What Prototypes Can Teach Us About Unknown Knowledge

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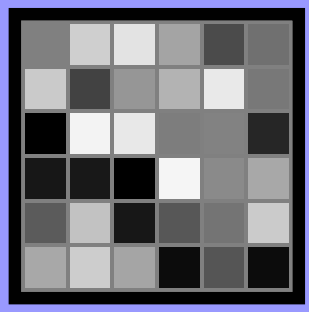
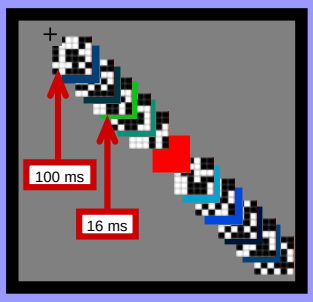
INTRODUCTION

Aim:
- Provide a model to describe implicitly learned structure.

Criterion:
- Illustrative and usable in future research to explore the relationship between intuitive and analytical intelligence.

Proposal:
- First Principal Component as a prototype model.





METHOD

Stimuli:
- Images randomly composed of 6x6 black and white squares; unique stimuli for each participant.

Trial:
- 10 stimuli presented successively with 9 coloured squares interposed; random order.

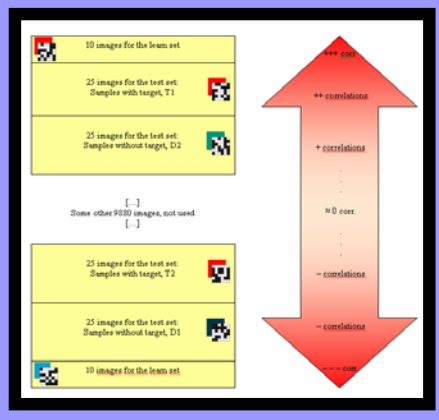
Cover Task:
- Detect a red square, the 'target', in the middle of the sample.

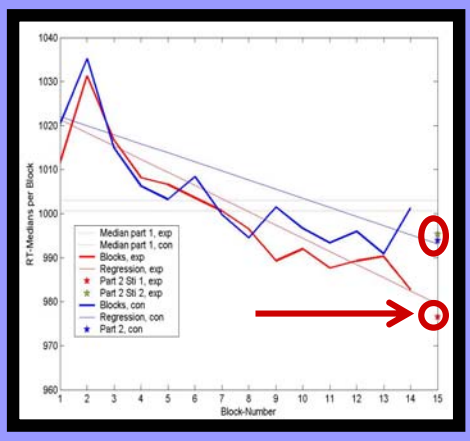
New Paradigm:
- Prototype Priming, i.e. RTs are measured.

Learn set:
- Stimuli grouped with the target according to their similarity with the prototype.
- Overall 1400 presentations of stimulus samples, i.e. 700 RTs.

Test set:
- New stimuli.
- One half grouped analogously to learn set (Sti1), the other half inversely (Sti2).
- 100 presentations overall, i.e. 2x25 RTs.

Control group:
- No grouping in the learn set, no prototype priming possible





RESULTS & DISCUSSION

Interview:
- Participants do not have any explicit knowledge

Learn set:
- Both groups learn significantly ($p_{exp} < .001$, $p_{con} < .001$)
- Experimental group learns more than control group ($p < .001$)

Test set:
- Sti1 faster than Sti2 ($p < 0.05$)
- Experimental group (Sti1) faster than control group ($p < 0.01$)

Interpretation:
- All predictions confirmed: Besides habituation to the setting, there is prototype learning and transfer to the test set.

CONCLUSIONS

- **Prototype Priming is a fruitful paradigm**
- **Confirmation of the model**
- **For generalisation, replication with a larger sample sensible** (here only: 7 in exp. and 4 in control group)
- **Two more conditions: exemplar grouping and explicit instructions**