Lecture 21

Mind Blindness

• Mentalizing
  • The foundations of mentalizing
  • Testing mentalizing ability: the Sally-Anne task

• Mind Blindness
  • Asperger’s Syndrome and the “Hidden Curriculum”
  • “Natural” vs. “Learned” mentalizing
  • Impaired “emotional contagion”
Mentalizing

What are these two thinking?

From *Napoleon Dynamite*
The computational demands of living in large, complex societies led to the selection for larger amounts of cortex in primates

Dunbar (1998)
Our social cognition reflect two primary things

We have a desire to bond, or an “affiliative drive”

We have cognitive processes specific to “mentalizing”
Mentalizing

What does it involve?

• Awareness that other people have desires, beliefs, motivations, and knowledge
  – These things explain their behavior

• Recognition or understanding that:
  – Their thinking may be different than yours
  – What others say may not align with what they are thinking (e.g., recall sarcasm from Lecture 20)
The Sally-Anne Test

1. Sally hides Ball in basket
2. Sally walks away
3. Anne moves Ball to box
4. Where does Sally look for ball?!
Mind Blindness

Symptoms of Asperger’s Syndrome

From Napoleon Dynamite
Mind Blindness

The “Hidden Curriculum”

• The unwritten social rules and expectations of behavior that we all seem to know, but were never taught:
  – Knowing when to talk and when to listen
  – Knowing when to be honest and when not to be
  – Knowing what bodily behaviors are okay in public and what ones aren’t
  – Knowing what questions may be awkward or inappropriate to ask
  – Inferring people’s moods by their facial expressions and body language
Adults with Asperger syndrome can understand mental states such as desires and beliefs (mentalizing) in others, despite having impairments in social cognition. We directly tested the hypothesis that such individuals do not mentalize naturally. To this end, we used an eye-tracking task that has revealed the spontaneous ability to mentalize in typically-developing infants. We showed that, like infants, neurotypical adults’ eye movements accurately anticipated an actor’s behavior. This was not the case for individuals with Asperger’s syndrome. Thus, these individuals do not attribute mental states naturally, but they may be able to do so in explicit tasks through compensatory learning.

Senju (2009)
Mind Blindness

Testing “natural” mentalizing

Ball hidden  warning Signal  Looks for ball

When we watch this, the warning signal prompts us to automatically look at box where ball is hidden

Senju (2009)
Mind Blindness

Testing “natural” mentalizing

Senju (2009)
Although there is evidence of emotion perception deficits in Asperger’s Syndrome (ASD), research on this topic has been mostly confined to perception of emotions in faces. We examined whether such deficits extend to the perception of bodily-expressed emotions. We found that when NT individuals viewed bodies expressing fear, there were significant increases in activation in brain regions associated with social orienting and emotion, relative to when viewing emotionally-neutral bodies. In contrast, individuals with ASD showed no such social/emotional response to bodies expressing fear. We discuss these findings in relation to possible ASD abnormalities in a network of cortical and subcortical mechanisms involved in social orienting and emotional contagion.

Hadjikhani (2009)
Mind Blindness

“Catching” emotions from others

Hadjikhani (2009)
“Catching” emotions from others

Plotted is the relative intensity of activation between neurotypicals and autistics for fearful vs. neutral body postures. In all brain regions of interest, there was significantly greater activity for the neurotypicals vs. autistics specifically for fearful postures.

Hadjikhani (2009)