

# Inter-disciplinary studies of ToM religion & inter-species ToM

Religion & inter-species ToM

# Readings

- o Norenzayan, A., Gervais, W. M., & Trzesniewski, K. H. (2012). Mentalizing deficits constrain belief in a personal God. (T. Zalla, Ed.) *PLoS ONE*, 7(5) =, e36880
- o Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *The Behavioural and Brain Sciences*, 4, 515, 526.

# Inter species – primates

- o Primates
- o <https://www.youtube.com/watch?v=ExEjXLMd4VA>



# Frans de Waal – Moral behaviour in monkeys



# Two main camps

Ponvinelli et al



Chimps possesses a  
behaviouristic rather  
than a true  
mentalistic  
understanding of  
others

Tomasello et al

Chimps do  
understand  
psychological states  
in others and the  
question is: which  
ones and to what  
extent





## Department of Developmental and Comparative Psychology

The Department of Developmental and Comparative Psychology investigates cognitive and social-cognitive processes in humans and their nearest primate relatives. Of special interest are the uniquely human cognitive, social-cognitive, and symbolic processes involved in cultural learning and creation. The department has three main areas of research: the Ontogeny of Human Social Cognition, the Acquisition of Language, and Primate Cognition.

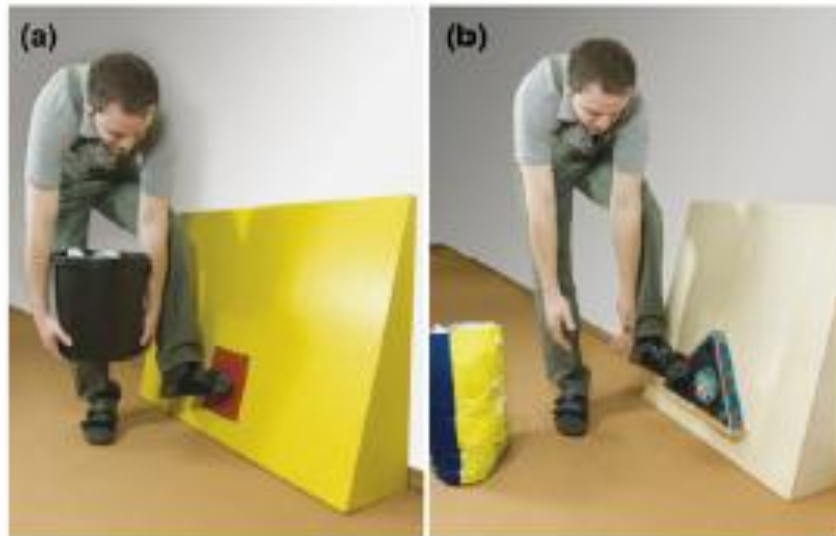


Call, J., & Tomasello, M. (2008). Does the chimpanzee have a theory of mind? 30 years later. *Trends in cognitive sciences*, 12(5), 187–92.



- They understand goals and intentions of others as well as hold perception and knowledge of others.





*TRENDS in Cognitive Sciences*

**Figure 1.** Turning on the light with the foot because (a) E wanted to or (b) E had to (because his hands were occupied) in the Buttelmann, *et al.* [28] experiments.



# ToM??

- o goals and intentions of others
- o perception and knowledge of others
  
- o But no evidence of False Belief understanding

# Povinelli Chimps lab

- o Chimps only understand surface level behaviours
- o Study on joint attention: 1 year olds, 2 year olds and chimpanzees
- o Social prompt
- o Physical prompt
  
- o Similarities: 1 year olds and chimps only showed carry over effect in the event with social cues
- o Differences between 1 year olds and chimps: social communication





# Frans de Waal

Sharing of states of mind through bodily communication? (versus cognitive)

Immediacy of emphatic responses: empathy-feeling of another one's state not based on cognitive deduction.

Bottom-up view





“The Bonobo and the Atheist: In Search of Humanism Among the Primates” *by Frans de Waal*



# Campbell et al. 2009:

empathy, involuntary identification and motor mimicry



Romero, T., Castellanos, M. a, & de Waal, F. B. M. (2010). Consolation as possible expression of sympathetic concern among chimpanzees. *Proceedings of the National Academy of Sciences of the United States of America*, 107(27), 12110–5.



**Fig. 1.** Chimpanzees spontaneously console distressed individuals by means of friendly body contact. Loudly screaming after having lost a fight against a rival, an adult male (right) is approached by a juvenile who puts an arm around him. Photograph by Frans de Waal.





*Horner & Whiten (2005) Causal knowledge and imitation/emulation in chimpanzees (*Pan troglodytes*) and children (*Homo sapiens*)*

- o Possible greater susceptibility to cultural conventions
- o Differential focus on results, actions and goals of demonstrator

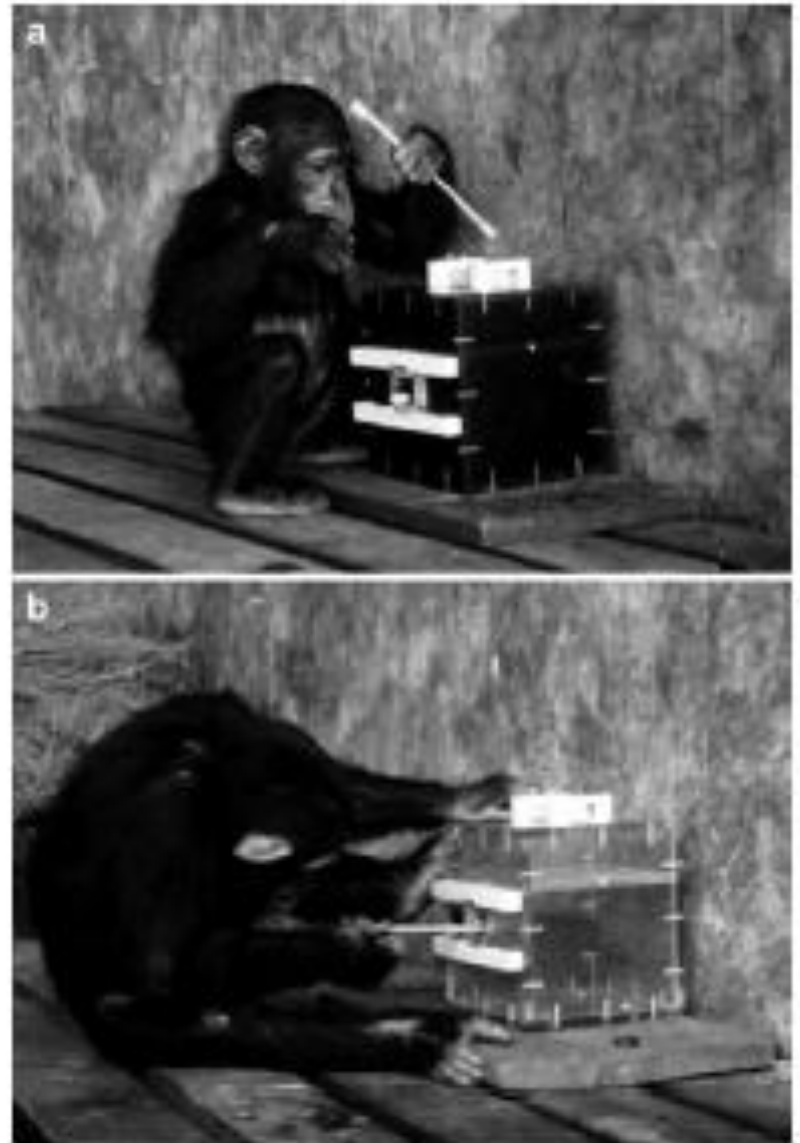


Fig. 3 a Subject inserts tool into the top irrelevant hole of the opaque apparatus, b subject inserts tool into front relevant hole of the clear apparatus to retrieve the food reward



# Dogs and the yawn contagion



# Inter species – avian: western scrub-jays



- o Counter strategies used to prevent pilfering of their cached food from others:
- o Behind barriers
- o Use shade and distance to reduce what others can see
- o Use numerous caching sites
- o **Recaching** when observed or after stealing another's cache



- o Recaching- experience projection.
- o Simulation by mental attribution of other birds since naïve birds do not do this

# Inter species – avian: native New Zealand Robins





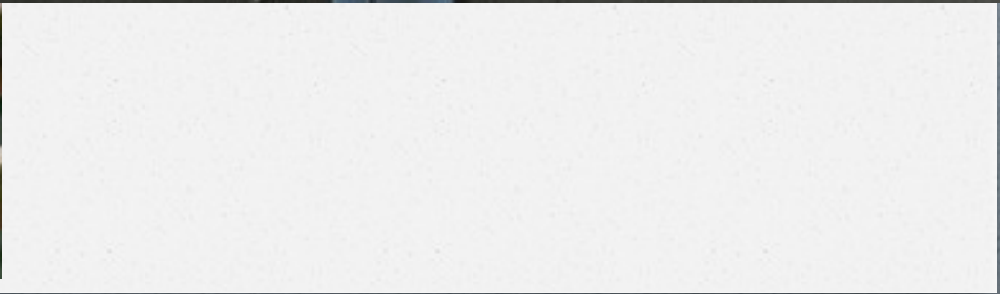
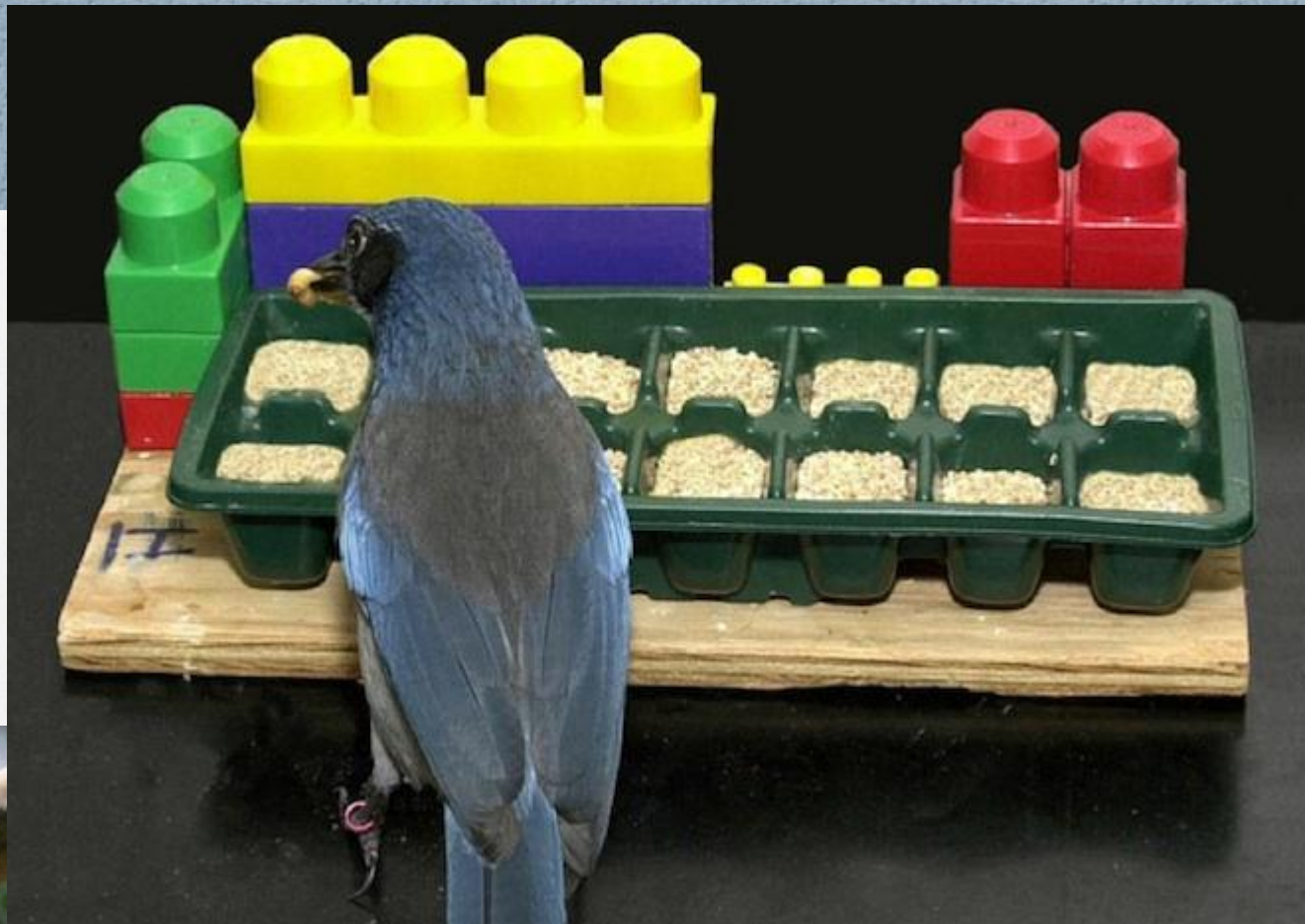




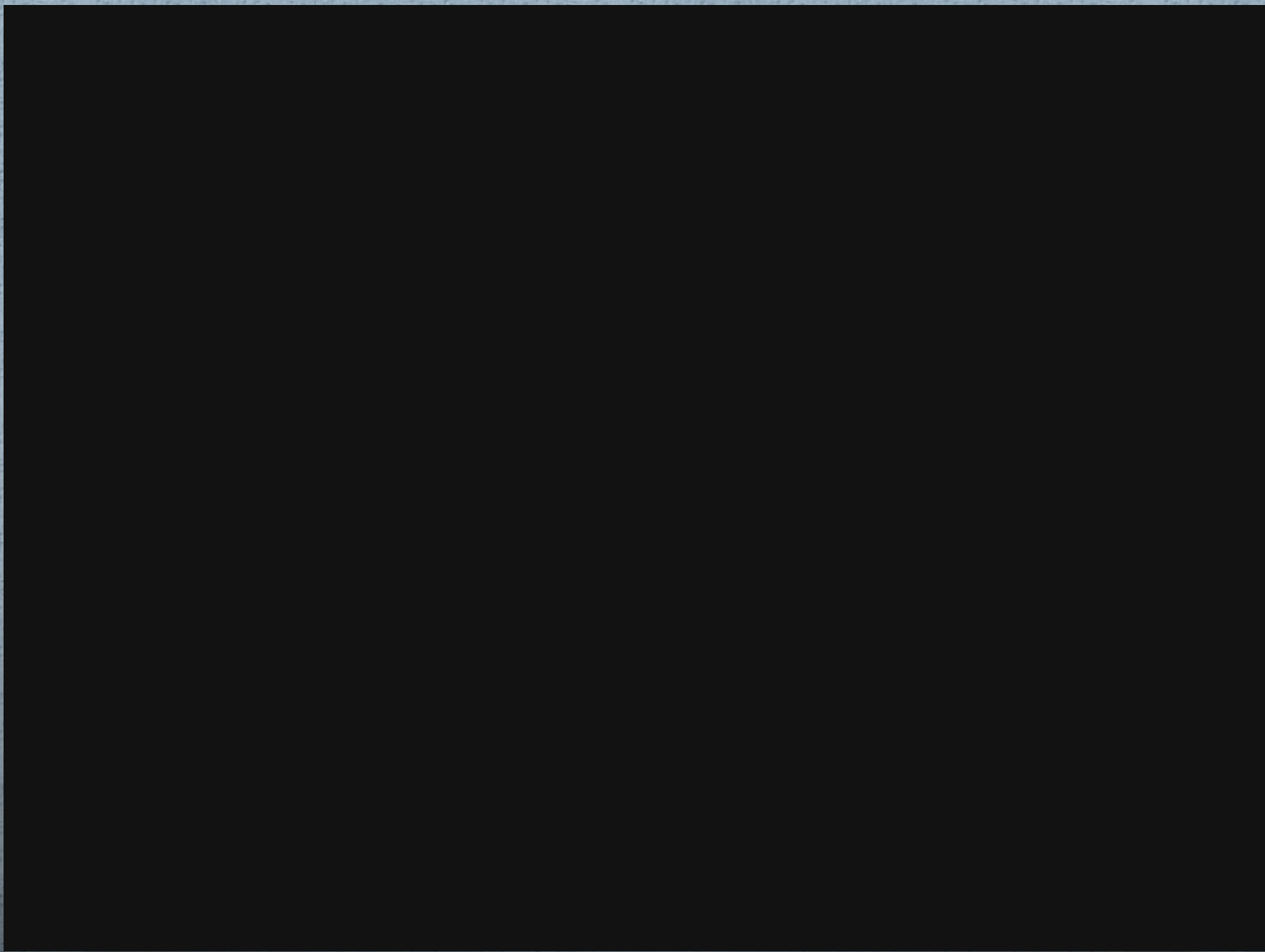


**Fig. 1** A robin makes his choice in a sequential number task

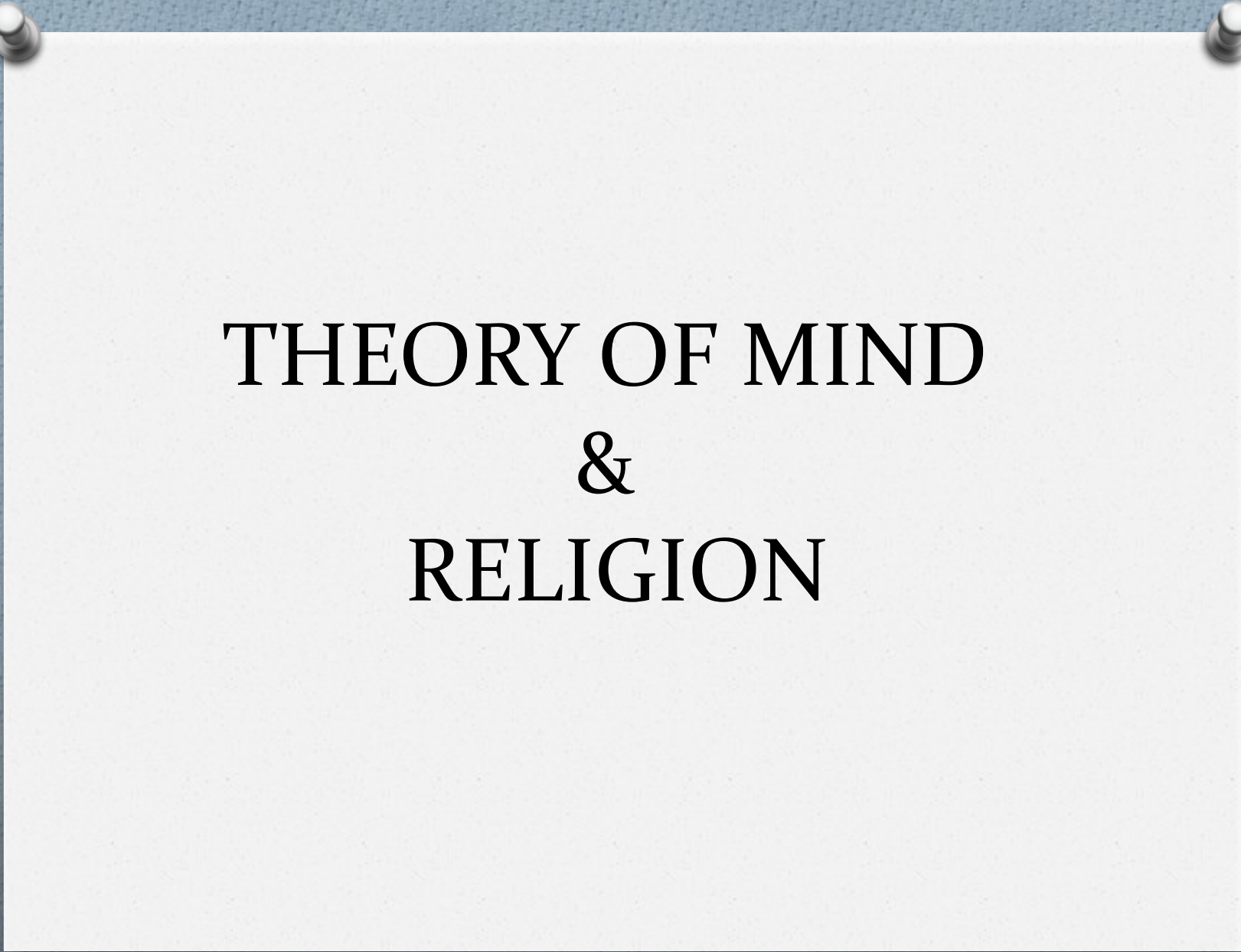




*"Evidence suggesting that desire-state attribution may govern food sharing in Eurasian jays." By Ljerka Ostojić, Rachael C. Shaw, Lucy G. Cheke, and Nicola S. Clayton. Proceedings of the National Academy of Sciences, Vol. 110 No. 6, February 5, 2013.*



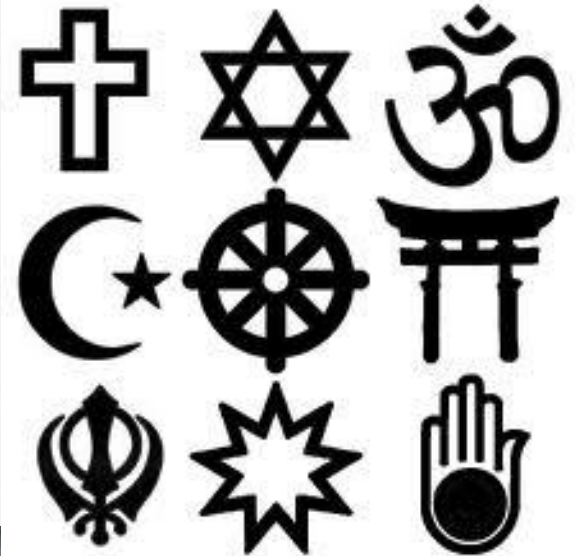




THEORY OF MIND  
&  
RELIGION

# Religion

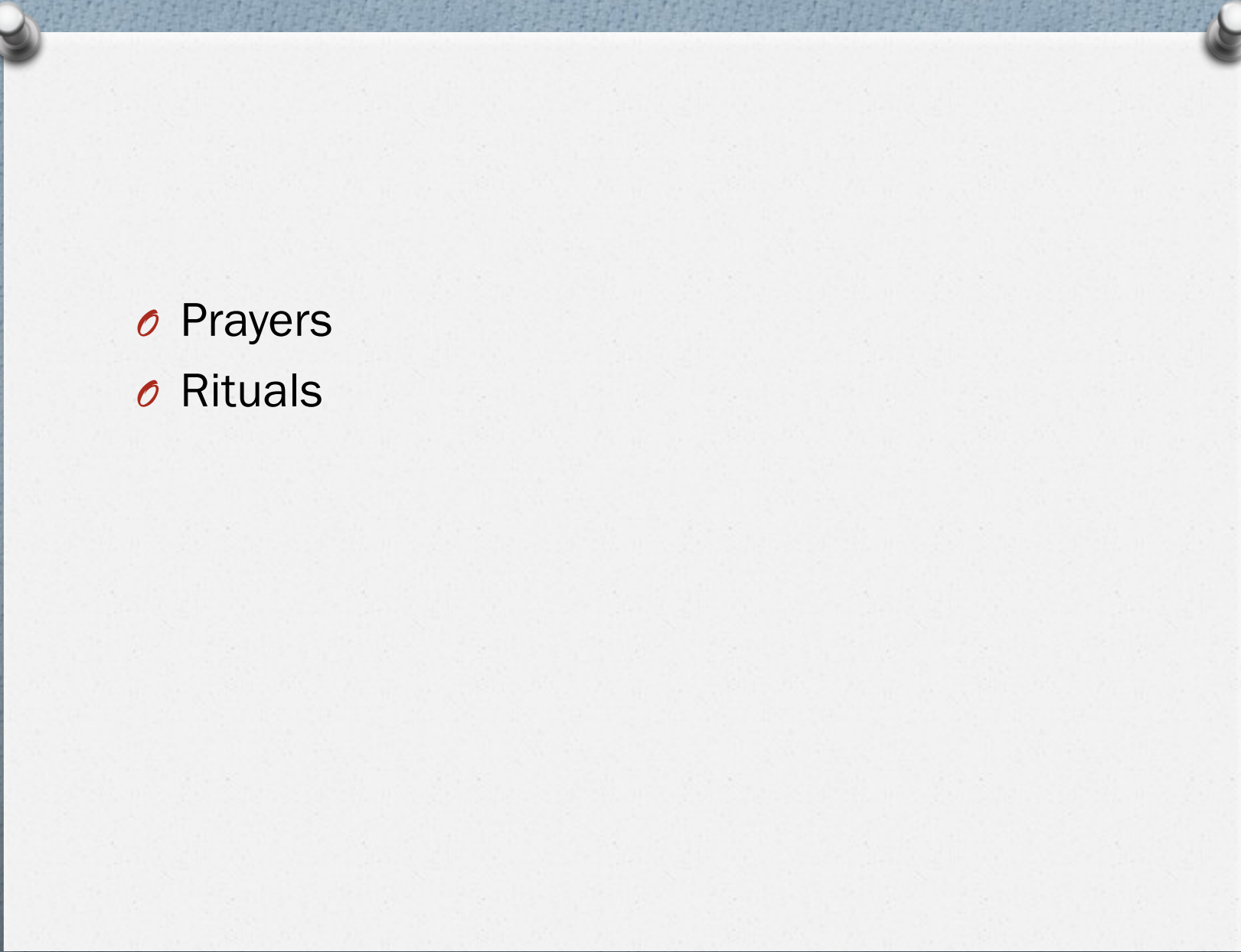
- o Religion: organised collection of belief systems, cultural systems and world views that relate to spirituality and sometimes moral values
- o Religious beliefs and behaviours





# Religion

- o Largely about intentional agents that one does not physically encounter.
- o Possible that- Representation of supernatural agents activates and modifies inference systems involved in the representation of ordinary human agents.



o Prayers

o Rituals



# Rituals: risk aversion, seek favours...





# Mauritius, April 2012





Singapore  
January,  
2013





# Norenzayan et al.

- o Religious believers intuitively conceptualize deities as intentional agents with mental states who anticipate and respond to human beliefs, desires and concerns.
- o Believers intuitively treat gods **as intentional agents** with mental states who enter into social relationships with humans, using supernatural powers to assuage existential concerns, respond to human desires, and monitor their social behaviour







Mentally representing supernatural beings (and their mental states) requires mentalizing capacities.

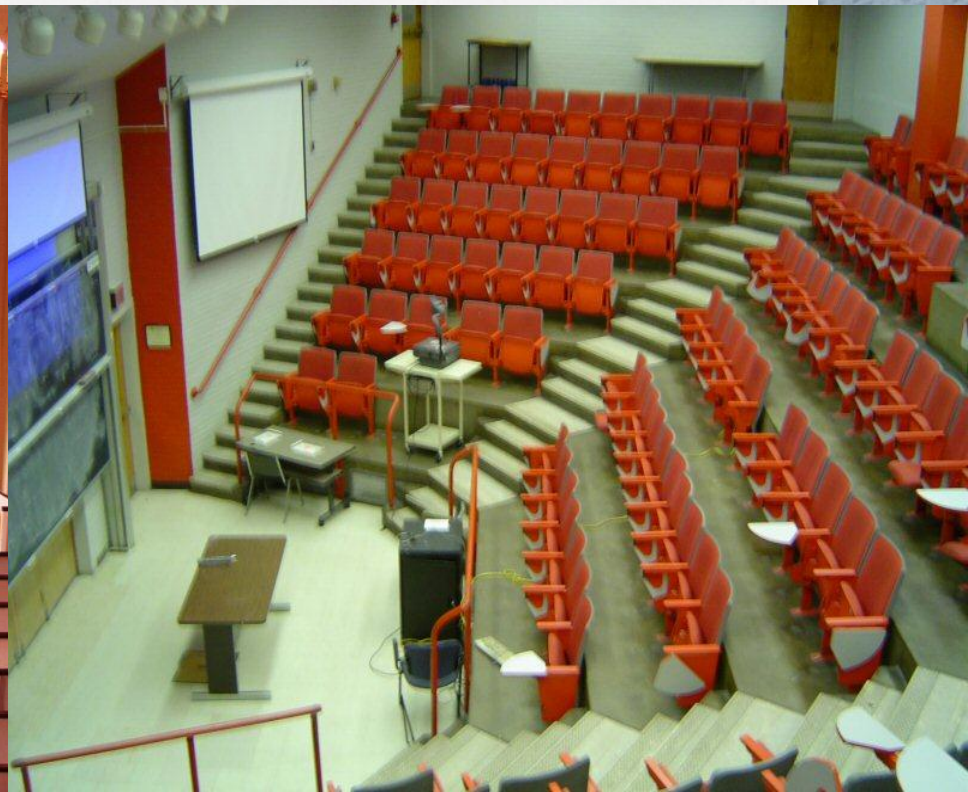
- o Agency detection
- o Ascribing mental states
- o Predicting behaviour





# Religious primes

Ali Ahmed (University of Uppsala)











AARHUS UNIVERSITY



Schjoedt, U., Stodkilde-Jorgensen, H., Geertz, a. W., & Roepstorff, a. (2009). Highly religious participants recruit areas of social cognition in personal prayer. *Social Cognitive and Affective Neuroscience*, 4(2), 199–207.  
doi:10.1093/scan/nsn050



# Dimitris Xygalatas



## The Burning Saints

Cognition and Culture in the Fire-Walking Rituals of the Anastenaria

Dimitris Xygalatas



<http://www.levyna.cz/>



# Existential ToM

- o Bering, J. (2002). The existential Theory of Mind. *Review of General Psychology*, 6(1), 3–24.
- o Built on foundation of ‘traditional’ ToM, it does not serve to explain or predict behaviour
- o Rather to allow individuals to attribute meaning to certain autobiographical experiences

# Existential ToM

- o Biologically based, generic explanatory system
- o Interpretive perception of natural events as symbolic of communicative attempts of culturally elaborated psychological agency (e.g. God)

Bering (2002)



- o Ascribed intentionality behind the gestures lend the gestures itself meaning
- o Meaning stems from the mind of the intended source



# Ability to mentalise and belief in God

Tok, Reddish & Kundt (in preparation) (working title)

*Linking theory of mind and religious behaviour in  
people with high functioning autism*

Tok, Reddish & Horvatova – currently underway

*Dialogic Inner speech and religious behaviour in young  
adults*