

The University of Hong Kong
Department of Psychology

Departmental Seminar

Blind spots: The many ways we cannot see

Date: April 11, 2013 (Thursday)

Time: 11:00 a.m. – 12:00 noon

Venue: Rm 8.13, 8/F, The Jockey Club Tower, Centennial Campus, HKU

Speaker: Professor Lothar Spillmann
University of Freiburg, Germany

Abstract

This talk will discuss examples of deficient vision due to morphological, functional or cognitive deficits. A number of unexpected and often glaring instances will be discussed of how we can be unaware of what we are missing in our visual world. Among them are the physiological blind spot, which corresponds to the optic disk that is devoid of photoreceptors and therefore would be expected to produce a large hole in our visual field; the blue scotoma, which results from the absence of short-wave cones in the foveola and should produce a dark spot in the very center of vision when we look at the blue sky; transient blindness during photochemical adaptation, which renders us temporarily “blind” when we change from a bright environment to a dark environment and vice versa; binocular rivalry, when a pattern presented to one eye is partially or wholly suppressed by a different pattern presented to the other eye; inattention blindness, when we dramatically miss out on events in our visual field, such as a gorilla walking across the room, because we do not attend to them; and change blindness, when major changes in a scene of two consecutively presented pictures go unnoticed.

In addition to these deficits in normal vision there are deficits resulting from pathology. Examples are retinal and cortical scotomata, when large holes in the visual field should occur, but become invisible due to filling-in; neglect, when a large region such as a hemifield is ignored in the absence of any functional changes, causing us to bump into obstacles; color blindness, when certain hues are not seen because of one or more types of photoreceptors missing on the retina; motion blindness, when the perception of coherent motion is disturbed due to brain injury and all we see are changes of position; face blindness, when faces cannot be recognized because of a genetic defect or, more often, stroke; and blindsight, when we can navigate and successfully point towards invisible targets using the extrastriate pathway although we are cortically blind. Finally there are many kinds of agnosias where the observer no longer knows the meaning of objects.

In most of these cases, we are unaware of these “blind spots” present in our daily lives; just think of retroblindness, the very large area behind us, which we take for granted but never see. Thus, although it is true that often we see more than meets the eye, there are many examples when we see less, although typically we are unaware of it. Naïve realism claiming that we see what is there cannot be right.