

**Philosophy of Attention Session 3:  
Attention as a process we control  
(Jennings 2012)**

- **The problem:** Lack of a common understanding of attention
- **Proposed solution:** Combine scientific perspectives (cognitive psychology & the neurosciences) with our first-person insight (phenomenology), in a way that makes sense of our ordinary use of the word “attention”.
- **The view:** Attention is a process of mental selection that is within control of the subject
- **Goals:** A naturalized, “how-possible” account.

**1. Our everyday understanding of attention**

- **Hegel’s idea:** There is nothing in the mind without attention.

**Q:** Does this idea entail that attention is “a high degree of conscious mental activity and willful self-control”?

- **Ordinary usage of the word “attention”:** An act of mental selection; actively prioritizing some mental entities over others
- Attention is thought to be an act, rather than a mere occurrence.
- **Problem:** Attention can be passively captured, and in those cases, the subject does not feel as if she is acting (no felt effort)
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**Q:** Does attention require effort and volition?

- **Goal for sections 2-4:** To find features that separate attention from other kinds of mental selection that are not attention (e.g., passive occurrences).

**2. Finding attention in our phenomenology**

- Attention changes the way *the object* appears to us (its sensory attributes), and it also changes the way *we* experience this object (our experiential mode).
- a) **Sensory attributes of attention:** Clearness and vividness (Titchener 1910).
  - “Phenomenological saliency”
  - **Problem:** Attention comes apart from clearness and vividness. Subject’s history also plays a role (see further discussion in Watzl 2017, Ch.8).
  - “Concentration is of the essence of attention” (James; see discussion in Mole & Henry, in press)
- b) **Experiential mode of attention:** We feel like we direct our attention (active mode), but also that our attention is captured (passive mode).
  - **Husserl’s model:** A purely passive mode, constituted by what is merely presented to us in our environment, *without our willful acceptance*.

**Q:** Is this “purely passive” mode *conscious*?

- **Problem:** Felt effort is no longer a guide for attention.

### 3. Finding attention in our behavior

- **Posner's cueing paradigm:** Attention can be manipulated endogenously (with a "central" or "symbolic" cue) or exogenously (with a "peripheral" cue).
- **General problem:** This divide does not neatly map into the voluntariness/reflexiveness divide.
- No clear feature of endogenous/exogenous attention, that could characterize them as voluntary/reflexive.
  
- a) **Reaction times** are shorter with valid cues and longer with invalid cues. However, central cues delay reaction time *less* than peripheral cues, so central cues seem to be less "potent".
  - **Problem:** This need not be because in central cues we have more control. It can be because processing these cues takes longer. So, the reason the effect is weaker could be that the cue was not fully processed.
  
- b) **Inhibition of return:** After attending to a location for a moment, a temporary suppression from information at that location follows, so responses become faster for the *uncued* location (at 250ms). This effect was initially found for peripheral cues but not for central cues.
  - **Problem:** The effect seems to be entirely involuntary, linked to "cancelling" an eye movement to the cued location. If participants are able to move their eyes, inhibition of return occurs for central cues as well.

### 4. Finding attention in our brain

- a) **Neural competition** (see Handout 1) inspires the **Normalization model** (see Handout 2).
  - **The idea:** The brain has limited processing resources; they must be distributed in the best way amongst competing information channels.
  - **Priority maps:** Assign "values" to each stimuli, depending on current tasks and goals (similar to Reynolds & Heeger's "attentional field").
  - **Problem:** The specific mechanisms by which attention affects the competition are not well understood yet.
  
- b) **Top-down feedback:** A signal that reenters early processing areas (like primary visual cortex V1), from later processing areas (e.g., intermediate visual areas like V4 and V5, or high-level areas like DLPFC or FEF).
  - High-level areas are associated with voluntary control.
  - **Problem:** The neural data, on its own, does not tell us whether attention is present.

### 5. Combining the three approaches

- Metaphysical status of attention: A mental process.
- Neither subjective phenomena, nor behavior, nor neural processes are mental processes.
- Hence neither of these domains, on its own, can fully account for a mental process.

**Q:** What is the best way to combine all three approaches, so that they can account for something that neither of them studies directly?

- Combining forces:
  - What the phenomenological and behavioral domain do really well: Provide direct information about the presence of attention
  - What they do not do so well: Separate attention from other forms of mental selection.
  
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  - What the neural domain does really well: "Separate attention from non-attention"
  - What it does not do so well: "Target the attentional phenomena"