Abstract Concepts - Handedness

Introduction to Cognitive science course project

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Lefty?   or   Righty?

A new perspective on how we think

Motivation

- Our decisions are unconsciously biased

- One hypothesis states that this biasing depends upon the way we interact with our world. It is known as the **body-specificity** hypothesis

- This means that objects/concepts in opposite poles, (for example up and down) are judged differently

- A common explanation is the association of positive and negative ideas to up and down respectively in the vertical space, usually found in language

- This association is reasoned with the correlation between physical experiences and emotional states
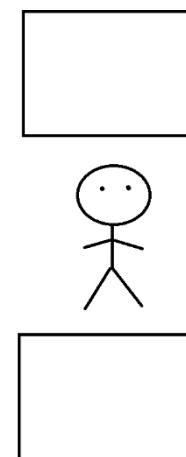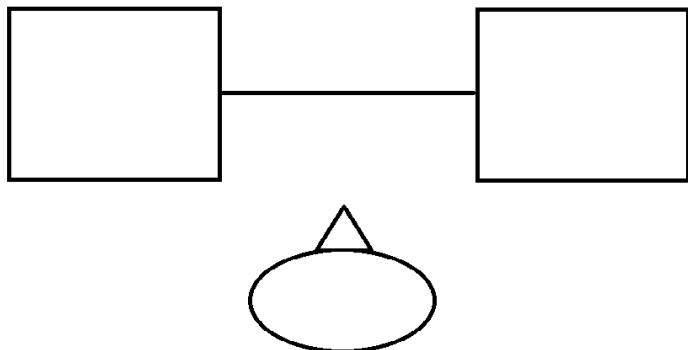
A joyous person jumps   A sad person feels *low*

Abstract concepts

- Concepts which have no concrete definition and can vary are termed as abstract. E.g., Intelligent, beautiful, like, hate, good, bad.

- Across cultures and modalities, *left* is conventionally associated with **bad** and **right** with **good.**

- One possible explanation for this is due to innate neurobiological factors reinforced by culture and language

- Another explanation is that body-specific associations between space and valence causes this

- As *right* is usually the dominant hand, it follows from the hypothesis that right side of space will be associated with positive valence

Methodology

- Subjects are required to perform a diagram task, in which they draw one animal in each of two boxes located either to the left and right of a cartoon figure (in the horizontal condition) or above and below a cartoon figure (in the vertical condition)

- Instructions indicate that the cartoon likes certain animals and dislikes some

- Participants were instructed to draw a good animal in the box they thought best represented good things and a bad animal in the box that best represented bad things.

- In the second task, participants are instructed to judge the character of a fribble by circling the appropriate one.

- The fribbles are visually similar figures which are clearly distinguishable

- In addition to the above tests, ocular dominance is also recorded (using Miles test) to find a correlation in the data.
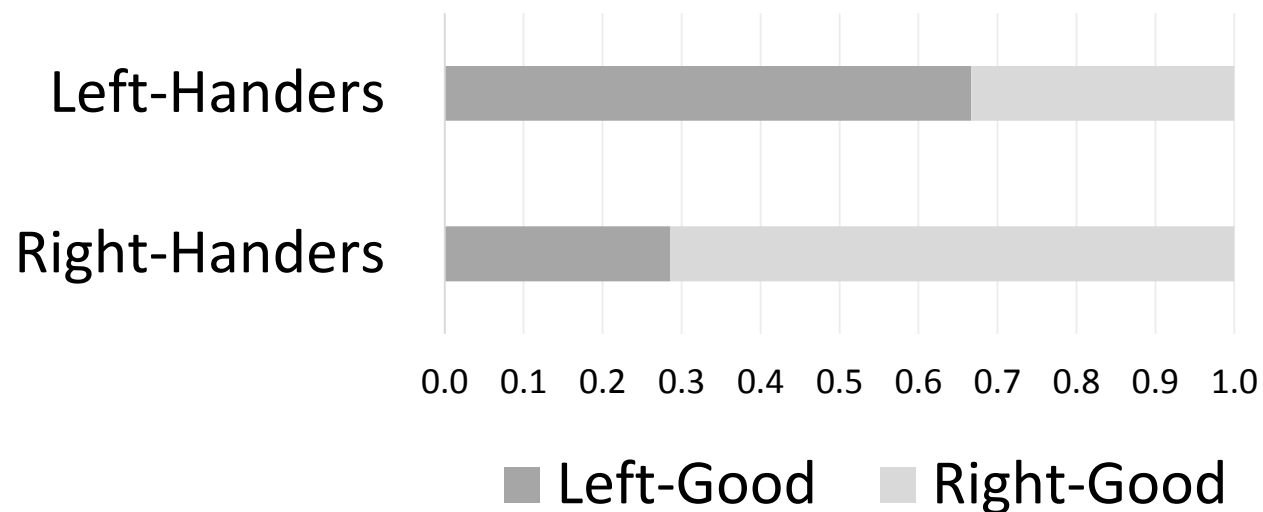
Which Fribble looks *less* happy?

Which Fribble looks *more* honest?

Results

- The tasks were performed by 12 individuals (men of the age group 18-20).

- Of these 12 subjects, 3 were left handed (25%) and rest were right handed (75%).

- The questionnaire took 3 min to complete on an average
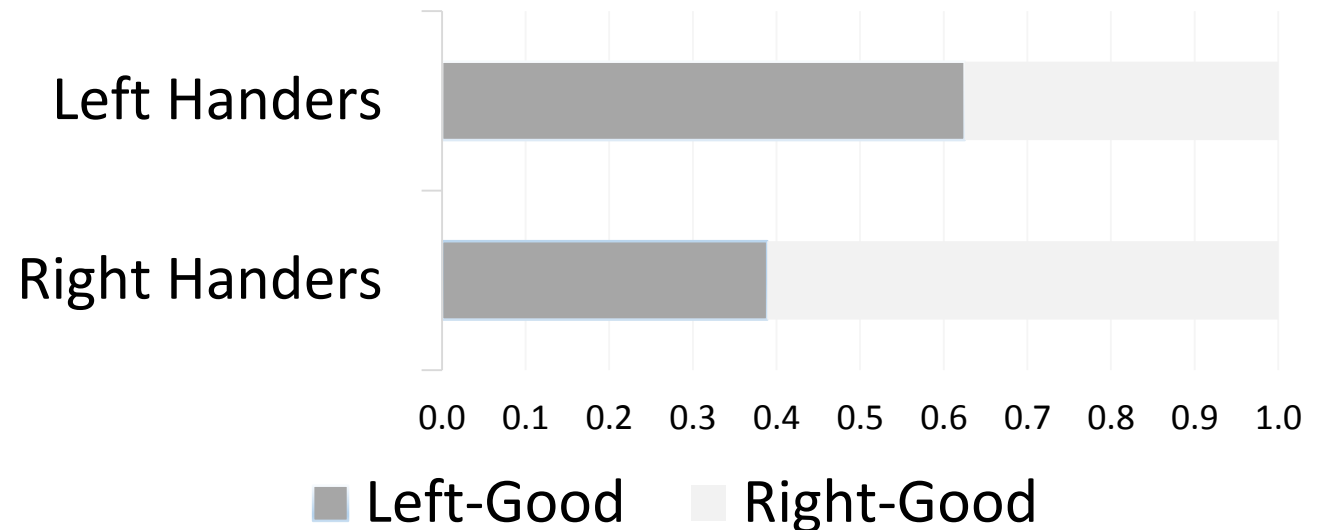
Task I

Left-Handers / Right-Handers

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0

■ Left-Good   ■ Right-Good

Task I

Right Handers / Left Handers

■ Down good   ■ Up Good

Results

- The attribution of qualities to aliens is found to more towards the dominant hand side

Task II-Alien features

Further Work

- More data needs to be collected to confirm the hypothesis
- Ocular dominance, handedness and association of abstract concepts have to be correlated with each other

References

- Daniel Casasanto "Embodiment of Abstract Concepts: Good and Bad in Right- and Left-Handers"

- [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

Acknowledgements

Spot the original