

Philosophy of Attention Session 1: Why do we need a philosophy of attention?

Some definitions of attention:

- “Selective directedness of our mental lives” (Mole 2021; philosophy)
- “The taking possession of the mind of one of multiple trains of thought” and “a withdrawal from some things in order to deal effectively with others” (James 1890; early cognitive psychology)
- “The process of selecting a subset of the available information for preferential processing” (Desimone & Duncan 1995; cognitive neuroscience)
- “Flexible control of limited resources” (Lindsay 2020; psychology, neuroscience & AI research)

Jobs for the *psychology* of attention:

- What is the role of attention in information processing within the mind?
- How does attention interact with other cognitive capacities? (e.g., perception, memory, decision-making, awareness)
- How does attention interact with affective state? (e.g., mood, emotions)
- **Bottleneck theories:** Attention filters perceptual input, to overcome capacity limitations (Broadbent 1958)
- **Feature Integration theory:** Attention binds features together, to represent coherent objects (Treisman & Gelade 1980)

Jobs for the *neuroscience* of attention:

- What brain networks subserve attention?
- What kind of neuronal activity is elicited by attention?
- What neurotransmitters are involved in attention?
- **Biased competition models:** Attention sends a signal that strengthens the activity of a group of neurons (Desimone & Duncan 1995)
- **Receptive field remapping:** Attention modifies the area of space that individual neurons are attuned to (Moran & Desimone 1985)

Why the scientific picture might not be sufficient

(Watzl 2017, Introduction):

- Scientific theories of attention do not manage to identify attention with any specific form of information processing or neuronal mechanism.
- They do not even aim at such identification.
- The science of attention mostly deals with the *effects* of attention and the *neuronal correlates* of attention.
- The science of attention does not tell us what attention *is*.

Jobs for the *philosophy* of attention:

- What is attention?
- Is attention just a process in the brain or a cognitive capacity?

- What is the *nature* of attention?

Watzl's dilemma

- (1) If attention is a sub-personal process, then it is either a fairly specific process, or a relatively unspecific or general one.
- (2) If it is fairly specific, there are two problems:
 - A. Specific processes associated with attention often operate also without attention.
 - B. A single specific process may not be able to explain all the different features of attention.
- (3) If it is relatively general, it will likely fail to give an interesting and unified account of what attention is.

Conclusion: Attention is probably not a sub-personal process.

* See also Taylor, H. (2015). Against unifying accounts of attention, *Erkenntnis*, vol. 80, no. 1, pp. 39-56.

Watzl's proposal: Priority structure

- Attention does not have a "low-level" (sub-personal) nature
- Attention is a subject-level phenomenon, in the same sense as beliefs, desires, judgments, intentions and bodily actions.
- Attention is not reducible to the processes that implement it. It is something more.
- Attention is a subject-level *activity*, like reasoning (not a *process*, like blushing, or a *capacity*, like perception).
- Attention is the activity of regulating priority structures.
- Organizing the mind, by regulating the priority relations amongst its parts.

Other philosophical accounts at the subject level

- **Selection for action:** Attention is the activity of selecting one of many possible objects, for one of many possible actions (Wu 2014).
- **Cognitive unison:** Attention is a *way* of performing a variety of tasks, namely: by devoting all of our cognitive resources to that task (Mole 2011).

Other philosophical accounts at the sub-personal level

- **Availability for working memory:** Attention is the mechanism that makes neurons fire synchronically and thereby makes information available for working memory (Prinz 2012).
- **Amplification:** Attention is the amplification of the signals inputted to sensory neurons, in a way that is independent of changes in the physical stimulus (Fazekas & Nanay 2021).