

On synesthesia and its types

Synesthesia is a perceptual phenomenon in which one stimulus causes a stimulus in a different sensory pathway, a sound or a grapheme for example, could evoke a color and vice versa. Multiple studies [1] [2] have found a correlation between an increase of creativity and the synesthesia phenomenon. The phenomenon is in fact linked with the concept of metaphor and the ability of grasp and create new ones, ability in which artists are surely good at. Ramachandran argues that we could think about metaphors as involving cross-activations of conceptual maps in a manner analogue to cross-activations in synesthetes [1]. The phenomenon is thought to be a result of cross-activation (or cross-wiring) of different parts of the brain that usually do not activate together. Ramachandran discusses the cross-activation of the zone interested in graphemes and the V4 zone of the visual cortex, which is thought to be in charge of process colors, when subjects with graphemes-colors synesthesia were exposed to grapheme stimuli [1]. Other hypothesis regarding the cross-modal origin of synesthetic phenomena have been discussed [1] and proved [3]. The origins of this phenomenon however, are still discussed, and the hereditary [1] of it creates discussion about possibly evolutionary origin [3] or attributes it to a genetic mutation in the wiring system of the brain which does not function well while pruning some connections [1]. Some authors have even theorized that synesthesia could have played an important role in the origin of language [4][1]. Cuskley & Kirby showed [4] that language users make implicit cross-modal associations between the actual sound of the word and other sensory properties of the object they describe, in an analogue was as in the famous kiki/bouba effect. Dance is proposed as a sensory-to-motor example of synesthesia [1], and it is related by the author with the origin of language. According to the researchers in fact, language would have the same cross-mapping functioning systems as dance, a sound is mapped to a movement, but in case of language the tongue and lips would have been the moving parts [1]. This would have been so, at the origin of an utterance-based proto-language, from which current languages did evolve.

Synesthesia can happen at different levels (e.g., perceptual or at a higher cognitive level) [1], and can involve different kinds of perceptual stimuli. As said before, even dance could be consider as a form of audio-motor synesthesia [1], while some other studies have demonstrated that pitch-size synesthesia is a common trait of the normal population [3], showing that there is not such a sharp line dividing synesthetes and non-synesthetes people, but this line is indeed blurred. We could argue however, that some types of synesthesia are rarer, and they show up in just a small portion of the population. These types involve for example the grapheme-color synesthesia [1], the chromesthesia (sound-to-color), the mirror-touch synesthesia[5], the ordinal-linguistic personification (OLP) [6], the sound-taste or sound-touch synesthesia [6], the lexical-gustatory synesthesia [6], the ideasthesia (“conceptual synesthesia”) [6], the time-space synesthesia and so on [6]. So practically, probably, there exist a type of synesthesia for every kind of sensory experience pairs, either at the perceptual or conceptual level.

As soon as it is understood the way synesthesia works, it is immediately clear to see why it is linked with arts and creativity. As shown by Ward [2], there is a tendency for synesthetes to spend time in an art field relate to their synesthesia type. They have found for example, that synesthetes experiencing vision from music were far likely to play an instrument and so on [2]. In my opinion, the ability of perceive things in a different way, can help improve the novelty of the creations. Also, it can improve the ability of doing certain arts. If for example a musician is able to both listen and see the notes, he would have an advantage in playing compared to his “normal” counterpart. Synesthesia has also been linked with the concept of metaphor, which is a fundamental concept for artists. A poet for example, needs to be extremely good in evocating emotions, and in order to do so, it needs very profound metaphors, which can magnify the contents. However, the main reason in my opinion of the link between synesthesia and creativity, is that synesthesia helps linking concept and ideas seemingly far

away from each other, creating novelty, so creativity. Connections between different perceptual fields so, happens in synesthetic people in a different way than in normal people, whom lack the ability of create these connections. The synesthetic so, will shock the normal person, by creating something that the non-synesthete would have not thought about, and will do this through unusual connections between seemingly unrelated concepts or sensory experiences.

References

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