
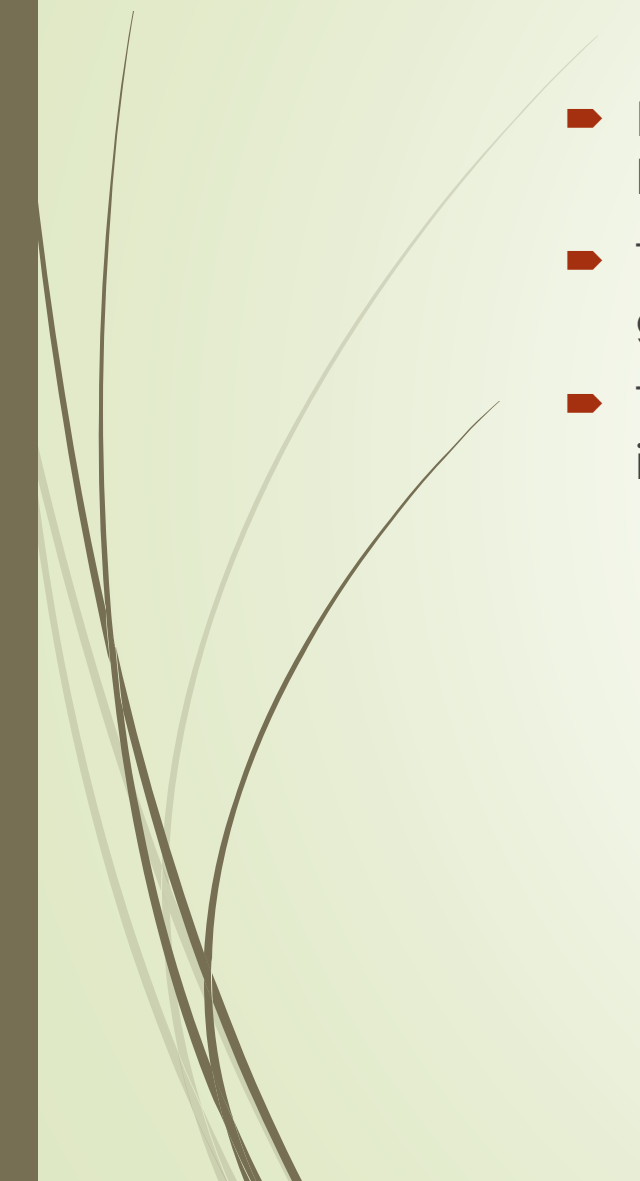


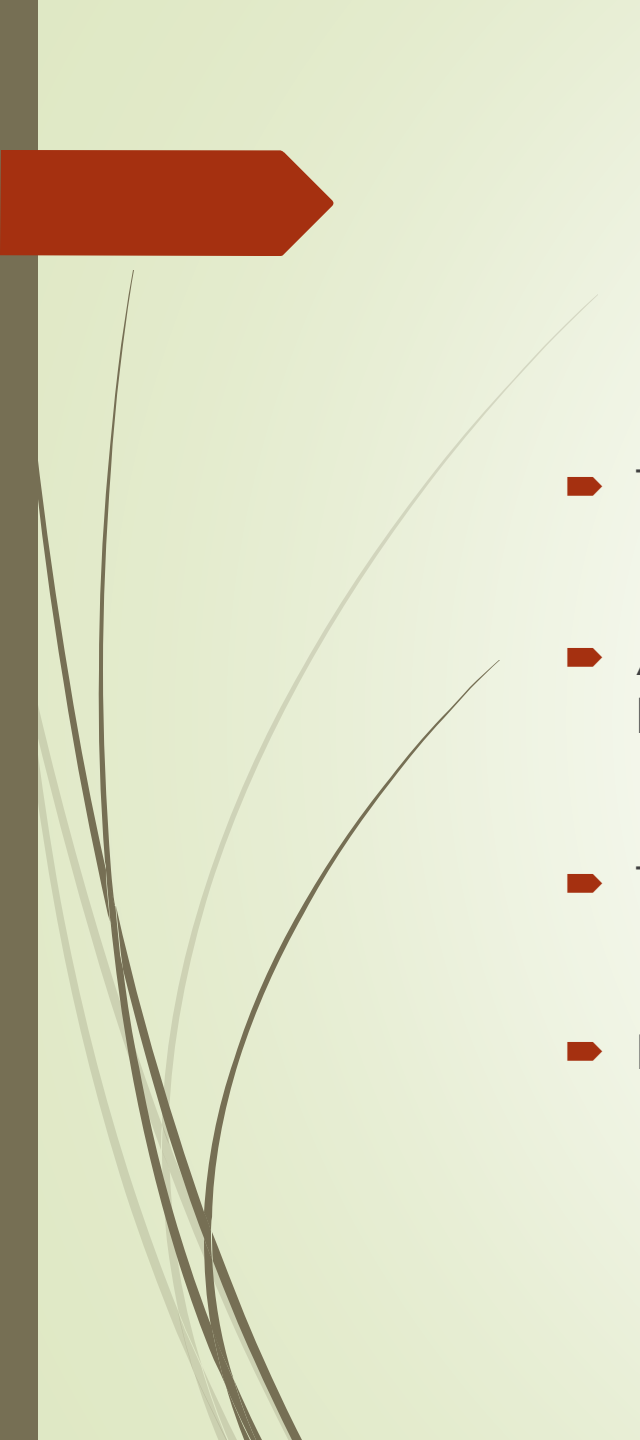




Theory of Mind



- 
- 
- Humans are not born with the understanding that people have unique beliefs and thoughts. This is learnt.
 - This stage is arrived at through various developmental ladders that children go through
 - This includes the notion of attention and intention of others as well as imitation of other's mental states

- 
- 
- First stage is that of attention
 - Children learn very early that looking is not just seeing but also a tool to be selectively used to gather more information
 - In fact infants have been found to be using this mechanism in their parents to getting attention to themselves
 - Infants as early as 7-9 months of age are capable of understanding attention in others; the development of this social skill is an important predecessor to developing ToM [Simon Barron Cohen].

- 
- This stage is followed by acting
 - And knowing that people act on that catches their attention: goal directed behavior
 - This behavior is dependent upon intention
 - People can have varying intentions and, therefore, different behavior

- 
- 
- Imitation is often understood to be another important component of developing Theory of Mind. It has however, been contested.
 - Children use pretend play. This shows that they have developed the understand the different mental states attributable to different characters




So,

- ToM refers to the ability to attribute mental states to oneself and others. The idea that others have intents, beliefs, pretension, knowledge etc. and that these can be different from one's own. In normal population this grows in us by the time humans are about 5 year old. However, atypical population, like ADHD, autism spectrum disorder etc. are shown to have delayed development of this attribute.

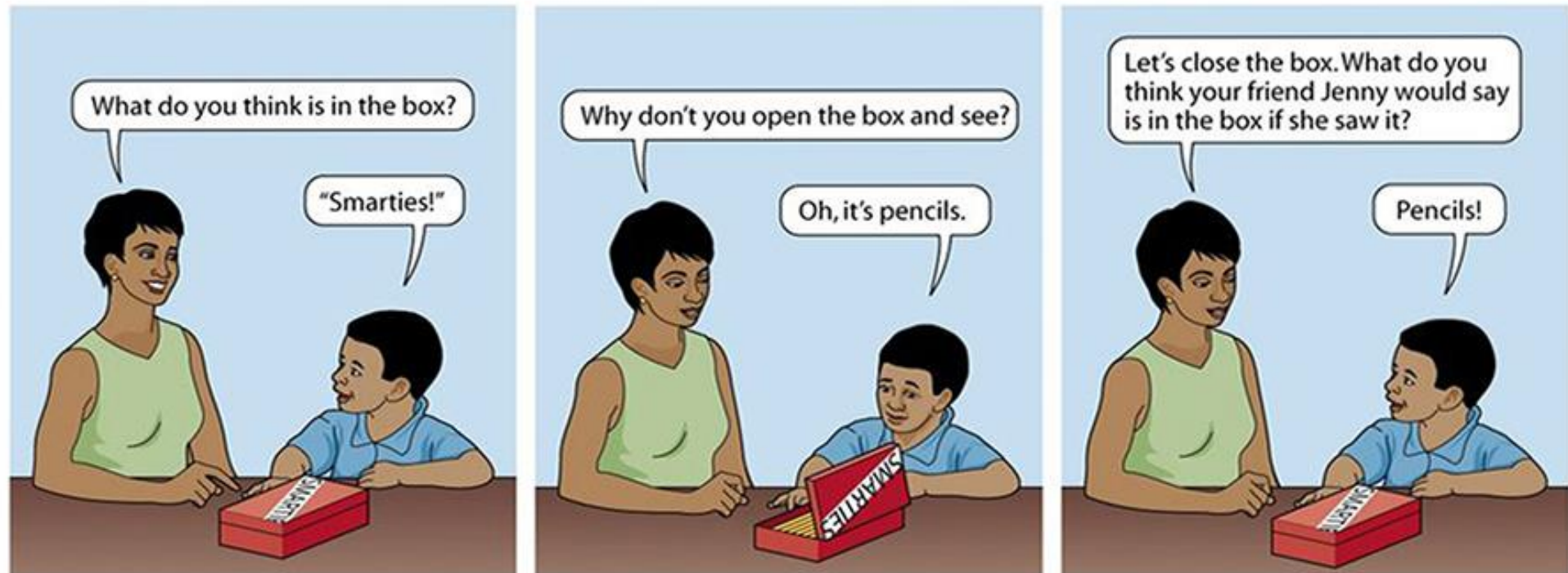


It entails,

- Others have beliefs, thoughts, intents etc...in short, a mind that may be different from our own
- Mental states cause behavior. This difference may result into different behavioral outcome hence having a theory of mind helps us predict other people's behavior
- This is an innate and potential ability that also requires social and other experiences to fully develop.
- This is not only a human behavior but also found in other primates, even birds and rodents

- 
- Research on children in this domain typically concerns children's understanding of false belief. The tasks used are different variations of Sally-Anne stories, requiring answers on changed location and changed content questions. [refer to Rebecca Saxe videos available online].
 - Performance of children aged show that irrespective of language and cultural background, children aged 4 can perform correctly on false belief tasks whereas 3 year old cannot

A False-Belief Problem: The “Smarties” Task



Sally



This is Sally's basket.



Anne



This is Anne's box.

Sally puts her
red ball . . .



into her basket.



Sally goes out of the room
and leaves Anne alone.



Anne takes the ball out
of the basket . . .



and puts it in
the box.

When Sally comes back . . .





she wants to
play with the
ball.



Where will Sally look for her ball?



Two assumptions:

- ▶ ToM undergoes a conceptual change in the pre school years----- a change dependent upon the child's language development. Mastery of the grammatical rules of embedding tensed complement clauses enables ToM reasoning.
 - ▶ However, recent findings do not support the link between understanding sentence complements and ToM reasoning. Young children who do well on syntax and semantics tasks are still found unable to pass false belief tasks.
- ▶ improvement of performance on ToM task at a particular age may be attributed to the development of strengthening of inhibitory processes and pragmatic skills or general purpose executive functions

- 
- 
- Irrespective of the theoretical account, it seems that the child's performance on story based ToM reasoning depends on the child's early exposure to conversations that teaches them that people have beliefs that can differ from their own

- 
- 
- A strong data source for this assumption is work on deaf children from different backgrounds: sign language environment Vs verbal language environment.
 - Deaf children from sign language environment have early exposure to others' conversations about people's beliefs etc. and hence perform on par with hearing children.
 - In contrast, deaf children of hearing parents are commonly not exposed to conversations early and get the exposure only after they go to school. These children have difficulties in ToM tasks.



ToM and language

- Mental states cannot be observed directly.
- Nor is there any simple correlation between mental states and observable behavior.
- Hence one valuable way to learn about the elusive content of mind is to listen how people talk about the mind
- Research in developmental psychology suggests the importance of verbal communication for developing a theory of mind. Language ability seems to predict success in false belief task, independent of age [Dunn and Brophy 2005].
- A similar correlation was also found in samples of both healthy children and children with autism and other developmental disorders