



Stereotype Fit Effects in Information-Integration Classification Learning

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Research Goal

To reinterpret stereotype threat effects using the regulatory fit framework

Introduction

Stereotype Threat and Lift

- Research documents the negative impact on performance given the activation of a negative stereotype
 - These performance decrements are known as stereotype threat effects (Steele & Aronson, 1995; Aronson, Lustina, Good, Keough, & Steele, 1999; Stone, Lynch, Sjomeling, & Darley, 1999)
- For example, when an intellectual test was framed as diagnostic of ability, Black participants underperformed White participants but not when the test was framed as non-diagnostic or difficult for everyone (Steele & Aronson, 1995)
- There is evidence of improved performance given the activation of positive stereotypes (Watson & Cohen, 2003), known as stereotype lift.

Regulatory Focus

- A motivational mechanism that tunes sensitivity to gains and losses in the environment (Higgins, 1997)
 - Promotion focus increases sensitivity to gains
 - Prevention focus increases sensitivity to losses
- Posited as a stereotype threat mechanism
 - A negative stereotype induces a prevention focus and a positive stereotype induces a promotion focus (Seibt & Förster, 2004)

Regulatory Fit and Stereotype Fit

- Regulatory focus and stereotype effects depend on the match between focus and environment (Maddox, Markman, & Baldwin, 2007; Maddox, Baldwin, & Markman, 2006, Grimm, Markman, Maddox, & Baldwin, 2009)

	Gains	Losses
Positive stereotype ("Promotion")	Match	Mismatch
Negative Stereotype ("Prevention")	Mismatch	Match

- Match states tend to improve performance because individuals experiencing a match are more cognitively flexible than those in a mismatch, likely due to the engaged neural systems (e.g., Maddox & Ashby, 2004)
 - For example, women perform better on a GRE math test when focused on minimizing losses rather than maximizing gains (Grimm et al., 2009), in fact eliminating the classic stereotype threat effect for women in math. This improvement is due to the match between their negative math-related stereotype and the losses reward structure of the task.

Experiment Overview

Participants

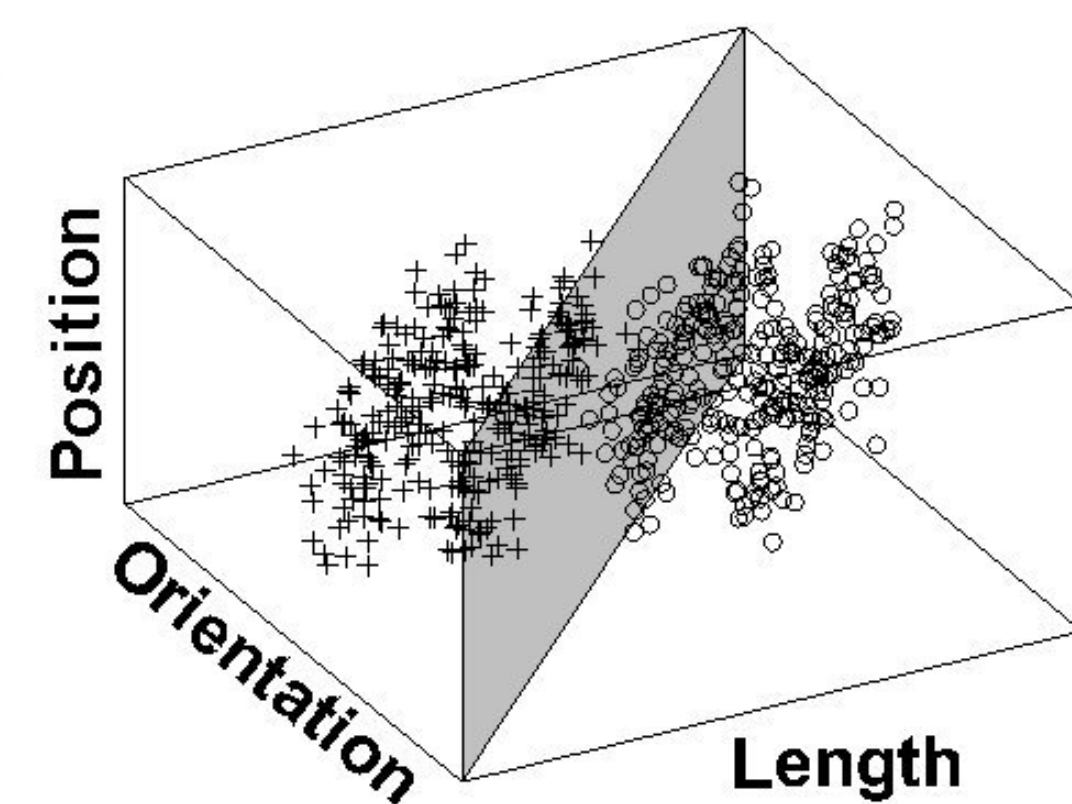
- 118 TCNJ undergraduates participating for course credit
- 67 Females and 51 Males

Stereotype threat manipulation to induce Regulatory Focus

- Research participants were told that men were better at a classification task
 - Men = Positive Stereotype = Promotion Focus
 - Women = Negative Stereotype = Prevention Focus

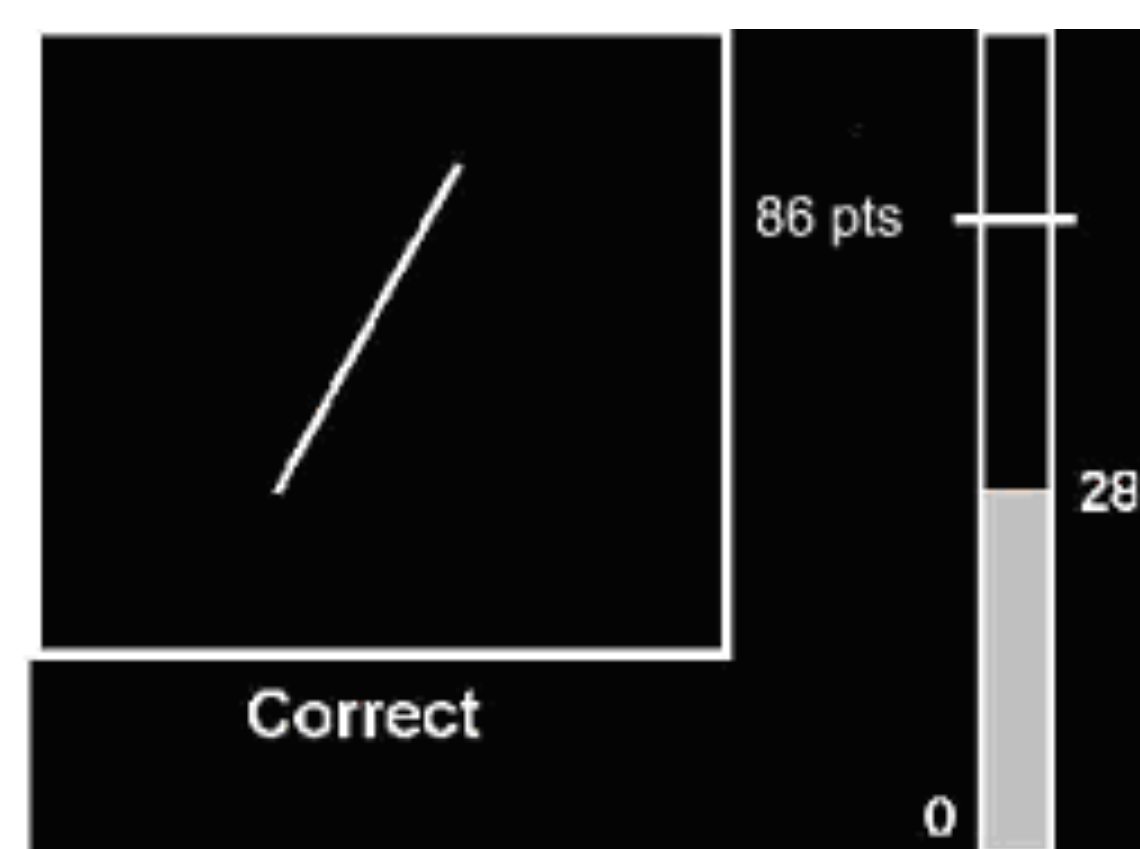
Information-integration classification task

- Participants classified lines that varied in length, orientation, and position on the screen into two categories
- Completed 12 blocks of 48 trials each
- Requires participants to not use explicit verbal strategies to correctly classify stimuli
 - The information-integration rule can yield 100% accuracy on the task but cannot be easily verbalized
 - Should be difficult for cognitively flexible participants testing lots of classification rules

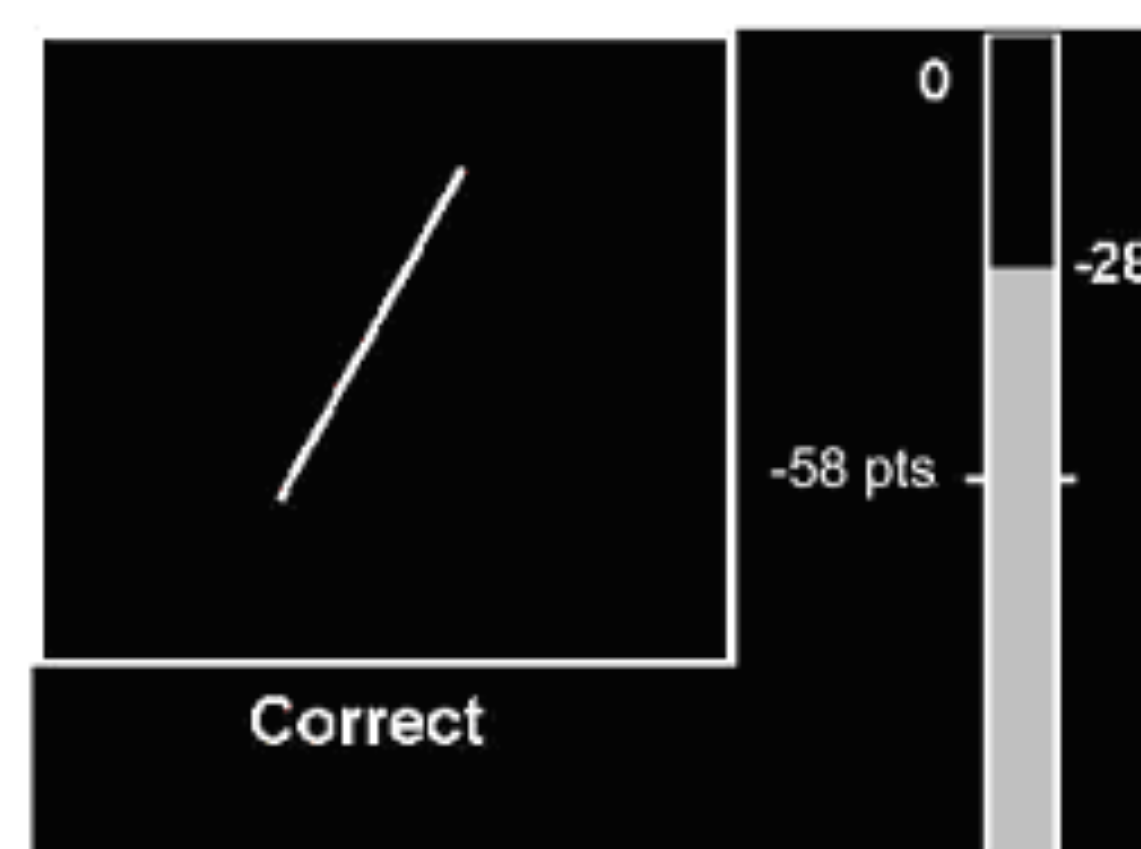


Task Reward Structure

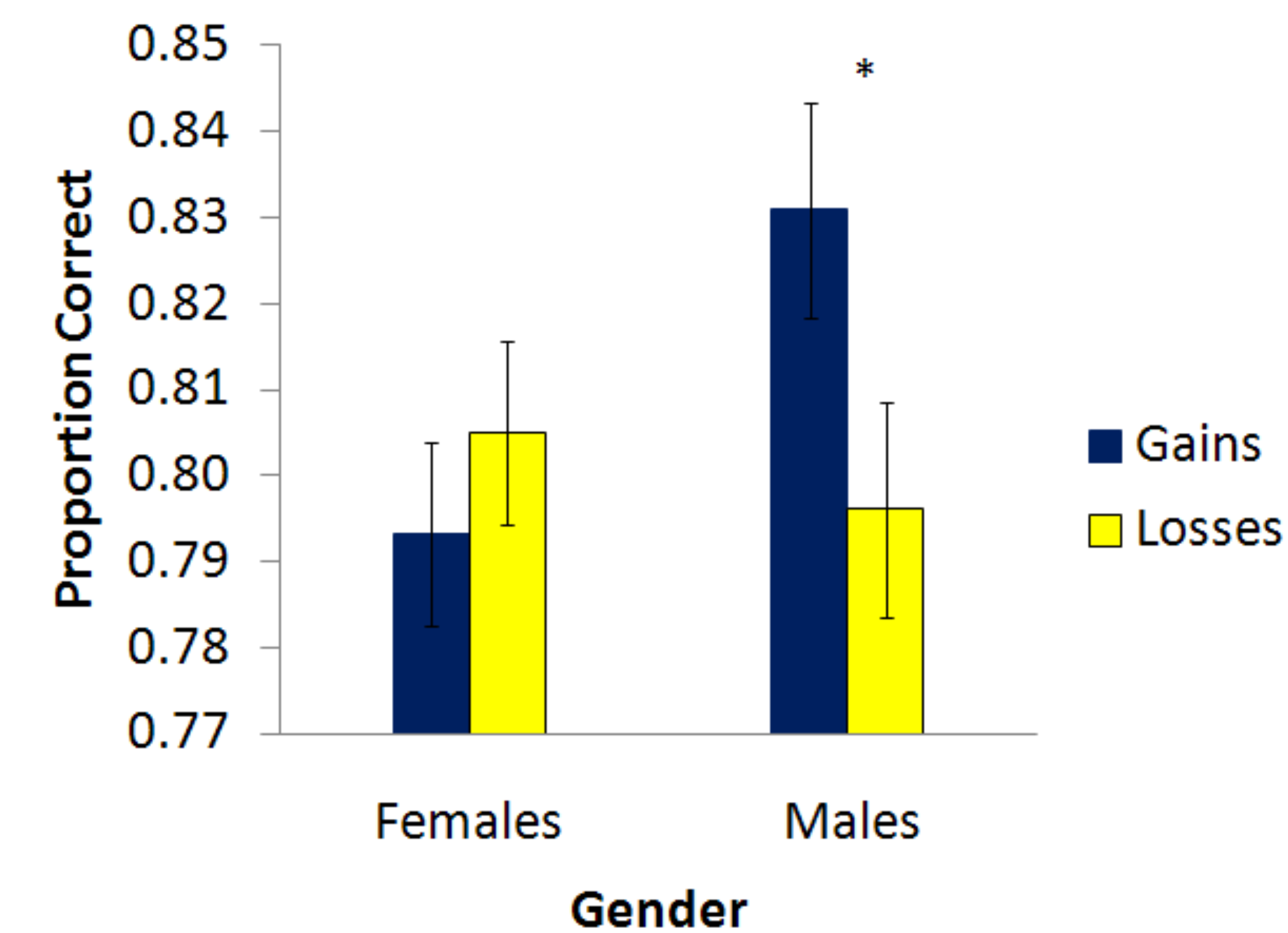
- Participants tracked their progress using a point meter on the screen
- 34 Females and 25 Males gained more points for correct responses
 - Correct response = 2 points
 - Incorrect response = 0 points



- 33 Females and 26 Males lost fewer points for correct responses
 - Correct response = -1 points
 - Incorrect response = -3 points

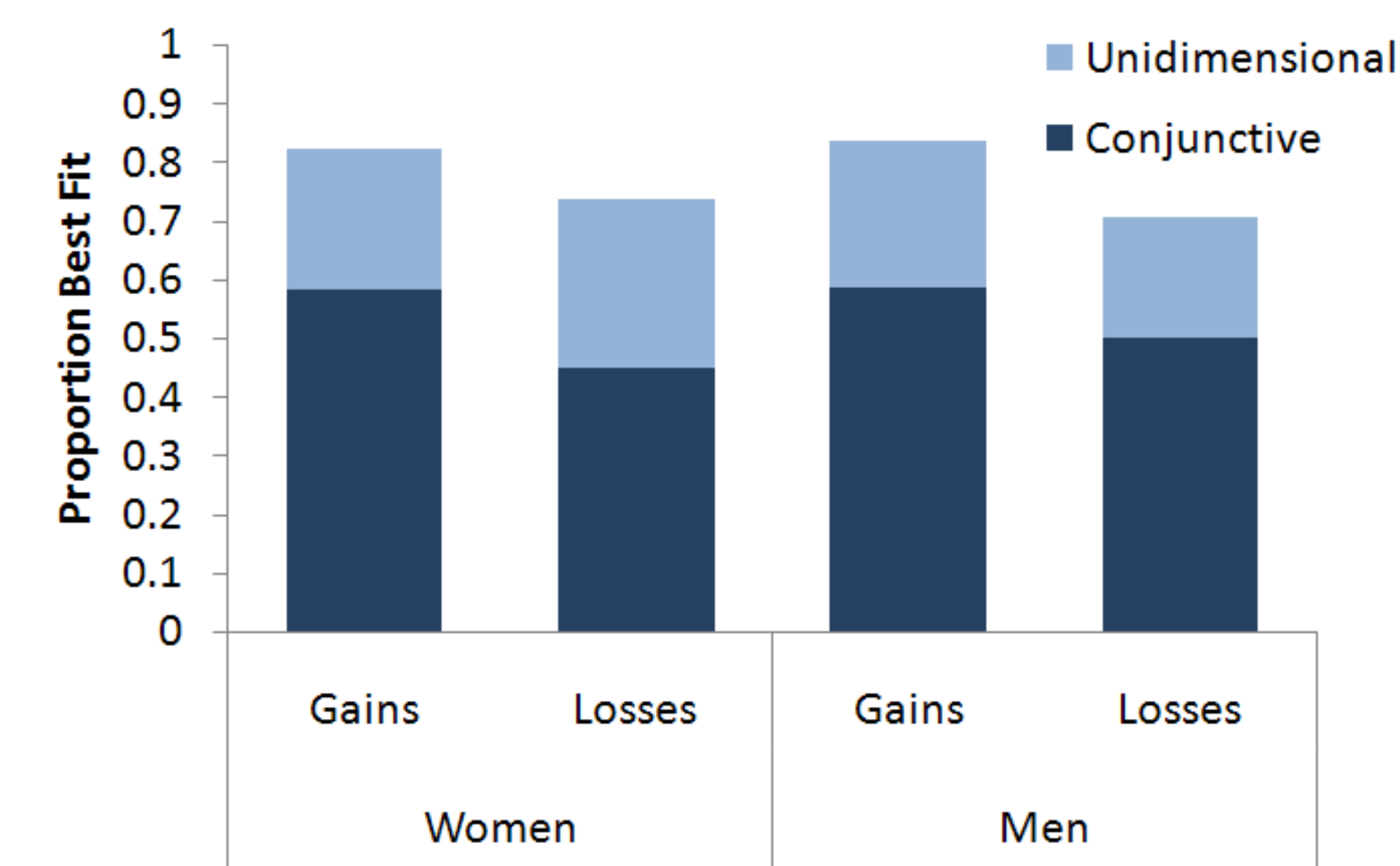
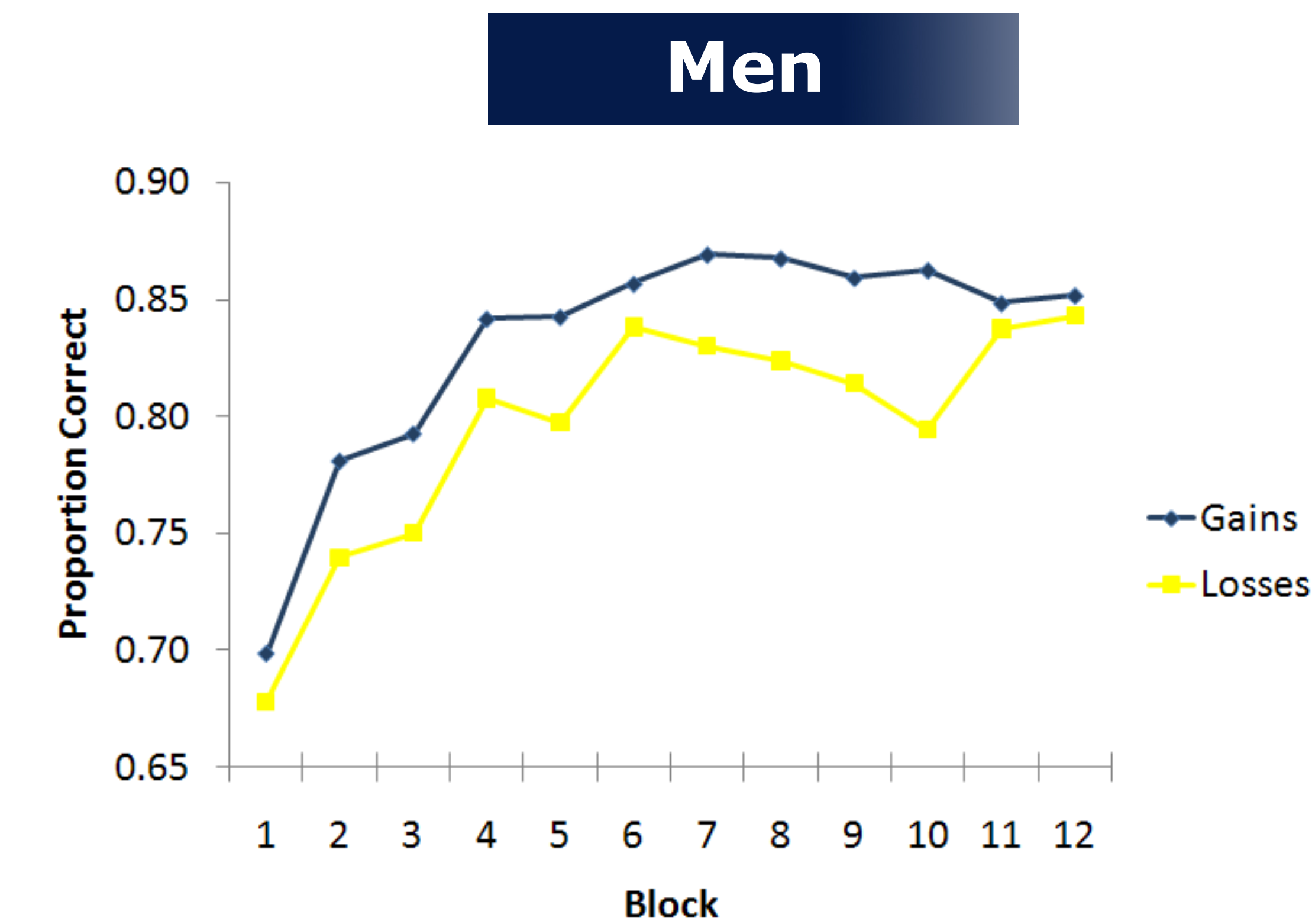
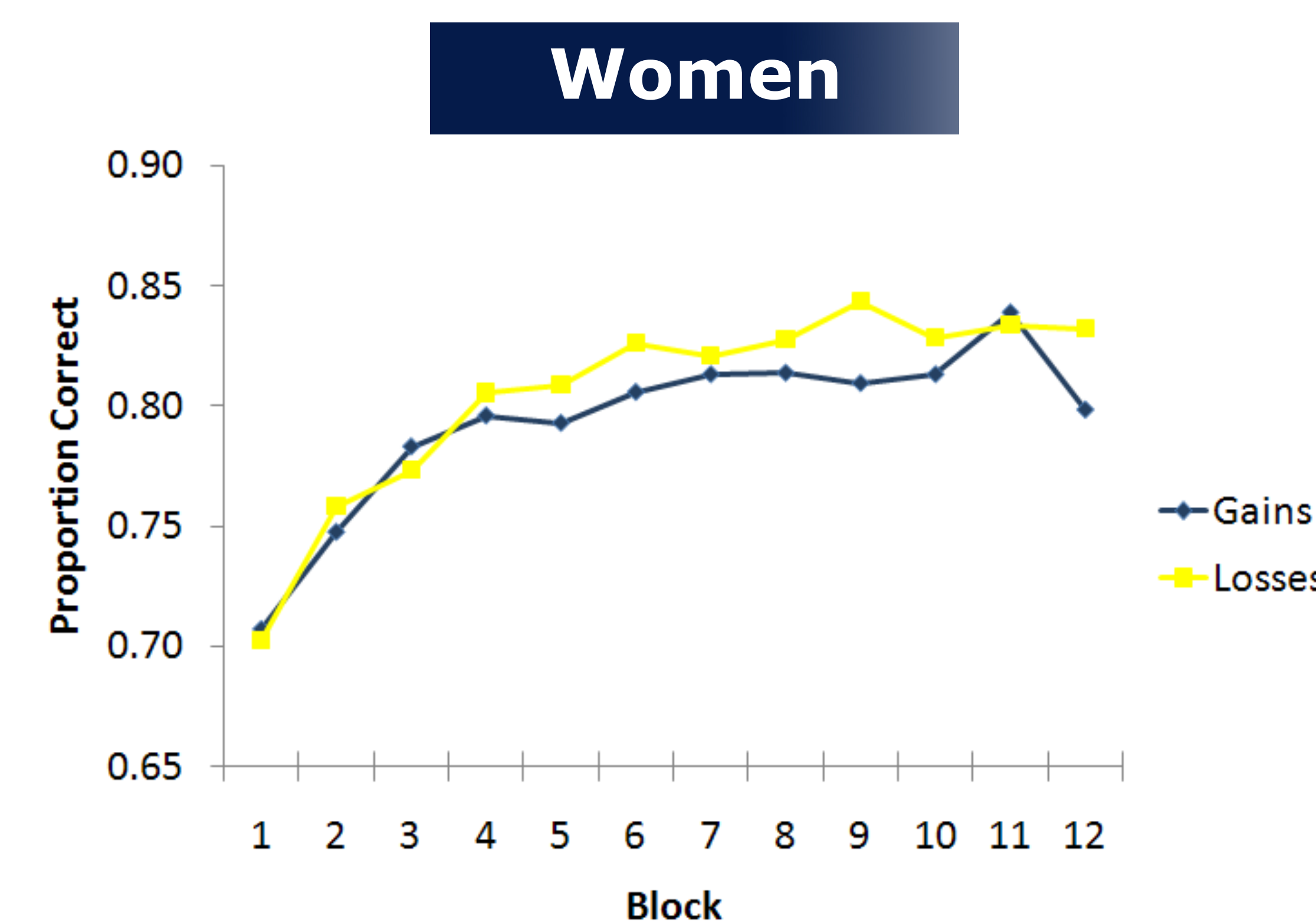


Results: Task Accuracy



Results Summary

- Significant interaction of Stereotype and Reward Structure
 - Men, who have a positive task-relevant stereotype, performed better in the gains version of the task relative to the losses version
 - Women, who have a negative task-relevant stereotype, performed better in the losses version of the task relative to the gains version, but this difference was not statistically reliable



Concluding Remarks

- Regulatory focus states interact with task reward structures to influence task performance.
- We demonstrate that primed stereotypes induce regulatory focus states and that regulatory fit improves performance. We believe that we found this improvement because all of our participants persisted in using verbalizable rules.
- Future research will focus on how to produce optimal learning of information-integration category structures.

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