

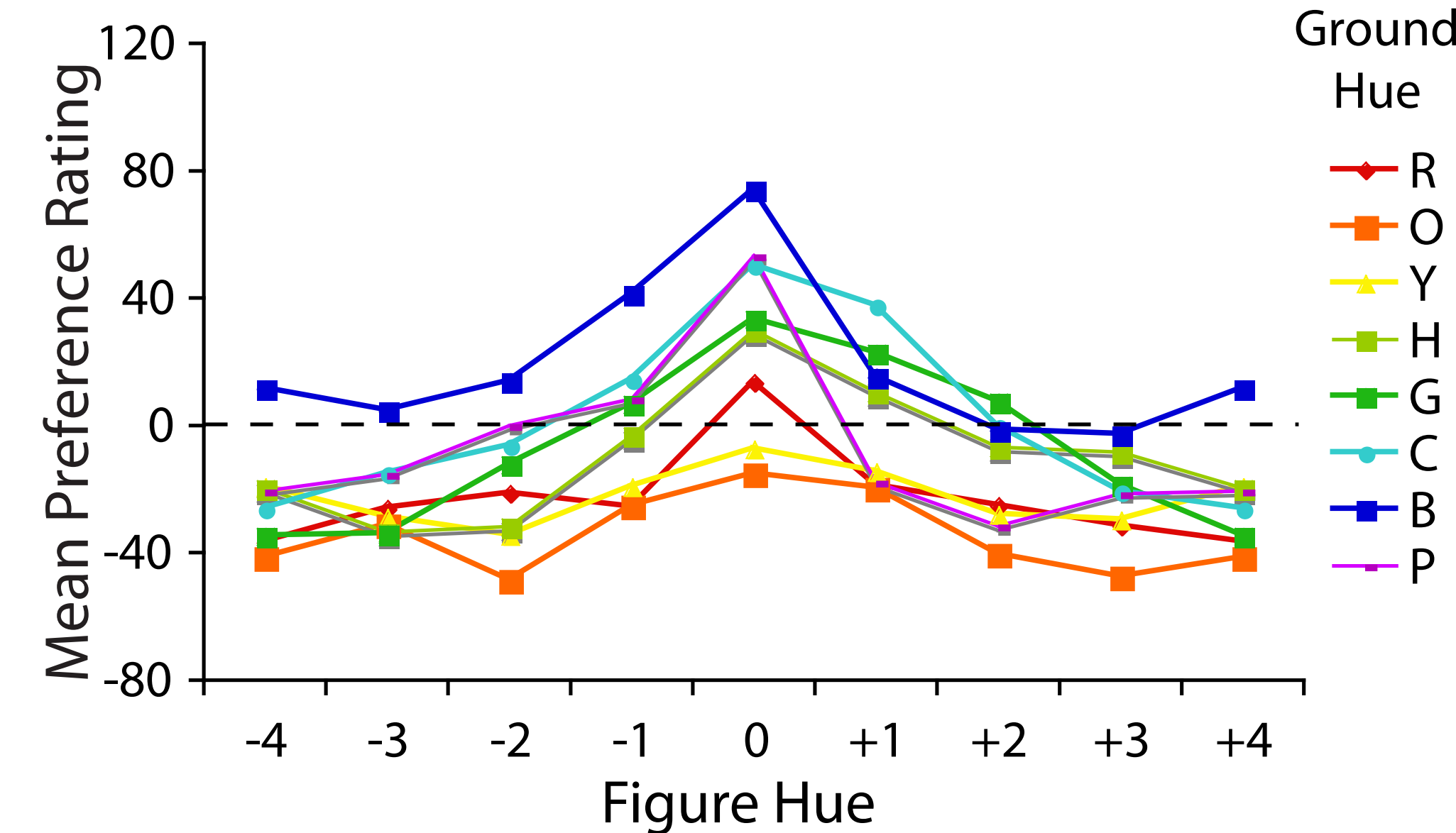
Preference for Color Triplets

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Background

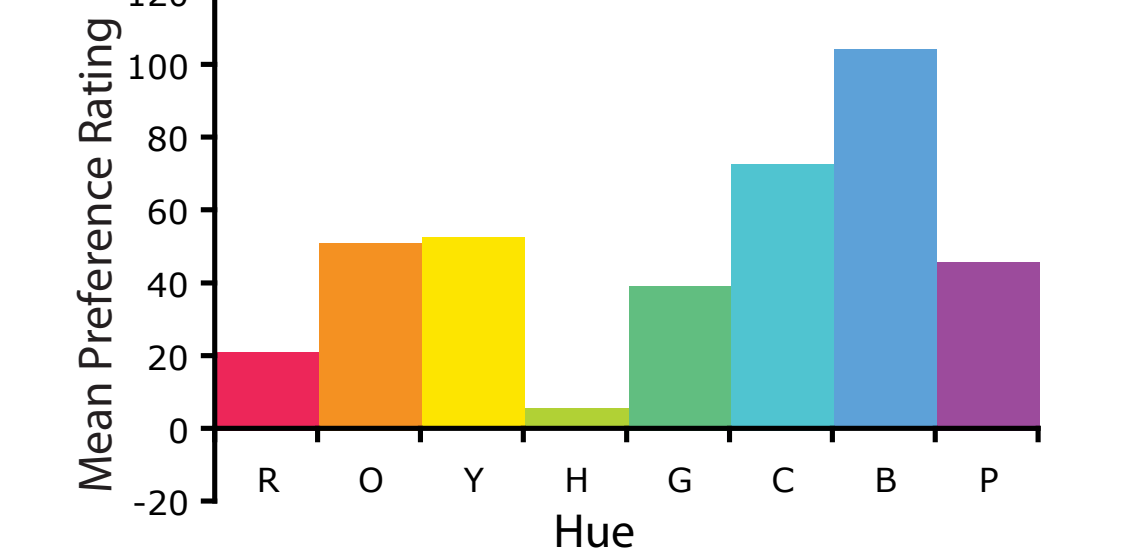
Berkeley Color Project (BCP)

Pair Preference



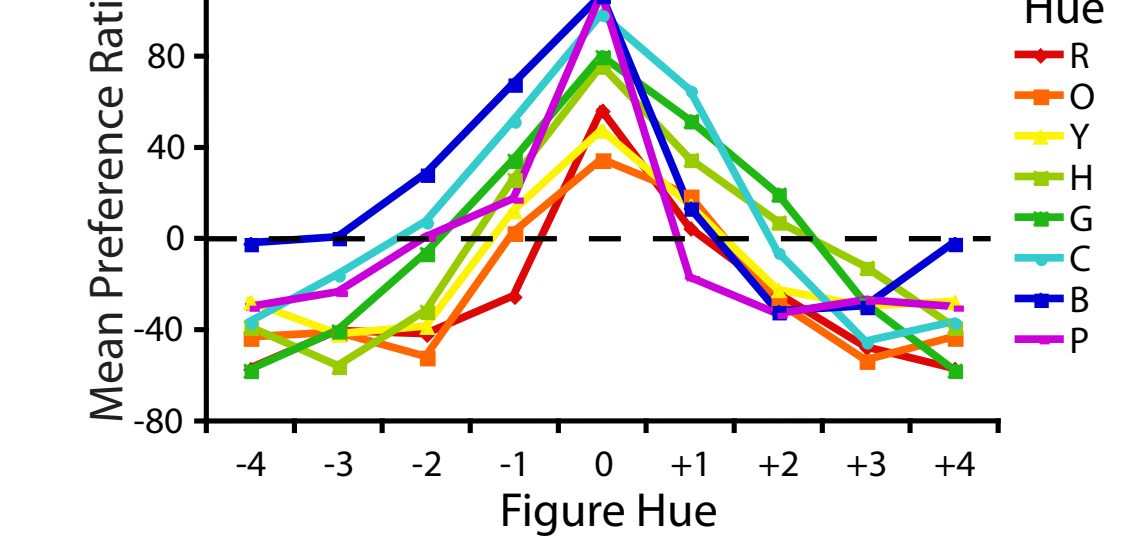
Pair preference is greatest when the hues are most similar.

Single Color Preference



Preference for pairs is only weakly predicted by single color preference.

Pair Harmony



A relational factor, like harmony, is needed to better explain pair preference

(Schloss & Palmer, VSS 2007)

Research Questions

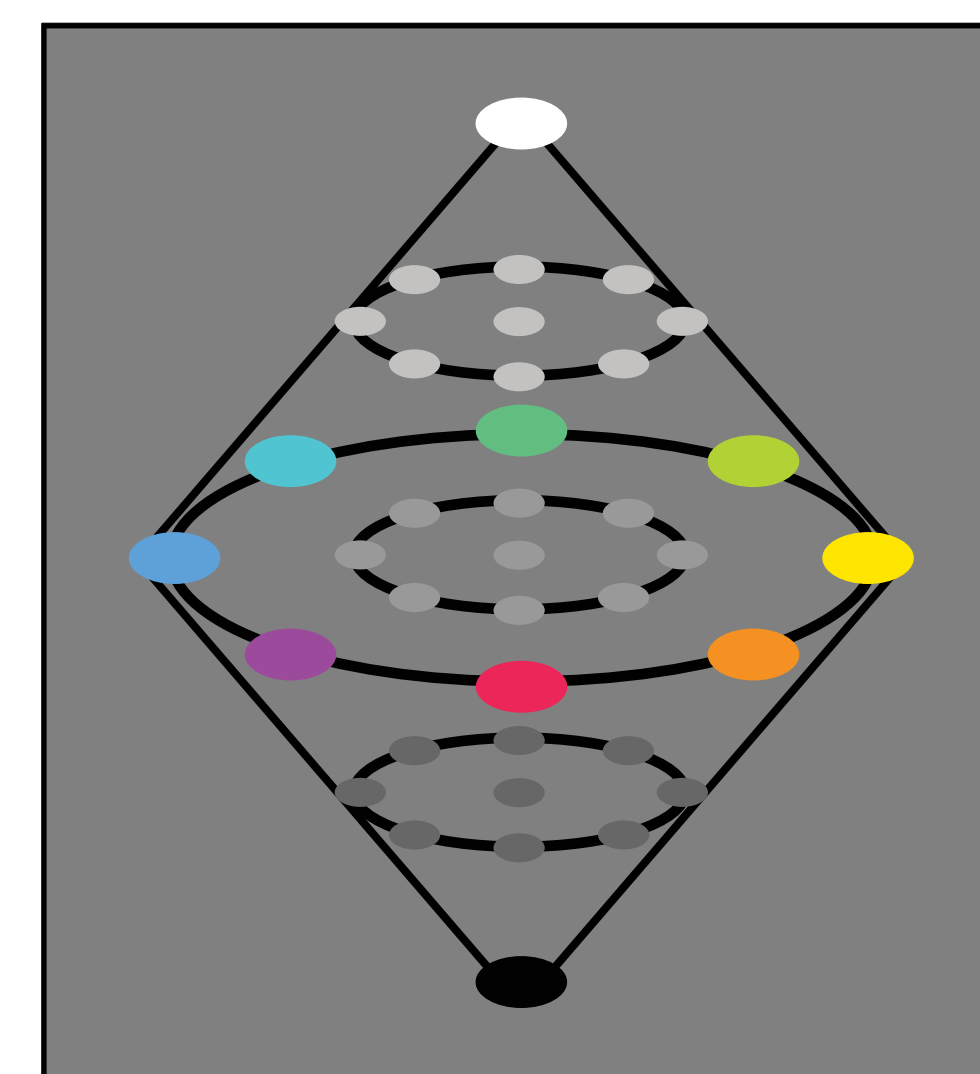
How does adding a third, smaller (accent) color influence preference?

How does similarity between accent and base colors influence preference for triplets?

How does the size of accent color regions influence preference for color triplets?

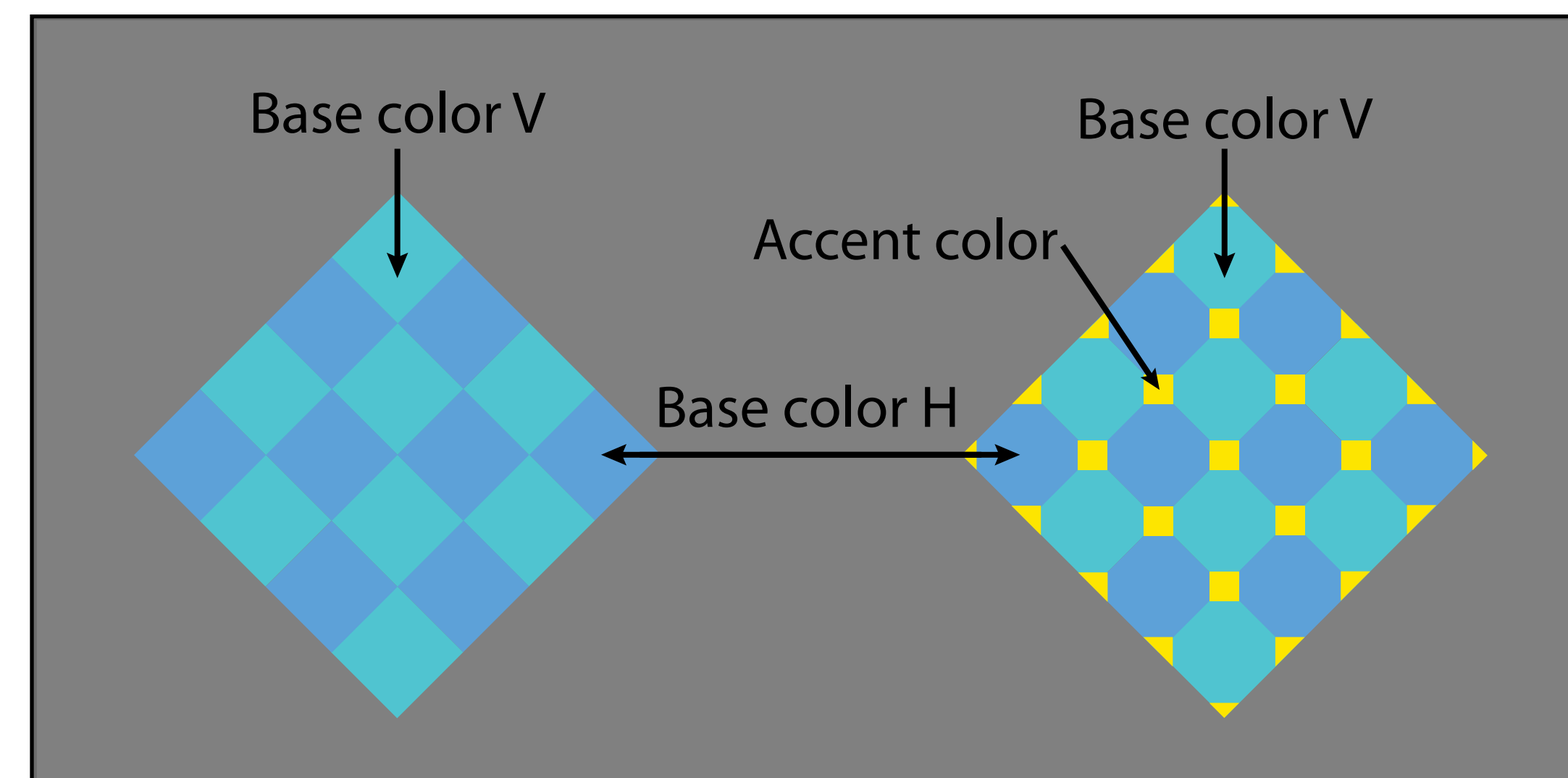
Displays

Colors



8 Saturated colors from the Berkeley Color Project 37

Spatial Composition



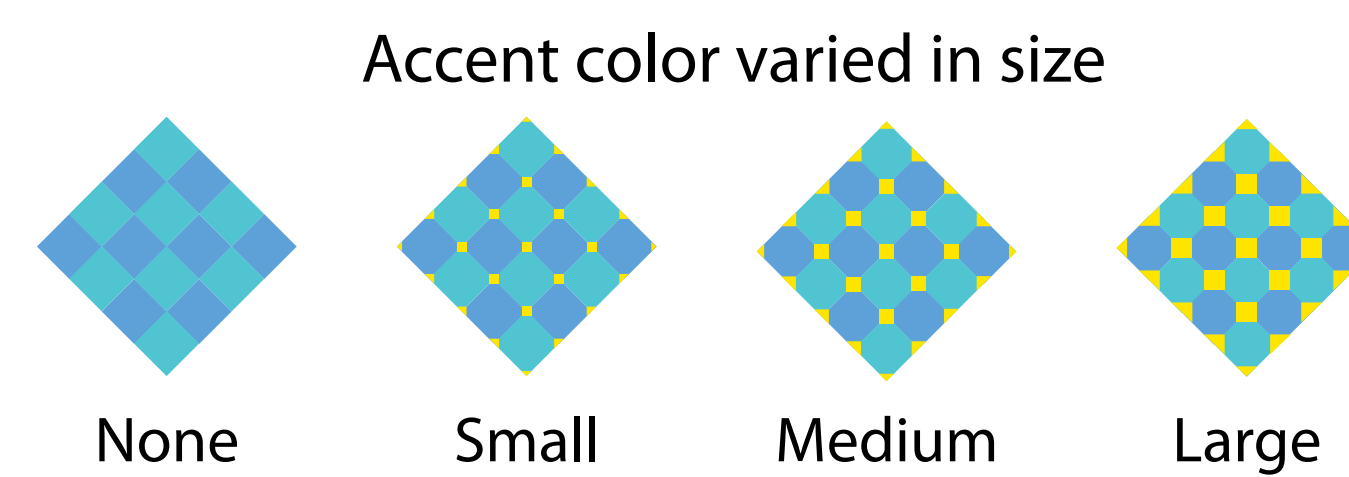
Displays always contained a checkerboard of two base colors and sometimes a third accent color. The accent color region was always smaller than the base color regions.

Experiment 1: Color Triplet Preference in Fixed Proportions

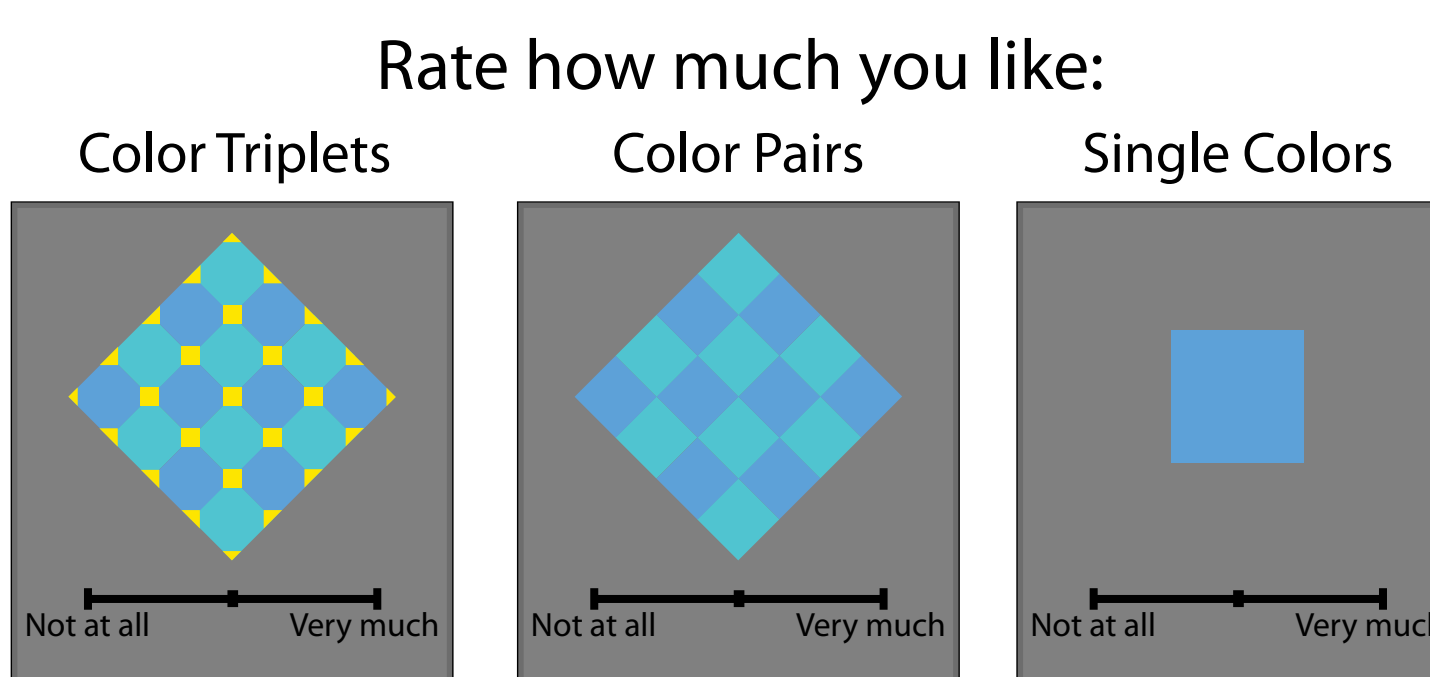
Methods

Colors
Base colors: all pairs of adjacent colors
Accent color: any of the remaining 6 colors

Displays

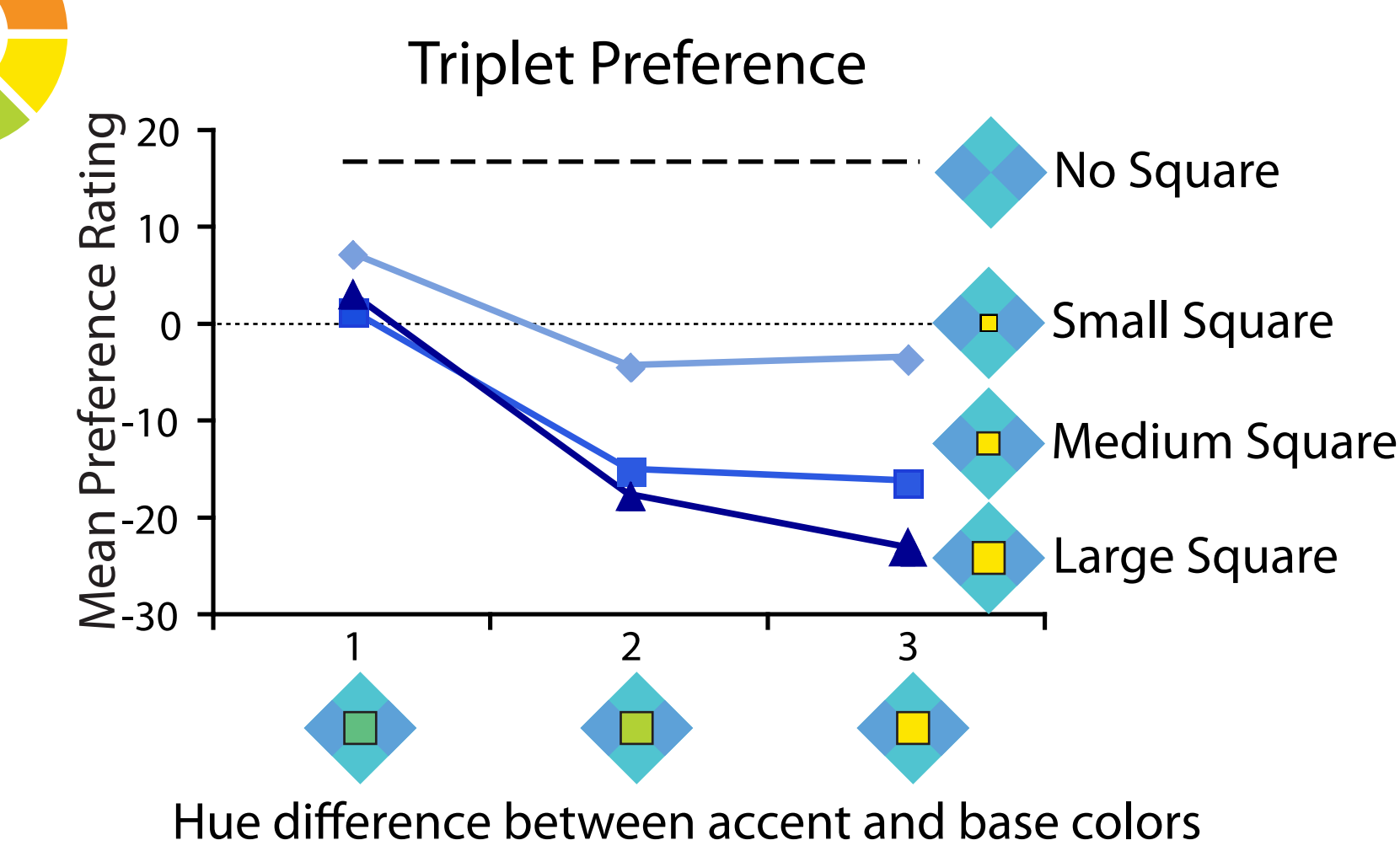


Tasks



341 displays

Results



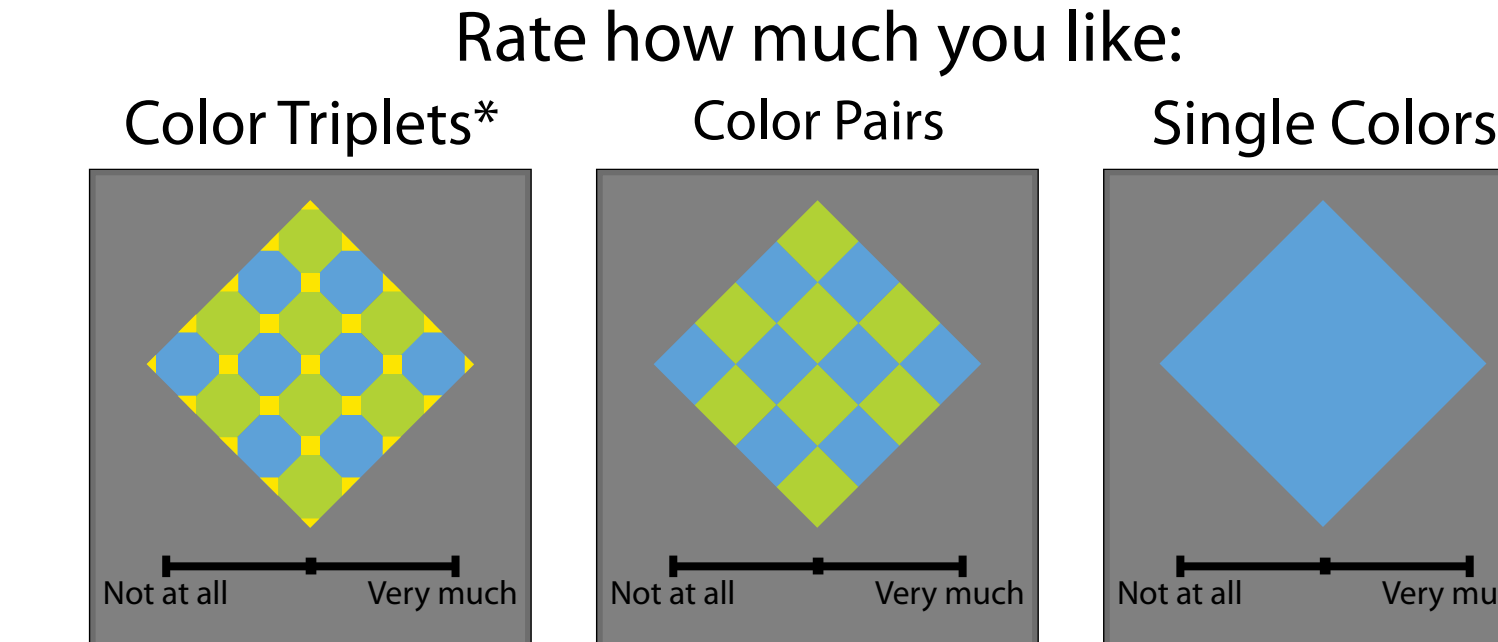
Linear regression explains 62% of the variance

- (1) **Harmony** between accent color and each base color (42%): harmony was preferred
- (2) **Blueness/yellowness** of the accent color (8%): blueness was preferred
- (3) **Base pair preference** (6%): high preference preferred
- (4) **Accent color size** (6%): small size preferred

Experiment 2: Color Triplet Preference in Variable Proportions

Part B: Preference Rating Task

Tasks



*For the triplet condition, participants were shown displays with the accent regions size at the setting from Exp 2a for that participant.

Linear regression explains 59% of the variance

- (1) **Base pair preference** (35%): high preference preferred
- (2) **Pair preference of Base H** with the accent color (15%): high preference preferred
- (3) **Pair preference of Base V** with the accent color (9%): high preference preferred

Experiment 2: Color Triplet Preference in Variable Proportions

Part A: Adjustment Task

Methods

Colors
Base colors: all possible pairs of saturated colors
Accent color: any of the remaining 6 colors
336 combinations

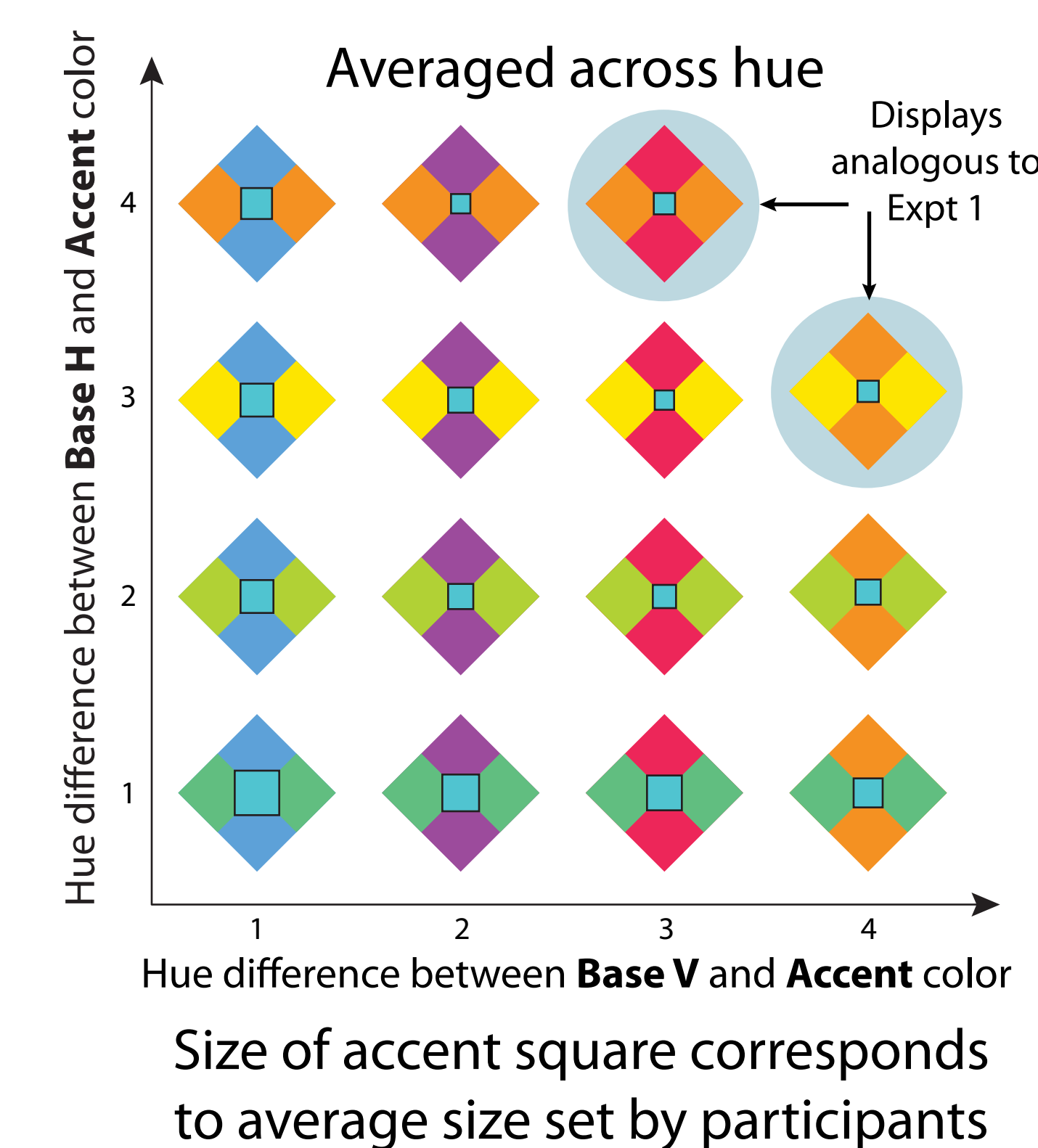
Displays

Same spatial composition as Experiment 1, except the accent color regions were adjustable in size.

Task

Adjust the size of the accent color regions until you find the most aesthetically pleasing display.

Results



Cooler accent regions were set larger ($p < 0.001$).

Accent color regions were set larger when they were more similar to the Base H color ($p < 0.001$) and Base V color ($p < 0.05$).

Linear regression explains 43% of the variance

- (1) **Coolness/Warmth** of accent color (21%): cooler colors \rightarrow larger
- (2) **Hue difference** between Base H (11%), Base V (11%) and accent color: smaller hue difference \rightarrow larger

Conclusions

When base hues are adjacent on the color wheel, displays without a third accent color are preferred, probably because adding a third color decreases harmony.

As the colors in a triplet become more different from each other (greater distance from one another on the color wheel), ideal accent color size decreases.

The best predictors of triplet preference are preferences for the all pairs in the triplet.

Schloss and Palmer (VSS2007) found that single color preference only weakly predicted pair preference, but we show that preference for colors pairs strongly predicts triplet preference.

References and Acknowledgements

Schloss, K. B. & Palmer, S. E. "Color preferences across contexts as predicted by colorimetric variables." Presented at 7th Annual Meeting of the Vision Science Society, Sarasota, FL, May 2007.

Acknowledgements

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