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# Incidental learning of trust does not result in distorted memory for the physical features of faces

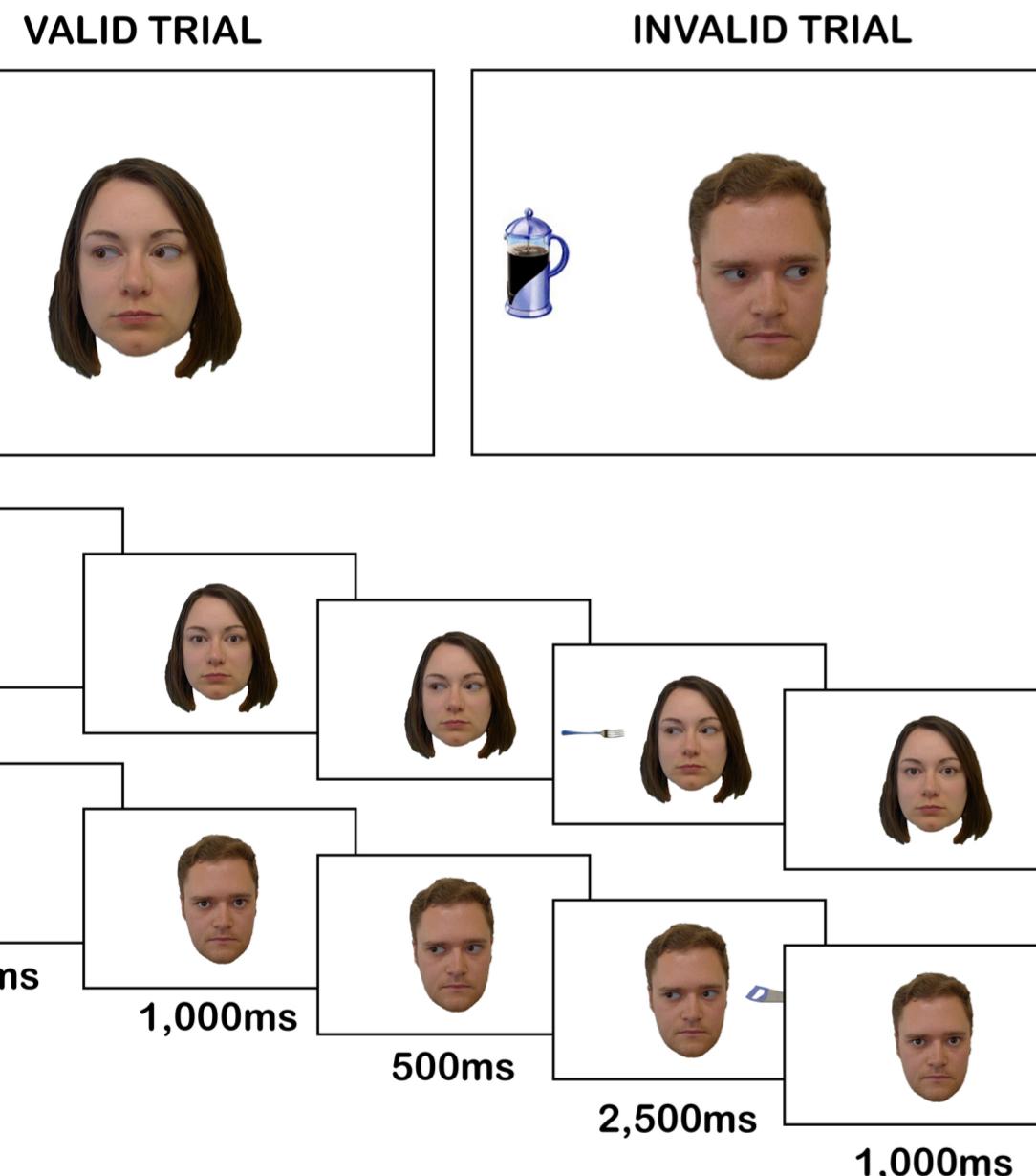
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## Introduction

Gaze cues lead to automatic, reflexive reorienting of attention  
Consistently invalid gaze cues leads to faces being rated as less trustworthy than other faces that consistently cue correct location [1]  
How is this representation stored?  
Quick access to stored representation may be facilitated by updating memory of the face to appear more or less trustworthy  
Examine this using two converging techniques



## Method

Gaze cueing procedure (pictured above)  
Stimuli: KDEF faces [2] selected according to previous ratings [3]  
Each face (8 male, 8 female) appears as either valid (look toward target) or invalid (look away from target) during experiment  
Images morphed using JPsychomorph [4] to adopt features outlined in [5] associated with un/trustworthiness, each image being a 5% increment

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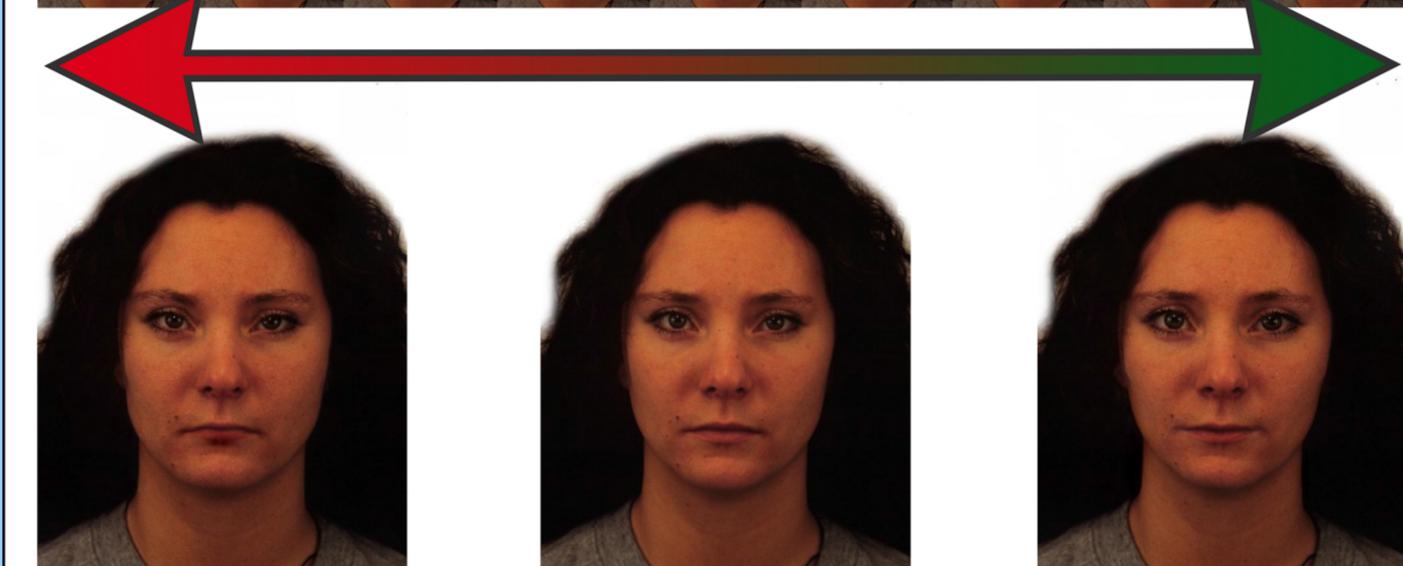
[@jamesstrachan](https://twitter.com/jamesstrachan)

## Experiment 1: Morphing

n = 24 (22F, M<sub>age</sub> 21.43)

### After cueing

Participants told face is morphed along a continuum, have to morph it back along 5% intervals to the image they saw during cueing



**Do people remember valid faces as looking more trustworthy than invalid faces?**

## Results



### Confidence Ratings

Valid: M = 4.88, s.d. = 1.99

Invalid: M = 4.73, s.d. = 2.07

No evidence of bias in face morphing

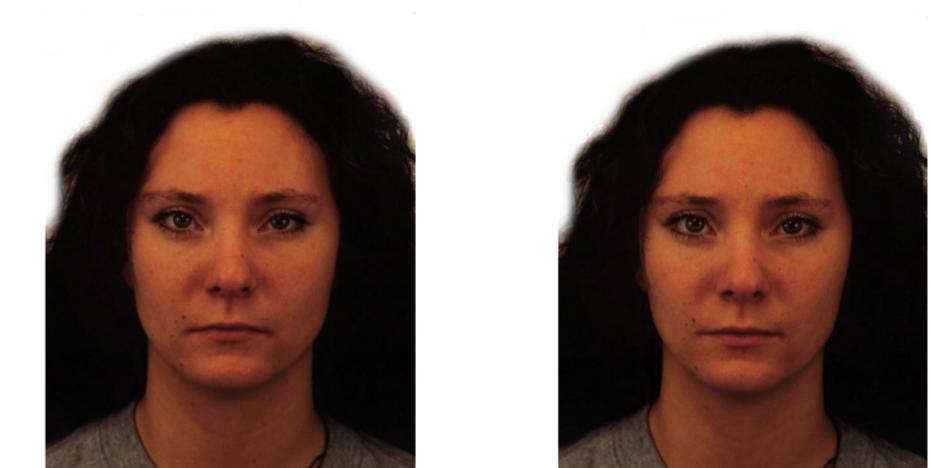
No evidence of difference in confidence in decisions

## Experiment 2

n = 23 (18F, M<sub>age</sub> 21.52)

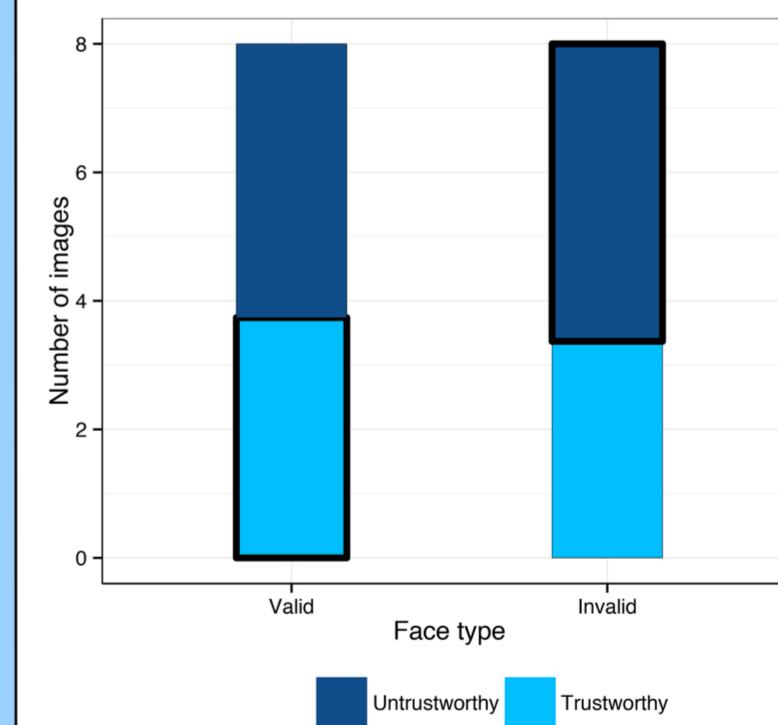
### After cueing

Participants shown 50% images (50% trustworthy, 50% untrustworthy), told stimuli were of identical twins. Asked to select which they had seen during experiment.



**Which twin did you see during the experiment?**

## Results



Participants did not select congruent face (valid-trustworthy, invalid-untrustworthy) significantly more than incongruent face (p=.224)

### Confidence ratings

Valid: M = 5.09, s.d. = 2.02

Invalid: M = 5.44, s.d. = 2.10

Significantly more confident in decisions made about invalid than valid faces:

$\beta = -0.35$ , SE = 0.12,  $\chi^2(1) = 8.24$ , p = 0.004

## Conclusions

Previous gaze behaviour of a face does not appear to impact memory for physical facial features

Some evidence that when task is easier (2AFC as opposed to morphing) participants feel more confident about their memory for invalid faces, suggesting better memory for deceivers

Techniques used here may be useful in other areas of research

## References

- [1] Bayliss, A. P., & Tipper, S. P. (2006). Predictive gaze cues and personality judgments should eye trust you? *Psychological Science*, 17(6), 514-520.
- [2] Lundqvist, D., Flykt, A., & Ohman, A. (1998). The Karolinska directed emotional faces (KDEF). CD ROM from Department of Clinical Neuroscience, Psychology section, Karolinska Institutet, 91-630.
- [3] Oosterhof, N. N., & Todorov, A. (2008). The functional basis of face evaluation. *Proceedings of the National Academy of Sciences*, 105(32), 11087-11092.
- [4] Tiddeman, B., Burt, M., & Perrett, D. (2001). Prototyping and transforming facial textures for perception research. *IEEE computer graphics and applications*, 21(5), 42-50.
- [5] Todorov, A., Baron, S. G., & Oosterhof, N. N. (2008). Evaluating face trustworthiness: a model based approach. *Social cognitive and affective neuroscience*, 3(2), 119-127.