



# Gender differences in motivation-related effects in childhood

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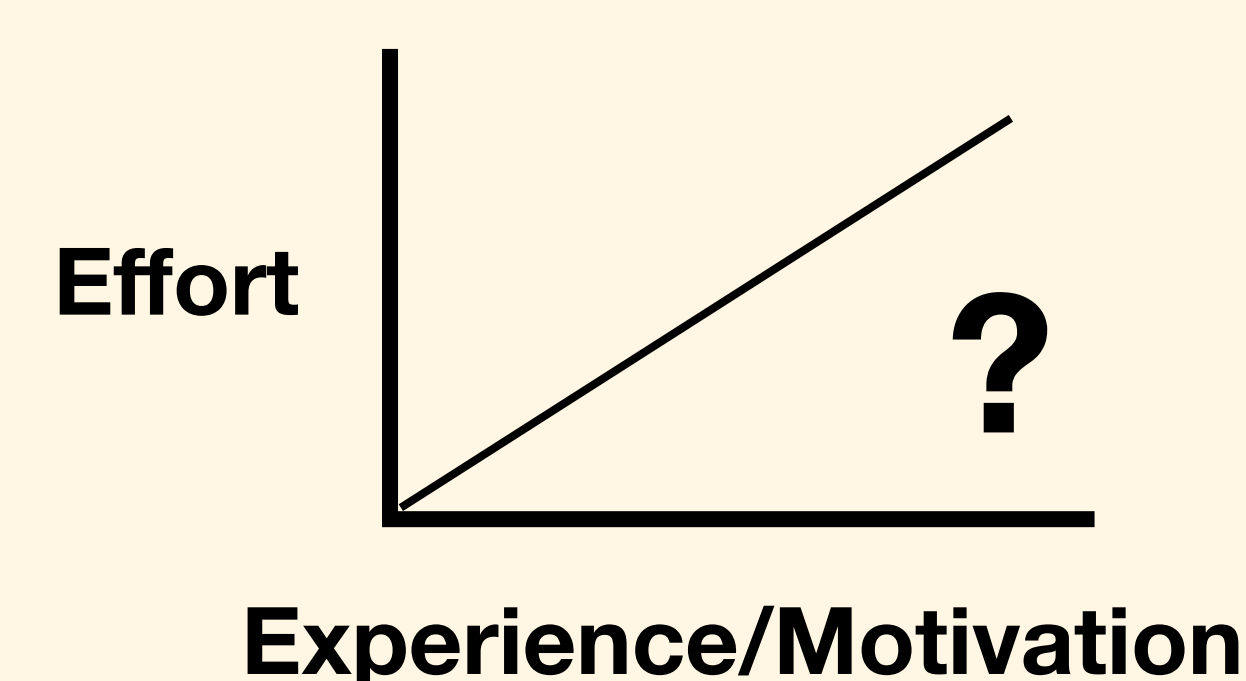
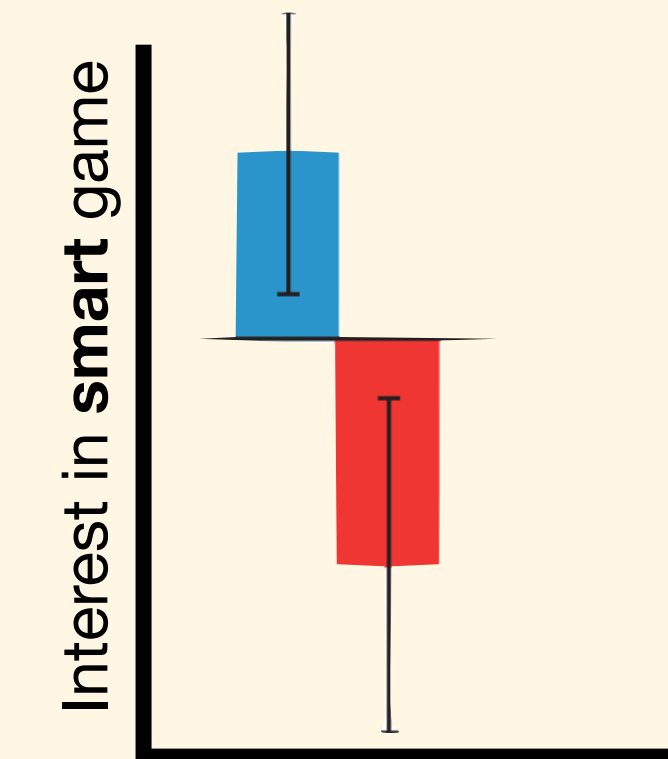
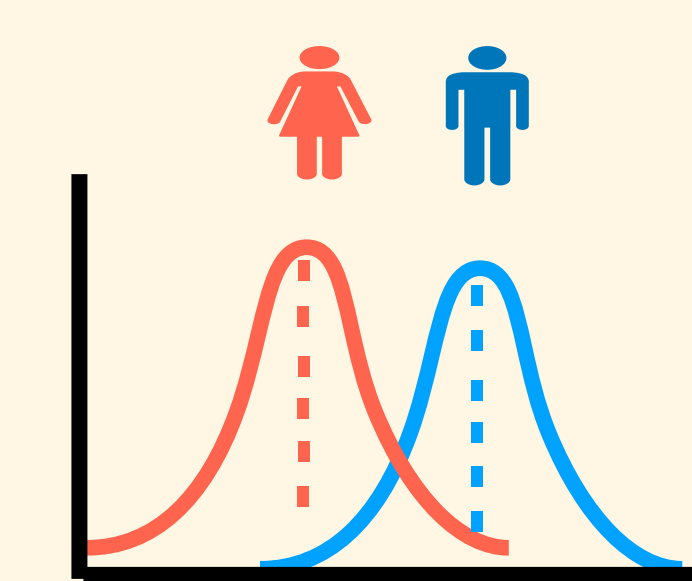


## How does motivation affect effort?

Gender differences (favoring boys) in effortful spatial tasks emerge around age 6<sup>1</sup>

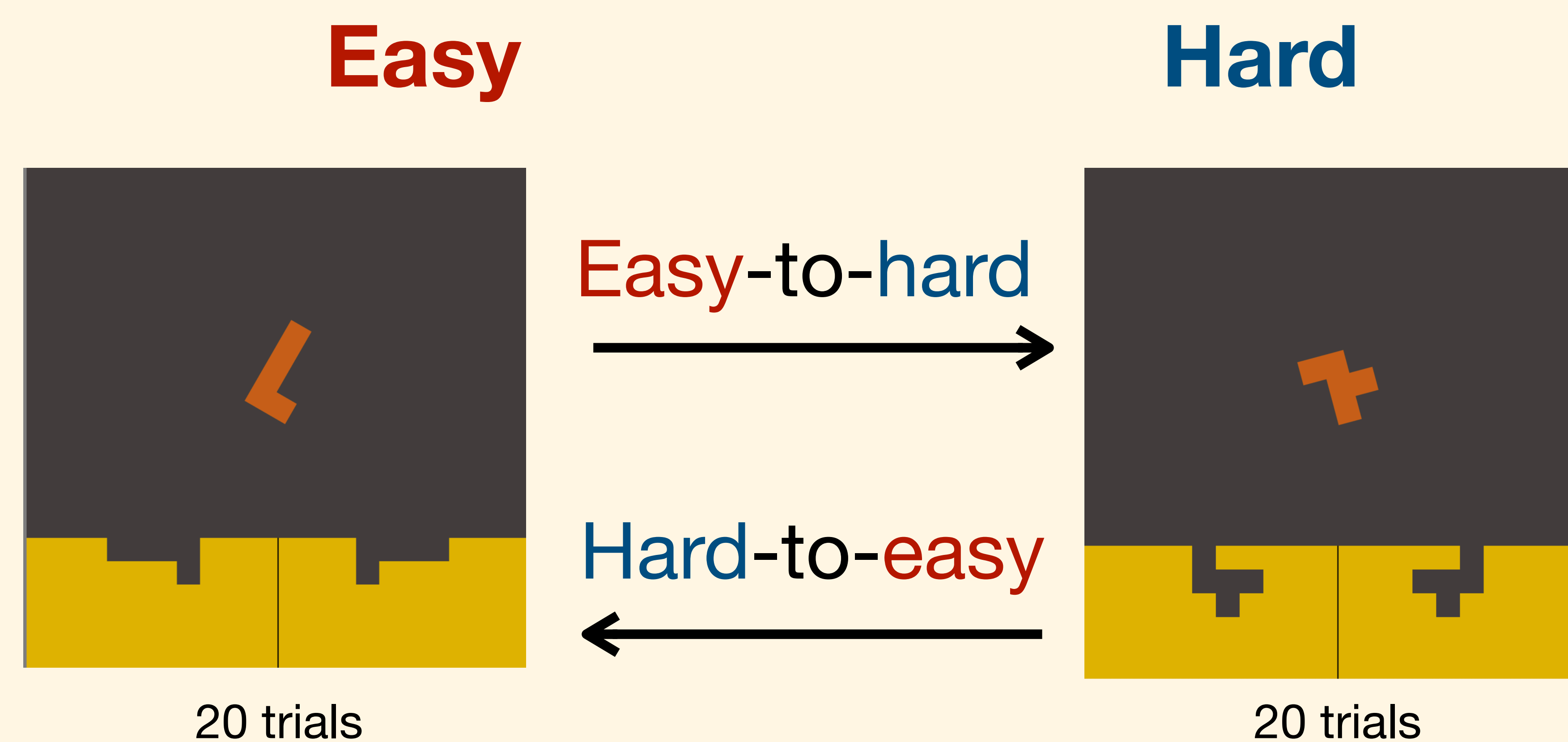
- Spatial experience differs across genders, contributing to gender differences in confidence and /or motivation

At age 6, boys and girls differed in their interests of “really, really smart” activities, but not in “try-hard” activities<sup>2</sup>



**How does experience-dependent motivation impact performance across genders?**

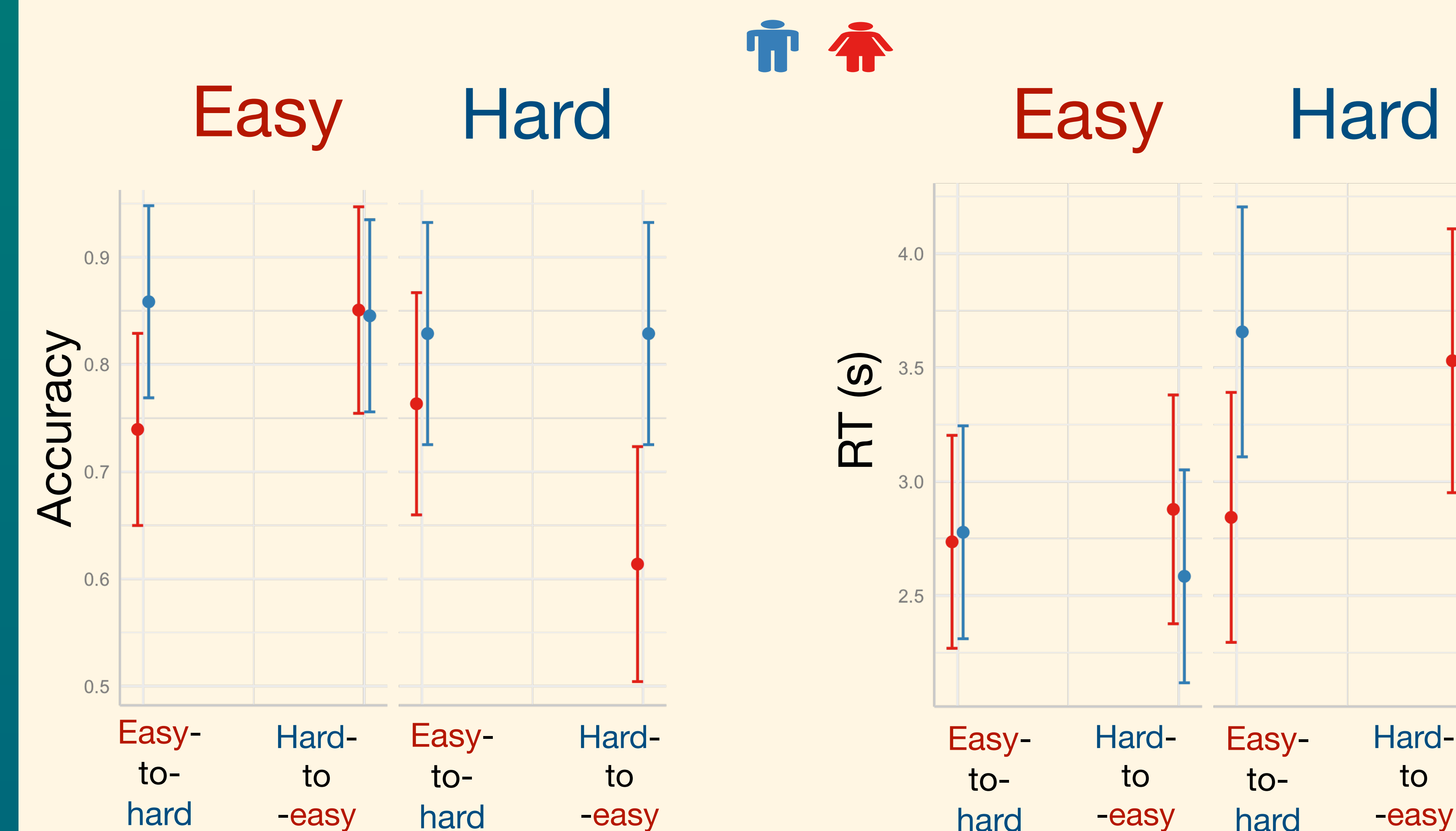
## 2AFC Children’s mental rotation task<sup>3</sup>



“Which hole does the piece fit into?”

Children 6-to-8 years { Easy first / Hard first } Motivation N = 28 / N = 26

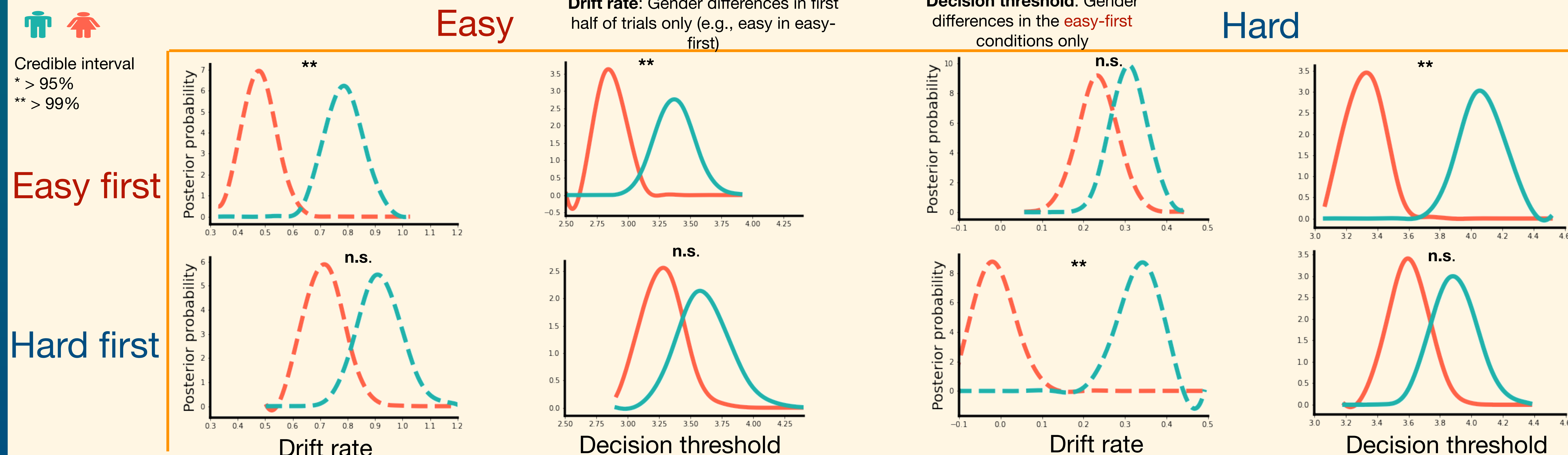
## Behavioral performance



Sig. gender differences (favoring boys) in hard trials of the condition that diminishes motivation (hard-to-easy condition)

No sig. gender differences in RTs. Drift diffusion modeling disentangles the processing efficiency (drift rate) versus response effort (decision threshold)

## Drift rates and decision thresholds using hierarchical Bayesian modeling (HDDM)<sup>4</sup>



In easy trials, girls, but not boys, had higher drift rates and decision thresholds in the hard-first condition compared to the easy-first conditions

In hard trials, girls, but not boys, had lower drift rates and larger decision thresholds in the hard-first condition compared to the easy-first condition

## Conclusions

- Gender differences in spatial performance may be affected by experience-dependent motivational effects
- Processing efficiency (drift rate) and response effort (decision threshold) varied as a function of trial difficulty and experience-dependent motivational effects, which only affected girls
- Future experiments will examine the amount of experience on the effects of processing efficiency and response effort

### References

- Lauer, Yhang, & Lourenco (2019). *Psych Bulletin*.
- Bian, Leslie, & Cimpian (2017). *Science*.
- Frick, Ferrera, & Newcome (2013). *Cogn Process*.
- Wiecki, Sofer, & Frank (2013). *Emotion*.

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