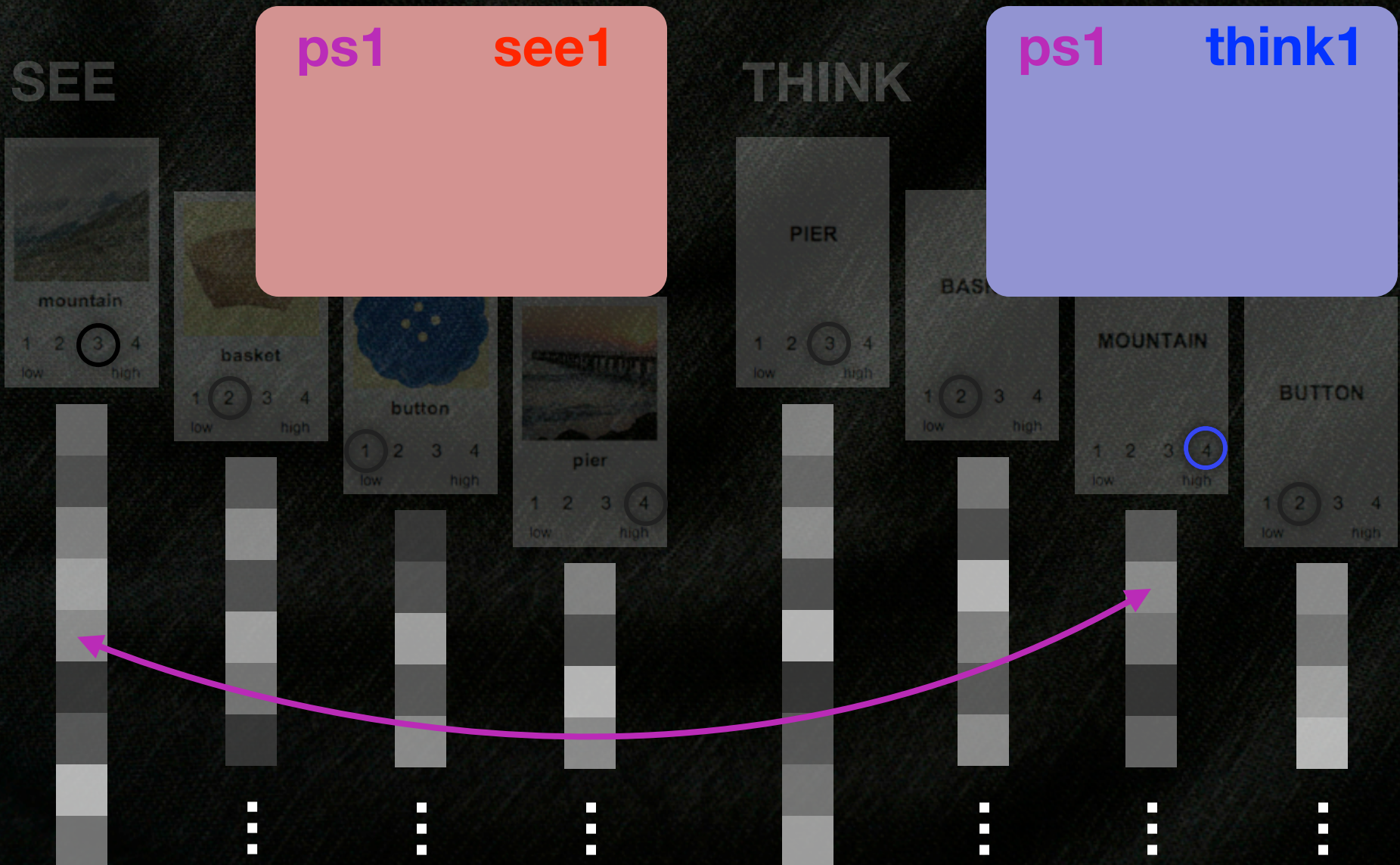
Pattern similarity analysis



Pattern similarity analysis

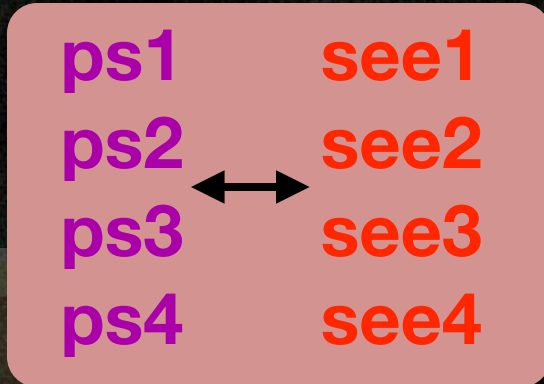
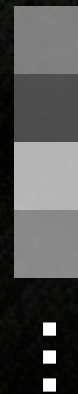
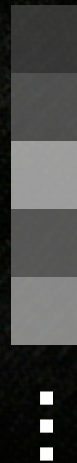
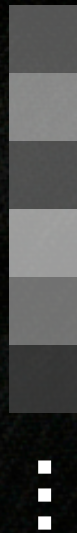
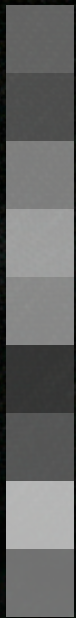
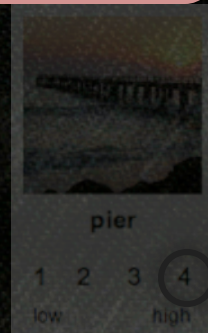
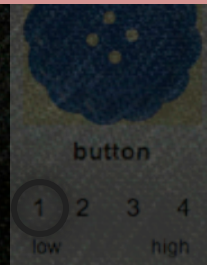
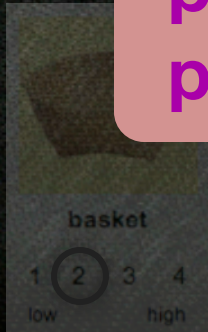
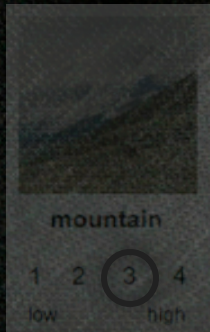


Pattern similarity analysis

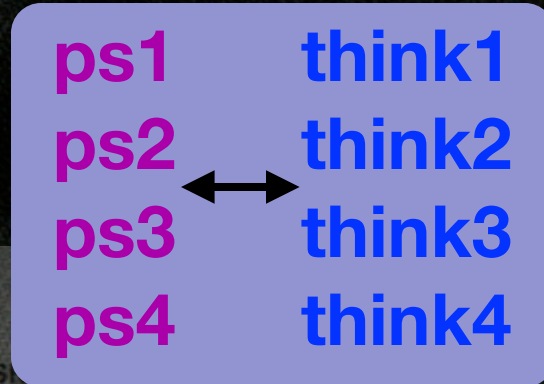
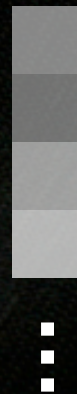
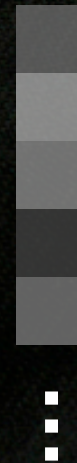
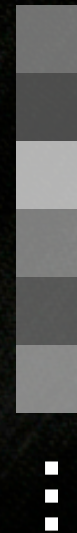
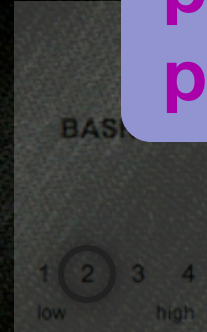
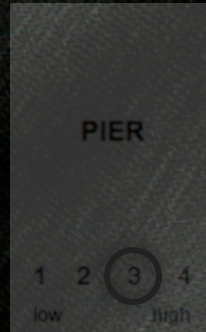


Pattern similarity analysis

SEE

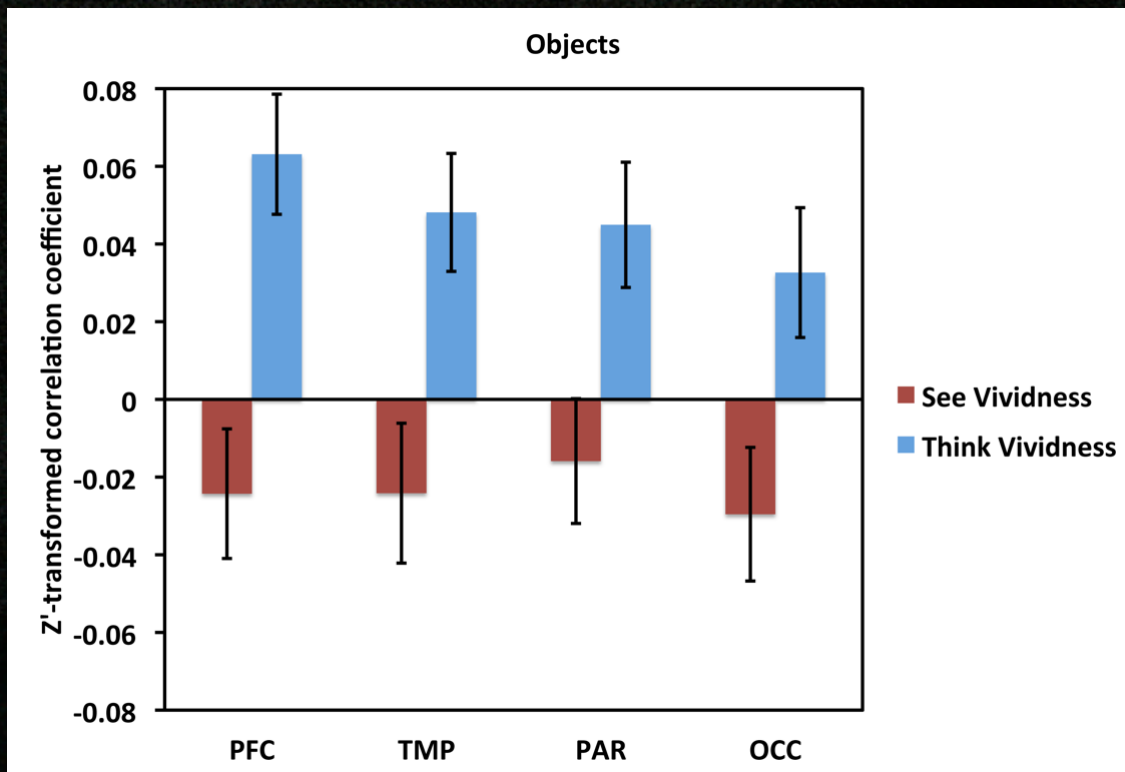


THINK



Pattern similarity results

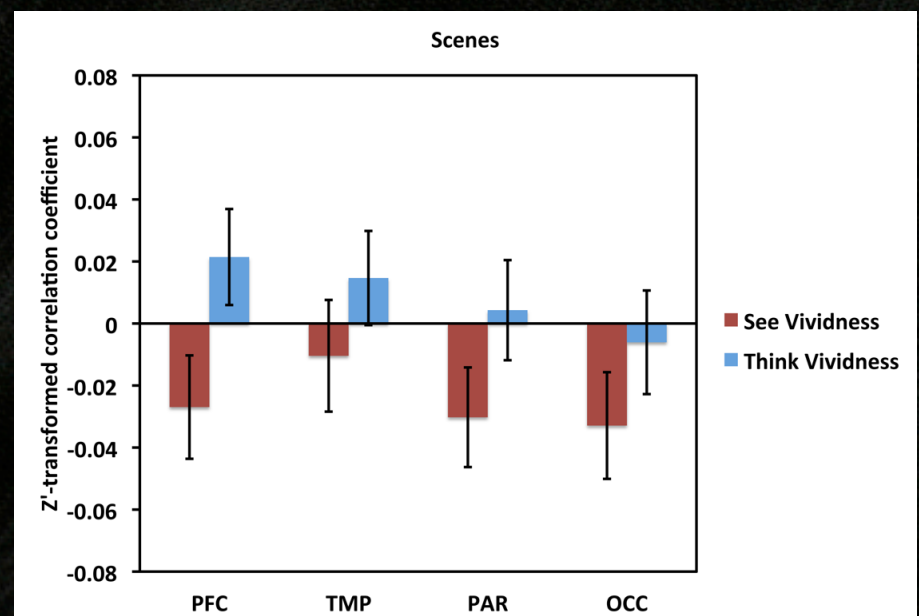
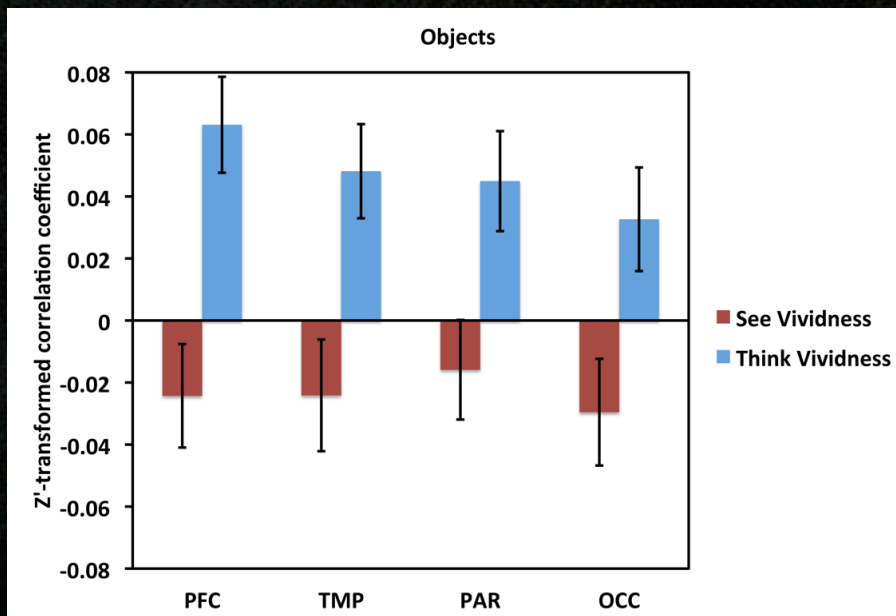
- ✦ Correlations of exemplar pattern reinstatement with subjective vividness ratings:



see also:
St-Laurent, Abdi, & Buchsbaum, 2015

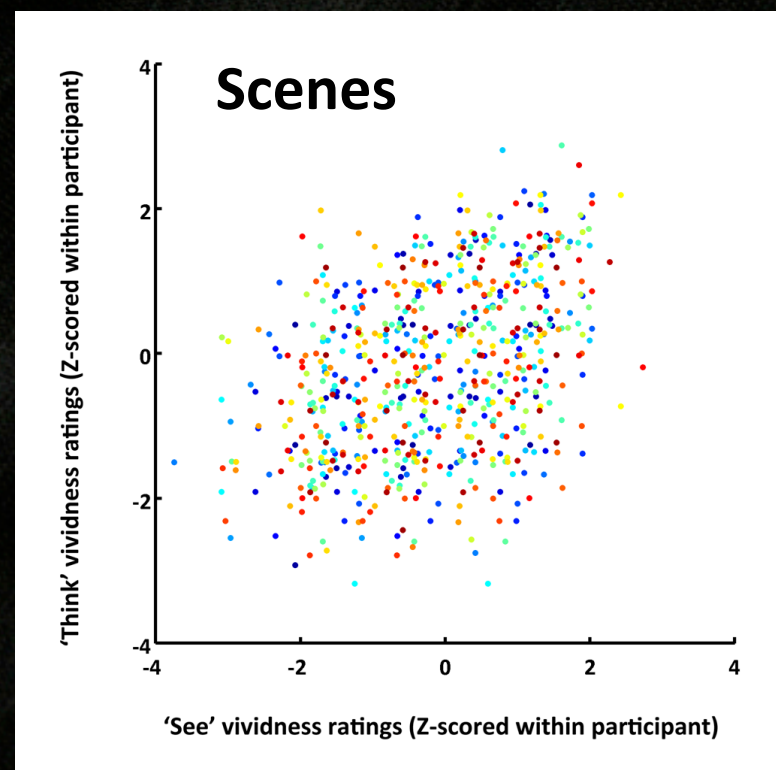
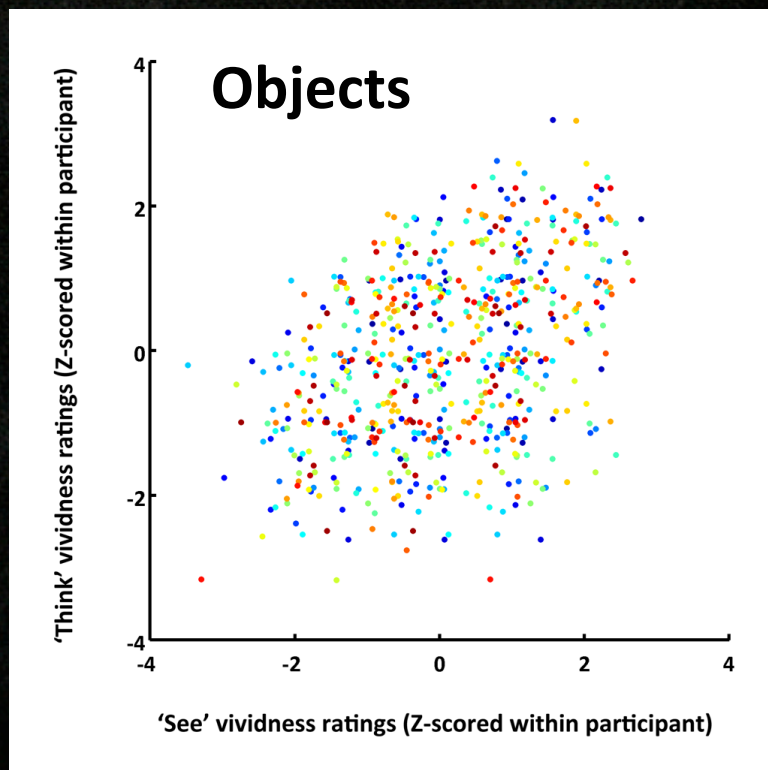
Pattern similarity results

- ✦ Correlations of exemplar pattern reinstatement with subjective vividness ratings:



Inter-rating correlations

- Different relationships with pattern similarity emerge *despite* the fact that See and Think ratings inter-correlate:



Summary

- Across multiple regions, reflective vividness better predicts exemplar pattern reinstantiation than perceptual vividness
 - In fact, higher perceptual vividness is associated with *worse* reinstantiation
 - Differential effects emerge despite some degree of correlation between perceptual & reflective vividness

Questions?

- Reprint of slides:



http://is.gd/mrj_sfn_2015

- Lab website:
<http://raplab.rocks>