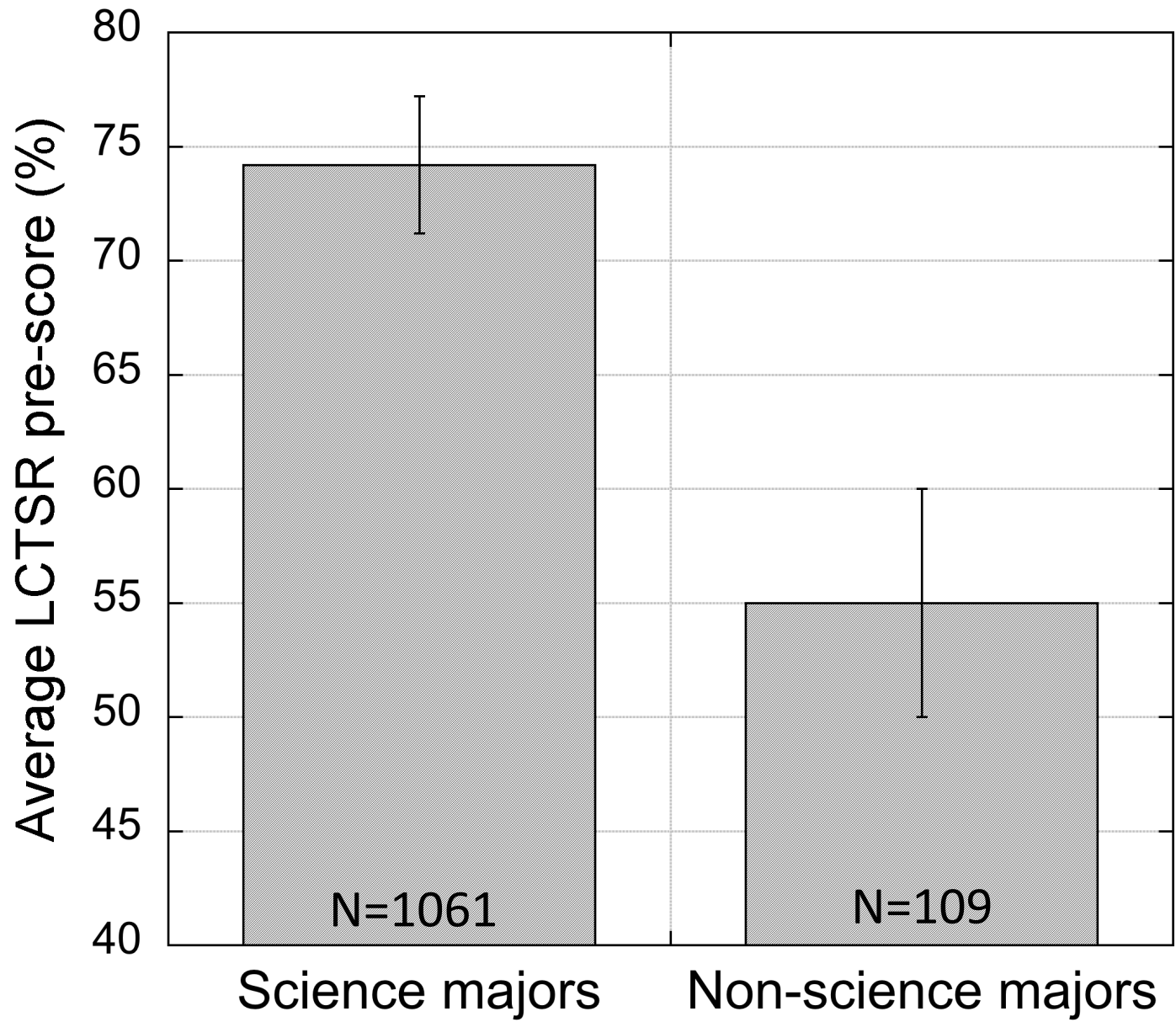


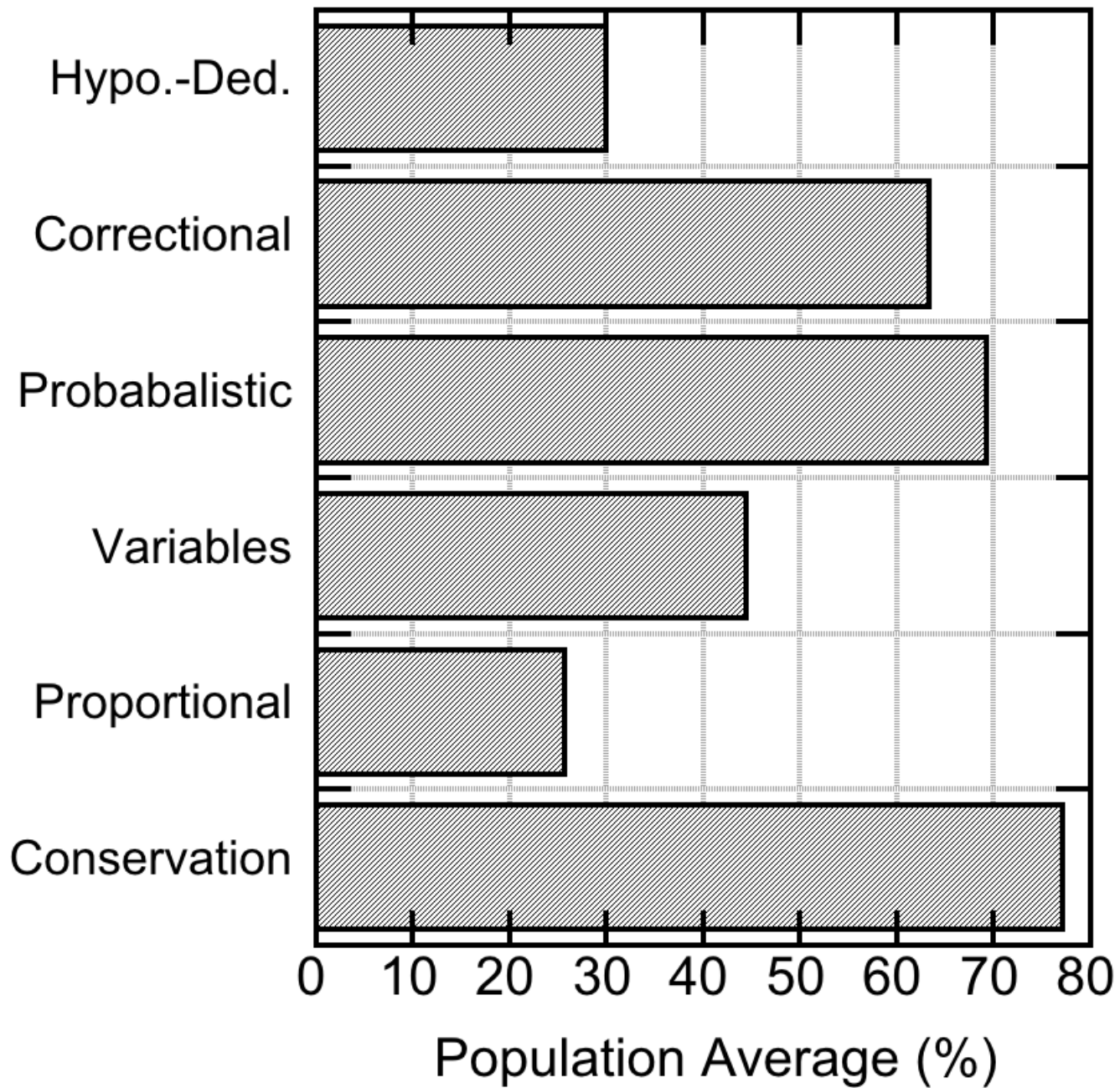
Formative assessment of hypothetico-deductive reasoning

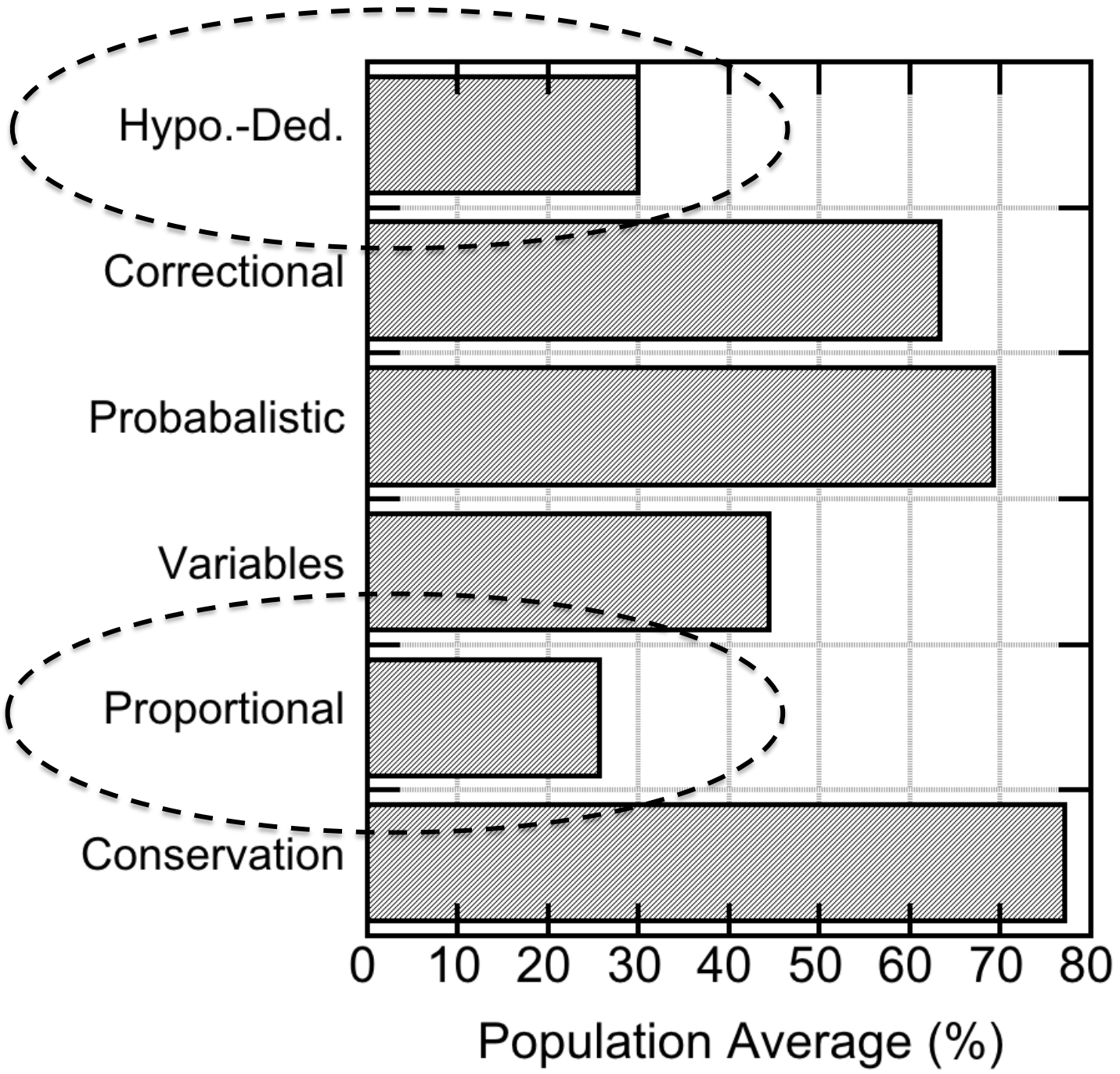
J.C Moore and L.J. Rubbo





L. Bao, et al., *Science*, **323**, 586 (2009).





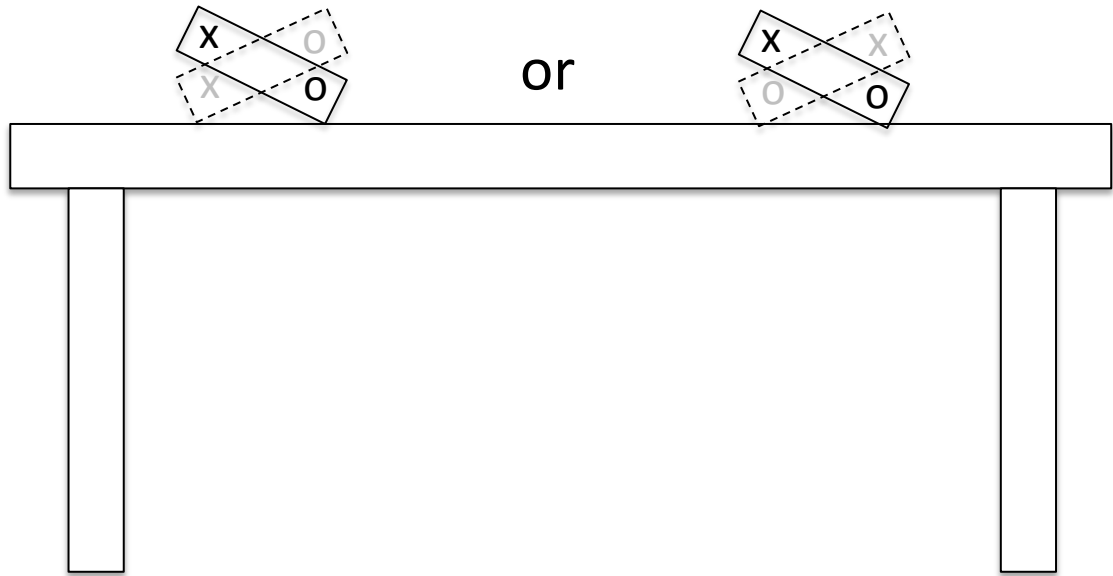
Making scientific reasoning explicit

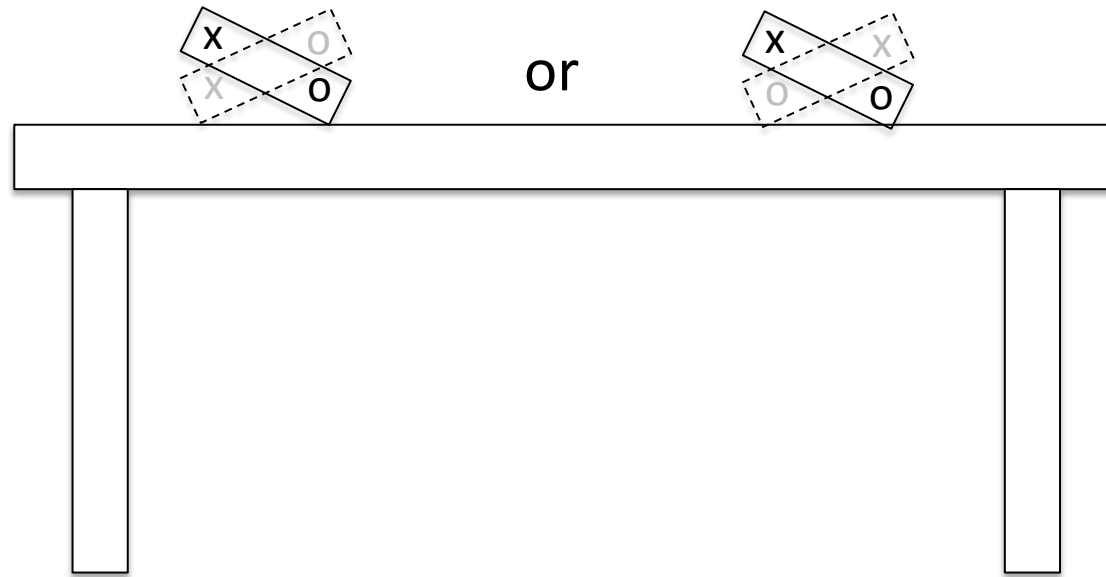
Is current used up in bulbs?

If ... current is used up in a bulb
and ... we measure current on both sides
then ... the current will be less on one side

Is current used up in bulbs?

- S1:** *If* we add another bulb to the circuit, and we observe the brightness to decrease, then current is used up in bulbs.
- S2:** *If* Ohm's Law is valid, and the current decreases when the voltage decreases, then current is used up in bulbs.
- S3:** *If* we conduct a controlled experiment varying only the current, and the bulbs behavior does not depend on the current, then current is not used up in bulbs.





“*If* the tube bobbles, *and* we ink one side, *then* a circle will be traced out on the page no matter what side is initially pressed.”

