

Attention, Selection and Nonconceptual Reference: An empirical analysis

Zenon Pylyshyn, Rutgers Center for Cognitive Science

In this talk I will review recent experimental evidence concerning the nature of perceptual selection, with special emphasis on vision. This evidence supports the view that (1) what is selected is *objects* (or proto-objects) rather than empty locations, (2) several (~4) such objects can be selected at once, and (3) the selection is unmediated by a representation of any of the objects' properties. I will describe a theoretical mechanism, called a Visual Index (or FINST), which provides continuous epistemic access to the object as the object moves around in the visual field or as its visual properties change. This mechanism can be viewed as providing bare demonstrative reference to these sensory individuals. It constitutes a continuing informational link between individual objects and the representations being constructed in their associated Object Files, and as a consequence solves the classical binding problem – the problem of establishing which properties are conjoined, or which properties go with which.

I will describe a number of experimental findings illustrating the operation of FINST indexes. These findings suggest that, notwithstanding the rich fine-grained nature of our conscious perceptual experience, the only nonconceptual content available in what is often referred to as *Early Vision* (the modular stage in visual processing that precedes “cognitive penetration”, and before the constancies – size, brightness, color etc) is the demonstrative identification provided by FINST indexes. Contrary to intuition, information about non-indexed objects is not available to cognition since, by hypothesis, predicates can only be added to object files when predicate arguments are bound to indexed objects. Although non-indexed objects and properties are not represented conceptually and therefore are not available to the cognitive mind, such properties may nonetheless have causal consequences – e.g., they may determine Gestalt groupings or solutions to the correspondence problem for apparent motion and stereo, or they may play a role in the control of actions. I end by raising the question whether such consequences entail that these properties are *represented* in any way, conceptual or otherwise, and will recommend that we take seriously the possibility that the processes in early vision do not involve representations other than the demonstrative reference provided by FINST indexes. This minimalist view of nonconceptual representation is in keeping with other unpopular views I have been defending.

Note: The Powerpoint slides of the talk are posted at:

<http://rucss.rutgers.edu/faculty/pylyshyn/Selection&Reference.ppt>