

Luminance spatial distribution plays a major role in color assimilation

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Previous studies on color induction concluded that uniform surrounds tend to induce color contrast and striped surrounds tend to induce color assimilation. In this work, we conducted several psychophysical experiments to measure the contribution of the luminance spatial distribution of chromatically striped stimuli to color assimilation. We used Monnier and Shevell's (2003) color induction paradigm, defining 5 luminance and 4 chromatic conditions (one of the luminance conditions was "equiluminant"). In the 4 chromatic conditions we systematically varied the luminance of all stimuli ingredients: the target, the 1st inducer, the 2nd inducer and both inducers. We observed that (1) color induction strongly depends on the luminance differences present in the stimuli, (2) there is also a significant dependence on the chromatic inducers (chromatic condition) and (3) color assimilation is stronger in the s direction of MacLeod-Boynton color space than in the l one.