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Linguistic relativity in the domain of colors: Evidence from Mandarin and Spanish

Abstract:

The question “whether color categories are linguistically constructed?” has prompted a lively theoretical debate. Previous studies have found cross-linguistic differences in subjective color boundary judgements (Davies et al., 1998; Roberson et al., 2000): if two colors are called differently in one language, speakers of that language will judge the two colors to be more different and do not tend to confuse them. More recently, the work by Winawer et al. (2007) showed that Russian speakers were faster to discriminate lighter blues (‘goluboy’) and darker blues (‘siniy’) than English speakers, since they fell into different linguistic categories. The same situation may happen to Spanish and Mandarin color terms for purple: unlike Mandarin zi (‘purple’), Spanish does not possess a basic color term for purple (Rello, 2009), since at least, both lila (lighter purple) and morado (darker purple) are used frequently.

In this study, we conducted a color naming task to test Mandarin and Spanish speakers’ color discrimination performance of color boundaries (Lila-Morado “purple”). 21 monolingual speakers of each language (aged 20-39, mean = 26, SD = 3.56) participated in this experiment. The experimental stimuli (Munsell color chart, Mc) consisted of 330 standard color chips, each subject was asked by the experimenter to tell the name of each color. The order of the blocks was varied randomly across subjects. After having completed the color naming trials, subjects were tested in a color-discrimination task to determine their individual linguistic borders.

The results indicate that categorical perception effects for both Mandarin and Spanish were found, but only at the boundaries. We calculated the specificity index (SI) for each tile which reflects the consensus of use following Davies and Corbett (1994). Dominate frequency has to be \( \geq 0.05 \) (Uusküla, 2007). One-way between subjects ANOVA showed a significantly higher proportion of SI in Spanish than in Mandarin (F2,21 = 11.27, p < .001) at the boundaries. That is, although both Mandarin and Spanish speakers can distinguish the lightness and darkness of the tile in general, only Spanish speakers can distinguish them when they fell into boundaries (i.e. E32-E35; F32-F35 in Mc). Thus, the existence of two different linguistic terms lila and morado in Spanish may force them to make an obligatory distinguish and therefore disambiguate the boundary. Hence, speakers can discriminate two colors more easily if they fell into different linguistic categories, and this category advantage may provide a new reflection for Whorfian question.
References:


