

A MACHINE FOR JUMPING TO CONCLUSIONS

The great comedian Danny Kaye had a line that has stayed with me since my adolescence. Speaking of a woman he dislikes, he says, “Her favorite position is beside herself, and her favorite sport is jumping to conclusions.” The line came up, I remember, in the initial conversation with Amos Tversky about the rationality of statistical intuitions, and now I believe it offers an apt description of how System 1 functions. Jumping to conclusions is efficient if the conclusions are likely to be correct and the costs of an occasional mistake acceptable, and if the jump saves much time and effort. Jumping to conclusions is risky when the situation is unfamiliar, the stakes are high, and there is no time to collect more information. These are the circumstances in which intuitive errors are probable, which may be prevented by a deliberate intervention of System 2.

NEGLECT OF AMBIGUITY AND SUPPRESSION OF DOUBT



Figure 6

What do the three exhibits in [figure 6](#) have in common? The answer is that all are ambiguous. You almost certainly read the display on the left as A B C and the one on the right as 12 13 14, but the middle items in both displays are identical. You could just as well have read them as A 13 C or 12 B 14, but you did not. Why not?

The same shape is read as a letter in a context of letters and as a number in a context of numbers. The entire context helps determine the interpretation of each element. The shape is ambiguous, but you jump to a conclusion about its identity and do not become aware of the ambiguity that was resolved.

As for Ann, you probably imagined a woman with money on her mind, walking toward a building with tellers and secure vaults. But this plausible interpretation is not the only possible one; the sentence is ambiguous. If an earlier sentence had been “They were floating gently down the river,” you would have imagined an altogether different scene. When you have just been thinking of a river, the word *bank* is not associated with money. In the absence of an explicit context, System 1 generated a likely context on its own. We know that it is System 1 because you were not aware of the choice or of the possibility of another interpretation. Unless you have been canoeing recently, you probably spend more time going to banks than floating on rivers, and you resolved the ambiguity accordingly. When uncertain, System 1 bets on an answer, and the bets are guided by experience. The rules of the betting are intelligent: recent events and the current context have the most weight in determining an interpretation. When no recent event comes to mind, more distant memories govern. Among your earliest and most memorable experiences was singing your ABCs; you did not sing your A13Cs.

The most important aspect of both examples is that a definite choice was made, but you did not know it. Only one interpretation came to mind, and you were never aware of the ambiguity. System 1 does not keep track of alternatives that it rejects, or even of the fact that there were alternatives. Conscious doubt is not in the repertoire of System 1; it requires maintaining incompatible interpretations in mind at the same time, which demands mental effort. Uncertainty and doubt are the domain of System 2.

hypothesis. Contrary to the rules of philosophers of science, who advise testing hypotheses by trying to refute them, people (and scientists, quite often) seek data that are likely to be compatible with the beliefs they currently hold. The confirmatory bias of System 1 favors uncritical acceptance of suggestions and exaggeration of the likelihood of extreme and improbable events. If you are asked about the probability of a tsunami hitting California within the next thirty years, the images that come to your mind are likely to be images of tsunamis, in the manner Gilbert proposed for nonsense statements such as “whitefish eat candy.” You will be prone to overestimate the probability of a disaster.

EXAGGERATED EMOTIONAL COHERENCE (HALO EFFECT)

If you like the president’s politics, you probably like his voice and his appearance as well. The tendency to like (or dislike) everything about a person—including things you have not observed—is known as the halo effect. The term has been in use in psychology for a century, but it has not come into wide use in everyday language. This is a pity, because the halo effect is a good name for a common bias that plays a large role in shaping our view of people and situations. It is one of the ways the representation of the world that System 1 generates is simpler and more coherent than the real thing.

You meet a woman named Joan at a party and find her personable and easy to talk to. Now her name comes up as someone who could be asked to contribute to a charity. What do you know about Joan’s generosity? The correct answer is that you know virtually nothing, because there is little reason to believe that people who are agreeable in social situations are also generous contributors to charities. But you like Joan and you will retrieve the feeling of liking her when you think of her. You also like generosity and generous people. By association, you are now predisposed to believe that Joan is generous. And now that you believe she is

generous, you probably like Joan even better than you did earlier, because you have added generosity to her pleasant attributes.

Real evidence of generosity is missing in the story of Joan, and the gap is filled by a guess that fits one's emotional response to her. In other situations, evidence accumulates gradually and the interpretation is shaped by the emotion attached to the first impression. In an enduring classic of psychology, Solomon Asch presented descriptions of two people and asked for comments on their personality. What do you think of Alan and Ben?

Alan: intelligent—industrious—impulsive—critical—stubborn—envious

Ben: envious—stubborn—critical—impulsive—industrious—intelligent

If you are like most of us, you viewed Alan much more favorably than Ben. The initial traits in the list change the very meaning of the traits that appear later. The stubbornness of an intelligent person is seen as likely to be justified and may actually evoke respect, but intelligence in an envious and stubborn person makes him more dangerous. The halo effect is also an example of suppressed ambiguity: like the word *bank*, the adjective *stubborn* is ambiguous and will be interpreted in a way that makes it coherent with the context.

There have been many variations on this research theme. Participants in one study first considered the first three adjectives that describe Alan; then they considered the last three, which belonged, they were told, to another person. When they had imagined the two individuals, the participants were asked if it was plausible for all six adjectives to describe the same person, and most of them thought it was impossible!

The sequence in which we observe characteristics of a person is often determined by chance. Sequence matters, however, because the halo effect increases the weight of first impressions, sometimes to the point that subsequent information is mostly wasted. Early in my career as a professor, I graded students' essay exams in the