Object Color Agnosia

Paolo Bartolomeo, Gabriele Miceli

Forum: Definitions

Object Color Agnosia

Paolo Bartolomeo[1] and Gabriele Miceli[2]

[1]Sorbonne Université, Institut du Cerveau - Paris Brain Institute - ICM, Inserm, CNRS, APHP, Hôpital de la Pitié-Salpêtrière, Paris, France
[2]Center for Mind/Brain Sciences, University of Trento, Trento, Italy.

Object color agnosia, or color agnosia for brevity, is an umbrella term that designates the selective loss of associations between objects and their typical (canonical) colors. This means that there is a specific deficit of knowledge about color as a semantic property of the object, while knowledge of other properties (shape, texture, functional context, etc.) is preserved. Recognition and naming of colors may be intact (indicate a blue card, match color to color, say what color a crayon is). Preserved color perception differentiates object color agnosia from acquired cerebral achromatopsia. However, the patient fails when asked to name and select the canonical color of objects ("What color is a banana?" "Is a banana blue?"), or to color a black and white drawing (uses a brown pencil to color an apple).

Color agnosia may remain undetected because it can only be revealed by specific tests, whereas deficits of color perception or color naming are often clinically evident.

Relevant to the definition of color agnosia is the hemispheric laterality of the lesion. Lesions causing color agnosia typically implicate the ventral occipito-temporal cortex in the left hemisphere.

Labels. Optic aphasia for colors, characterized by anomia for visually presented colors with some preserved access to color-related knowledge, can sometimes occur in individuals with left-hemisphere damage. While color-related knowledge typically requires left-hemisphere semantics, right-hemisphere circuits can partially compensate for the effects of left-hemisphere strokes in these patients.
In most patients, selective deficits of object-color knowledge affect both visual color knowledge (such as in object color agnosia: the inability to visually differentiate between typical and atypical colors of objects and to pair the black-and-white drawing/photo of an object with its canonical color) and verbal color knowledge (the inability to associate object names and black-and-white object drawings with their corresponding color names). However, dissociations between deficits of visual and verbal color knowledge may occasionally occur.

Acknowledgements. The following authors participated in the open discussion about this definition:

Bevyl Conway, Alexis Demas, Durjoy Lahiri, Bradford Mahon, Radek Ptak.