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Your intuition (and your statistics textbook) may be wrong

Our minds rely on heuristic thinking and intuition, often with much success. However, a major bias in our heuristic thinking stems from an inability to properly account for the role that randomness plays in the world. It should be expected that formal statistical training would provide a scientific approach free of such bias. I will show that statistics textbooks are, in fact, promoting methods based on the same illusions that corrupt our heuristic thinking. A consequence of this teaching is an issue currently faced in science where an unacceptably large proportion of “statistically” established findings fail upon attempts at replication.