- Friday, January 7, 2005
  Visual signals: Discrete or continuous, transient or sustained?

  The temporal structure of the neural signals underlying visual perception is an issue of much debate. Indeed, two very basic questions related to this issue remain unanswered. This talk will not provide the answers, but some empirical progress will be reported. First question- is visual information processed continuously, or in discrete chunks? I will discuss one line of related psychophysical investigation into the continuous light version of the wagon-wheel illusion. Previous researchers have claimed that this illusion occurs because the visual system uses snapshot-like discrete processing. Our results speak against this possibility, but the basic issue remains unresolved. A second basic question in the temporal dimension of visual signals is: what are the roles of transient versus sustained signals? To provide some small insight into this issue, we report novel instances of positive afterimages in normal humans. These afterimages suggest that perception can be sustained for hundreds of milliseconds without continuing bottom-up signals, thanks to the persistence of representations at the cortical level.

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