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Representation of Sex from the Face and Body: Evidence from a Visual Adaptation Task

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Background

Visual adaptation is the process by which our **visual system adjusts to prolonged exposure to a (visual) stimulus**, affecting how we perceive subsequent stimuli, expressed as **negative perceptual aftereffects** (Webster, 2014). For example, prolonged exposure to male or female faces and bodies makes them **appear more like the opposite sex** (Webster & MacLeod, 2011; Palumbo, Laeng & Tomassi, 2013).

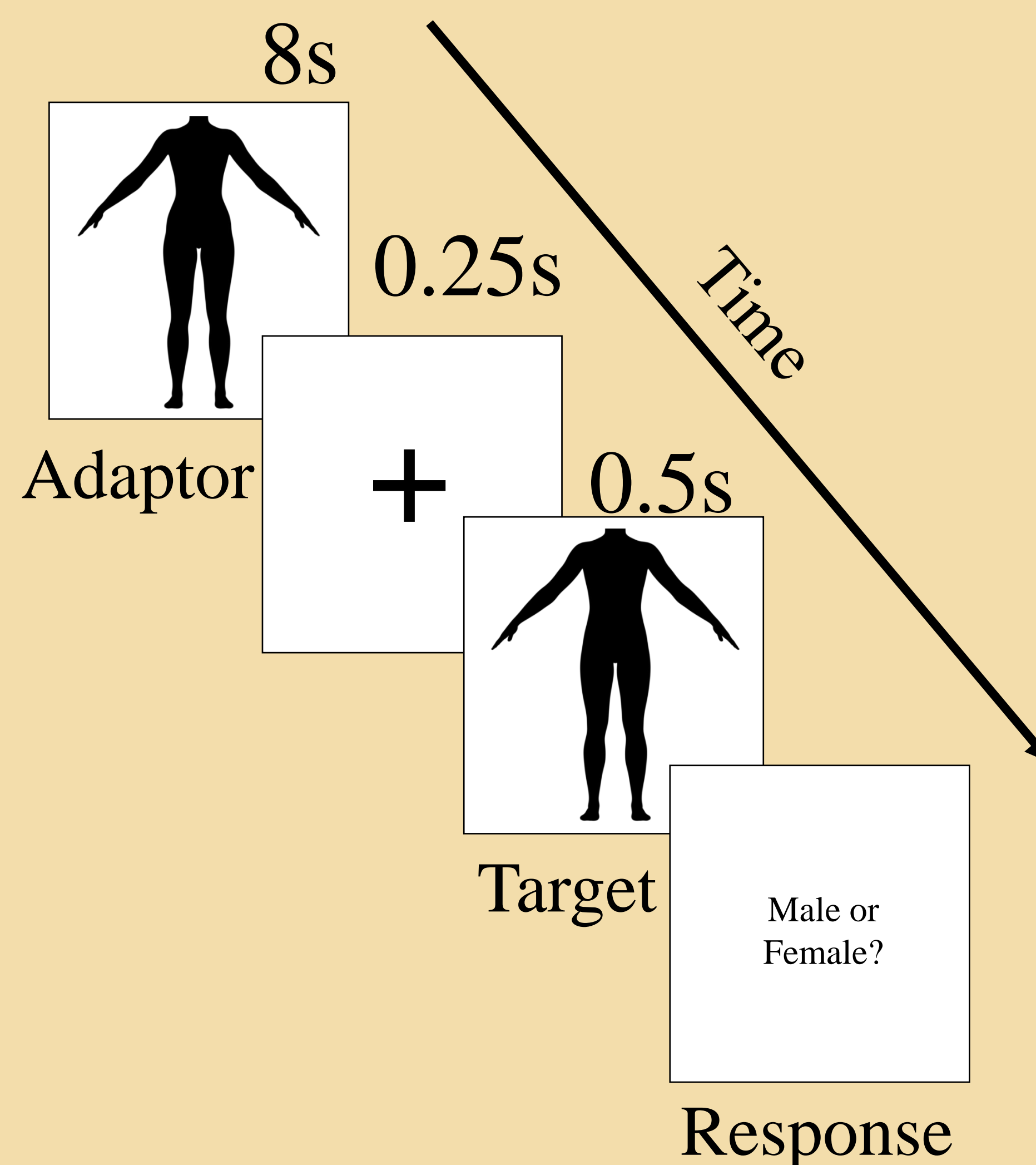
Previous evidence from visual search tasks (Gandolfo & Downing, 2020, 2022) suggests that **‘female’, in both body shape and in face appearance, is coded as an extension of a ‘male’ default**. That is, there is an **asymmetry in the representation of ‘male’ and ‘female’** in the perceptual system. This hypothetical polarised representation of sex predicts asymmetric effects of adaptation in adaptation paradigms.

Questions

1. Are there visual adaptation effects for Male and Female faces/bodies?
2. Are female adaptation effects significantly stronger than male adaptation effects?

Design

1. 3x3 (**Adaptor x Target**) Repeated Measures ANOVA
2. Paired **t-test** on Male (**Male – Ambiguous**) vs Female (**Female – Ambiguous**) Adaptation Effects



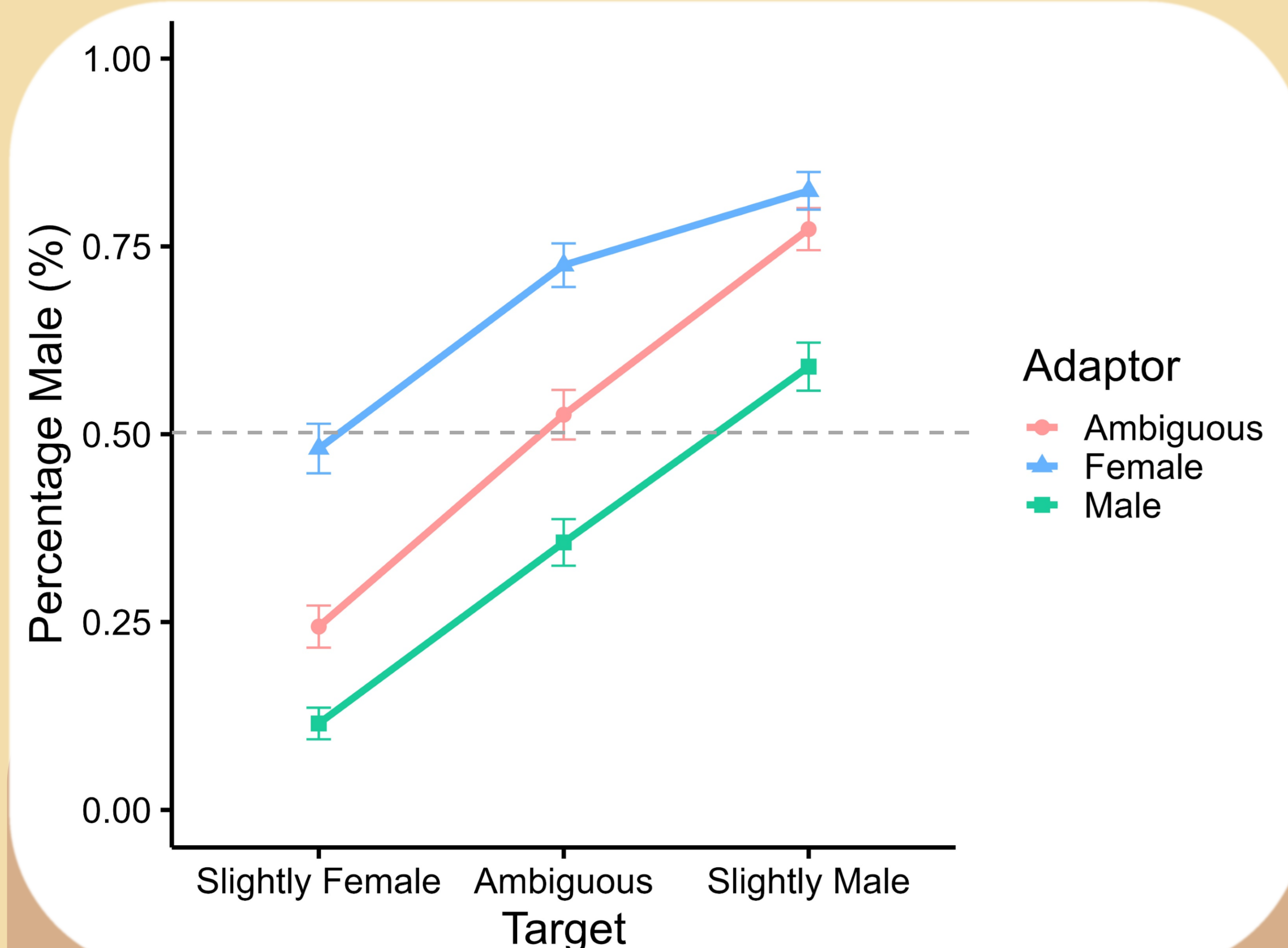
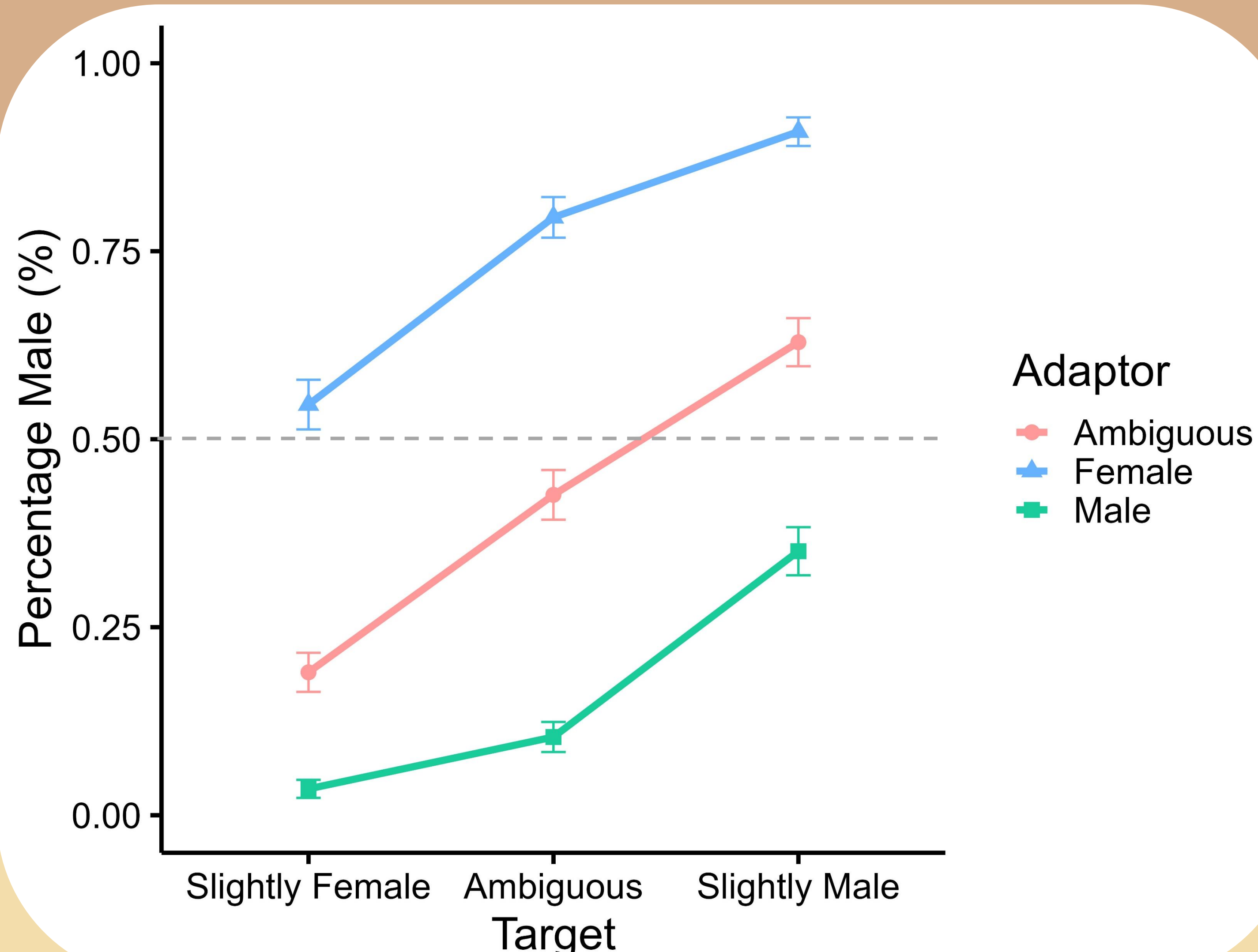
Methods

- **Stimuli Normed** for each participant to get an individual PSE
- **Three adapting levels** (Female/Ambiguous/Male)
- **Three target levels** (Slightly Female/Ambiguous/Slightly Male)
- Target Manipulated to **Control for Low-Level Perceptual Adaptation** – Size and Location Manipulation
- Binary Forced-Choice Task
- Adaptor and Target **Catch Trials** – 15% of all trials

Results

Faces: N = 6

- Significant main effect of Adaptor, $F(2, 4) = 379.35, p < .001$ and Target, $F(2, 4) = 151.56, p < .001$
- T-test **not** significant, $t(5) = 0.78, p = .246$



Bodies: N = 6

- Significant main effect of Adaptor, $F(2, 4) = 92.81, p < .001$ and Target, $F(2, 4) = 180.75, p < .001$
- T-test **not** significant, $t(5) = 0.68, p = .261$

Discussion

The results showed a **strong aftereffect of adaptation**, such that after prolonged exposure to strongly ‘male’ stimuli, participants categorized the target stimuli as more ‘female’, and vice versa. However, to date, **we have not found strong evidence for asymmetric representation of ‘male’ compared to ‘female’**, contrary to our original prediction.