

## ANCHORS

Amos and I once rigged a wheel of fortune. It was marked from 0 to 100, but we had it built so that it would stop only at 10 or 65. We recruited students of the University of Oregon as participants in our experiment. One of us would stand in front of a small group, spin the wheel, and ask them to write down the number on which the wheel stopped, which of course was either 10 or 65. We then asked them two questions:

Is the percentage of African nations among UN members larger or smaller than the number you just wrote?

What is your best guess of the percentage of African nations in the UN?

The spin of a wheel of fortune—even one that is not rigged—cannot possibly yield useful information about anything, and the participants in our experiment should simply have ignored it. But they did not ignore it. The average estimates of those who saw 10 and 65 were 25% and 45%, respectively.

The phenomenon we were studying is so common and so important in the everyday world that you should know its name: it is an *anchoring effect*. It occurs when people consider a particular value for an unknown quantity before estimating that quantity. What happens is one of the most reliable and robust results of experimental psychology: the estimates stay close to the number that people considered—hence the image of an anchor. If you are asked whether Gandhi was more than 114 years old when he died you will end up with a much higher estimate of his age at death than you would if the anchoring question referred to death at 35. If

you consider how much you should pay for a house, you will be influenced by the asking price. The same house will appear more valuable if its listing price is high than if it is low, even if you are determined to resist the influence of this number; and so on—the list of anchoring effects is endless. Any number that you are asked to consider as a possible solution to an estimation problem will induce an anchoring effect.

We were not the first to observe the effects of anchors, but our experiment was the first demonstration of its absurdity: people's judgments were influenced by an obviously uninformative number. There was no way to describe the anchoring effect of a wheel of fortune as reasonable. Amos and I published the experiment in our *Science* paper, and it is one of the best known of the findings we reported there.

There was only one trouble: Amos and I did not fully agree on the psychology of the anchoring effect. He supported one interpretation, I liked another, and we never found a way to settle the argument. The problem was finally solved decades later by the efforts of numerous investigators. It is now clear that Amos and I were both right. Two different mechanisms produce anchoring effects—one for each system. There is a form of anchoring that occurs in a deliberate process of adjustment, an operation of System 2. And there is anchoring that occurs by a priming effect, an automatic manifestation of System 1.

#### ANCHORING AS ADJUSTMENT

Amos liked the idea of an adjust-and-anchor heuristic as a strategy for estimating uncertain quantities: start from an anchoring number, assess whether it is too high or too low, and gradually adjust your estimate by mentally “moving” from the anchor. The adjustment typically ends prematurely, because people stop when they are no longer certain that they should move farther. Decades after our disagreement, and years after Amos's death, convincing evidence of such a process was offered independently by two psychologists who

had worked closely with Amos early in their careers: Eldar Shafir and Tom Gilovich together with their own students—Amos’s intellectual grandchildren!

To get the idea, take a sheet of paper and draw a 2½-inch line going up, starting at the bottom of the page—without a ruler. Now take another sheet, and start at the top and draw a line going down until it is 2½ inches from the bottom. Compare the lines. There is a good chance that your first estimate of 2½ inches was shorter than the second. The reason is that you do not know exactly what such a line looks like; there is a range of uncertainty. You stop near the bottom of the region of uncertainty when you start from the bottom of the page and near the top of the region when you start from the top. Robyn LeBoeuf and Shafir found many examples of that mechanism in daily experience. Insufficient adjustment neatly explains why you are likely to drive too fast when you come off the highway onto city streets—especially if you are talking with someone as you drive. Insufficient adjustment is also a source of tension between exasperated parents and teenagers who enjoy loud music in their room. LeBoeuf and Shafir note that a “well-intentioned child who turns down exceptionally loud music to meet a parent’s demand that it be played at a ‘reasonable’ volume may fail to adjust sufficiently from a high anchor, and may feel that genuine attempts at compromise are being overlooked.” The driver and the child both deliberately adjust down, and both fail to adjust enough.

Now consider these questions:

When did George Washington become president?

What is the boiling temperature of water at the top of Mount Everest?

The first thing that happens when you consider each of these questions is that an anchor comes to your mind, and you know both that it is wrong and the direction of the correct answer. You know immediately that George Washington became president after 1776, and you also know that the boiling temperature of water at the top