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Variability of background colour in suspect line-ups and identification accuracy

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Variability of background colour in suspect line-ups and identification accuracy

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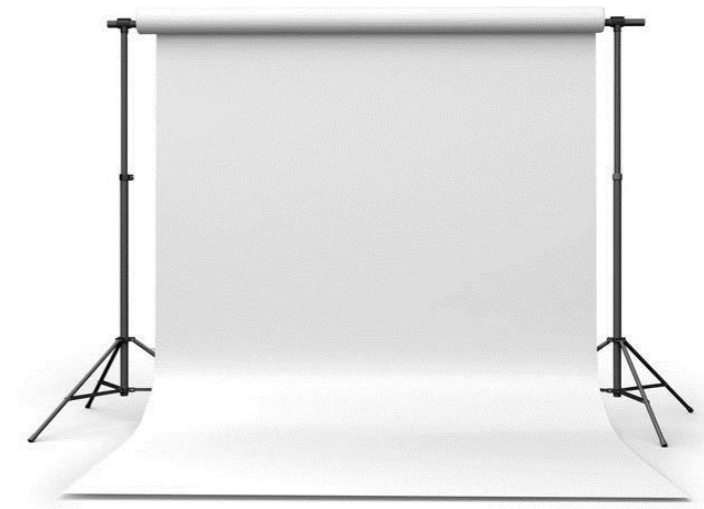# Suspect line ups

- Viper

- Promat

Promat images

Two ways to collect images

- Custom built photo booth
  - Uniform lighting +
  - Uniform background +
  - Expensive -

- Photographers backdrop
  - Use anywhere +
  - Cost-effective +
  - Non uniform lighting –
 - Backdrop doesn't produce uniform background colour -

Promat Background variation

- 100 each of Asian, Oriental, Black and Caucasian faces from Promat database
  - 18 – 35 yrs
  - Medium build
  - No glasses
  - Black hair

- Average colour of background calculated

- Large variations

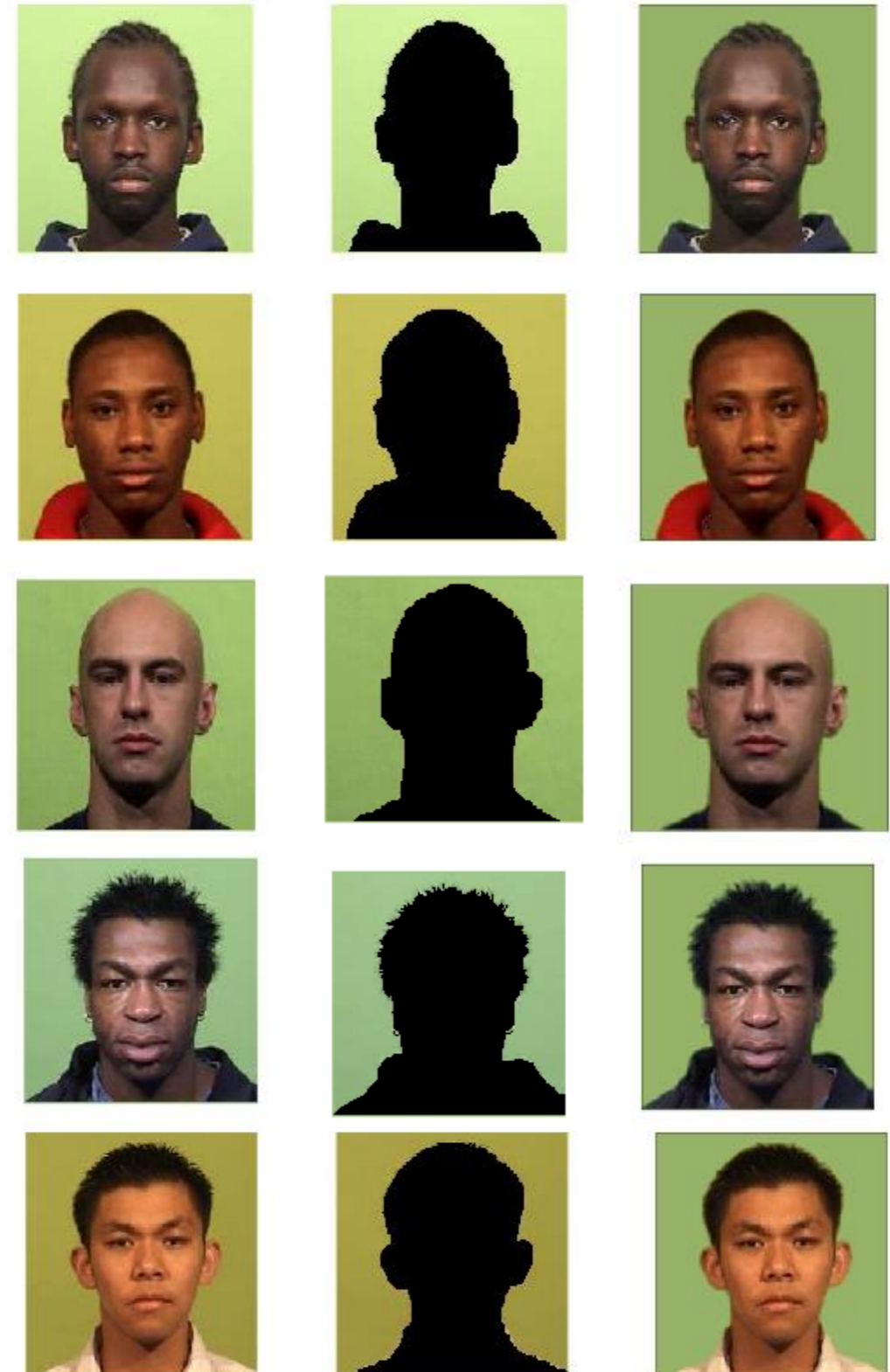- Could these variations affect ID performance and even drive false positive rates?
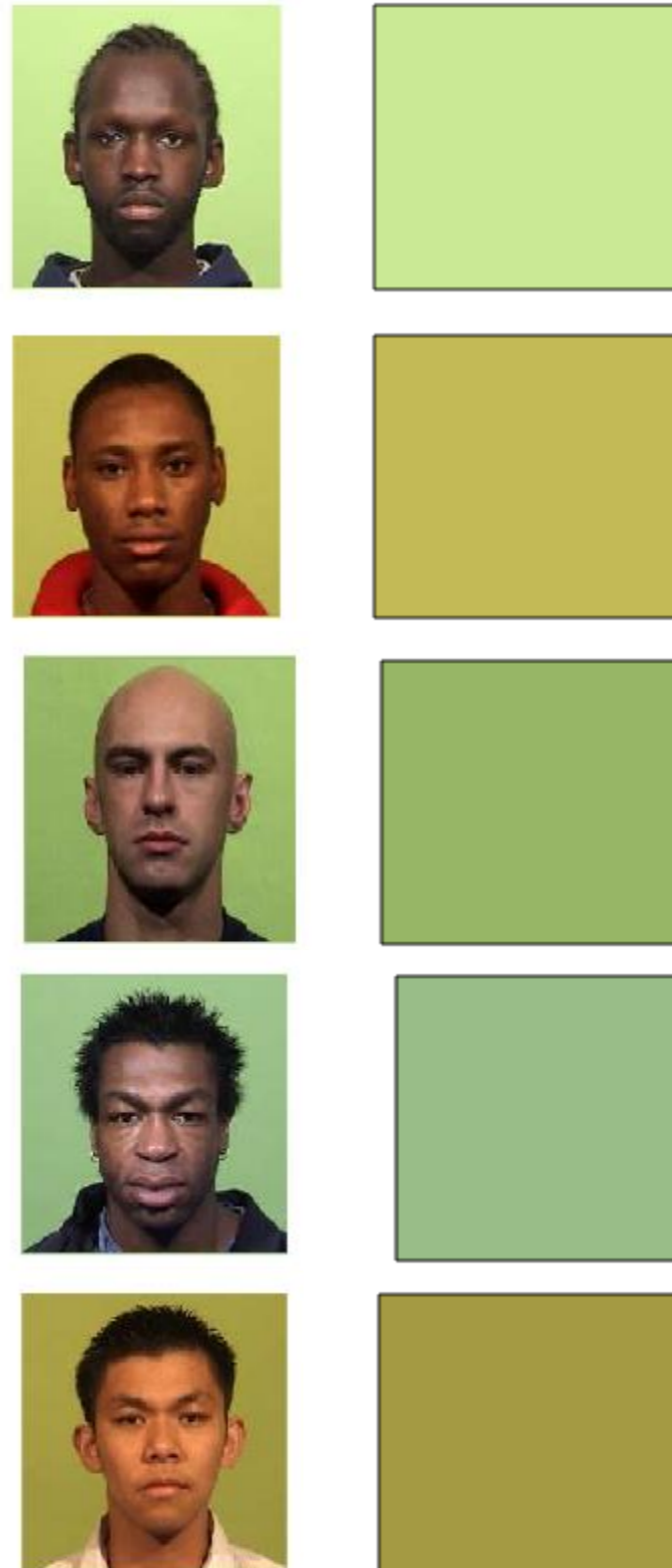
Background variation
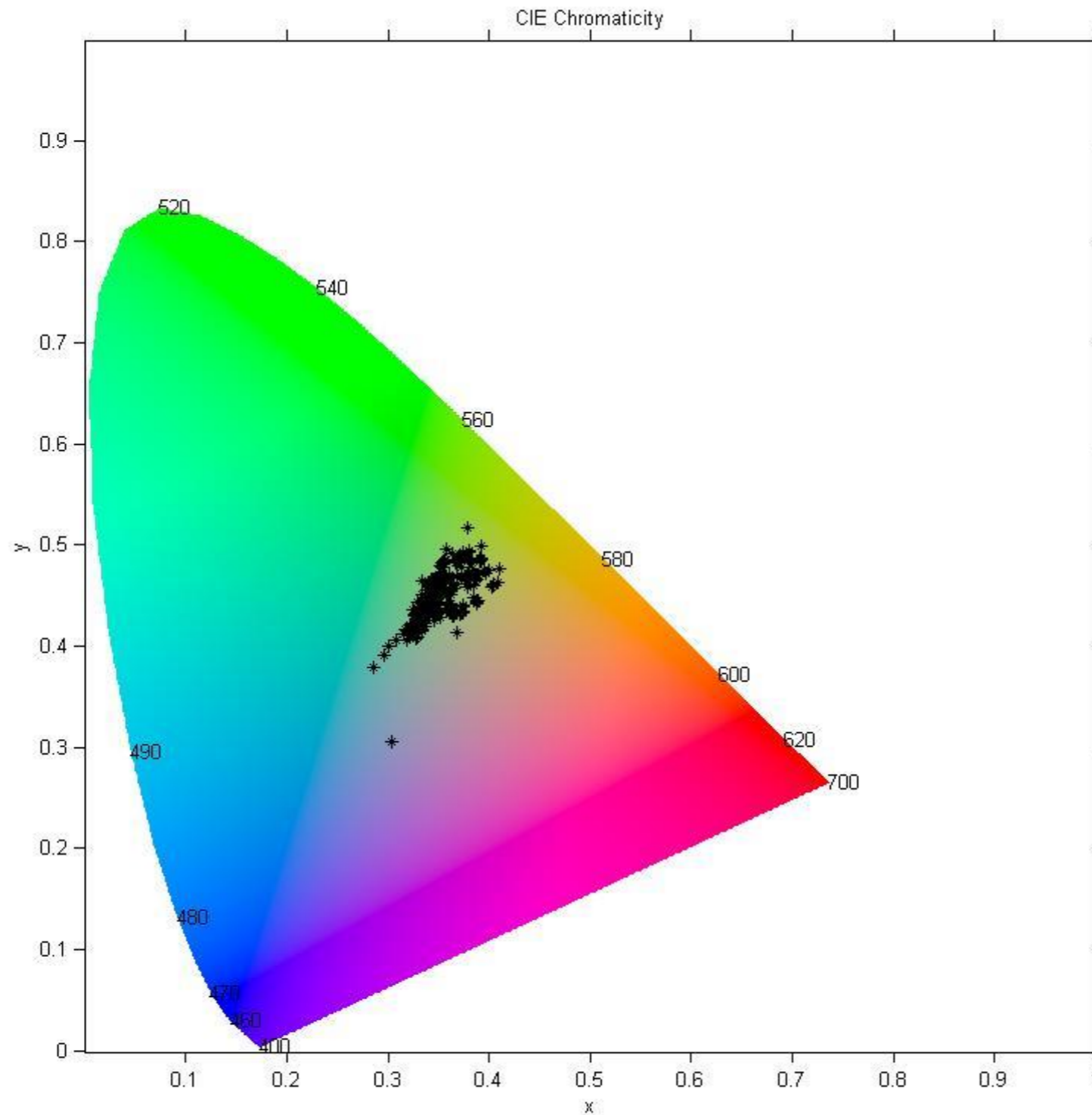
Stimuli creation

- Each face was segmented from its background

- Allows background to be manipulated independently

- Control set of all images placed onto mean background colour

Background variation

- We created four backgrounds 2 standard deviations away from the mean background colour of image set

- Pilot testing led us to use backgrounds B and D as the most noticeably different of the four
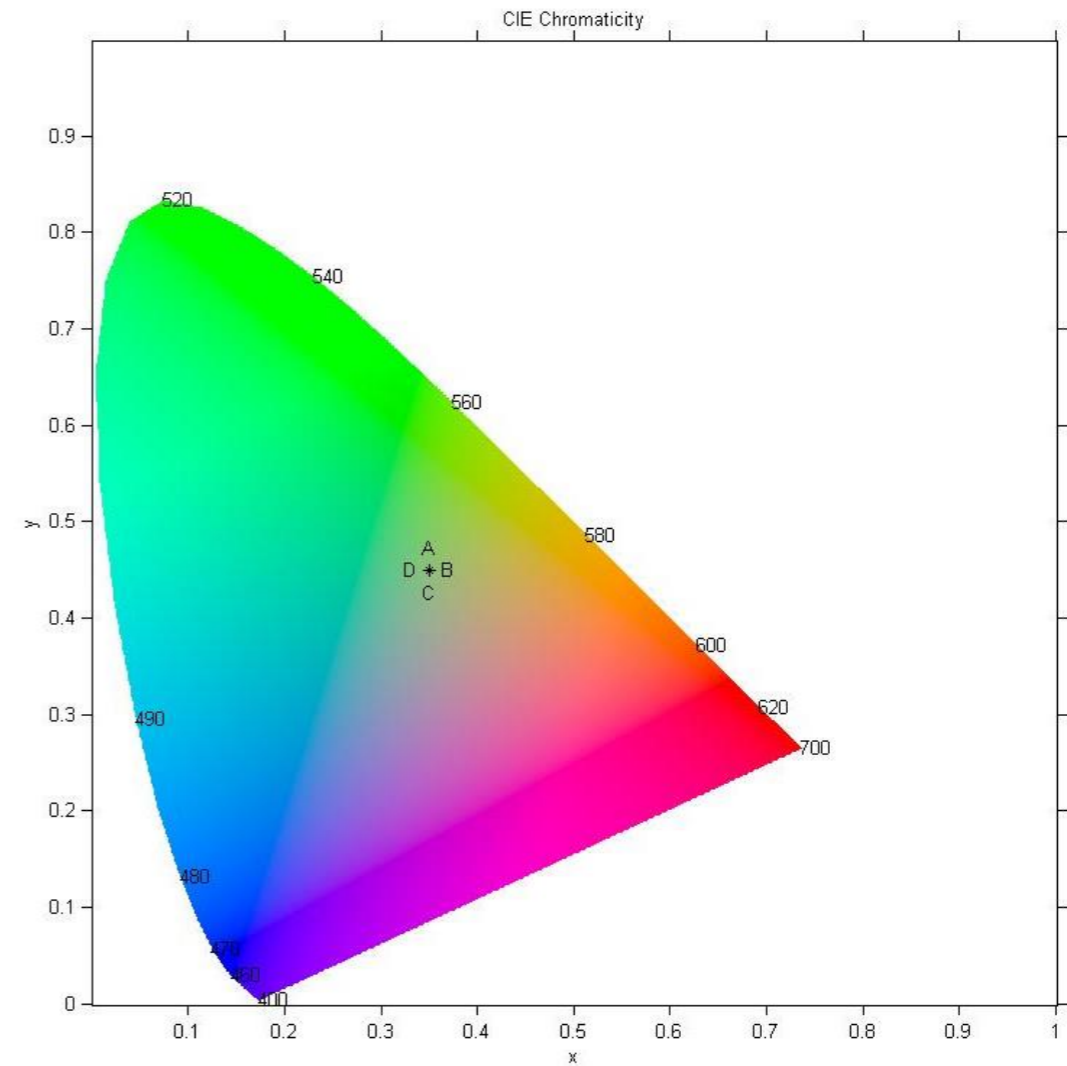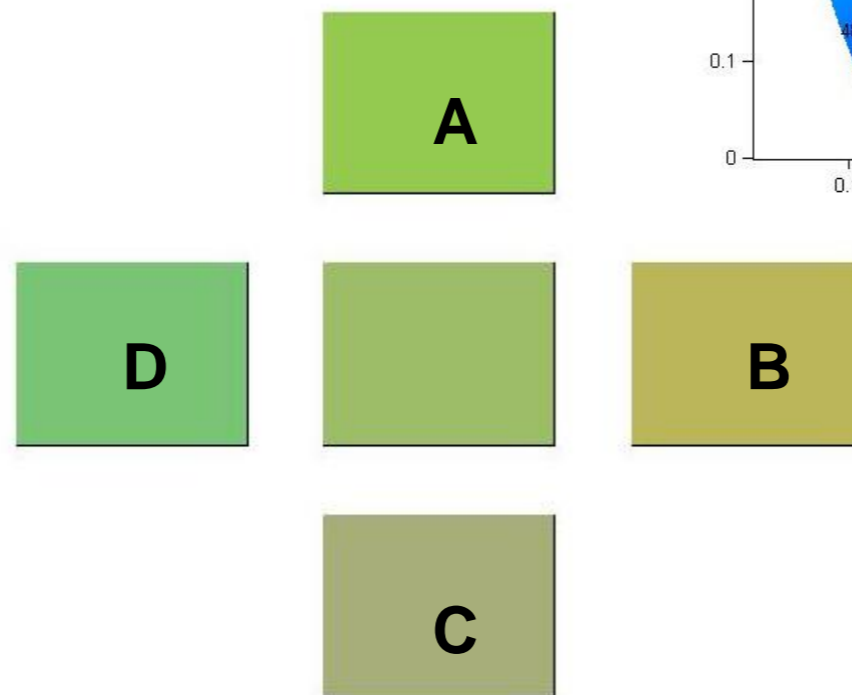
- 80 trials

- White faces only

- Half TP half TA.

- Half all mean background

- Half with either target or target replacement (TA) with a background 2SD away from the mean.

- 20 ppts (14 female)

Experiment 1 – 2SD B
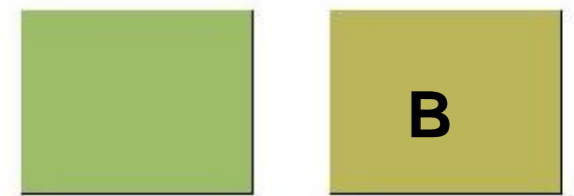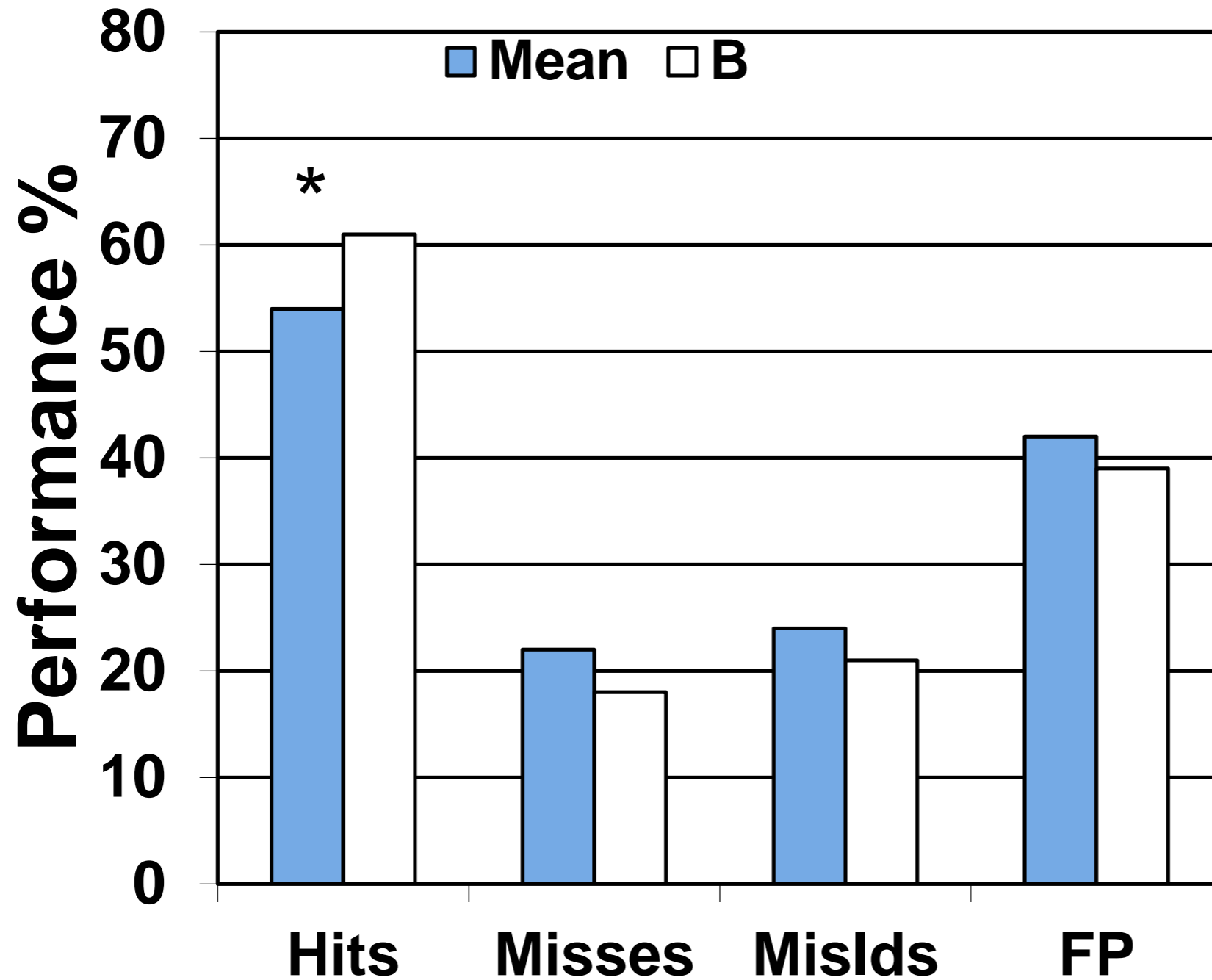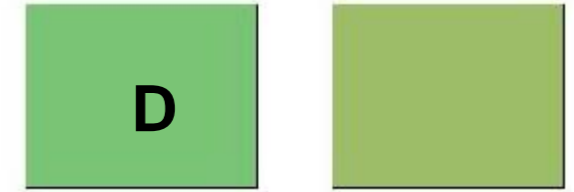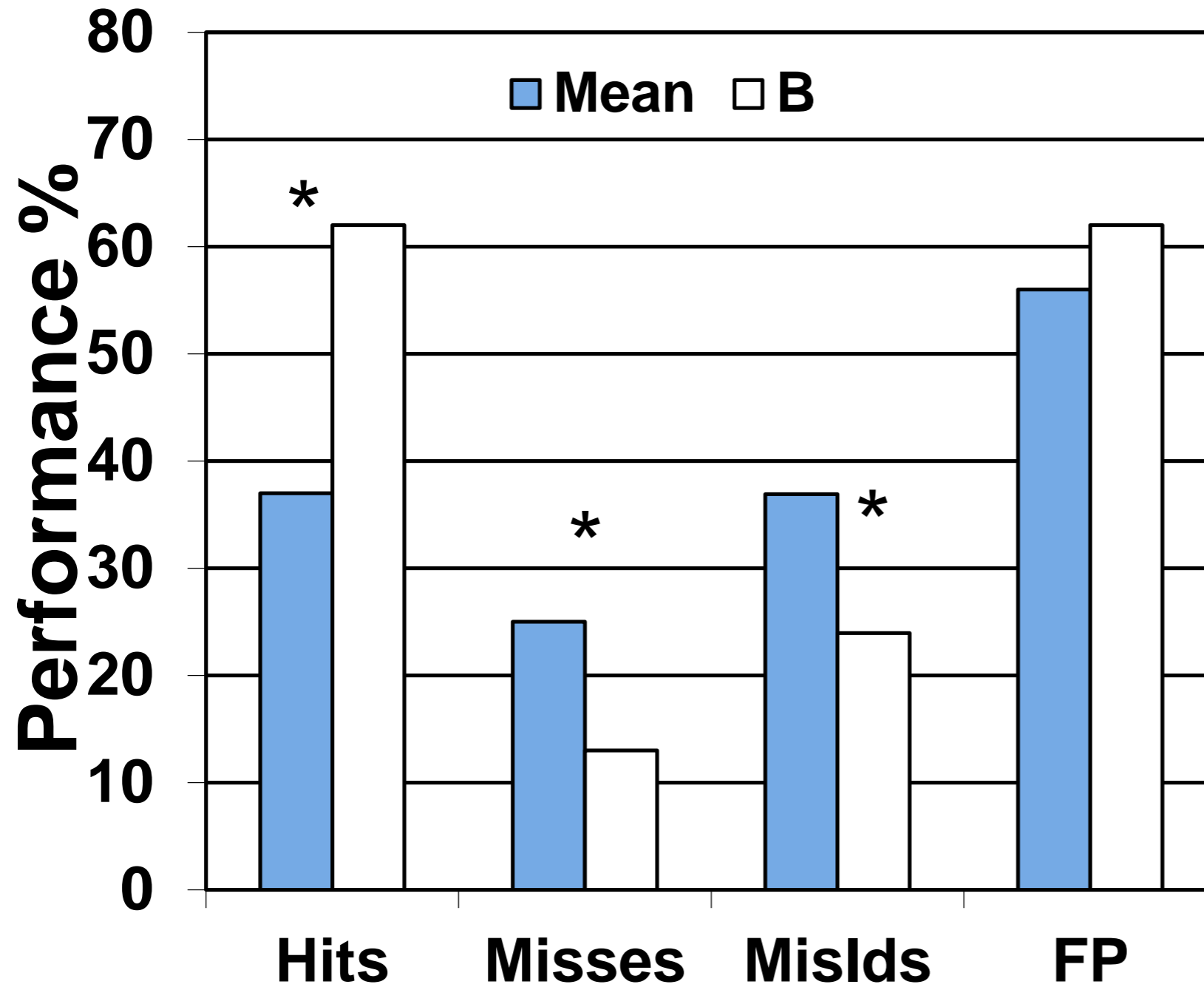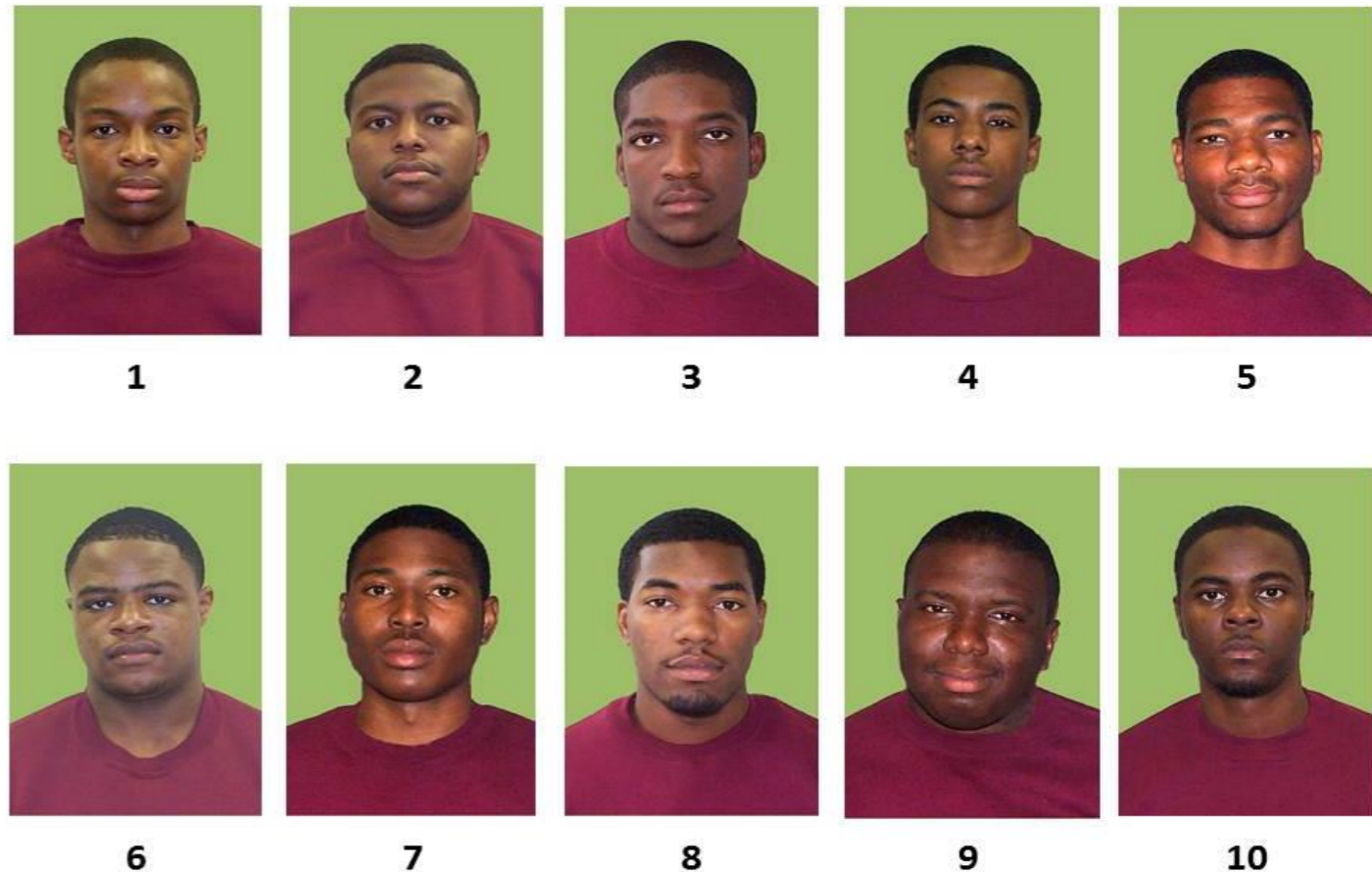
Experiment 2 – 2SDD

Interim findings

- Significantly more accurate at identifying target when target presented on manipulated background
  - Larger effect for colour D than B

- Less likely to make a misidentification or say the target wasn't there when target presented on manipulated background
  - Only significant for colour D, not B

- Although the manipulation of the background colour appeared to slightly reduce accuracy for the TA arrays, this was not found to be statistically significant.

- No significant difference in false positive rates

Own race bias

- 160 trials

- White and Black faces

- Half TP half TA.

- Half all mean background

- Half with either target or target replacement (TA) with a background 2SD away from the mean.

- 20 ppts (17 female)
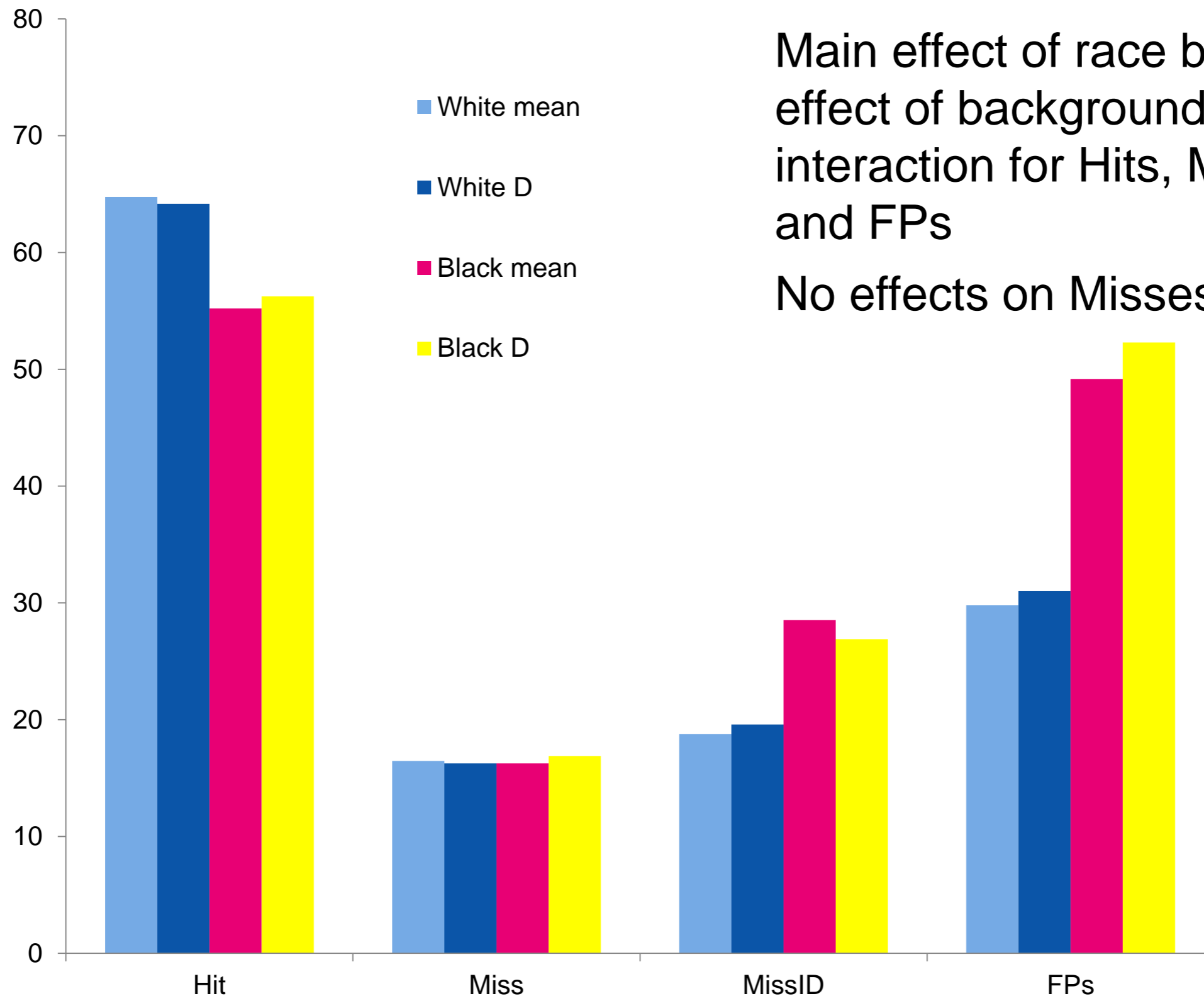
Experiment 3 – 2SD B
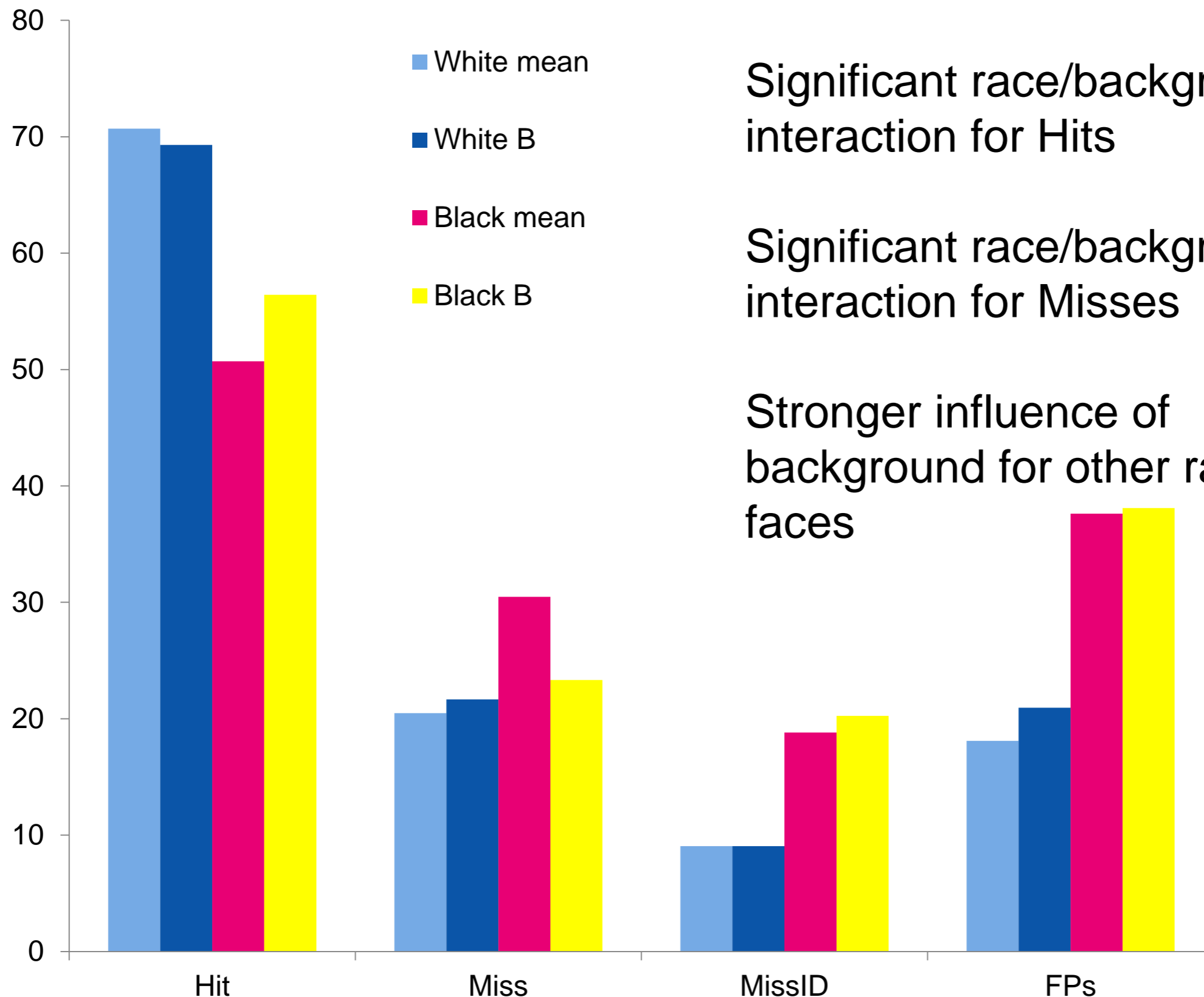
Significant race/background interaction for Hits

Significant race/background interaction for Misses

Stronger influence of background for other race faces

Experiment 4 – 2SD D

Main effect of race but no effect of background or interaction for Hits, MissID's and FPs

No effects on Misses

Conclusions / Next Steps

- Varying background colour did not increase False Positives.

- Exp 1 & 2 varying background colour increased Hits

- Exp 3 (but not 4) background colour increased the hit rate for other race faces

- Huge individual differences – small sample (20 per Ex).

- Now collecting larger data sets of participants

- Also looking for systematic relationship between race and background variability