

Effects of Patterned Background on Color Appearance

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Introduction

Does color appearance depend on Background spatial pattern ?

We studied three factors for background influence on color appearance :

- Global Mean
- Local Mean
- Boundary Contrast

Experimental Setup

We measured color by nulling it: Subjects set targets to appear achromatic.

Backgrounds were patterned in 2 colors.

BiPart Background
Position of target varies

Background boundary in mid-screen.

DivPart Background
Target in mid-screen.

Position of Background boundary varies.

StripPart Background
Target in mid-screen.

Width of Background strip varies.

Examples of Patterned Background Used in Experiment

Experiment Setup

* Target size used in experiment: 2.4°

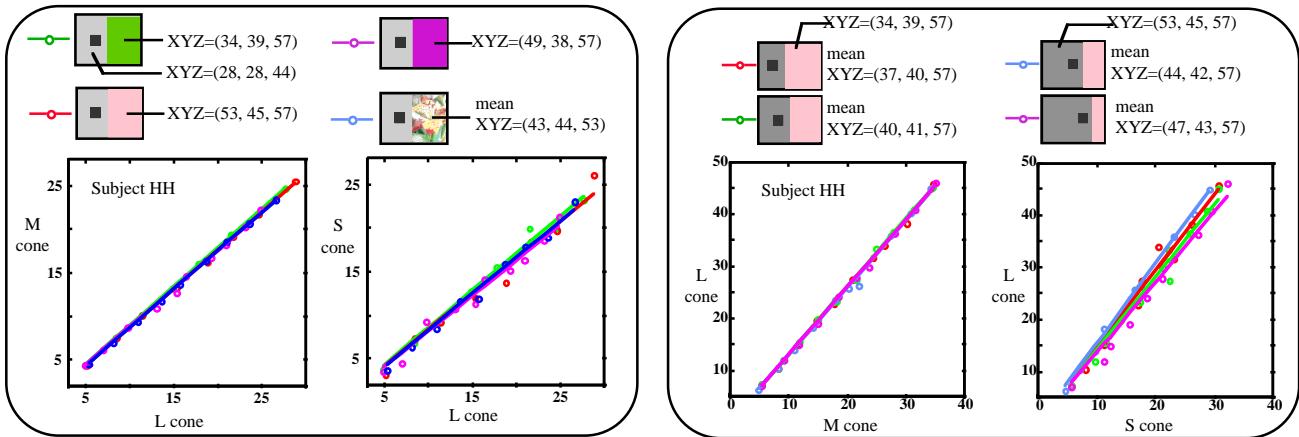
Procedures

Data Representation

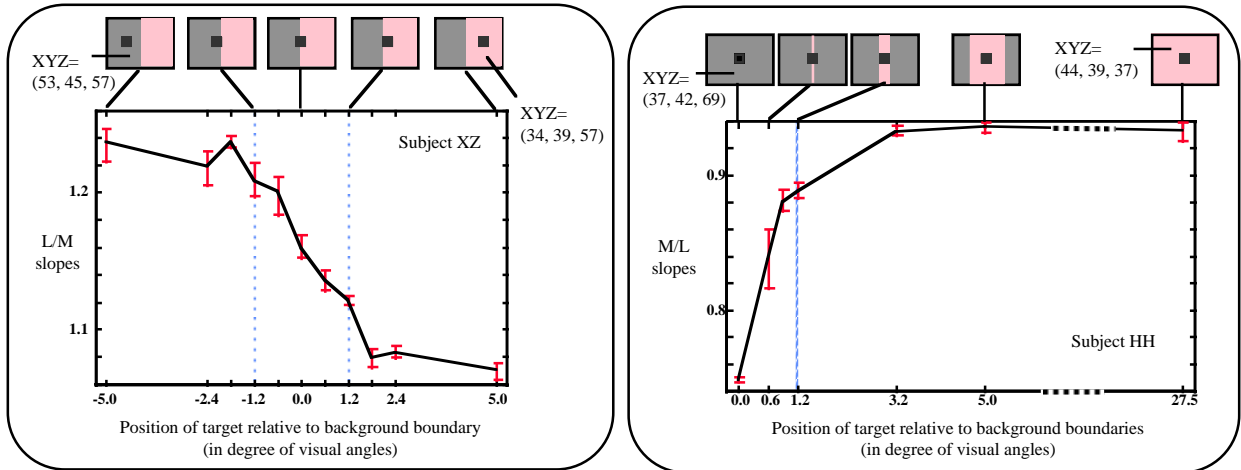
- Measurements are expressed in LMS coordinates.
- We distinguish between stimuli that are incremental and stimuli that are decremental relative to the background.

Results

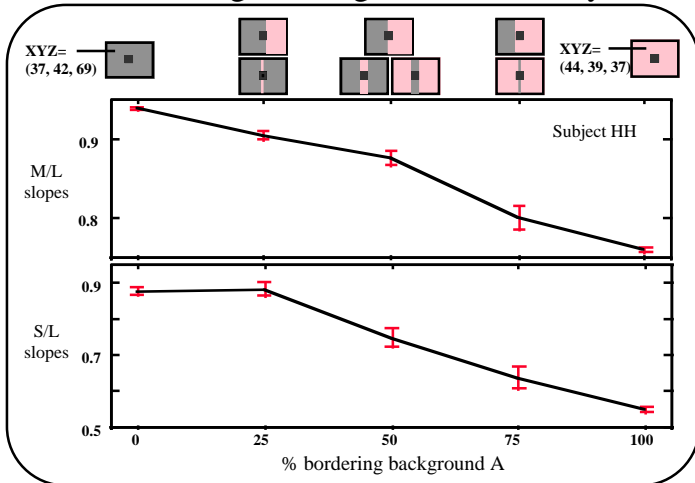
Global mean does NOT predict achromatic loci



Color appearance depends on local mean



Slope change is monotonic with proportion of target-background Boundary



Conclusion

- Achromatic locus remained the same within a constant background region, regardless of global mean.
- Background colors at the target border influenced the achromatic loci.
- Size of background influence depended on the amount of target-border overlap.

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