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Definition: Blindsight

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Discussion forum Definition: Blindsight

James Danckert^{a,*}, Marco Tamietto^b and Yves Rossetti^c

a Department of Psychology, University of Waterloo, Canada

b Dipartimento di Psicologia, Università di Torino, Turin, Italy

c INSERM U1028 CNRS UMR 5292, ImpAct Team, Lyon Neuroscience Research Center (CRNL), Bron, France

* Corresponding author. E-mail address: jdancker@uwaterloo.ca (J. Danckert).

1. Definition

Blindsight refers to the capacity of patients with hemianopia or complete cortical blindness following either focal damage to the visual cortex or complete hemispherectomy, to process and respond at above chance levels to visual stimuli presented to their clinically blind field. The oxymoron emphasizes the fact that despite not being consciously aware of stimuli presented to their blind field (i.e., blind-), patients' responses may reveal a broad spectrum of discrimination properties, including location, pointing, reaching for targets, direction of motion, size, form, wavelength, stimulus category and even affective or semantic content (i.e., -sight). The various capacities demonstrated by blindsight patients indicate that extrastriate pathways carry visual information that can drive behavior in the absence of awareness. The observed visually-driven behavior may be mediated entirely by subcortical structures, either independently, or in conjunction with the remaining hemisphere, as in cases of blindsight following complete hemispherectomy. Sometimes patients with damage to visual cortex report some form of visual awareness that is quite different from the actual discriminanda (e.g., blobs or flashes of light when presented with lines at different orientations). As a consequence, they might associate these sensations with the items to be discriminated, and if that association is reliable, it could lead to above chance performance. Thus, any study on blindsight should pay close attention to subjective reports to determine whether any "unconscious" above-chance visually-driven performance depends on ephemeral visual experience or is truly unconscious. A tripartite characterization of blindsight has been introduced that is based on the observed behaviour. Action-blindsight refers to the ability to respond to blind field stimuli through overt actions toward them (e.g., eye movements or manual pointing). Attention-blindsight refers to residual abilities that are not dependent on specific

effectors e for example, blind field stimuli that alter processing of sighted field stimuli in a manner reflective of attentional cuing, interference, summation or completion effects. Agnosopsia refers to the more purely perceptual capacities such as wavelength, form or category discrimination. A fourth category of blindsight, termed affective blindsight, denotes the capacity to discriminate among different facial or bodily expressions of emotions and to spontaneously react with congruent mimicry. Finally, the term Riddoch's phenomenon is often used to reflect a prominent type of blindsight in which patients report being consciously aware of the movement of stimuli in their otherwise blind field, albeit the percept is not accompanied by standard phenomenological visual experience.

2. Label

The label blindsight is an appropriate umbrella term referring to all residual capacities for processing stimuli nonconsciously in the blind field following damage to V1. One early characterization of blindsight distinguished between behaviours that are unaccompanied by any conscious experience (Type I), in contrast to circumstances in which the patient reports some form of awareness, but not in the sense of experiencing a visual percept (Type II). This distinction is based on the phenomenological experience of the patient and not on the visual properties of the stimuli or responses themselves. Whether varying levels of visual (un)awareness typified by the distinction between Type I and II blindsight represent distinct types of blindsight or merely varying degrees of awareness of blind field stimuli remains a matter of debate.

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