

P1-40: Factors determining grapheme-color associations in multilingual synesthetes

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People with color-graphemic synesthesia experience idiosyncratic colors when viewing alphanumeric characters. Despite large individual differences, researchers have attempted to find regularities and determinants of grapheme-color associations. So far, this was done mainly by analyzing large-scale color matching data (Rich et al., 2006; Simner et al., 2005), but investigating synesthetic colors of multilingual synesthetes in different grapheme types could be an alternative (Barnett et al., 2009). Here, we report a novel finding based on three Korean synesthetes who experience colors on characters of multiple languages and digits. A modified version of the synesthesia battery (Eagleman et al., 2007) was used with a color-calibrated monitor for color matching of English, Korean, and Japanese characters. “Colors” for the overlearned sequences - i.e., numbers 1-9 and weekdays - in various forms were also matched. Results showed that graphemes of which first sound is identical tended to induce similar “colors”. Matched synesthetic colors of those graphemes were clustered together on the CIE color space. Graphemes with similar visual shapes also tended to induce similar “colors”, but the tendency was not as strong as in the case of sound. Sound seems important for the synesthetic color induced by the overlearned sequences as well. For example, the Korean words for “one” and for “sunday” are homonyms and all three synesthetes experienced similar "colors" for those words. For the overlearned sequences, however, meaning seems to be the major determinant. The current study provides a clue to the nature of synesthetic association by deploying unusual cases of multilingual synesthetes.