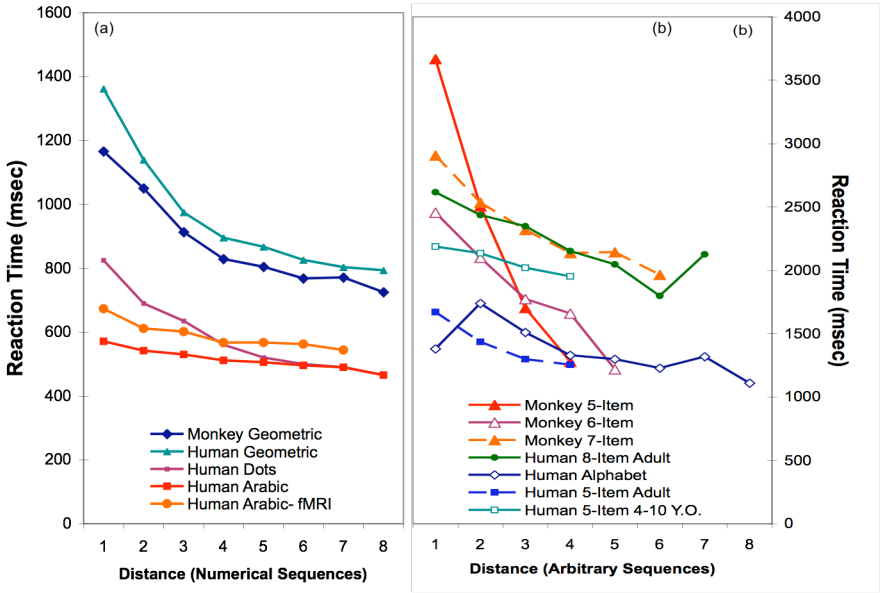
Neural Bases Of Distance Effects



Distance effect:

Distance ↑ between 2 list items — Response time ↓

Magnitude effect (not shown):

Magnitude ↑ — Response time ↑ / Accuracy ↓

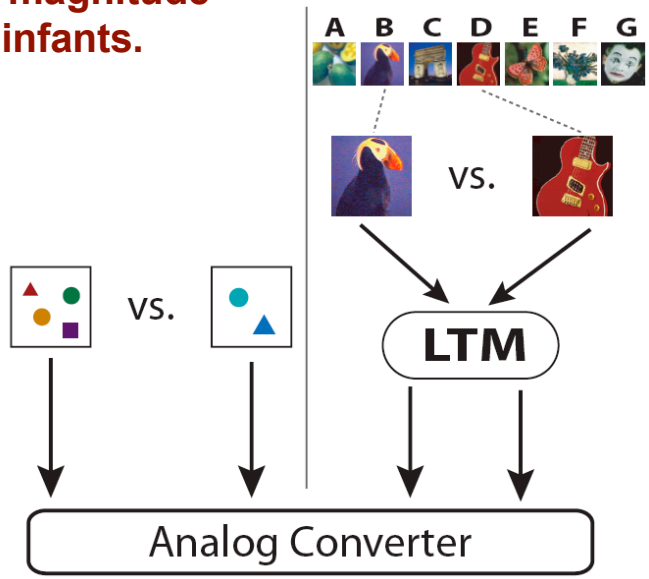
Evidence of ordinal & numerical knowledge and for distance & magnitude effects has been observed in non-human primates and human infants.

Questions for future research:

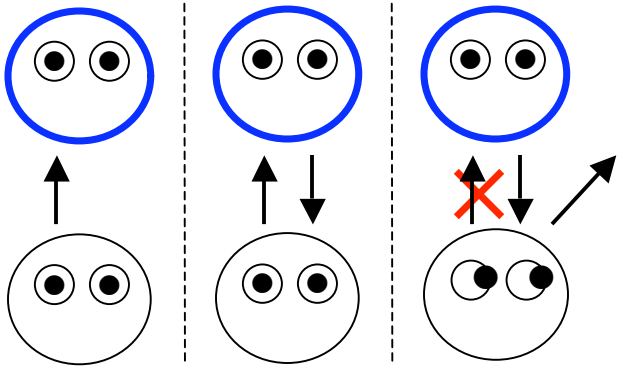
Does this imply that a common non-verbal mechanism?
- If yes, what is the nature of that mechanism?
- If not, what types of mechanism should be considered?

What brain mechanisms mediate ordinal & numerical knowledge?

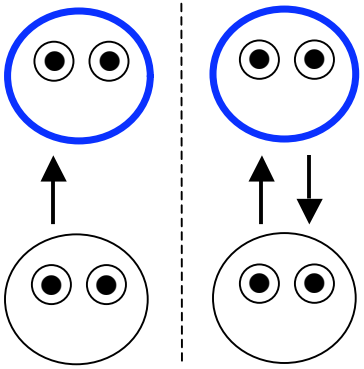
What new techniques can be developed for investigating ordinal and numerical knowledge, in particular, techniques that are based on a species natural behavior?



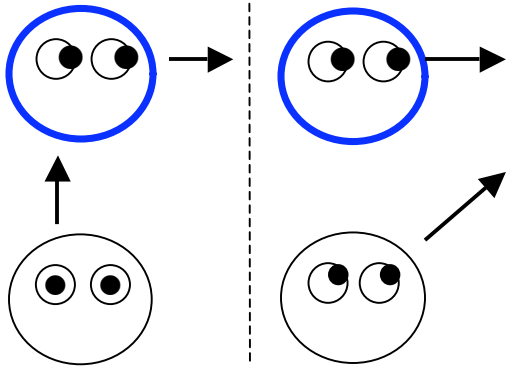
Averted Gaze



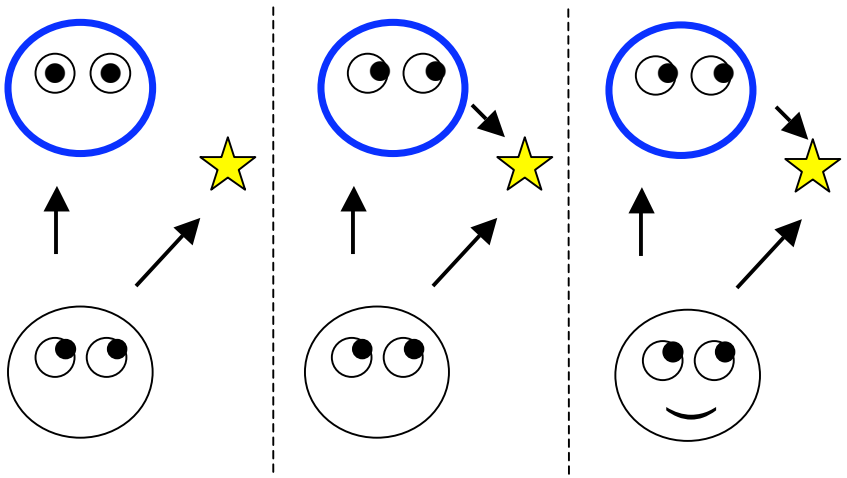
Mutual Gaze



Gaze Following



Joint Attention



- Uniquely human?
- Prerequisite for language?
- Missing link between ape communication & human language?

Research goals:

1. ERPs from 6-12 m.o. infants during various levels of eye gaze with caretaker.
2. Determine pattern of neural activity that is a signature for joint attention.
3. Compare normal ERPs with those obtained from autistic children (adjustments for age).