Guidelines for using color blending in data visualization

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Context

Visualization is a powerful way to convey data. However, visually merging different classes of information poses several challenges. Color has a great potential for labeling and categorizing information. So, it may be the solution for representing multiple data properties.

Studying color blending

Main goals:
Understanding human perception of color blending;
Finding out which color model is more natural to people regarding color blending;
Knowing which pairs of colors blend well.

Color samples:
Considering 4 main colors, the combinations of 2 and 3 elements among them. Total: 16 colors.

Protocol: Online questionnaire: (1) Profile questions; (2) Color blindness test; (3) Color blending questions; (4) Color model preference questions (HSV; CIE-LCh; CMYK); (5) Satisfaction questionnaire.

Main results

Perceiving color blending is not very natural, especially with more than 2 colors. Since it relates to early childhood activities, the CMYK model may be relevant. Best combinations:
- yellow+green
- yellow+red
- red+blue
- green+blue.