# Attention and Perception

## Lecture 0: Attention Intro

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# Transition from 215H

- In several papers we saw in Econ 215H, the human's prior before receiving AI advice was their belief after looking at an image
- In Agarwal et al. (2023), this belief was explicitly based on a "mental signal" $s_{ih}^H$

$$s_{ih}^H \Rightarrow \pi_h(\omega_i = 1|s_{ih}^H) \Rightarrow s_i^A \Rightarrow \pi_h(\omega_i = 1|s_i^A, s_{ih}^H)$$

- In Econ 278H, we will take a deep dive into the process of forming and updating on mental signals
  - We will start by following cognitive science in assuming Bayesian updating
  - As noted by Ortoleva (2024), it is plausible that the updating over *mental* signals is Bayesian even if the updating over *external* signals is not!
- **Key thread**: Our subjective perception of the state of the world is influenced strongly by the attention we pay to available information

# Attention

- What is attention?
- Merriam-Webster:
  - The act or power of carefully thinking about, listening to, or watching something
  - Notice, interest, or awareness
- In cognitive psychology, filled with debate and disagreement
  - "Everyone knows what attention is" (James 1890)
  - "No one knows what attention is" (Pashler 1998)
- Posner & Boies (1971) suggest three components: orienting to sensory events, detecting signals for focused processing, & maintaining a vigilant or alert state
- Agreement: *selectivity* and *capacity limitation*

# Overview

Different approaches to limited attention in economics

Review: "Frictions or Mental Gaps: What's Behind the Information We (Don't) Use and When Do We Care?" (Handel & Schwartzstein 2018)

1. Limited attention from *mental gaps*
   - Ignore "shrouded" information (Chetty, Looney & Kroft 2009)
   - Ignore readily available information (DellaVigna & Pollet 2009, Lacetera, Pope & Sydnor 2012)
2. Limited attention from *information frictions*
   - Consideration sets (Caplin, Dean & Martin 2011, Manzini & Mariotti 2014)
   - Rational inattention (Sims 2003, Matějka & McKay 2015)

# References I


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