

# Advanced Bayesian modeling

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Sum of products vs. product of sums:

$$\sum_{r=1}^2 \left( \prod_{c=1}^3 x_{rc} \right) \neq \prod_{c=1}^3 \left( \sum_{r=1}^2 x_{rc} \right)$$

# Order of operations

In general, order of operations matters:

$$f \circ g(x) \neq g \circ f(x)$$

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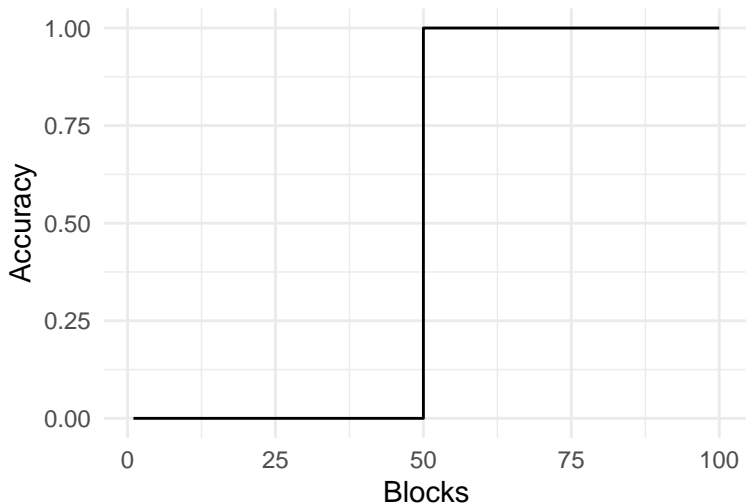
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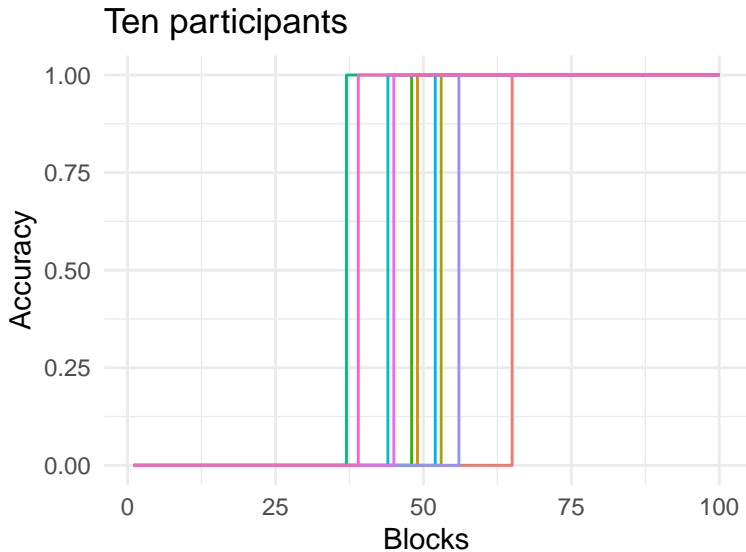
Do we want the **average model parameters of the data** or the **model parameters of the average data**?

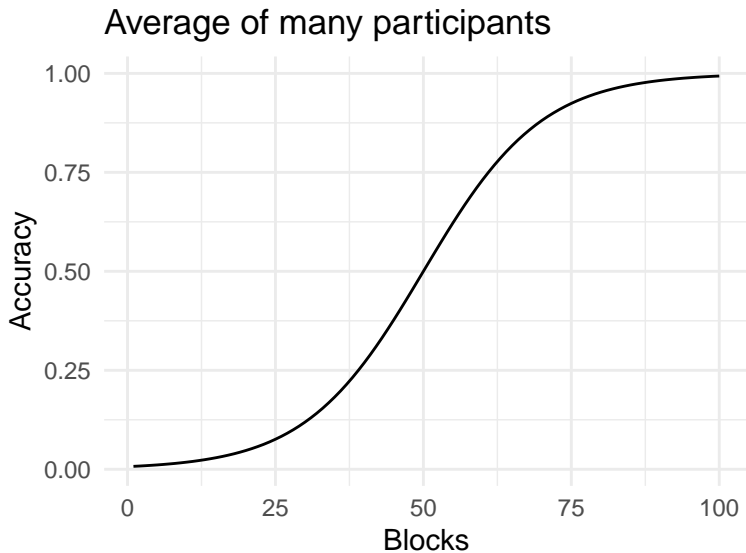
$$\overline{f(x)} \neq f(\bar{x})$$



### One-shot learning, one participant







The “average” learning curve looks nothing like the person-specific learning curve!

