

Decisions, decisions: How our choices are determined by the ways they are framed

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In Shakespeare's play *Hamlet*, the central protagonist is tormented by his inability to make a decision and commit to action to avenge his father's death. Hamlet spends an inordinate amount of time in quiet reflection (other characters cannot hear soliloquies, remember) when he could be coming up with ways to catch out his father's murderer, who just happens to be his uncle...and who is now married to his mother. Admittedly, that is a lot to think about.



Psychology research into **decision making** would suggest that deliberate reflection, rather than intuitive thoughts or 'gut' feelings, would lead to more effective behavioural choices. Indeed, **Daniel Kahneman** –

an author of the paper we will consider in this *7 Days of Psychology* post – writes in his bestseller and career retrospective, [Thinking, Fast and Slow \(2011\)](#), of two modes of thinking or ‘systems’.

The first, **System 1**, operates rather automatically and with seemingly little effort. The second, **System 2**, is involved in more effortful thinking endeavours and, when employed, feels subjectively under one’s control and agency.

Of course, opinion is divided as to Hamlet’s decision-making skills. Some argue that Hamlet did ultimately make the right decisions about how to seek his vengeance. Others would suggest that Hamlet’s decisions were all just awful. After all, let’s face it – by the end of the play, it’s all a bit of a bloody mess, isn’t it?

The *Hamlet* example does, however, make a useful point about decision making. While many of us would like the time to engage in deep thinking before we commit to a choice or make a social judgement, most of us are not afforded the same luxuries as those available to a prince of Denmark.

Luckily, most of our decisions involving rather automatic thinking and utilising rules of thumb tend to work rather well. The use of such decision-making shortcuts, however, has strengths and weaknesses. As Susan Fiske and Shelley Taylor (2017) [discuss](#), such shortcuts can “compromise *accuracy* for *efficiency*” (p. 200, emphasis added).

In today’s article, we are going to consider one aspect that affects our decision making: the way choices are framed. To do this, we will consider a 1981 paper by Amos Tversky and Daniel Kahneman.

Tversky and Kahneman have been [dubbed](#) as the “Lennon and McCartney of social science”. Lennon and McCartney – like Tversky and Kahneman, who the latter [described](#) as “sharing a mind” when they collaborated on articles in the early days – are really greater than the sum of their parts and their output is greater than the sum of individual songs. Therefore, in this entry, while we will focus on the 1981 paper, we will delve into Tversky and Kahneman’s greater body of work.

The state of play before Tversky and Kahneman

Theories in psychology have often focused on the ways that humans *should* form inferences and make decisions. These are called **normative models**. For example, in attribution theory, which examines how we determine the causes of one’s own and others’ behaviour, the focus of many theories is on the ways logical and rational processing of information is undertaken. Fritz Heider (1958), the father of attribution theory, [believed](#) that humans used principles similar to scientists to understand the origins of behaviour.

Increasingly however, psychologists in the ‘60s and ‘70s began to move away from formulating theories of how we should think to focus on how we *actually* think – what are called **descriptive models**. Work in this vein often focused on errors we make when attempting to make decisions. For example, in the attribution space, Lee Ross [wrote](#) in 1977 about what he referred to as the **fundamental attribution error**, where we overestimate that another’s behaviour is due to something about them, rather than their situation. He believed that such an error was so prevalent that he was compelled to use ‘fundamental’ in the name. Take that you other attribution errors!

Along came Tversky and Kahneman

Amos Tversky and Daniel Kahneman are perhaps best known in psychology for their work on **heuristics**. Heuristics are mental rules of thumb we use to make decisions. Their work on heuristics sought to examine the ways in which we weigh information and some of the errors we make. In an important [article](#) published in 1974, these researchers wrote about three heuristics: representativeness, availability, and adjustment and anchoring.

To give you an example of one heuristic, let us take the **representativeness heuristic**. This heuristic is used in decisions regarding, “What is the probability that object A belongs to class B” (p. 1124). In the article, Tversky and Kahneman use the example of a person being described, among other attributes, as meticulous and introverted. If you wanted to determine the likelihood that they are farmer, salesman, pilot, librarian, or physician, you would compare this person to your stereotypes and knowledge of people with these occupations and make a determination of how representative this person is of that occupation.

While heuristics are useful, you can probably predict that they are prone to errors. In the case of this hypothetical person, did you think that they were *a librarian*? Perhaps they are. However, did you stop to consider how many librarians there are in comparison to the other occupations? Mistaking someone for a librarian is fairly innocuous, but you can probably think of other decisions using this heuristic that may lead you astray. Luckily, the errors we make are not random, but systematic. That means we can understand them and, hopefully, avoid some of them.

Besides their work on mental rules of thumb, Tversky and Kahneman formulated **prospect theory** (described in a 1979 [article](#)) to examine how people make decisions under risk. An example of a decision under risk (described in Kahneman’s 2011 book) is whether to take a gamble with a coin toss and have a 50% chance of winning \$200, or to choose to take \$46. In this case, most people choose the sure thing. As described in their 1979 article, “people underweight outcomes that are merely probable in comparison with outcomes that are obtained with certainty. This tendency, called the certainty effect, contributes to risk aversion in choices involving sure gains and to risk seeking in choices involving sure losses” (p. 263).

Prospect theory is a descriptive theory that departed from a very influential normative theory called expected utility theory. The latter theory focused on how rational people make choices given alternatives. An important element of prospect theory is the idea that how information is presented influences our decision making. Originally described as the isolation effect, in their 1981 article Tversky and Kahneman described this as with reference to the notion of **frames**.

Tversky and Kahneman’s 1981 study

The collaborators’ [article](#), published in the journal *Science*, examined how the ways in which decisions are framed influence the choices we make. To begin with, the researchers described a **decision problem**, which involves choice between different options or behaviour, the outcomes of particular acts, and contingencies or probabilities that are involved. How the person conceptualises these elements is called a **decision frame**, and it is this that is influenced by the ways in which the problem is formulated. Importantly, as the researchers note, “It is possible to frame a given decision problem in more than one way” (p. 453).



From these basic tenets, the researchers presented data from various studies with undergraduate students to demonstrate the impact of framing. One of the most well known described in this article is the “Asian disease problem”. As Kahneman later described in his book, the researchers used the term ‘Asian’ as they believed it would remind participants of the 1957 Asian flu epidemic, although he acknowledges that singling out a group like this could be pejorative today.

In studies involving this problem, participants are presented with the following scenario:

Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed (p. 453).

Participants are then asked to make a choice between two options. Participants in one group (Group 1) are given the option of either adopting Program A, where 200 people will be saved; or Program B, where there is 1/3 probability that all 600 people will be saved, but a 2/3 probability that nobody will be saved. A second group of participants (Group 2) are given the choice between Program C, where 400 people will die; or Program D, where there is 1/3 probability that nobody will die, but a 2/3 probability that all 600 people will die.

If you look at these choices, programs A and C are identical, as are programs B and D. Therefore, from a rational point of view, the percentage of participants who favoured Choices A and C should be very similar, as should the percentages for Choices B and D.

However (drumroll), this is not what happened. Instead, for Program A, 72% of participants in Group 1 favoured this over Program B, which was favoured by only 28% of Group 1 participants. For Program C, only 22% of participants in Group 2 favoured this over Program D, which was favoured by 78% of participants in this group. This means that risk aversion versus risk taking behaviours are influenced strongly by the way a problem is presented.

Specifically, as Tversky and Kahneman explain it, when a choice is framed in terms of a gain (in this case, lives saved), people are more risk averse. By contrast, framing a situation from a position of loss (in this case, lives lost), leads to an increase in risk taking. Kahneman (2011) specifically described the findings in this way: "Decision makers tend to prefer the sure thing over the gamble (they are risk averse) when the outcomes are good. They tend to reject the sure thing and accept the gamble (they are risk seeking) when both outcomes are negative" (p. 368).

Throughout their 1981 article, Tversky and Kahneman present a range of other data, often involving gambling scenarios, to further elucidate the role of framing in decision making. Particularly important are **reference points**, where a person chooses a so-called neutral outcome from which to compare options.

To take another example from the article, let us consider a person who has lost \$140 at the racetrack and is deciding whether to spend a final (it is the final race) \$10 on a 15:1 horse. If they win, they will win \$140. If the person sees their reference point as \$140 loss, they will see the bet as a chance to return to where they were at the start of the day or to increase their total loss \$150. If however, their reference point does not take account of the cumulative loss (as if previous losses were someone else's losses), they stand to gain \$140 and only lose \$10. As we expect from prospect theory, when a problem is framed from a loss perspective (as it is in the first option), people are riskier in their decision making. Can you see why racetrack bets on long-shot horses increase so much at the end of the day?



The impact of this work

Tversky and Kahneman's work together, particularly in the 1970s and early 1980s, is highly influential to this day in psychology. Their findings are fundamental to our understandings of cognition (how people think) and social perception (how people understand others).

Interestingly, their work on framing effects and prospect theory has had much more influence in **behavioural economics**, which utilises psychology to look at how people make economic decisions, but is not considered a discipline of psychology. In fact, when Daniel Kahneman [received](#) the Nobel Prize in 2002, it was for "for having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty". Amos Tversky did not receive the award because, unfortunately, Nobel Prizes are not awarded posthumously (he died in 1996). Tversky was, however, [recognised](#) in 2002 as one of 100 most eminent psychologists of the 20th century.

At both the community and individual level, the findings of their work on framing are considerable. Think about the ways advertisers try to sell products, or the ways governments frame messages about taxes, unemployment, or support programs. The research suggests that by framing messages a certain way – with references to gains or losses – we can increase or decrease support for particular programs. Other research has examined health behaviours. For example, in one [study](#) by Tversky and colleagues, whether treatment options were framed with information about survival versus mortality rates was found to influence choices between surgery or radiation for lung cancer treatment.

How can we use the findings?

Since our judgements and decision making are often based on automatic and intuitive thinking (the System 1 we discussed earlier), such errors or blind spots can be hard to avoid. Indeed, Kahneman tells us in his book that Tversky presented the flu problem to public-health professionals, finding they responded similarly to other samples. This tells us that even experts can be prone to these errors and, as he cautions, these are the people that make real-world life and death decisions!

However, the good news is that there are a number of ways to harness these biases to affect positive change. For those involved in promoting health behaviours, a meta-analysis (a study that pools together the results of individual studies to ascertain the relationship between factors) of 94 published studies found that when it comes to encouraging people to engage in health prevention behaviours related to skin cancer prevention, smoking cessation, and physical activity, framing messages in terms of gains and benefits rather than losses is more effective. People are still individuals, however, and so when working with someone it is important to see how they see the world and think about the [behaviour](#), in order to inform the approach taken.

In one's own life, it would seem logical to suggest that, when a decision is particularly important, one should engage in deep thinking about the issue. This is certainly part of the solution. Kahneman has also suggested a number of other ways to improve one's decision-making. These [include](#) not overestimating your expertise in an area (and avoiding listening to those whose expertise is doubtful), using algorithms where available (e.g., for financial decisions), taking a broad view of the issue or problem at hand, and seeking out advice (so long as faith in experts or others is warranted). In the 1981 article, Tversky and Kahneman advise that when making decisions, rather than considering "What do I want now?", we should consider the outcome, asking ourselves, "What will I feel then?" (p. 458).

He also advocates a method called a **premortem** when a group is trying to reach a decision. A premortem [involves](#) the group dividing into two subgroups. One of the subgroups is asked to imagine that the outcome was a disaster, while the other group imagines the choice made led to success. The two groups then converge to share their perceptions of the reasons for failure or success. This process can help identify likely barriers or enablers to success or failure, respectively.



Finally, it is important to remember that while we are prone to errors in our judgements and decision making, many of the tools we use to make decisions work quite well. That's why we keep on using them! Finally, I think an anecdote on Tversky and Kahneman is useful. Like Hamlet, Daniel Kahneman was often prone to doubt that their research and thinking around an issue was 'wrong' and that an experiment or idea would have to be tossed. However, while this undoubtedly caused discomfort in both men, he was not immune to using these doubts to better his thinking. As he [put it](#), "I get a sense of movement and discovery whenever I find a flaw in my thinking". This is a living example of using our intuitive (System 1) and deep (System 2) thinking systems more effectively, from a man who knows a thing or two about thinking, fast and slow.

If you want to know more

Tversky and Kahneman's articles are a first port of call when researching decision making. Sometimes the use of mathematical equations in the articles to describe concepts can take some re-reading (at least for me), but the payoff is in the pitch perfect writing of these masters.

For an overview of the research program of Tversky and Kahneman, I would recommend Kahneman's [Thinking, Fast and Slow](#), which is a very readable treatment of their research. Michael Lewis also wrote a biography of the researchers, [The Undoing Project: A Friendship that Changed the World](#). You can read an extensive interview about that book [here](#).

