

**The vertical representation of affect**  
***Mood effects in a visual search task***

**Experimental research methods**

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# Embodied cognition

- All aspects of cognition, such as ideas, thoughts, concepts and categories are shaped by aspects of the body.
- We are not simply inhabitants of our body; we literally use it to think.
- Human cognition develops through sensorimotor experiences.
- Neurological processes that make abstract thought possible are intimately connected with the neurological processes that are responsible for representing perceptual experiences.

# Embodied cognition

- Sensory and motor representations that develop from physical interactions with the external world (i.e., vertical dimensions) are recycled to assist our thinking about abstract phenomena
- This hypothesis evolved, in part, by patterns observed in language. In order to communicate about abstract things, people often utilize metaphors from more concrete perceptual domains



**The Conceptual Metaphor Theory  
(Lakoff & Johnson, 1980)**

# Conceptual Metaphor Theory

- Conceptual metaphors usually refer to an abstract concept as target and make use of concrete physical entities as their source.

## Examples:

- People experiencing positive affect are said to be feeling “up” whereas people experiencing negative affect are said to be feeling “down”.
- In colloquial language a person who is moral is described as “high minded”, whereas an immoral person might be denominated as “down and dirty” (Lakoff & Johnson, 1999).
- Social embodiment: Control and power (e.g. top manager vs. subordinate)
- Implicit associations between God-Devil and up-down

# Related experiments

Positive mood states, compared to negative mood states, were associated with line bisections that were higher within vertical space (Wapner, Werner, and Krus, 1957).

In a study by Meier and Robinson (2004) participants had to evaluate positive and negative words either above or below a central cue. Evaluations of negative words were faster when words were in the down rather than the up position, whereas evaluations of positive words were faster when words were in the up rather than the down position.

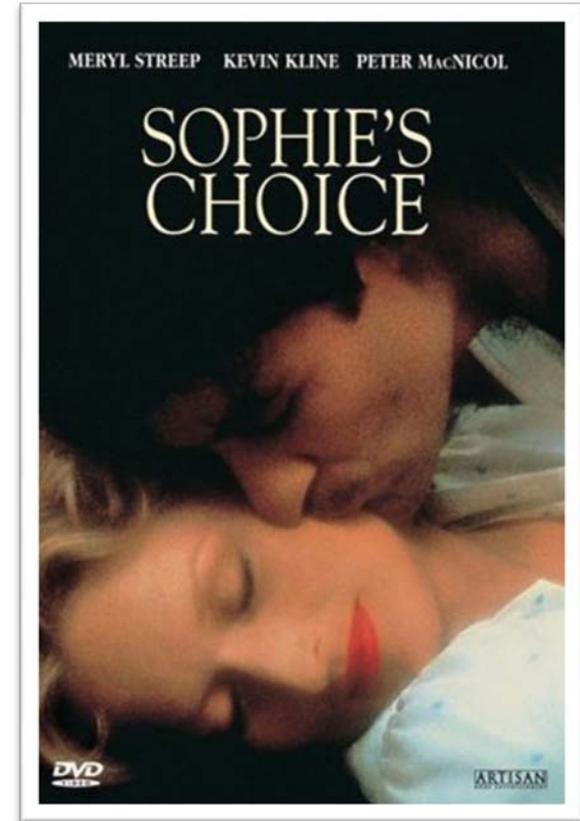
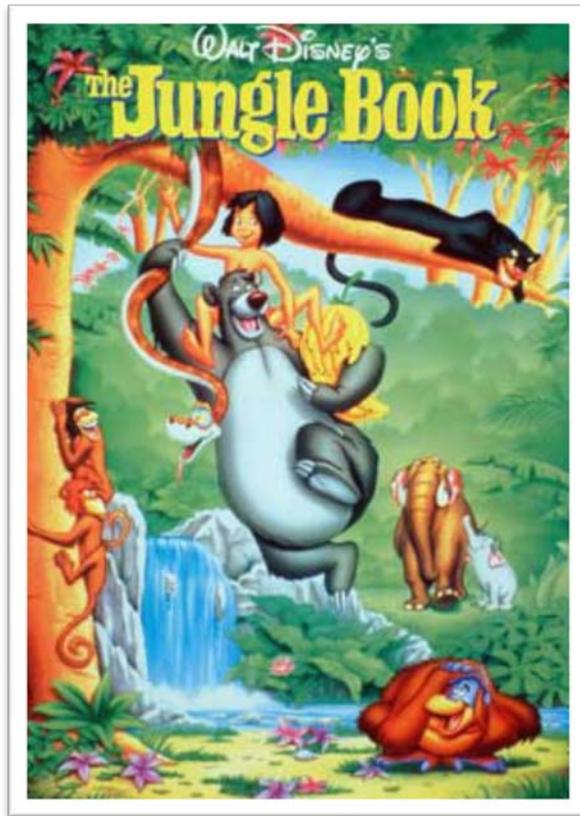
# Predicitions

We would like to determine if positive mood facilitates target detection in the upper visual field relative to target detection in the lower visual field.

Consequently, we are interested whether negative mood facilitates target detection in the lower visual field relative to target detection in the upper visual field.



# Mood induction procedure



**Positive mood induction vs. Negative mood induction**

**Participants will be assigned to one of two mood Induction conditions on a random basis.**

# Visual search task



Participants have to fixate the small dot.

The search display consists of two outline circles.

When a target is present (50% of the trials) one circle is white and one is red (the Target).

counterbalanced order



# Visual search task



In target-present trials the target position is randomized among the two possible element positions.

Participants are instructed to indicate as fast and accurate as possible whether the target is present or absent and to press the appropriate response key.



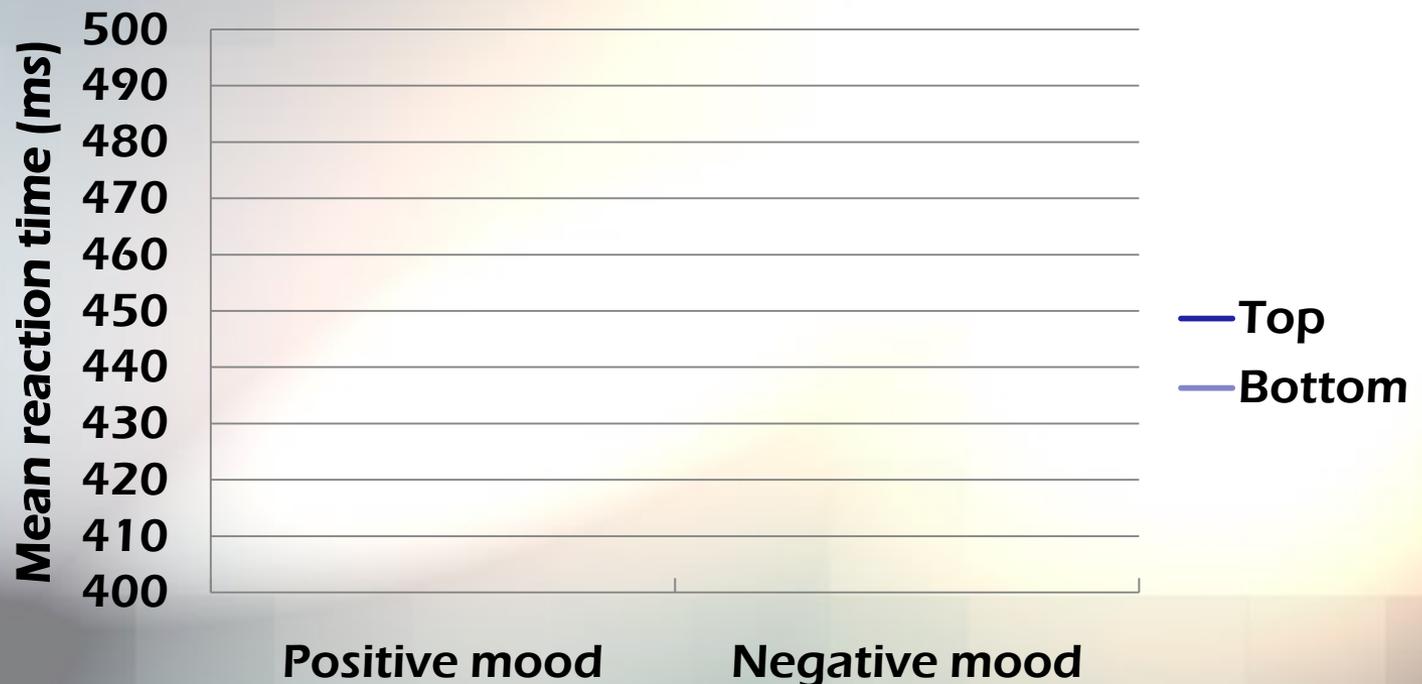
# Experimental design

The study will employ a mixed design. The between participants independent variable will be the mood induction procedure with two levels (positive vs. negative mood induction) and the within-participants dependent variable will be the reaction time on two different target locations (up vs. down) in the visual search task.



# Data analysis

A 2 (mood induction condition: positive vs. negative) x 2 (target position: top vs. bottom) repeated measures ANOVA will be performed on the (log-transformed) reaction times. The between subjects factor will be the mood induction condition and the within subject factor will be the target position.



# Conclusion

The results of the proposed study could give some support to the theoretical framework of embodied cognition.

More specifically the results could give credit the notion that “feeling down means seeing down” (Meier & Robinson, 2006, p. 460).

Further research could investigate that assumption in more detail. The conglomerate of results could have important implications for the assessment and treatment of affective disorders.

**Thank you for your attention!**  
**Any questions?**