

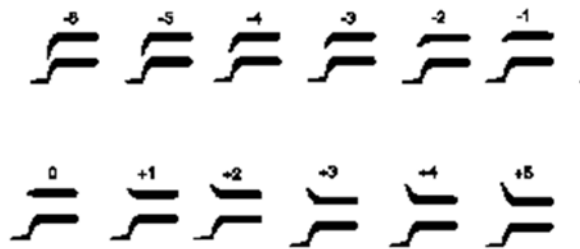
Categorical Perception: Not What It Seems

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1. What is categorical perception?

Categorical perception is whatever (a) explains many of the facts that categorical perception is commonly taken to explain; and (b) involves perceptual processes which categorise.

A perceptual process *categorises* to a degree: [a] it performs one of its functions in part by not discriminating some of the stimuli which another perceptual process treats as distinct; [b] *x* and *y* are not discriminated by this process is, or approximates to some degree, an equivalence relation; and [c] there are at least two, and not too many, equivalence classes (too many is relative to subjects' abilities to perceptually discriminate stimuli of this type).



From <http://www.columbia.edu/itc/psychology/rmk/T2/T2.2b.html>

2. Is categorical perception a form of perceptual experience?

Seemingly Plausible Thesis To enjoy categorical perception of some dimension is in part to have perceptual experiences as of certain properties or events.

“The colours to which human languages give names are experienced [...] as sharply different from one another” (Matthen 2005: 190)

“The *category question* concerns whether observers perceive qualitative similarities ... Discriminable wavelengths seem to be categorized together because they appear perceptually similar” (Bornstein 1987: 288-9).

“categorical perception is said to occur when stimuli that straddle a category boundary are perceived as more distinct than equivalently spaced stimuli within a category” (2006: 52)

3. An argument for the thesis

Consider (a) encountering in turn the left two face stimuli in the figure below, and (b) encountering in turn the right two stimuli.

- (1) The second two perceivings, (b), differ more in phenomenal character than the first two perceivings, (a).
- (2) This difference in differences in phenomenal character, (1), is a fact in need of explanation
- (3) The difference cannot be fully explained by appeal only to perceptual experiences as of lower-level features of the stimuli.
- (4) The difference can be explained in terms of perceptual experiences as of happiness and anger if the above seemingly plausible thesis is true.
- (5) There is no better explanation of (1).

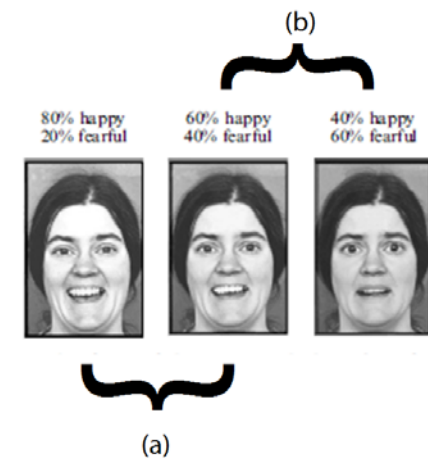


Image from (Kotsoni, Haan and Johnson 2001: 1118)

4. Evidence against the thesis

(1) *Categorical perception is early*

Infants enjoy categorical perception of speech from around 6 months (Eimas, Siqueland, *et al.* 1971; Kuhl 1987: 376–82; and 2004: 834; Jusczyk 1995); also of colour (Bornstein, Kessen and Weiskopf 1976; Franklin, Pilling and Davies 2005)

(2) *Judgements are late*

Children systematically fail tests which require them to recognise, distinguish or manipulate phonemes until around four years (Lieberman and Liberman 1990: 64; Anthony and Lonigan 2004: 46). And they fail tests which require simple colour judgements until around the time they know some colour words (Kowalski and Zimiles 2006; Sandhofer and Smith 1999)

(3) *Judgement comes gradually*

Children acquire abilities to think about phonemes gradually, with certain phonemes harder to distinguish explicitly than others (Treiman, Broderick, *et al.* 1998); colours likewise (Pitchford and Mullen 2005; Kowalski and Zimiles 2006; Sandhofer and Thom 2006).

(4) *Boundaries of perceptual categories fail to match extensions of demonstrative concepts*

Adults' (and children's) untrained judgements about phonemes are often inaccurate, being influenced by acoustic features as well as their knowledge of spelling and linguistic structure (Scarborough, Ehri, *et al.* 1998; Treiman and Cassar 1997; Lehtonen and Treiman 2007; Hallé, Chéreau and Segui 2000). And the

extensions of toddlers' colour words do not match their perceptual categories (Franklin, Clifford, *et al.* 2005).

5. Sensation

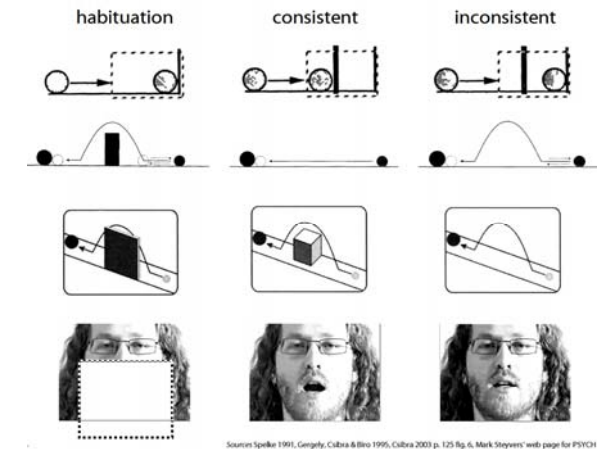
Sensations are monadic properties of experiences occasioned by encounters with things. They have phenomenal characters and typical causes. They lack intentional objects.

Adverbial theory of sensations "Ayesha has a sensation of /b/" can be analysed as "there is an event, Ayesha is the subject of it, and it is a sensation-of-/b/ sort of event" (compare Tye 1984: 202)

Categorical perception of speech is more nearly a form of sensation than of perceptual experience.

6. Application

Categorical perception provides a model for claims about perception of simple causal interactions and behaviours



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