

**The
ABC of faulty
thinking**

**How we
fool
ourselves**

Suzanne Weusten

preview

Introduction

I recently found myself in Accident and Emergency. The doctor on duty, a handsome man in his fifties, was amiable and sympathetic, and I felt confident that he was about to take full control of the crisis that had engulfed me. But just as I was starting to relax, a little voice whispered in my ear: 'The fact that he's handsome and able to empathize doesn't make him a good doctor.' I was reminded of Dutch neurologist Ernst Jansen Steur, who for years gave his patients incorrect diagnoses. They trusted him because he was such a nice man.

There lies the fallacy. Most people think that if a person has one positive characteristic, then they must have plenty more. That beautiful woman is certain to be a competent manager, that friendly mortgage advisor must surely give the best advice going, that highly articulate applicant is simply made for the job. This kind of faulty thinking is known as the halo effect. It's one of countless psychological mechanisms that prevent us from thinking rationally and logically, although we generally fail to realize it. Fortunately my handsome doctor was also an excellent physician, but I was startled at how ready I'd been to judge his professional capacities based on his winning smile and willing ear.

A fallacy is a systematic departure from rational thought, from thinking underpinned by logical reasoning and properly supported by well-founded arguments. To take one example,

most people have a tendency to overvalue their own possessions and therefore ask more money for their house than they would themselves be willing to pay. Most people are bad at assessing risk, too. They allow themselves to be systematically misled by the emotional impact of an event or by recent experiences. They are happy to drive a car, but they fear for their lives if they find themselves walking down a dark alley in an unfamiliar city. Rational thinking doesn't necessarily produce the best result, incidentally. Suppose someone proposes tossing a coin and tells me I'll get a thousand euro if it's heads, but must hand over a hundred euro if it's tails. It would be rational to take a chance. If the coin falls tails-up then I'll still have made rational decision, only with a lousy result.

We hardly ever ask ourselves what thinking actually is or how our thought processes go. That's hardly surprising, since thinking is usually automatic and unconscious. The brain is 'brain blind', as it were. Only at the point when you consciously start to contemplate something do you become aware of any kind of mental activity. To get a grip on this complex process, psychologists have made a distinction between two kinds of thinking: fast, intuitive and automatic thinking called system 1 and slow, conscious, rational thinking called system 2.

Most thinking involves system 1. When you brush your teeth in the morning you don't have to think about how to move the toothbrush, and if you see a large barking dog storming towards you, you don't contemplate which is more sensible: to stand your ground or to run away. Even when working out simple sums, such as two times two, we don't need to rack our brains. The answer simply comes to us, automatically, like the answer to the question 'What's the

capital of France?’ When the task is a little more difficult, system 2 comes into play. What is 67 times 28? Shall I give up my job and start my own company? Which ingredients do I need to make a Spanish casserole? To answer these questions you need to focus your attention, make a conscious calculation, engage in logical reasoning or perhaps look something up. The information has to be organized and evaluated.

System 1 makes life easier. It helps us to carry out everyday tasks, and to judge situations and people. But the automatic responses generated by system 1 are not always appropriate. Now and then something goes wrong, because while system 1 is quick and useful, it has its limitations. It is biased, which means we make mistakes, not incidentally but systematically. We engage in faulty thinking.

Bias arises first of all from the fact that we humans love stories and patterns. We link separate events together until a good story rolls out. If I tell you the story of my life, it will be a coherent tale with a strong narrative thread running through it. I’ll have neatly attributed significance to all the chance events of my life, creating a consistent story free of internal contradictions. By turning a lifetime of events into a story of my own, I filter out all the coincidences and meaningless bits.

This love of patterns and stories gives rise to a second type of bias. The human brain looks for cause and effect, since thinking along those lines is easier than assuming complexity. Thinking in terms of cause and effect gives us a sense that we have a firm grip on things. If you know the cause of a disaster, illness or other misfortune, you can do something about it. Think how eager we are to know the origins of success. But correlations are not always causal relationships.

Sometimes events may go together, coinciding in time, for example, without one event being the cause of the other. We don't like to put things down to chance or to a complex of different factors, because that means relegating ourselves to the status of observers, unable to influence events.

A third bias shown by the brain is that it prefers not to deal with uncertainty. Our fast, automatic and associative system 1 suppresses any doubts we may have. Being uncertain is time-consuming, and it makes us feel uneasy. Any calculation of probability involves uncertainty and is therefore hard to grasp. The brain is bad at handling statistics. What does it mean, for example, to say that there's a 30 per cent chance of rain tomorrow? Or that I have a chance in a million of winning a big cash prize?

A fourth bias of the brain arises from our aversion to loss. Anyone taking a gamble will weigh up possible losses against possible gains. From a rational point of view we ought to take the gamble if the losses are no greater than the winnings on offer, but most people's dislike of losing outweighs their desire to win. Investors hate selling shares at a loss. The thought of getting less for them than they paid is so repugnant that they'll hold on to their shares even against their own better judgement.

The fifth bias is our innate tendency to have excessive confidence in ourselves. Anyone setting up a new company who knows that half of all new enterprises are bankrupt within a year thinks: mine is not going to be one of those. We know that one in three marriages fails, but we feel convinced it won't happen to us. Men, by the way, tend to overestimate themselves more than women, and optimists more than pessimists.

Finally, the sixth bias in our thinking has to do with our social environment. Man is a social

animal and sometimes group pressure can have more influence than we would like. Whether it's your family or a sports club, a political party or the board of directors, when groups of people take decisions there is always a danger of group thinking. Even if we believe ourselves to be independent thinkers, errors can sometimes slip into our judgement for the simple reason that deviating from the stance of the group makes us feel insecure. Just try sticking to your own opinion when everyone around you holds a different view. You risk exclusion from the group, and to avoid that uncomfortable feeling most people conform.

Although it can lead to faulty thinking, bias of the kind I have described does have a function. We may sometimes be too quick to pass judgement or to take a decision, but such haste has its benefits. It offers cognitive ease. If we had to weigh up all the options and chart all the possible consequences every time we exercised choice, reached a verdict or came to a decision, we'd be paralyzed. It's handy to have mental rules of thumb, heuristic shortcuts. They may lead us astray, but they also help to simplify complex problems by making them manageable and predictable. Predictability is more agreeable than chaos and uncertainty. It suggests that we are in charge. It gives us a sense of control.

Aside from cognitive ease, bias has one other benefit. It enables us to stand our ground in a complex and unpredictable environment. It flatters the ego and gives us a sense we are both right and virtuous. All this faulty thinking may cause us to fool ourselves, but all the same it makes us feel good.

K

Kettle logic

preview

How contradictory arguments betray us

A friend told me that she got home one evening to find the biscuit tin empty, although she was certain it had been full that morning. Her son assured her he hadn't raided the biscuits. He didn't even like them, he said indignantly. Anyhow, he'd only taken one. This particular contradictory argument made my friend laugh so much that she immediately forgave the little boy.

Arguments that are inherently contradictory are referred to as 'kettle logic' because of a story about a man who accused his neighbour of damaging a kettle he'd lent him. When the neighbour brought the kettle back, it had a hole in the bottom. The neighbour used three arguments to defend himself. 1. He'd never borrowed the kettle. 2. He'd brought the kettle back undamaged. And 3. The kettle was already damaged when he borrowed it.

The term 'kettle logic' was first used by Sigmund Freud. In his *Interpretation of Dreams* the Viennese psychoanalyst wrote that he'd had a dream about the treatment of a patient, Irma, after talking about it with a colleague. The arguments he used in his dream to ensure he couldn't be accused of making mistakes in his therapy reminded him of the story of the borrowed kettle. Firstly, it was Irma's own fault she was ill, Freud explained in the dream, because she hadn't followed his advice.

Anyone reading these arguments one after the other will immediately realize that something is amiss.

Secondly, Irma's pain was physical not mental; the ailment had nothing to do with his treatment. Thirdly, her illness was a consequence of the fact that she was a widow. And finally, he reasoned, her illness was caused by a dirty hypodermic needle.

Anyone reading these arguments one after the other will immediately realize that something is amiss. They contradict each other. It would have been better, Freud writes, if he had used the word 'or' between the arguments rather than 'and'. It's trickier when the arguments are hidden away in a long discourse, as with the defence of America's invasion of Iraq given by Dick



Cheney, vice-president under George W. Bush. Cheney claimed that:

1. The intelligence used to justify invading Iraq was sound and accurate.
2. The faulty intelligence was all Bill Clinton's fault
3. The invasion didn't do any harm; it was the Iraqis who harmed Iraq.
4. Any invasion causes horrific things to happen, that just comes with the territory.

In fact Cheney's reasoning contains two separate instances of kettle logic. 1 and 2 are incompatible, as are 3 and 4. But the two pairs can coexist.

An inherently contradictory line of reasoning can sometimes include a valid argument. Take the example of a man accused of having sex in a public place. He might make a logically valid defence by saying 'we weren't having sex, and anyway, we were in a secluded location away from public view.'

And what about: 'I did not have sexual relations with that woman – but it sure was nice!'

R

**Representativeness
error**

preview

How stereotypes cloud our judgement

A 42-year-old forest ranger turned up at a hospital. While hiking he'd felt a pain in his chest and it worried him. He'd experienced the pain several times in the past week, but now it had become worse. The doctor on duty examined the man, who reminded him of the young Clint Eastwood, asking him about his lifestyle and about illnesses in the family before concluding there was nothing to worry about. 'You've been overexerting yourself,' he said, and the ranger went home reassured.

The next day the man was admitted to hospital with an acute myocardial infarction, a heart attack. The doctor was astonished. How could he have failed to foresee this? Where had he gone wrong?

The answer is simple. The healthy and fit-looking patient, a non-smoker who lived a quiet life, didn't match the stereotypical image of a patient with heart problems. So the doctor thought the pain had probably been caused by a pulled muscle.

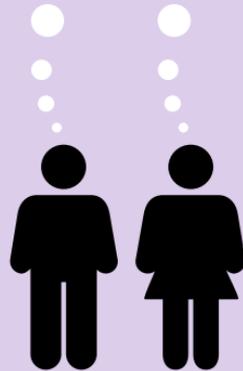
The faulty thinking in this true-life case is described in *How Doctors Think* by physician and writer Jerome Groopman, and it's an example of the representativeness error, which arises because we tend to conflate plausibility and likelihood. At first glance it seemed more

Whenever you use a stereotype, stop and contemplate it for a moment.

likely that the ranger had been overexerting himself than that he had a heart condition. The doctor's preconceived view – fit, outdoor people don't have heart attacks – made him blind to various factors that made it an unwise assumption in this case.

The representativeness error was first demonstrated in the 1980s by psychologists Daniel Kahneman and Amos Tversky, in an experiment that has become a classic and gone down in history as the Linda problem. The psychologists confronted their test participants with the following situation.

Linda is thirty-one, single, outspoken and highly intelligent. She has a degree in philosophy. As a student she was concerned about discrimination and social injustice



and took part in demonstrations against nuclear power. Which do you think is more likely?

- a. Linda works in a bank.
- b. Linda works in a bank and is active in the feminist movement.

The correct answer is a., since the likelihood that Linda works in a bank is greater than the likelihood that she both works in a bank and is active in the feminist movement. But our intuitive judgment of representativeness interferes with the logic of probability. Feminist bank employees are a subgroup of bank employees and far smaller in number than bank staff in general. In the original experiment, between 85 and 90 per cent of test participants – students at several large universities – opted for b. Why? Because, against all logic, option b is more representative of a feminist bank employee than of bank employees as such.

Is it possible to avoid the representativeness error? Certainly. Be aware that stereotypes are in fact mental shortcuts that simplify your thinking. Whenever you use a stereotype, stop and contemplate it for a moment. Is it justified? What do the statistics say? Most people have a tendency to think of a rapist, for example, as a weirdo who lurks in the bushes. In reality most rapes are committed by someone known to the victim.

The ranger survived his heart attack, incidentally. And the doctor learned to set aside all preconceived notions when making a diagnosis of such importance.

preview

A The Argumentation Factory

De Argumentenfabriek (The Argumentation Factory) is an independent company that helps organizations come to grips with complex problems by facilitating thinking processes and by visualizing information. The process of visualizing information forces people to structure their thoughts. The resulting Maps portray large amounts of information in a way that provides a clear and comprehensive overview. This allows people to make better decisions.

D De Denkakademie

De Denkakademie (The Thinking Academy) is the training division of De Argumentenfabriek, run by author Suzanne Weusten.

In an era where information is increasingly available and more complex, the quality of thinking is becoming the critical factor for making the right decision on a strategic and operational level. Professionals who realize that a broad overview is crucial for making the right decision, are able to develop their cognitive skills at De Denkakademie. You will learn a methodology that helps you face future issues rationally. Theories on structured and visual thinking and classical argumentation theory are interspersed with practical exercises. Participants use the visual tools of De Argumentenfabriek to analyse and structure cases and examples from their own work situation.

For more information:

www.argumentenfabriek.nl

www.denkakademie.nl

We'd go
crazy if we saw
and heard everything
that comes
our way.

Anyone who
focuses too much
on being right may
miss essential
information.

We all make mistakes

Want to understand why you fall prey to faulty thinking? Keen to protect yourself and others against the biases of the brain? This book offers insights and practical tips for recognizing and avoiding everyday errors.

When we take decisions, make choices or pass judgement, we don't always have time for due deliberation. All too often, something goes wrong. Our biased brains lead us astray, trick us and delude us into believing that the only correct opinion is our own.

Suzanne Weusten looks at situations familiar to us all and describes the most common examples of faulty thinking, from the understandable tendency to rely blindly on a friend's judgment to the dangerous mechanism of group thinking and the deeply human trait of regarding ourselves as brilliant.

Suzanne Weusten is a psychologist and director of The Thinking Academy at The Argumentation Factory in Amsterdam. She trains professionals to think clearly.

ISBN 978-90-823293-2-2



 **The Argumentation Factory**