

Introduction

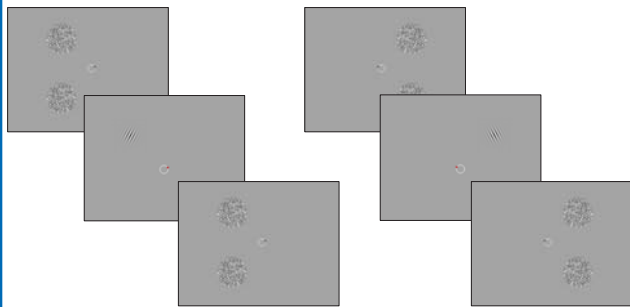
- Traditionally, perceptual learning (PL) was considered to be specific to trained orientation, location, etc (e.g. Fahle, 2004)
- Others have shown that PL can transfer in instances of double training, low task difficulty, and from high to low noise (Ahissar & Hochstein, 2004; Liu, 1999; Liu, Lu, & Doshier, 2011; Xiao et al., 2008)
- Feature-based attention enhances representation of attended feature, regardless of spatial location (Rossi & Paradiso, 1995; Treue & Martinez-Trujillo, 1999)

GOAL: investigate the extent to which feature-based attention affects the specificity of perceptual learning

Method

Training Sessions 1-4

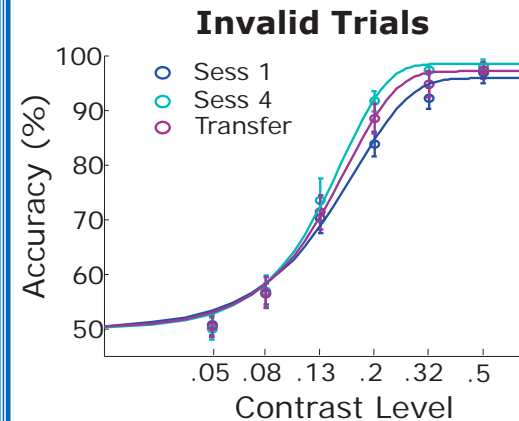
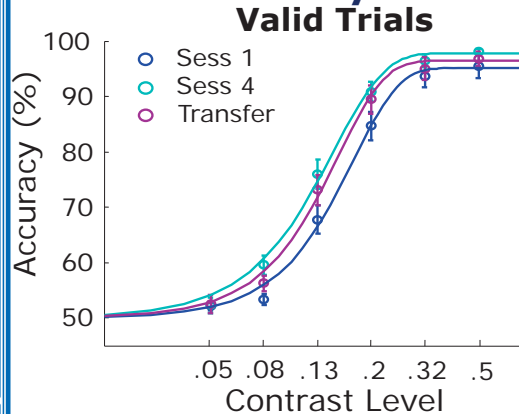
Transfer Session



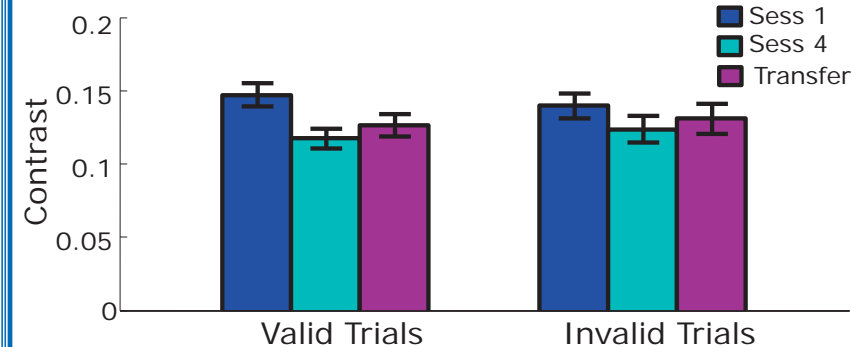
Paradigm

- 2 AFC grating detection task
- 4 orientations: 30°, 70°, 110°, 150°
- 6 stimulus contrast levels logarithmically spaced from .05 to .5
- Orientation cue
- 80% Valid
- 20% Invalid

Results: Accuracy

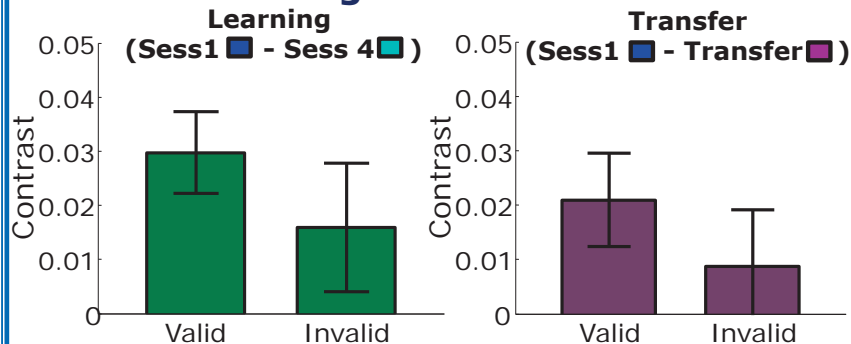


Results: Contrast Thresholds



- Contrast threshold lower on session 4 compared to session 1 for valid, but not invalid trials
- Contrast threshold lower for transfer session compared to session 1 for valid trials
- Learning transfers across spatial location

Results: Learning and Transfer



Conclusion

- Feature-based attention mediates perceptual learning
 - Performance improves after training for validly cued trials
- Feature-based attention mediates transfer of learning
 - Learning-induced improvements only transfer for validly cued trials

References

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