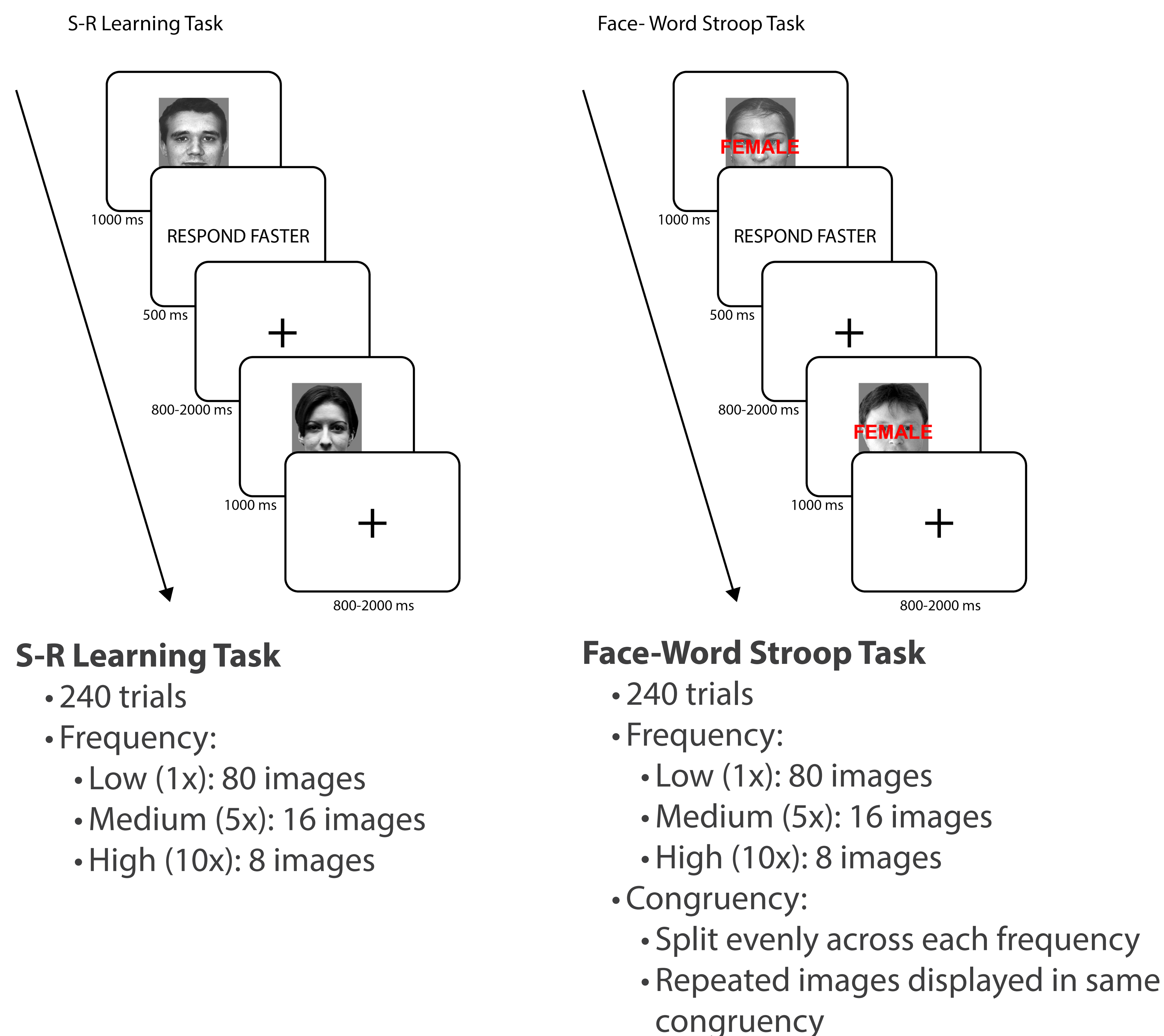


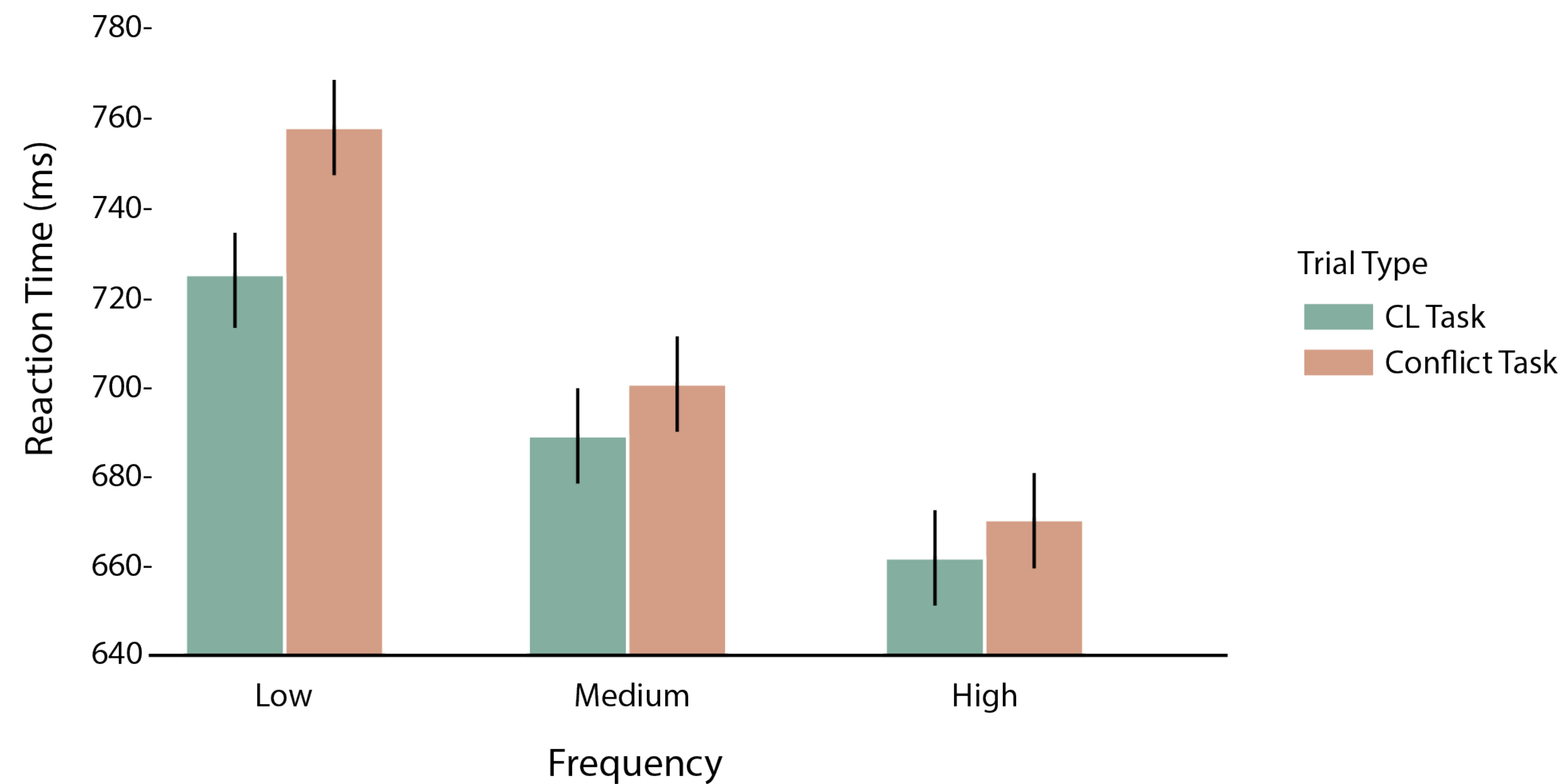
How does conflict control impact S-R processing?

- In contingency learning, subjects implicitly develop predictive relationships between stimuli and responses (S-R) to prepare for future tasks. (Schmidt & Besner, 2008)
- In frequency-based contingency learning, there is episodic retrieval of a response after a stimulus is seen, resulting in quicker responses to stimuli that are presented more frequently. Higher frequencies enhance the learning of S-R mapping. (Schmidt et al., 2016).
- The Stroop task is used to understand how subjects respond to conflict. In the Stroop task, participants are to identify the color of a word when the word is incongruent (e.g., the word red printed in blue) or when it is congruent (e.g., the word blue printed in blue). (Stroop, 1935).
- In face-word Stroop tasks, words are superimposed on face stimuli. Incongruent words interfere with facial processing, causing congruency effects: quicker responses to congruent pairs and slower responses to incongruent pairs (Krebs et. al., 2015)
- How does conflict control impact stimulus-response processing in contingency learning?

Probing frequency-based conflict/nonconflict-learning

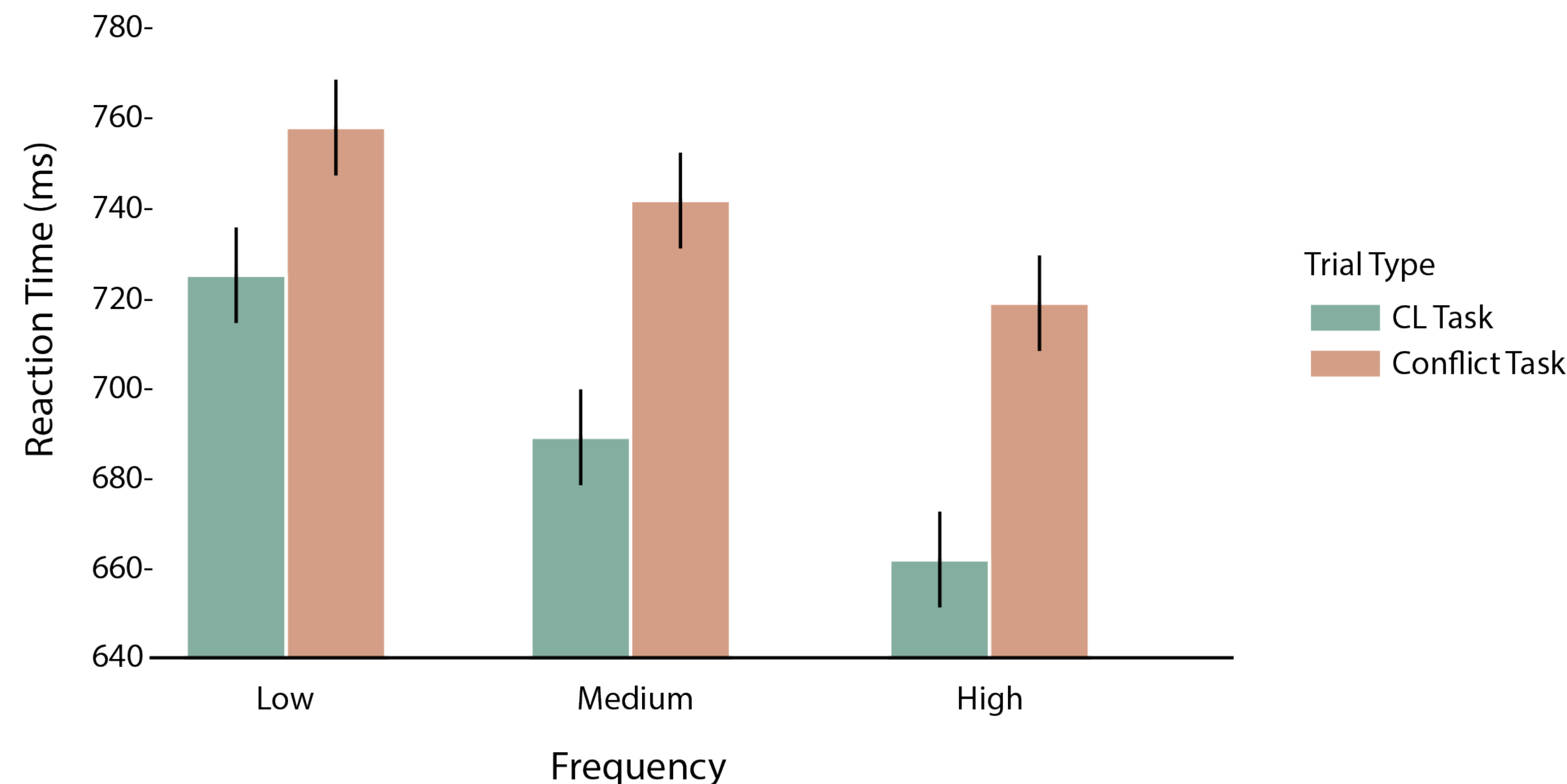


Hypothesis 1: Task Demand facilitating Contingency Learning



- RTs decrease with higher frequencies
- Conflict increases RTs
- Difference in RTs between tasks decreases as frequency increases

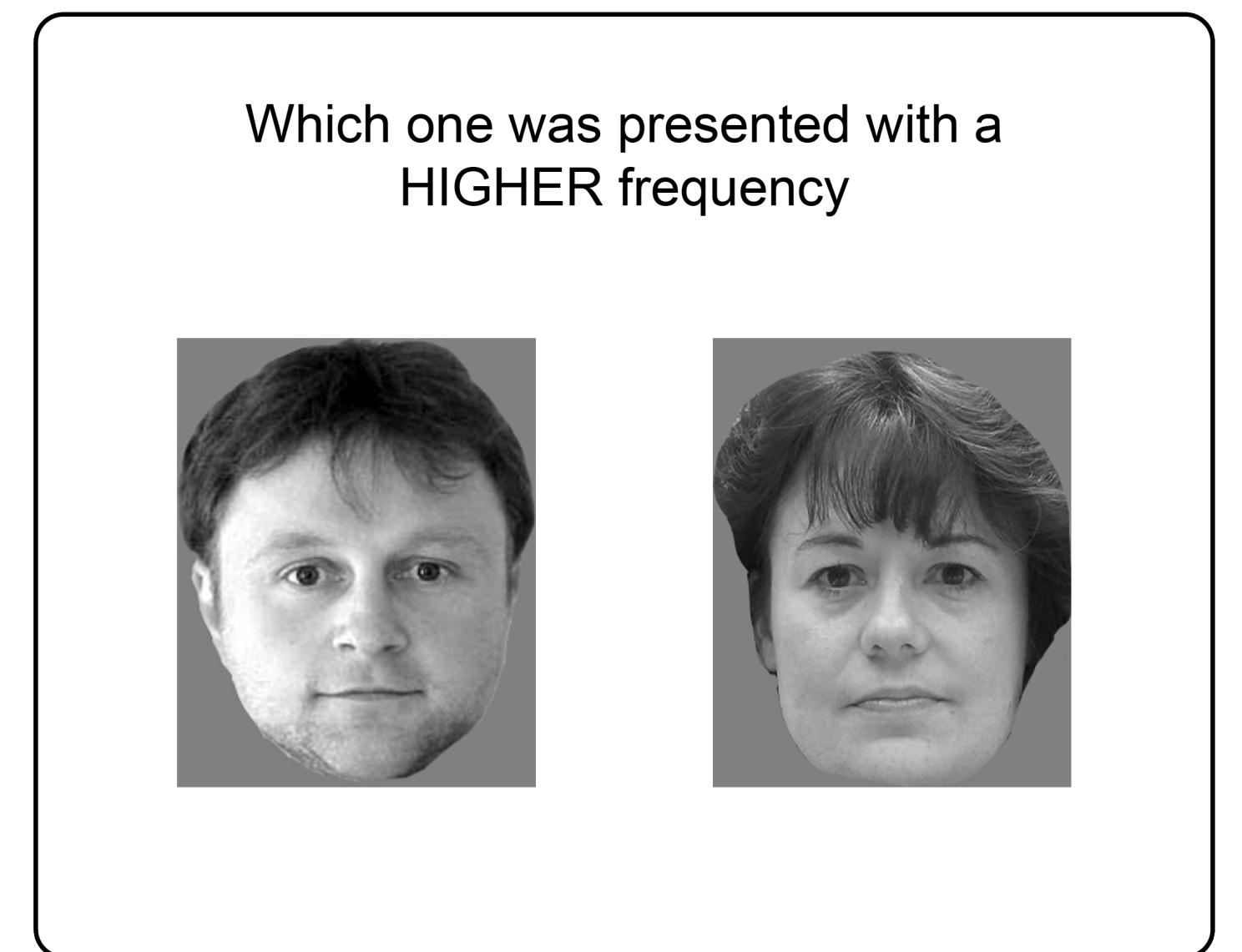
Hypothesis 2: Task Demand interfering with Contingency Learning



- RTs decrease with higher frequencies
- Conflict increases RTs
- Difference in RTs between tasks increases as frequency increases

Additional Directions

- Post-task experiment to determine if frequency manipulation was explicitly noticed
- Forced-task experiment where subject selects image of higher frequency out of two images
- 40 trials
- Based on results, further analysis of congruent vs incongruent trials will also be conducted to observe difference in frequency effect across conflict type.



Discussion

- Hypothesis 1: Conflict facilitating Contingency Learning
 - Difference in RTs across frequencies are larger in conflict task than in CL task
 - Conflict induced control increases global attention so it facilitates other forms of learning as seen by the increased frequency effect.
- Hypothesis 2: Conflict interferes with Contingency Learning
 - Difference in RTs across frequencies is smaller in conflict task than in CL task
 - Induced conflict results in additional mental effort, compromising other forms of learning as seen by decreased frequency effect from contingency learning.
- This study could be continued by manipulating proportion congruency.
- The Item-Specific Proportion Congruency (ISPC) effect may be observed where there is a reduction in the Stroop effect for items that are primarily displayed in an incongruent format compared to those primarily displayed in a congruent format.