

Simultaneous ROC modeling of prevalence and difficulty across recognition memory tests; the best model is individual specific

Evan Layher, Craig K. Abbey, Courtney Durdle, Sara Leslie, Tyler Santander, & Michael B. Miller

University of California Santa Barbara, Department of Psychology and Brain Sciences

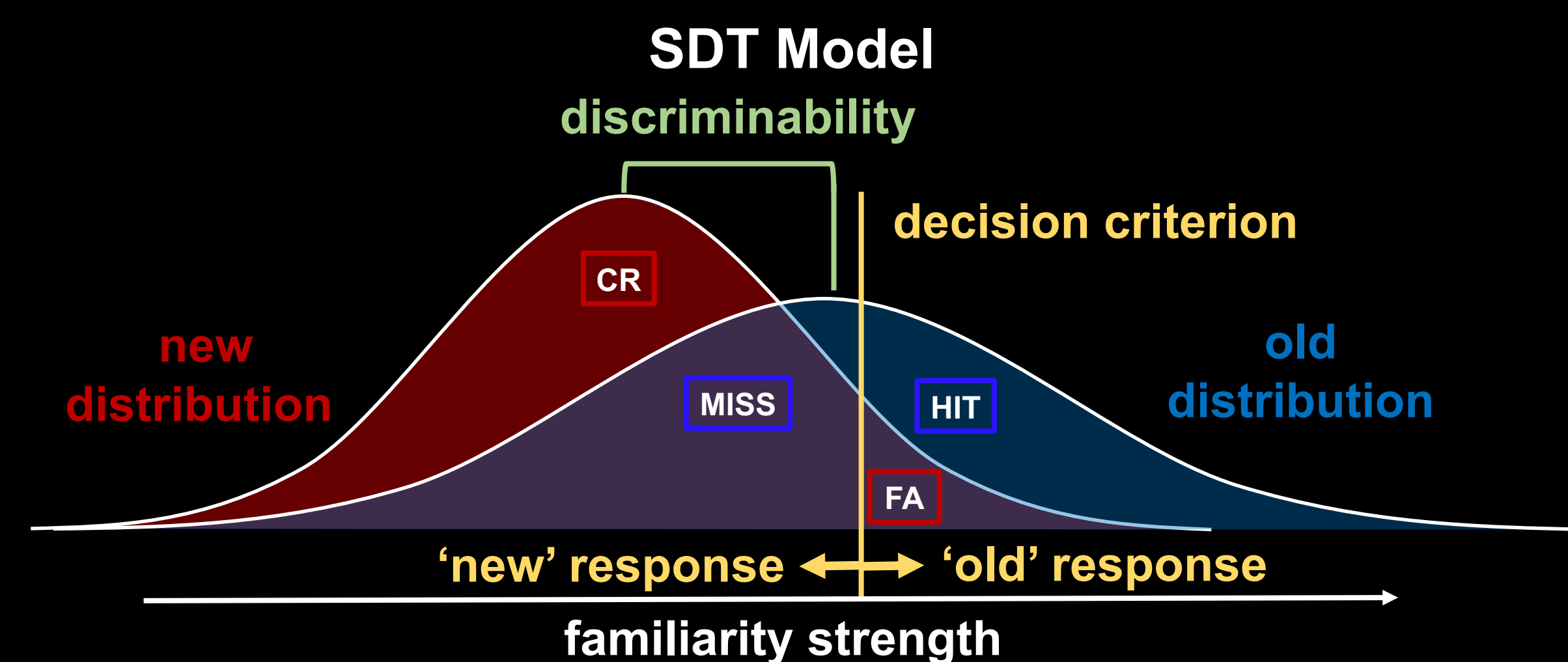


Background

When individuals make a recognition memory judgment, they must **decide** whether an item was previously studied (old) or not (new) by determining whether the familiarity strength of an item exceeds the decision criterion (strength of familiarity required to respond 'old')

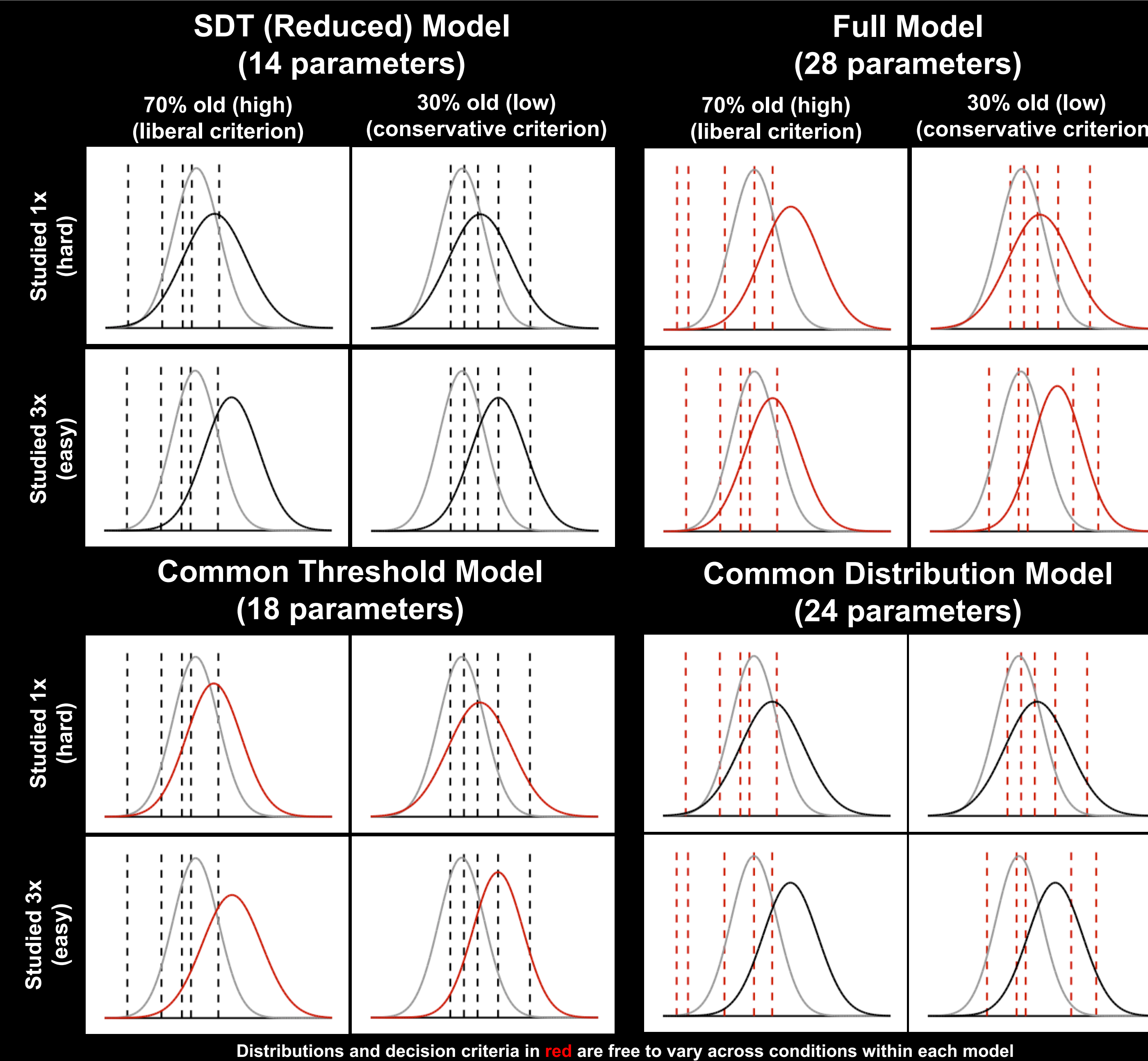
Responding 'old' will result in a hit or false alarm (FA), whereas responding 'new' results in either a correct rejection (CR) or miss

Signal Detection Theory (SDT) is commonly used to model discriminability and decision criteria on recognition memory tests

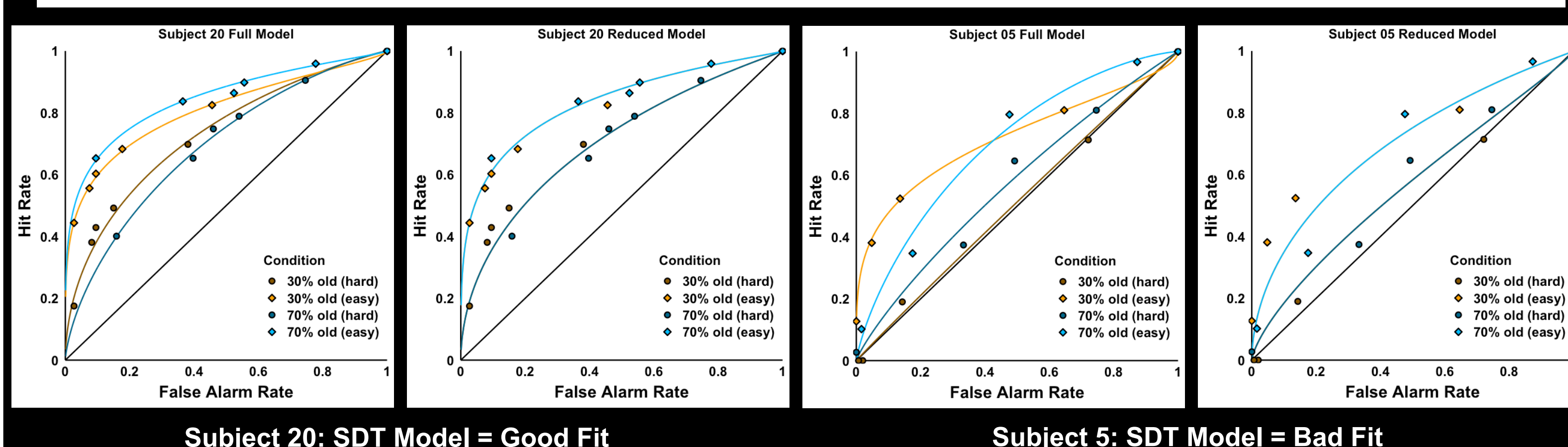
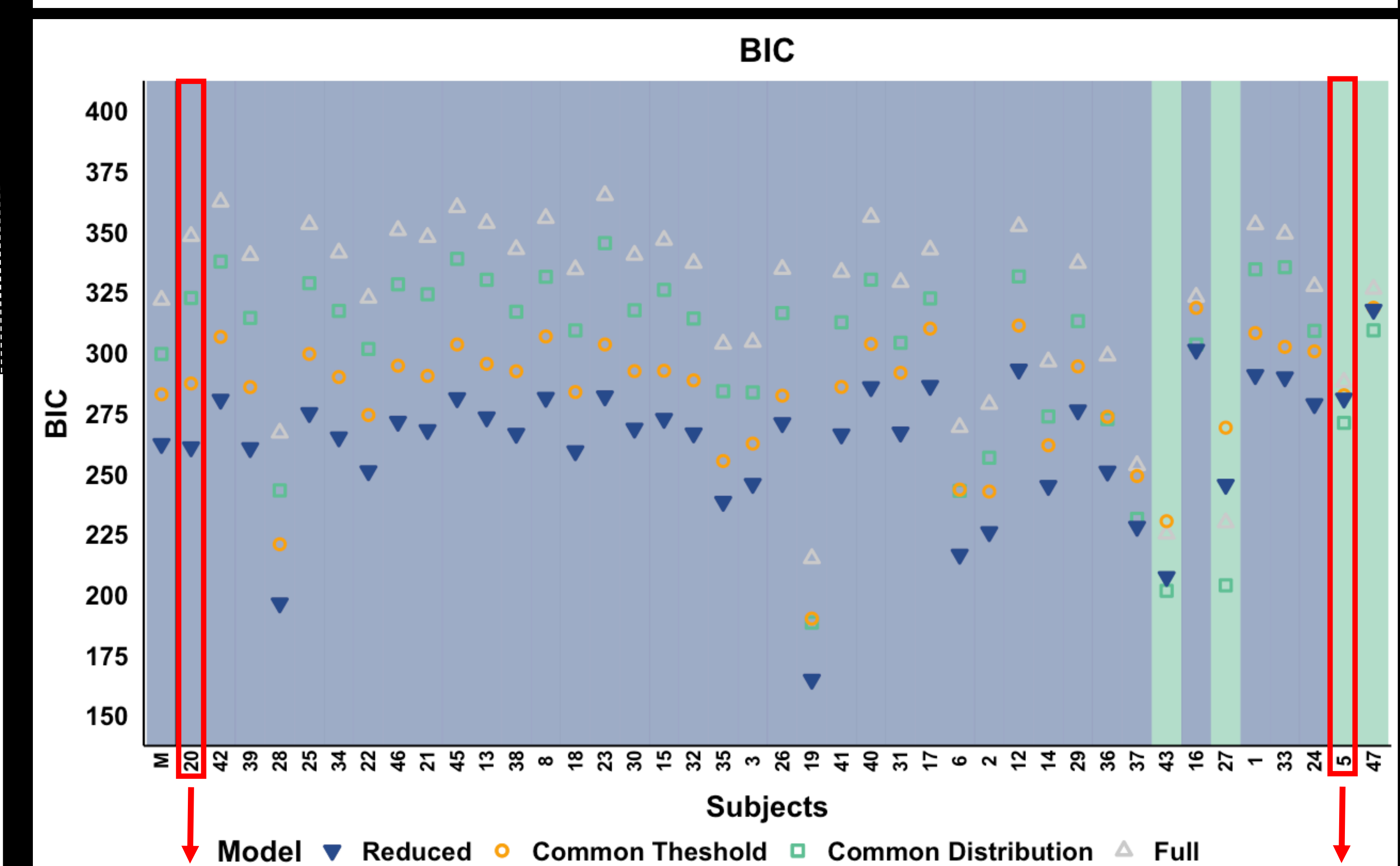
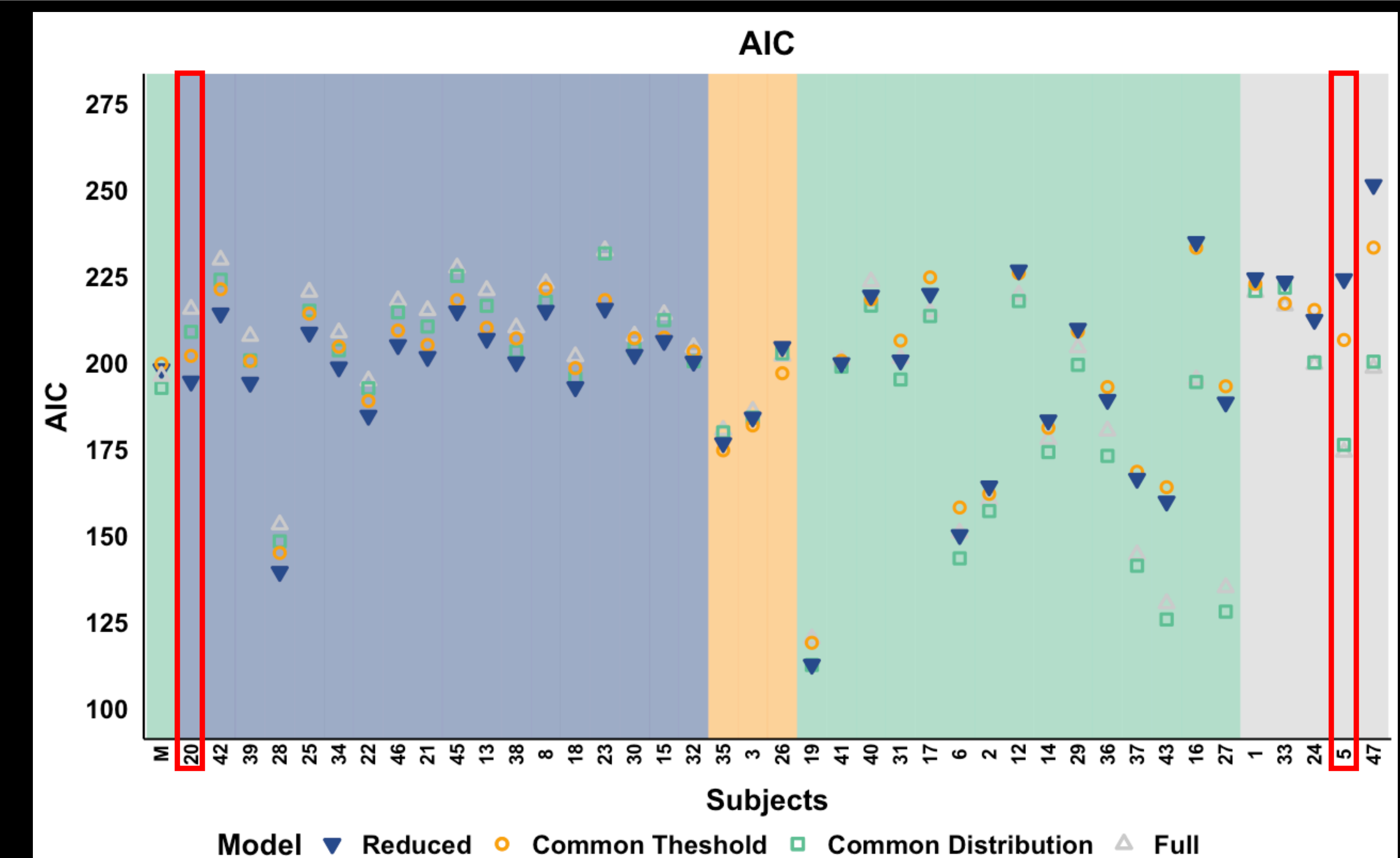
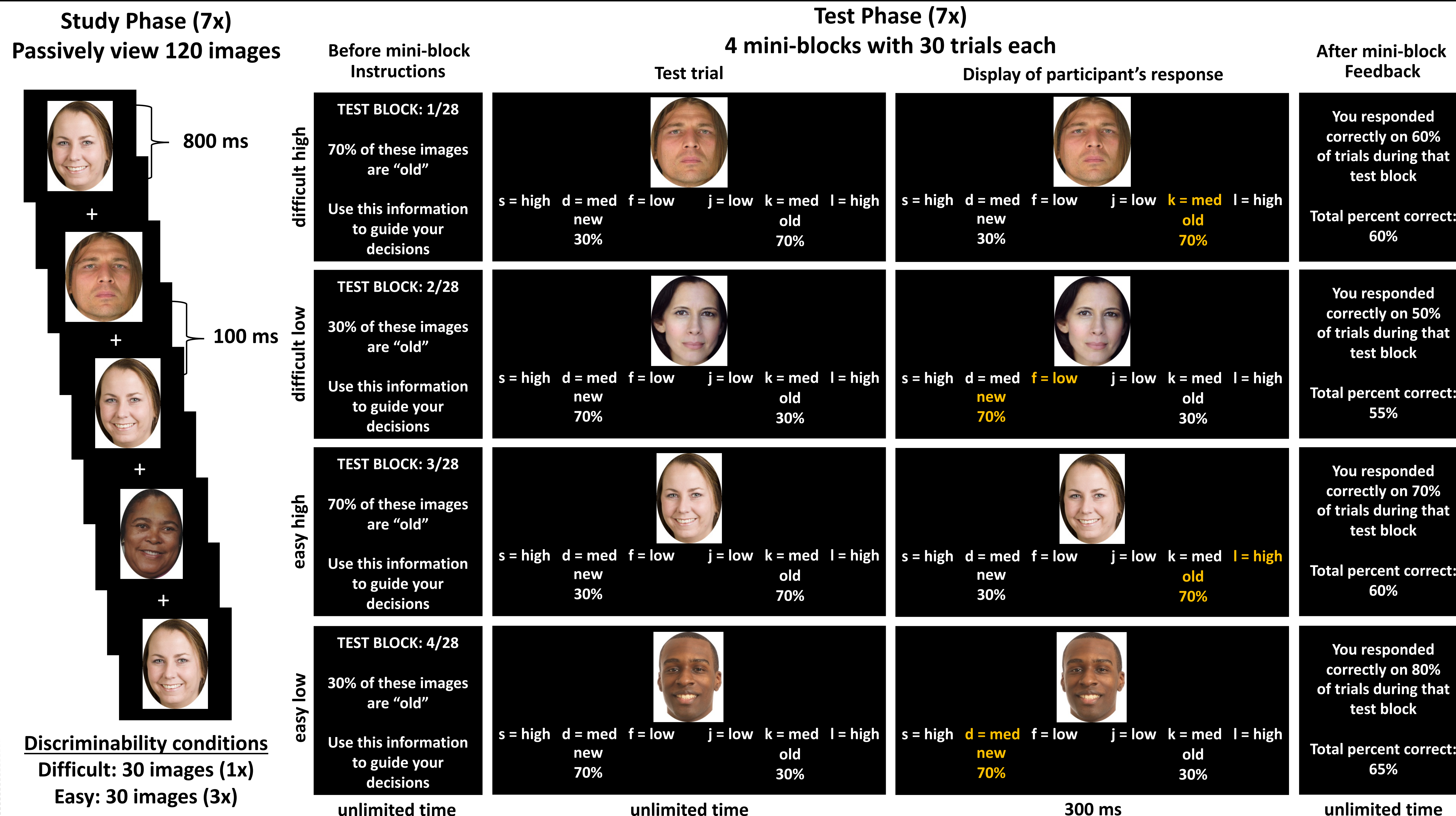


SDT assumes that discriminability and decision criteria represent independent processes (i.e. changes in decision criteria should not affect discriminability and vice versa)

We assessed whether this SDT assumption provides the best model fit at the individual level compared to 3 other models with less constraints



Recognition Memory Task



Conclusion

SDT oftentimes provides the best fitting model at the individual level (particularly for BIC since parameters are more heavily penalized compared to AIC), which supports the assumption that discriminability and criterion placement are independent behaviors

However, there are individual differences in the best fitting model, which should be considered for model comparison

These individual differences may represent unique individual abilities or strategies for integrating memory evidence with a decision criterion

Contact: Evan Layher
layher@psych.ucsb.edu
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