

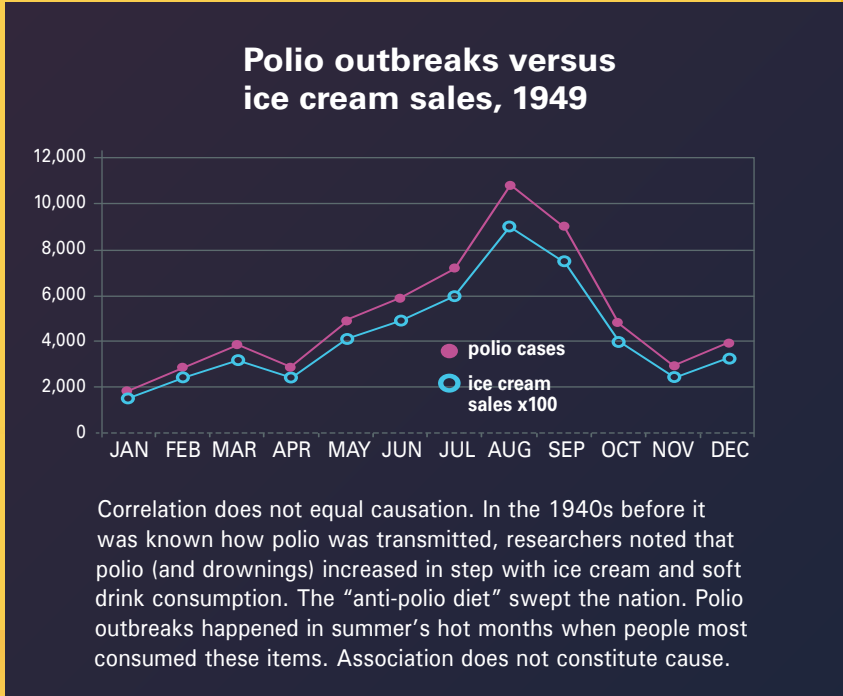
It is the mark of an educated mind to be able to entertain a thought without accepting it.

SOCRATES

# 21 biases that derail critical thought

**Math is perfect.** The application of math, however, is contextual. Data science involves human logic. The best data science comes from limited human interaction. Still, data scientists must extrapolate meaning from data in order to build predictive business models. As humans, even they are subject to deep-rooted biases.

Reason. Critical thought. Even scientific process has come up for interpretation. How do you read your apartment data with a data scientist's eye? How do you analyze data for the best result? First, avoid these pitfalls.



Critical thinkers are happier, more creative, and better performers at work. THINK WATSON: CRITICAL THINKING CORRELATION STUDIES



**Getting stuck on the first thing we hear.** It's why, in negotiation, the first offer sets the potential for the entire deal.

CLINICAL TERM: ANCHORING BIAS



**We adopt thoughts that confirm our existing beliefs.** We naturally agree when concepts align with our preconceptions and dismiss those that don't.

CONFIRMATION BIAS



**We double down when our core beliefs are challenged.** We frame being wrong as a personal assault. This often spurs inaccurate reasoning and galvanizes the faulty position.

BACKFIRE EFFECT



**We are influenced by context and delivery.** Everyone frames their speech. We speak differently to our spouse than we speak to our boss. Posturing is hard to avoid.

FRAMING EFFECT



**We remember the past better than it was and expect the future to be worse.** Despite living in one of the most peaceful and prosperous times in history, we're sure it's getting worse.

DECLINISM



**Our desire for justice causes us to assume it exists.** We naturally expect justice and make decisions based based solely on fairness. Except it's not.

JUST WORLD HYPOTHESIS



**The more you know, the less confident you are.** Experts know what they don't know and tend to underestimate their ability. It's also easy to be over-confident with a too little knowledge.

DUNNING-KRUGER EFFECT



**We irrationally cling to things that have cost us something.** When we've invested time, money or emotion into something, it hurts to let it go.

SUNK COST FALLACY



**We fill in details when someone makes vague statements.** Astrologers and others use this bias to appear as though they are providing new and relevant information.

BARNUM EFFECT



**We favor our group—even to the point of adopting non-truth in support.** From early childhood we navigate to those most like ourselves.

IN-GROUP BIAS



**Hope, optimism and resiliency are powerful tools.** However optimism untethered to objective facts and rational judgment is not truth-based.

OPTIMISM BIAS



**If we believe it's effective, it can sometimes work even if it's fake.** The placebo effect is related to the mind and its power to overcome (pain).

PLACEBO EFFECT



**Liking someone—or if they are attractive—positively influences our judgment of them.** This creates a baseless assumption of knowledge and truth.

HALO EFFECT



**Stuck.** Deer in the headlights, we experience a kind of shock and mental paralysis when under duress. This effects cognitive processing.

BYSTANDER EFFECT



**Strong memories influence judgment.** Recent, emotionally powerful or unusual memories influence thought. The strength of the memory gives it disproportionate influence, making the memory seem relevant.

AVAILABILITY HEURISTIC



**If an idea supports your beliefs, you'll rationalize it.** Setting aside existing beliefs to consider the merits of an opposing argument exposes our own ideas to criticism.

BELIEF BIAS



**Herd mentality.** Life is busy. We take processing short cuts by following the crowd. Within the crowd, the most confident or first voice determines group decisions.

GROUP-THINK



**We judge others on their character and ourselves on situations.** Lack of context mutes objectivity and truth.

FUNDAMENTAL ATTRIBUTION ERROR



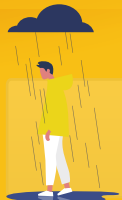
**We feel compelled to do the opposite of what someone pressures us to do.** Who wants their liberty constrained? And so we resist. In doing so we can over-compensate.

REACTANCE



**Negative events disproportionately influence thinking.** Pain is felt more deeply and persistently than fleeting gratification. Aversion to pain can distort judgment in a modern world.

NEGATIVITY BIAS



**We overestimate the chances of a negative outcome** as a defense against disappointment. The worse aspect of pessimism is that even if something is good, we feel badly about it.

PESSIMISM BIAS