

Replacing one sense by another:
Sensory substitution and the classification of our sensory modalities

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Sensory substitution devices provide a mean to investigate empirically theoretical questions about the distinction between the senses. These systems provide through an unusual sensory modality (the substituting modality, for example audition) access to features of the world that are normally accessed through another sensory modality (the substituted modality, for example vision). The question thus arises of which sensory modality the acquired perception belongs to. Both the thesis that the acquired perception occurs in the substituting modality (the deference thesis) and the opposing thesis that the acquired perception occurs in the substituted modality (the dominance thesis) have been defended.

Following on from the view developed in Auvray and Myin (in press), this talk address how perception with sensory substitution devices should be understood. To do so, we applied the criteria that have been used to define and distinguish sensory modalities to the case of perception with sensory substitution devices. These criteria are those of sensory organ, stimuli, properties, qualitative experience, behavioural equivalence, dedication, and sensorimotor equivalence. Building on the discussion of these criteria, we propose that we should move beyond the assumption, common to the dominance and the deference theses, that perception after sensory substitution can be conceived of as equivalent or reducible to perception in an already existing sensory modality. Indeed, although the application of a number of criteria might be taken to point to the conclusion that perception with a sensory substitution device belongs to the substituted modality, we argue that the evidence leads to an alternative view, according to which these devices should be seen as tools that extend perception in entirely novel ways. We develop this view by comparing sensory substitution devices to other 'mind enhancing tools' such as pen and paper, sketchpads or calculators. An analysis of sensory substitution in terms of mind enhancing tools unveils it as thoroughly transforming sensory experience and as giving rise to a novel form of perceptual interaction with the environment. Thus, following Auvray and her colleagues (Auvray, Hanneton, & O'Regan, J. K., 2007), Lenay and his colleagues (Lenay, Gapenne, Hanneton et al., 2003), and congruent with a broader view on cognitive enhancement through external devices (e.g.,

Clark, 2003), we propose that we should speak of perceptual extension, augmentation, or transformation, rather than substitution.

References

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