

Abstract Concepts : Relation to handedness

- P. Nandha Kumar

Body Specificity Hypothesis

- Thoughts are mental simulations of bodily experiences
- Different bodily interactions should give rise to different mental representations

How is this related to embodiment of abstract concepts ?

- In many languages metaphorical expressions associate positive and negative valence to up and down in the vertical space.



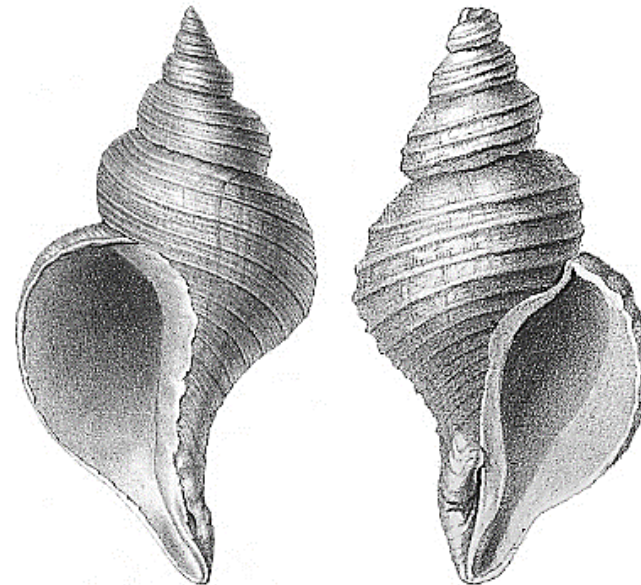
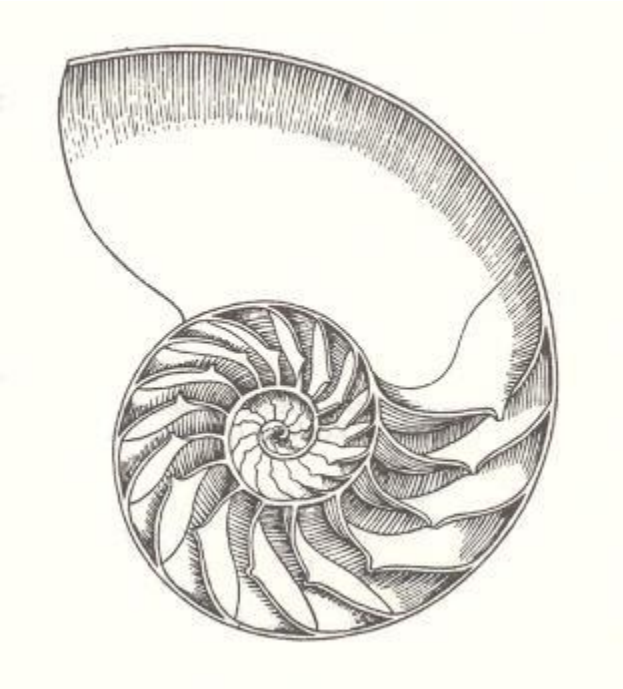
- These linguistic metaphors reflect mental metaphors
- Mental metaphors are formed by
 - Correlation between physical experiences and emotional states
 - Experience using linguistic metaphors



Handedness

Asymmetry in nature

- Starts with chirality in molecules
- Common examples in multicellular organisms are the following



Asymmetry in humans

- Different sides of the brain perform different functions
- Along with handedness, there exists preference for almost every other perceptuo-motor organ
 - Ocular Dominance : Preference of one eye over the other
 - Footedness
 - Ear Dominance

Handedness

- People are better classified into strongly right-handed rather than just right-handed
- Assessment of handedness is done by asking a set of standard questions known as the Edinburgh handedness inventory

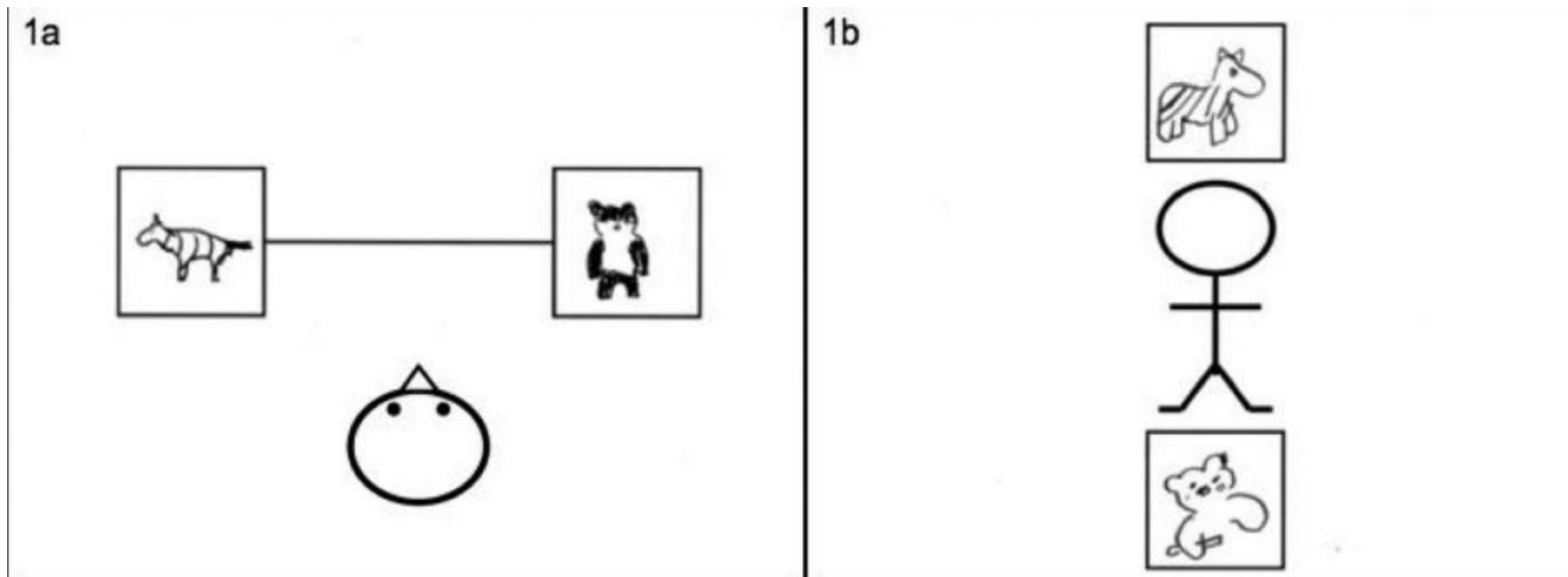
Relation of abstract concepts to handedness

- The association of *right* with '*positive*' and *left* with '*negative*' can be found in most linguistic expressions.
- Even when not found linguistically, it is evident in all cultures
- Reason
 - Neurobiological
 - Body-specific associations between space and valence



Experiment 1 : Diagramming the good and the bad

- Participants will perform a pencil-and-paper diagram task
- They shall draw one animal in each of the two boxes located left and right to a cartoon figure. This shall be repeated with the boxes above and below the figure



Experiment 2

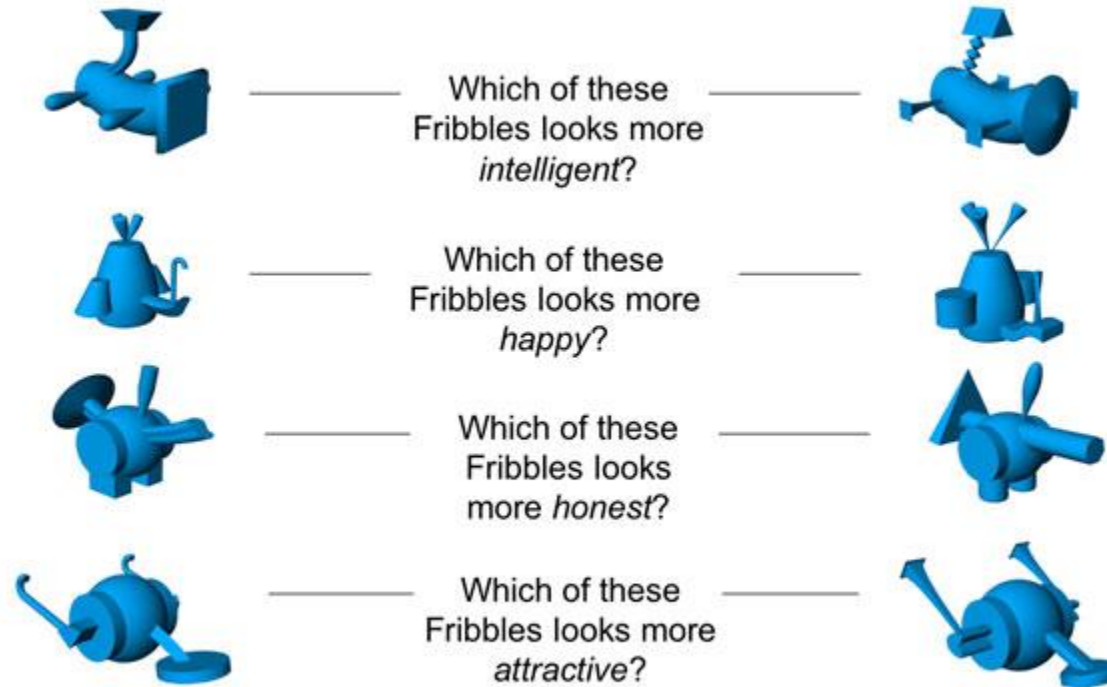
- The first experiment is performed again
- Here the participant will be aware that the experiment pertains to handedness
- To make sure that the participants knew the goal of the experiment, they will be asked the objective after the experiment.

Experiment 3 : Does spatial judgements involve hands ?

- As the first two experiments requires the participant to draw, it may be argued that the act of drawing plays a major role
- Repeating the previous experiment but by asking the person to point where the animal would be placed

Experiment 4 : Body-Specific Judgments of Aliens' Attributes

- Implicit influence of spatial position on positive and negative traits is tested



Experiment on Children

- Variants of the above explained experiments can be performed on children

References

- [Daniel Casasanto “Embodiment of Abstract Concepts: Good and Bad in Right- and Left-Handers”](#)
- [Handedness Shapes Children’s Abstract Concepts](#)-Daniel Casasanto, Tania Henetz, Cognitive Science 36 (2012) 359–372
- [The Edinburgh handedness Inventory](#)- Oldfield, R.C. (1971). The assessment and analysis of handedness: The Edinburgh inventory. Neuropsychologia, 9, 97-113
- Right Hand Left Hand-the origins of asymmetry in brains, bodies, atoms and cultures by Chris McManus

Thank you