HarvardX: STAT110x
Introduction to Probability

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2.1 The importance of thinking conditionally
Unit 2: Conditioning

Adapted from Blitzstein-Hwang Chapter 2.

Conditional probability is the concept that addresses the following fundamental question: how should we update our beliefs in light of the evidence we observe? In fact, a useful perspective is that *all probabilities are conditional*; whether or not it's written explicitly, there is always background knowledge (or assumptions) built into every probability.

In addition to giving us a technique for updating our probabilities based on observed information, conditioning is a very powerful problem-solving strategy, often making it possible to solve a complicated problem by decomposing it into manageable pieces with case-by-case reasoning. Due to the central importance of conditioning, we say that *conditioning is the soul of statistics.*