Linguistic encoding and blue shade discrimination: Insights from 80 languages

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Abstract

Contrasting color terminology for different shades of blue in one's native language is often reported to modulate visual discrimination speed and similarity ratings. Representative studies to date exhibit serious limits in that many rely on two-language comparisons and modest sample sizes. Here we address both limitations with a dataset of 3912 participants from a sample of 80 native languages out of which 16 lexically distinguish blues (TwoBlues) based on brightness (incl. Azeri-Burmese-Greek-Thai-Turkish-Ukrainian). We used a new 'color guesser' game. Participants saw grids of blue tiles in 3x3 arrangements, with the middle left blank. Two blue probes appeared under each grid, manipulating within/between/across blue combinations. The task was to quickly decide which probe completes the grid. Contrary to predictions, neither accuracy rates nor reaction times to distinct shades of blue differed significantly between language groups (TwoBlues vs OneBlue). We draw implications for models that posit top-down linguistic modulation of visual processing.

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