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Is Red Fire Warmer than Blue Fire? Colored Thermal Words in a Stroop Task

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Abstract: In many languages there are concepts for warm and cold colors. Research on color-temperature correspondence and their interaction is quite scarce, and based mostly on subjective measures. It is still unknown whether and to what extent colors bear the thermal information. The current study explored the relationship between warm and cold colors (red and blue) and thermal aspects of the word semantics (sun, snow), using the Stroop paradigm in a color categorization task. It was hypothesized that if colors activate the thermal meaning then Stroop effect should occur. The results suggested a color-temperature compatibility effect – faster responses when associated color and thermal meaning corresponded (e.g. sun presented in red). This provides important information on the automaticity of thermal activation during word processing, and on the strength of conceptual associations in color perception. It was suggested that words induced mental simulation of the thermal concepts, together with the associated color.