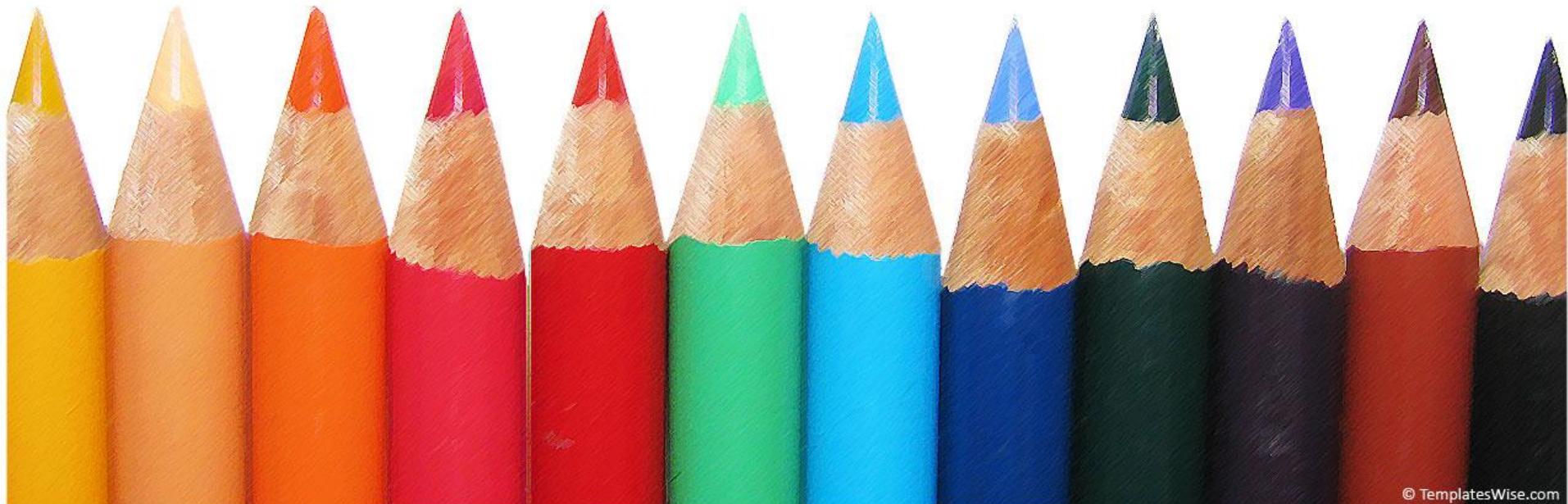


THEORY OF MIND

Penny Tok, PhD



Born in Singapore

Population: 5.2 million

Land size: 704 km²



Moved to New Zealand

Population: 4.4 million

Land size: 268 260 km²









Satellite



Traffic

United States

Mexico

Finland

Sweden

Iceland

Norway

Russia

United Kingdom

Poland

Germany

Ukraine

Kazakhstan

Mongolia

France

Italy

Turkey

China

South Korea

Japan

North Pacific Ocean

North Atlantic Ocean

Spain

Algeria

Libya

Egypt

Saudi Arabia

Iraq

Iran

Afghanistan

Pakistan

India

Thailand

Mali

Niger

Sudan

Chad

Nigeria

Ethiopia

Kenya

DR Congo

Tanzania

Indonesia

Papua New Guinea

Venezuela

Colombia

Brazil

Peru

Ecuador

Guatemala

Costa Rica

Panama

Chile

Argentina

Indian Ocean

South Atlantic Ocean

South Pacific Ocean

Australia

Angola

Namibia

Botswana

Madagascar

South Africa

New Zealand

2000 mi

2000 km

Southern Ocean

Map data ©2012 MapLink, Tele Atlas

About me

- www.autismsupportsite.wordpress.com
- Email: drpennytok@gmail.com
- Room: 2.53 but meetings by appointment only





Today

- Course outline
- Assignments and tests
- Theory of Mind (ToM)- what is it
- Why do we need it?
- Theories on ToM

Course Outline



- Lectures followed by seminars 1.5 hours in all
- 6.00 – 7.30pm every Thursday
- Participation in class- expected to contribute

Assignments



Assignment type	Marks	% of total course marks
TWO (2) in-class tests (Short answer questions)	20 marks 20 marks	40% (20% each)
ONE (1) 20 minute group seminar presentation	20 marks	20%
ONE (1) 1,500 word essay based on your presentation topic	20 marks	30%
Participation in ONE(1) research experiment on ToM plus a 500 word summary of the experience		10% (5% for completing it and 5% for report)
OR a 2,000 word essay on experimental procedures on testing Theory of Mind		10%



Tests

Short answer questions such as:

- Define Theory of Mind and give THREE (3) examples on how it affects our daily lives (8 marks)
- Describe TWO (2) theories of Theory of Mind (6 marks)
- At what age are children considered to have effectively developed a Theory of Mind and why? (6 marks)



Presentations

First presentation starts in **week 5**, so you should have formed your group by **Week 3**. Make sure you tell me your group members so that we can arrange the presentation dates.

You can:

1. Form your own groups (4 per group) and inform me
2. I will form them for you by drawing lots

Final assignment option

30 minute experiment + 500 word
reflection summary

OR

2000 word essay on testing ToM







Experiment details

A number of experiments available:

- All take approximately 30 minutes
- Will be conducted at MU-Gorkého Street
- You will get a note from the experimenter confirming your participation and you **MUST** submit this form together with your 500 word personal reflection.



Alternative assignment

- 2000 word essay on testing ToM

My current research projects:

1. Study on ToM in children in Brno- clinical
2. Study on ToM in young adults in Brno



I am looking for:

Research assistants to help with:

1. Data collection: in children's homes (for Autism participants)
2. Data collection at schools: for typically developing children



Other roles:

1. To participate as well as help recruit participants for the study

Benefits for you:

1. Gain practical research experience (field work and experimental design)
2. Learn about working with children with autism
3. Get a letter from me confirming your participation
4. All transport will be reimbursed (for data collection outside MU)

What is ToM?

- Its an everyday or folk psychology
- Seeing other people and ourselves in terms of mental states
- Understanding that other people have thoughts, emotions, beliefs and preferences that are separate from our own.

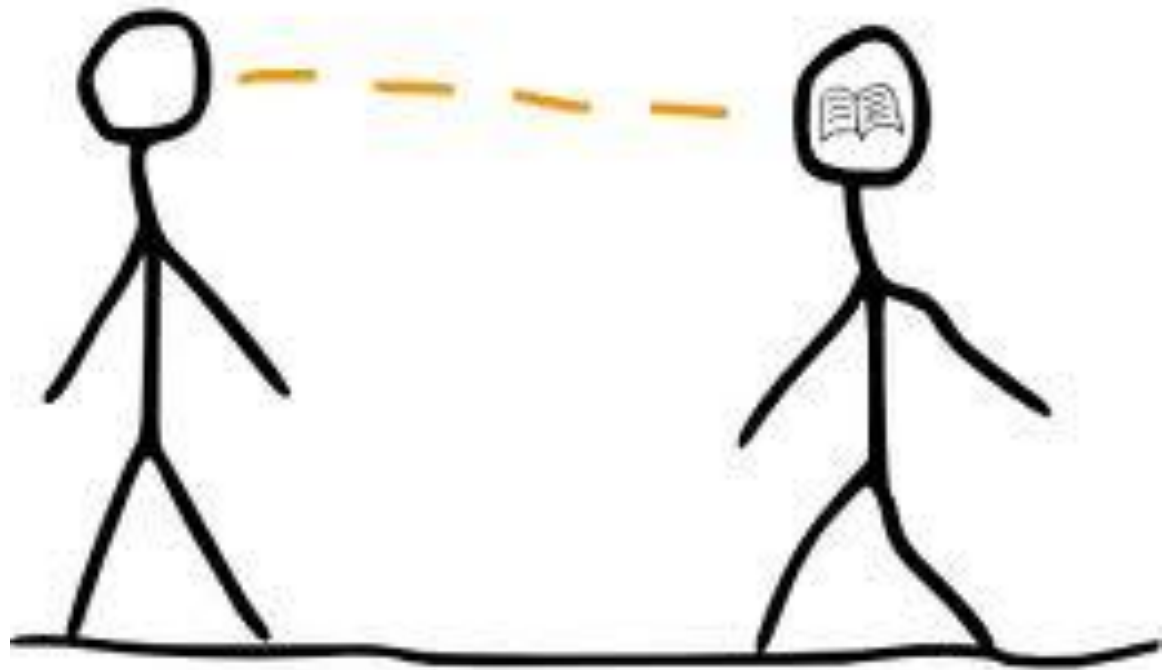






Why is ToM important?

Give daily examples of when ToM is used and what happens if we do not have ToM?







1) Helps us to comprehend and explain others actions

2) Helps us to predict others behaviour

3) Manipulate others behaviour





1) George likes to go to the gym in the morning, but he forgot it was closed on Mondays, so when he got there he just went straight to work.

2) George usually goes to the gym in the morning but when he got there today it was closed, so he just went straight to work.



*How do we
do it?*

Mental state understanding requires realising that such states *may reflect reality and may manifest in overt behaviour* but are nonetheless internal and mental and thus distinct from real-world events, situations or behaviours.

Wellman, Cross & Watson, 2001 , p. 655

Need to distinguish between:

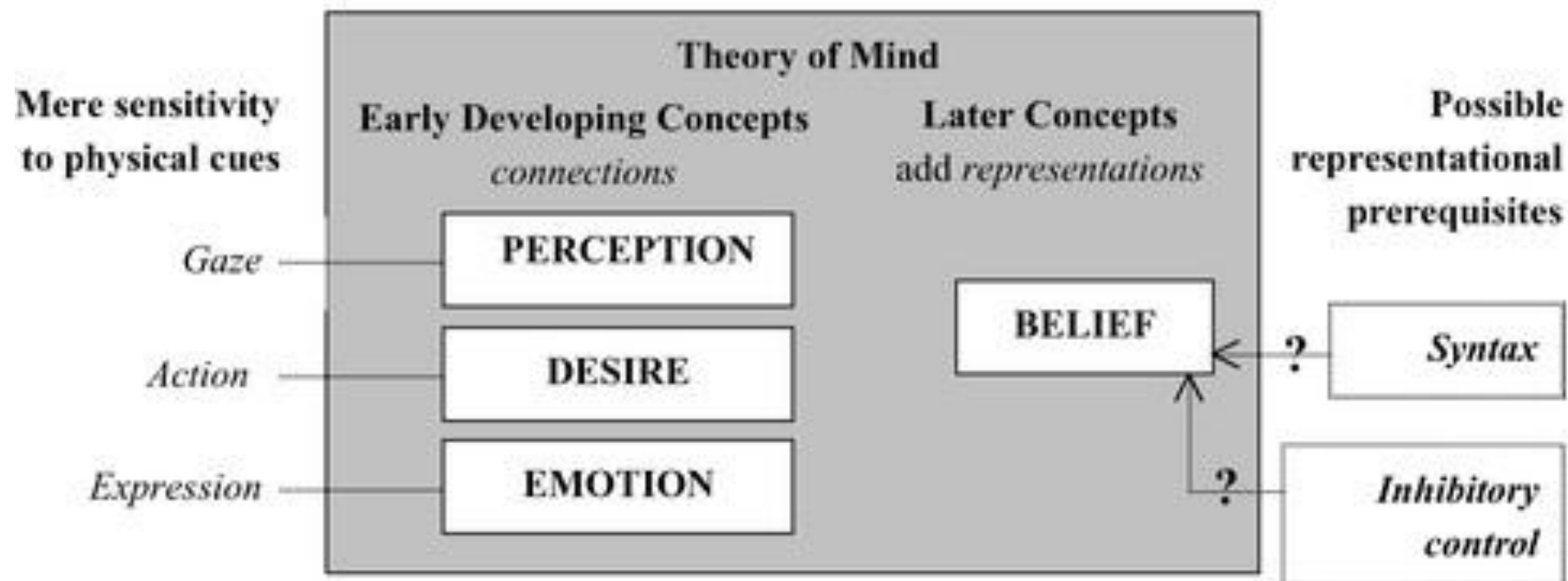
Attribution of
desires,
perceptions &
emotions

Behavioural
sensitivity to the
associated
physical cues
(body motion,
eye gaze etc.)



(a)

Attributing mental states to other minds



What affects our development of ToM?

Genetic influences

- Age
- IQ
- Language abilities



Environmental

- Past experiences
- Family size
(siblings)



Theories of ToM- Theory Theory

- a. Conceptual Change account (Gopnik & Wellman, 1994, Wellman, 1990)

- b. Theory of Mind Mechanism (Leslie, 1987, 1994)

Conceptual change account

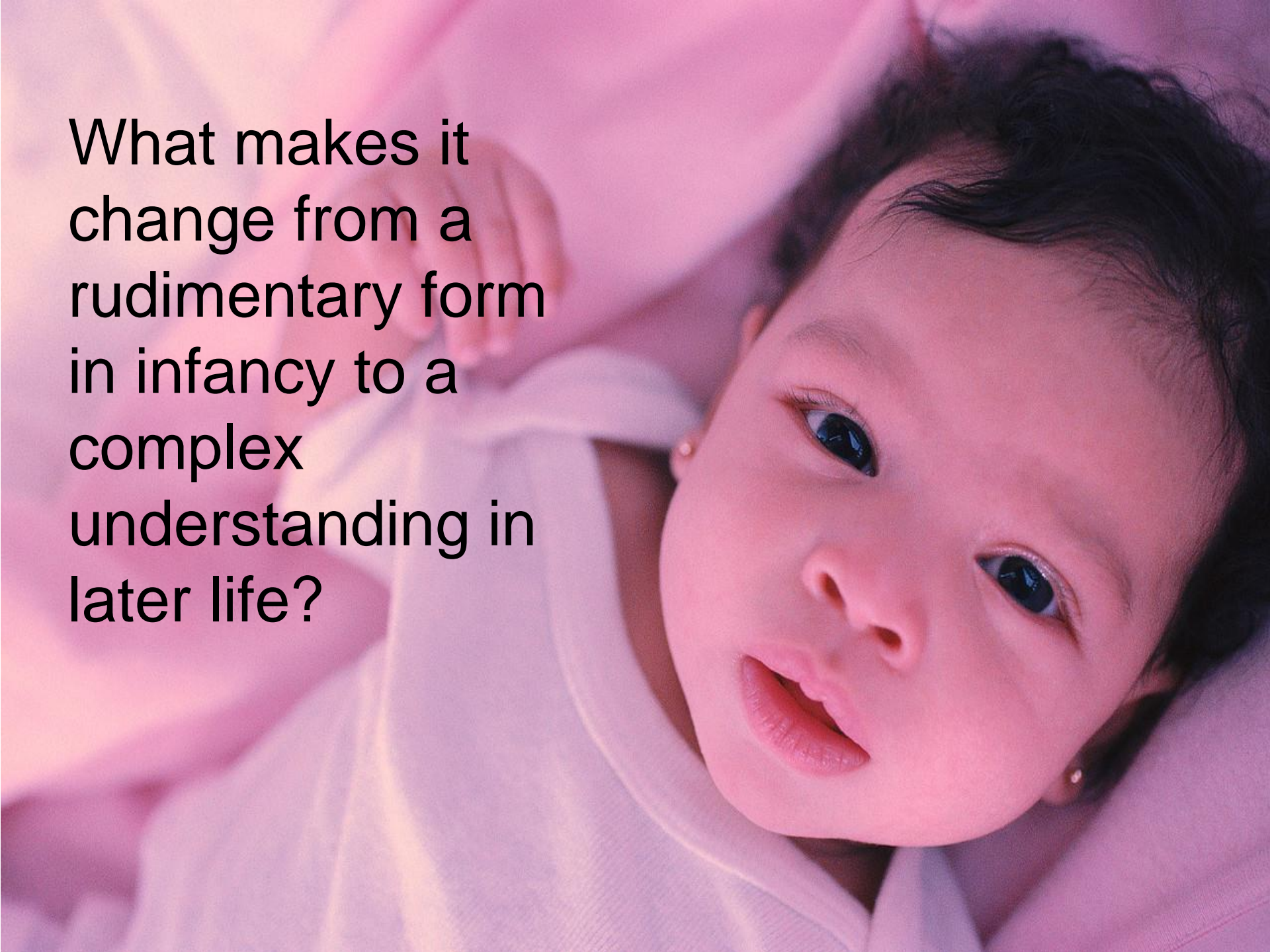


Emphasises that mental states are *theoretical constructs* that can be used in order to generate *expectations* about how people will *act* in a given situation.

Assumptions:

1. Even infants are presumed to have some ***innate understanding*** that behaviours are motivated by internal mental states.
2. Children change through a series of ***qualitatively different*** understandings of how mental states affect behaviour
3. Reaches an ***adult-like state*** of understanding at about ages 3-4
4. ***Domain general***

What makes it change from a rudimentary form in infancy to a complex understanding in later life?



Similar to how scientists change their theories based on empirical evidence, children adapt their 'theories' based on their experiences and knowledge. Children as little scientists.

(Gopnik & Meltzoff, 1996)



Support for conceptual change

Two lines of evidence :

- 1. Difference between 3 year old understanding and a 5 year old.**

Qualitative changes in ToM understanding support the idea of children going through different phases of understanding how mental states relate to the world



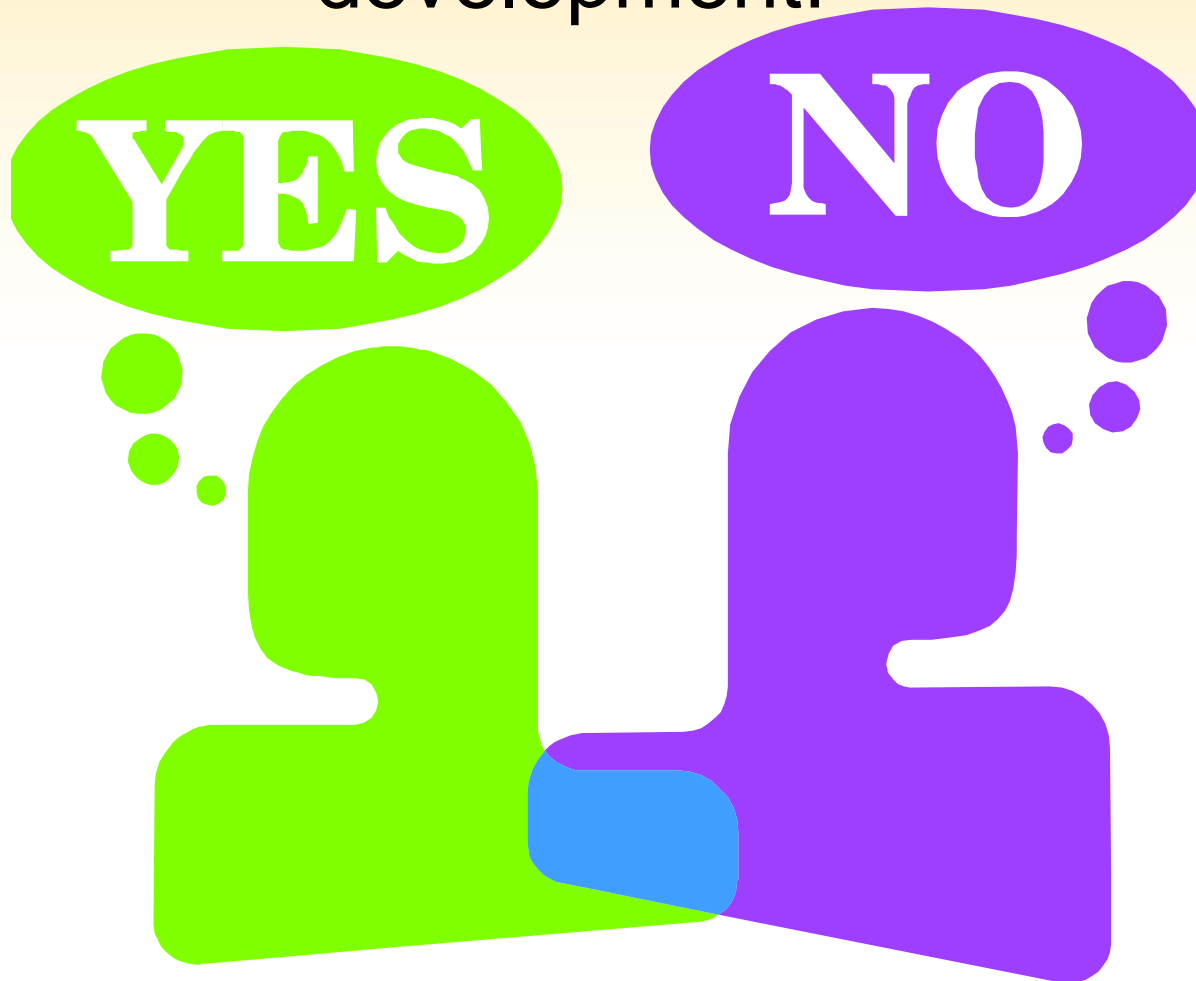
AFP/Getty Images

2nd piece of evidence :

Individual experiential factors seem to affect ToM development- such as 'motherese', number of siblings and social-economic factors



The same two points can be used as evidence for alternative theories of ToM development!



Theory of Mind Mechanism

Domain specific capacity that allows meta-representation of mental subserved by a specific cognitive mechanism: TOMM (Leslie, 1987, 1994)

Part of the core architecture of the human brain *specialised* for learning about mental states

Concepts are introduced into our system by a *mechanism* (like how colour concepts are introduced by mechanisms of colour vision).

Aim of the ToM mechanism is to:

- Permit
- Promote
- Direct attention

To these mental states in order to learn about them.

The outputs of ToMM are descriptions of psychological states in the form of *metarepresentations* or *M-representations*, that is, agent-centered descriptions of behaviour.

Assumptions

1

- Presence of a powerful representational system for representing beliefs and desires.

Made possible by ToMM

2

- Successful reasoning recruits inhibitory selection process (SP)

Between possible others

3

- True belief default

Supporting evidence

Saxe, et al. (2004): distinct brain regions selectively engaged when people reason about the contents of other's beliefs.

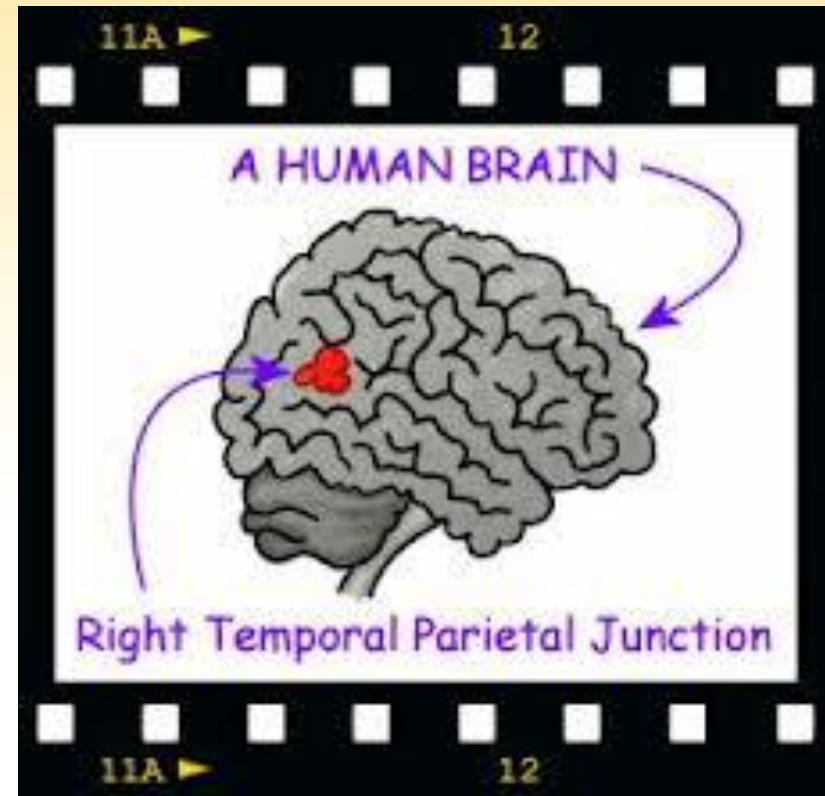




Social brain

Rebecca Saxe

- ToM : Domain specific processing machinery
- Two stages of development result from the appearance of two distinct mechanisms rather than from the gradual enrichment of a single mechanism







Simulation Theory

- Denies that we come to understand others through deployment of a theory
- Instead we use our OWN mind to understand others
- Rejects theoretical inference



Basic tenet: put yourself in someone else's shoes and you will be able to simulate them as well as predict and explain their behaviour




"Mr. Osborne, may I be excused? My brain is full."



Start thinking about...

- Forming your groups and choosing a topic
- Which assignment you want to do-
experiments or essay



Read the readings for next week:

- Liu, D., Wellman, H. M., Tardif, T., & Sabbagh, M. A. (2008). Theory of mind development in Chinese children: a meta-analysis of false-belief understanding across cultures and languages. *Developmental psychology*, 44(2), 523-31.
- Onishi, K. H., & Baillargeon, R. (2005). Do 15-month-old infants understand false beliefs? *Science (New York, N.Y.)*, 308(5719), 255-8.
- Perner, J., & Ruffman, T. (2005). Infants' Insight into the Mind : *Science*, 308(5719), 214-216.