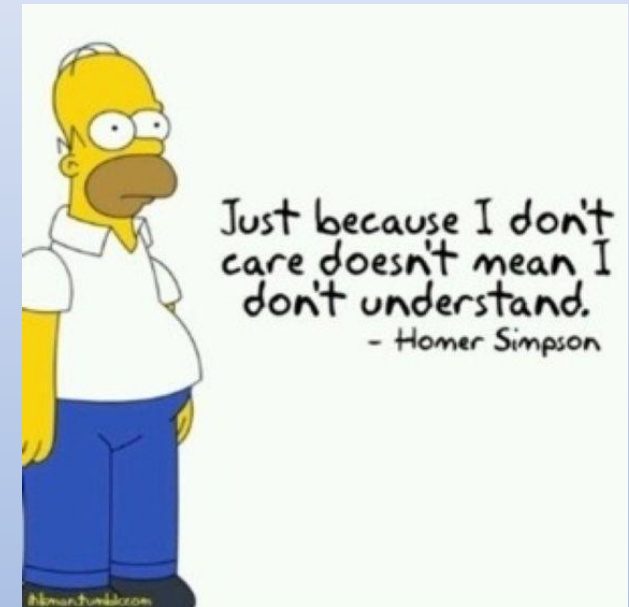


Theory of Mind & Empathy



Theory of Mind (TOM)

- The capacity to attribute thoughts, feelings, beliefs, and intentions to other people that are different than our own
- Translation – the ability to “read people’s minds”
- This enables us to:
 - A) Perceive and interpret social cues
 - B) Predict others’ behavior
 - C) Interpret other’s intent
 - D) Put our selves in others’ shoes aka empathy
- Tends to develop around age 4-5 – Sigirtmac (2016) found chess training facilitates TOM dev.

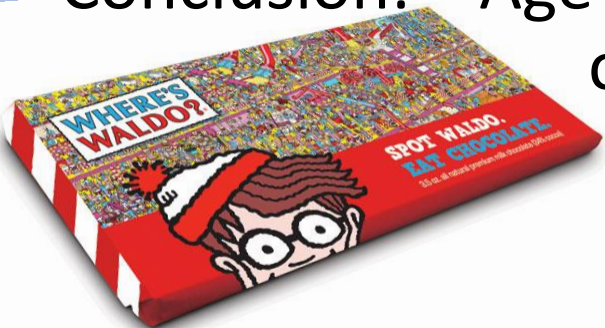


And now, a cute video of my son, Jackson – age 5



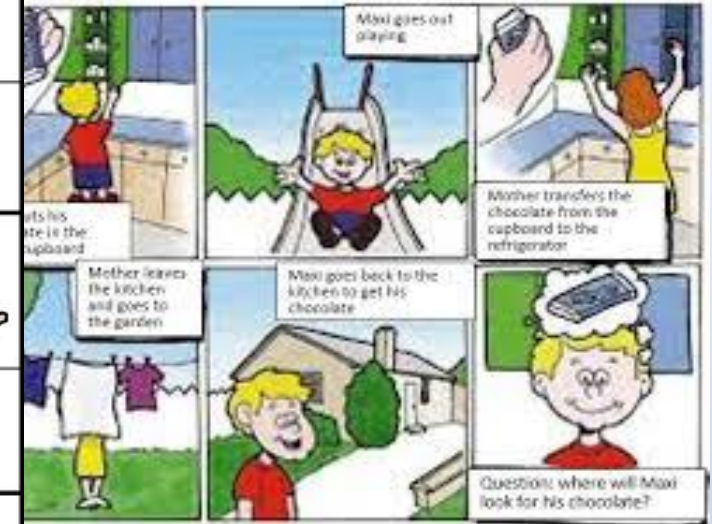
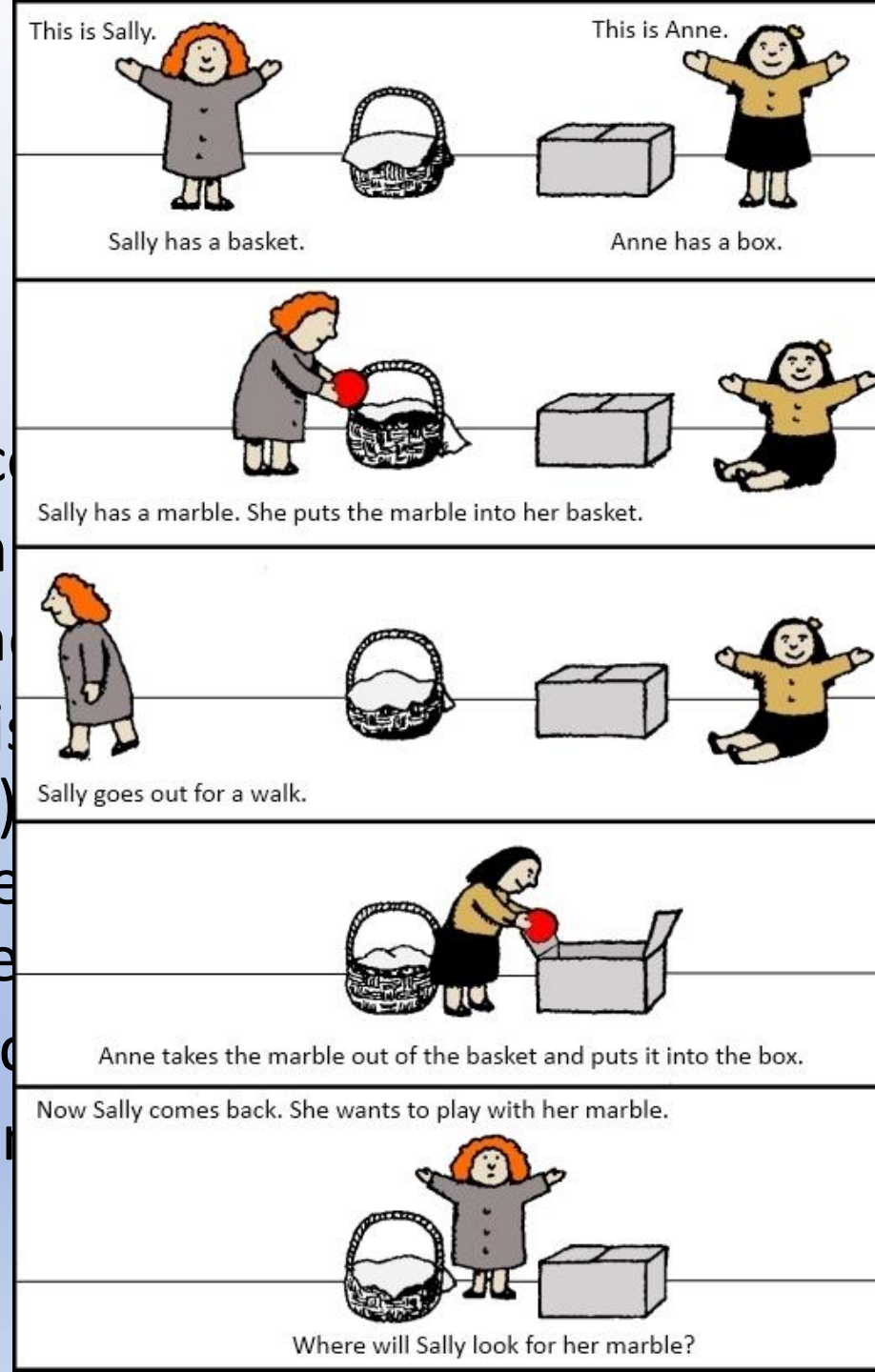
Wimmer & Perner (1983) (Cambridge pg. 283)

- Aim: To find out age of TOM dev. & see an event from another's POV
- Subjects: Summer campers groups age 3-4; 5-6; and 7-9
- Procedure: Puppets – Maxi puts a candy bar in the blue cupboard and leaves the room. His mom comes and moves it to the green cupboard. When Maxi comes back, where will he look for the chocolate?
- Results: All 3-4 year-olds failed; ~50% of 5-6 year-olds passed; nearly all 7-9 year-olds passed
- Conclusion: Age matters for TOM dev. Indicates people learn that others can hold false beliefs. Critical for social success & reading minds



Evaluation

- Strengths
 - Children were c
 - Kids were prom
 - before respon
 - Indicates TOM is
 - Wellman (1995)
 - Harris (1991) de
 - recognized false
 - Realistic re-enac
 - Good replication
 - autism



based – Barstch & and US kids, Avis & ations' kids

and the story Sally-Anne study for

Limitations

- Limitations
 - Is TOM all at once or gradual? Unclear
 - Understanding of the question could be an issue – “Where will Maxi look?” could be indistinguishable from, “Where is the chocolate?”
 - 3-4 year-olds are observed playing “pretend” games which indicates some concept of TOM



False Beliefs: Smarties test

(Perner, Leekam, & Wimmer, 1987)



control questions:

- Is that what's really in here?
- What is really in here?

- again, 3-year-olds fail (say pencil); 4+-year-old pass (say Smarties)



from Frith (1989)

Other examples of false beliefs?

First Order

(False belief about real events)

- Wait to swim an hour after eating
- Lightning doesn't strike twice
- 5-second rule
- Cell Phone use causes brain cancer
- We only use 10% of our brains

Second Order

(False belief about another's belief)

- I think you're going to come in for a hug but you're planning to going for a handshake
- You think she's into you and she's not
- Little kid closing eyes during hide-and-seek
- I think that you think...but I am wrong

TOM Scenarios

- Example: Mom says child – hey do you want to go fold the laundry?
- What does Mom really mean?
- Example 2: Teen is running late, says to parent – I want to eat before I leave. But I don't have time to make something
- What does teen really mean?
- Example 3: A burglar robs a bank and runs off down the street. As he is running a cop sees him drop his glove. The cop does not know the man is a burglar, he just wants to return the man his glove. The cop shouts, “Hey you, STOP!” The burglar glances behind him, sees the cop and gives himself up. He puts his hands up and confesses to the crime.

Empathy

- The capacity to understand & experience or share the experience of others w/o necessarily being in agreement with them
- Emotional Empathy
 - Feeling what the other person is feeling – evidence suggests we dev. this 1st
 - Often we default to the Bill Clinton model – “I feel your pain”



- For example: 😞
- But, empathy is more complex than just feeling others' pain and negative experiences 😊

Empathy

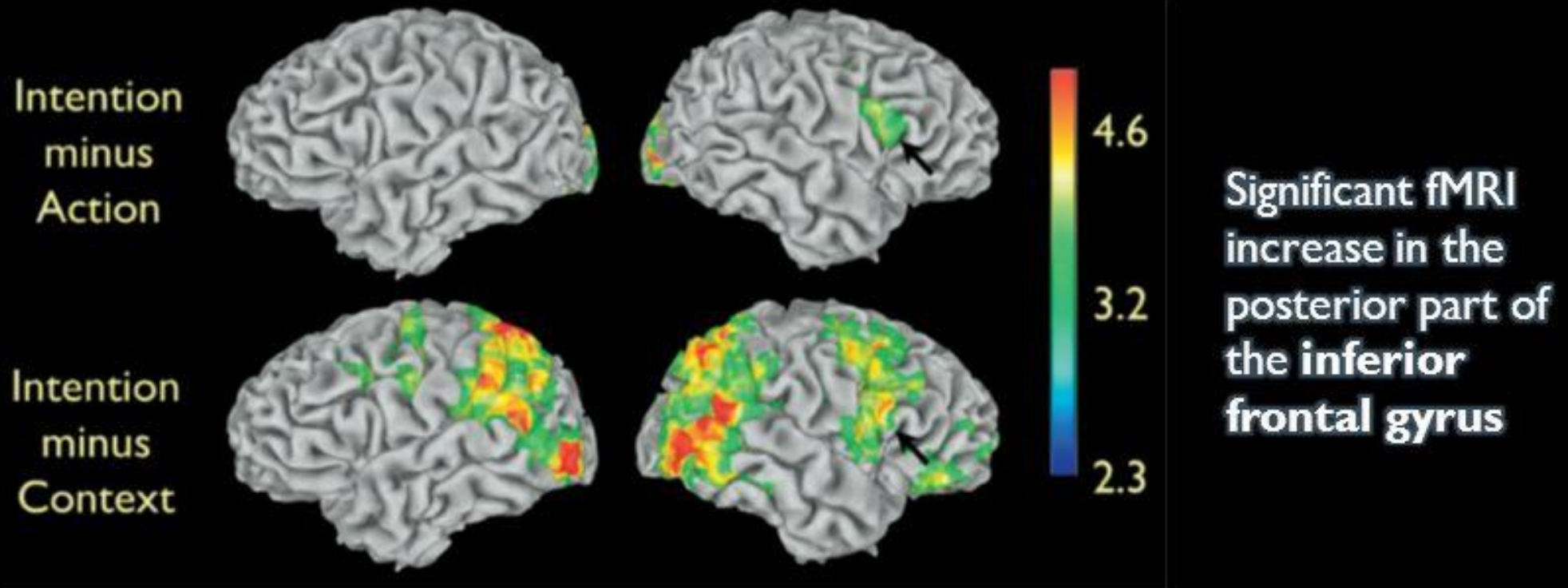
- Cognitive Empathy
 - Ability to mentally place oneself in another's shoes – usually dev. this 2nd
 - See studies pg. 439 of Oxford Companion Book
 - Keep in mind - even when TOM is developed we often ignore this part when explaining others' behavior – FAE e.g.



Biology of Empathy

- Discuss localization studies from Oxford Book pg. 444
- Mirror Neurons
 - Discovered by Giacomo Rizzolatti while studying macaques
 - Iacoboni et al (2004, 2005) studied them re: Empathy & TOM
 - For 2004 details watch [NOVA](#) (13:30min)
 - For 2005 details pg. 445 in Oxford (also next slide)
 - Ramachandran – Mirror neurons allow us to [evolve culture](#) (7:45)

- ▶ Marco Iacoboni, Istvan Molnar-Szakacs, Vittorio Gallese, Giovanni Buccino, John C. Mazziotta, Giacomo Rizzolatti. Grasping Intentions with Mirror Neurons. PLoS Biol 3(3): e79



(Iacoboni et al., 2005)



Mirror Neurons

- TED Talk

http://www.ted.com/talks/vs_ramachandran_the_neurons_that_shaped_civilization?language=en (7:43)

- Nova <https://www.youtube.com/watch?v=Xmx1qPyo8Ks> (13:50)

- Rubber Hand

https://www.youtube.com/watch?v=XEayC_fXGYY