

**BETA!**

## Warning!

The text for this presentation is **Beta!** It's from a wiki page that is still evolving. Keep this in mind while you read this document. **Some of the cognitive biases in here might be incorrect wiki entries.** Hopefully this document will inspire more cognitive professionals to chip in to make the wiki spotless! Eventually, this document will be rereleased in pristine form. Until then many of you have asked for a beta release. Here it is. Also, the images have been updated for better remixing and sharing rights. Rather than using permission based images, now all the images are public domain or free non-commercial use by anyone.

**Operation Fix The Cognitive Bias Wiki Has Begun!**



## A Visual Study Guide to **COGNITIVE BIASES**

◆ This document was prepared by Eric Fernandez. ◆  
◆ Much of the text within is quoted from the cognitive bias wikipedia pages (written in large part by Martin Poulter) ◆



# This document is an introductory study guide

It's for anyone who is trying to study all of the cognitive biases so they can better understand human thought and behavior. It's based off of the latest Wikipedia entry for cognitive biases ([http://en.wikipedia.org/wiki/Cognitive\\_bias](http://en.wikipedia.org/wiki/Cognitive_bias)) and because Wikipedia articles are always a work in progress, this should be thought of as a starting point to study more professionally produced material such as Stuart Sutherland's "Irrationality", Cordelia Fine's "A Mind of Its Own", Scott Plous' "The Psychology of Judgement and Decision Making", Thomas Kida's "Don't Believe Everything You Think."

Within, this document you will find each bias presented with a short description and an image to help aid the memory. Clicking on each bias will take you directly to the wiki page where you can learn more.

The biases are organized into slides that can be printed and mounted to mat board to make study guide cards.





# Legal Information

## Wikipedia Text (The listed text under each cognitive bias)

The Wikipedia text within this document is under a Creative Commons Attribution-ShareAlike License.

That means you are free:

**to Share** — to copy, distribute and transmit the text

**to Remix** — to adapt the text

Under the following conditions:

**Attribution** — You must attribute the work in the manner specified by Wikipedia (but not in any way that suggests that they endorse you or your use of the work).

**Share Alike** — If you alter, transform, or build upon this work, you may distribute the resulting work only under the same or similar license to this one.

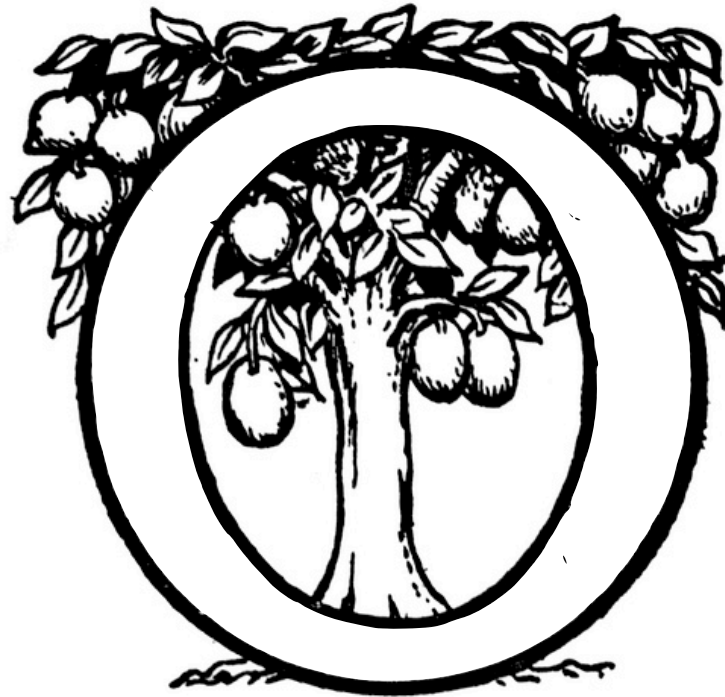
## Images

With the exception of the “Royal Society Of Account Planning” Logo on the front and last page, all images on this presentation are either completely public domain or are free to use for all non-commercial purposes. They are also all non-attribution.

## Presentation as a whole

Other than the need to respect the existing licenses on the wiki text and several of the images (non-commercial use only), you are free to do whatever you want with this document. You can remix it, mash it up, distribute it however you see fit. Enjoy!





“The beginning of  
wisdom, is the  
definition of terms”

- Socrates





## What is a cognitive bias?

**Cognitive biases are psychological tendencies that cause the human brain to draw incorrect conclusions.**

Such biases are thought to be a form of "cognitive shortcut", often based upon rules of thumb, and include errors in statistical judgment, social attribution, and memory.

These biases are a common outcome of human thought, and often drastically skew the reliability of anecdotal and legal evidence. The phenomenon is studied in cognitive science and social psychology.

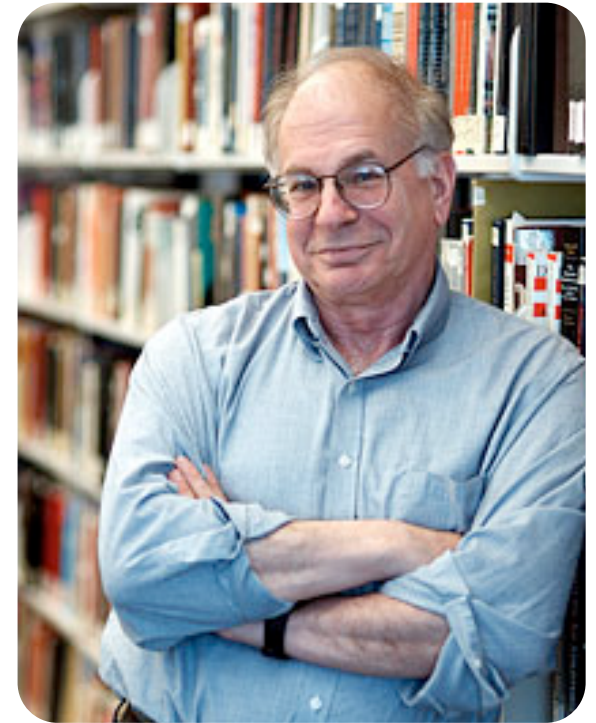
Quoted from: [http://en.wikipedia.org/wiki/Cognitive\\_bias](http://en.wikipedia.org/wiki/Cognitive_bias)



# History



Amos Tversky



Daniel Kahneman

**The notion of cognitive biases was introduced by Amos Tversky and Daniel Kahneman in 1972.** and grew out of their experience of people's innumeracy, or inability to reason intuitively with the greater orders of magnitude. They and their colleagues demonstrated several replicable ways in which human judgments and decisions differ from rational choice theory. They explained these differences in terms of heuristics; rules which are simple for the brain to compute but introduce systematic errors. For instance the availability heuristic, when the ease with which something comes to mind is used to indicate how often (or how recently) it has been encountered.

These experiments grew into the heuristics and biases research program which spread beyond academic psychology into other disciplines including medicine and political science. It was a major factor in the emergence of behavioral economics, earning Kahneman a Nobel Prize in 2002. Tversky and Kahneman developed prospect theory as a more realistic alternative to rational choice theory. Other biases have been demonstrated in separate experiments, such as the confirmation bias demonstrated by Peter C. Wason.

Quoted from: [http://en.wikipedia.org/wiki/Cognitive\\_bias](http://en.wikipedia.org/wiki/Cognitive_bias)



contents

**social biases**



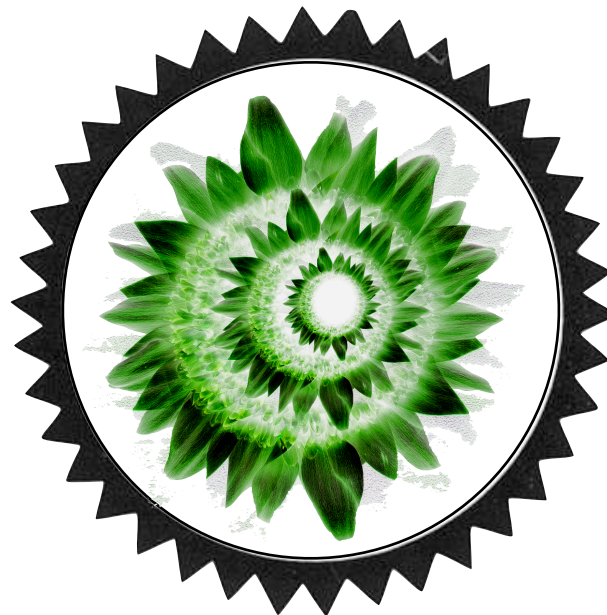
**memory biases**



**decision-making biases**



**probability /belief biases**







**social biases**



# 19\* social biases

## Forer effect / Barnum effect

The tendency to give high accuracy ratings to descriptions of their personality that supposedly are tailored specifically for them, but are in fact vague and general enough to apply to a wide range of people. For example, horoscopes.



## Ingroup bias

The tendency for people to give preferential treatment to others they perceive to be members of their own groups.



## Self-fulfilling prophecy

The tendency to engage in behaviors that elicit results which will (consciously or not) confirm existing attitudes.



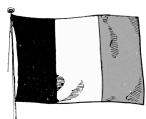
## Halo effect

The tendency for a person's positive or negative traits to "spill over" from one area of their personality to another in others' perceptions of them (see also physical attractiveness stereotype).



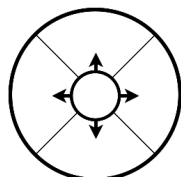
## Ultimate attribution error

Similar to the fundamental attribution error, in this error a person is likely to make an internal attribution to an entire group instead of the individuals within the group.



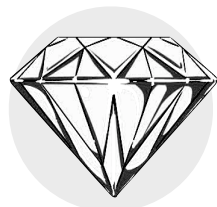
## False consensus effect

The tendency for people to overestimate the degree to which others agree with them.



## Self-serving bias / Behavioral confirmation effect

The tendency to claim more responsibility for successes than failures. It may also manifest itself as a tendency for people to evaluate ambiguous information in a way beneficial to their interests (see also group-serving bias).



## Notational bias

A form of cultural bias in which the notational conventions of recording data biases the appearance of that data toward (or away from) the system upon which the notational schema is based.



## Egocentric bias

Occurs when people claim more responsibility for themselves for the results of a joint action than an outside observer would.



## Just-world phenomenon

The tendency for people to believe that the world is just and therefore people "get what they deserve."



# 19\* social biases

## Dunning-Kruger / Superiority Bias

Overestimating one's desirable qualities, and underestimating undesirable qualities, relative to other people. Also known as Superiority bias (also known as "Lake Wobegon effect", "better-than-average effect", "superiority bias", or Dunning-Kruger effect).



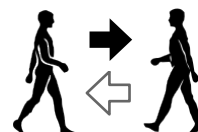
## System justification effect / Status Quo Bias

The tendency to defend and bolster the status quo. Existing social, economic, and political arrangements tend to be preferred, and alternatives disparaged sometimes even at the expense of individual and collective self-interest. (See also status quo bias.)



## Illusion of asymmetric insight

People perceive their knowledge of their peers to surpass their peers' knowledge of them.



## Illusion of transparency

People overestimate others' ability to know them, and they also overestimate their ability to know others.



## Herd instinct

Common tendency to adopt the opinions and follow the behaviors of the majority to feel safer and to avoid conflict.



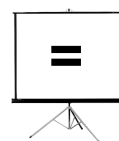
## Fundamental attribution error / Actor-observer bias

The tendency for people to over-emphasize personality-based explanations for behaviors observed in others while under-emphasizing the role and power of situational influences on the same behavior (see also actor-observer bias, group attribution error, positivity effect, and negativity effect).



## Projection bias

The tendency to unconsciously assume that others share the same or similar thoughts, beliefs, values, or positions.



## Outgroup homogeneity bias

Individuals see members of their own group as being relatively more varied than members of other groups.



## Trait ascription bias

The tendency for people to view themselves as relatively variable in terms of personality, behavior and mood while viewing others as much more predictable.







**memory biases**



# 8\* memory biases

## Suggestibility

A form of misattribution where ideas suggested by a questioner are mistaken for memory.



## Reminiscence bump

The effect that people tend to recall more personal events from adolescence and early adulthood than from other lifetime periods.



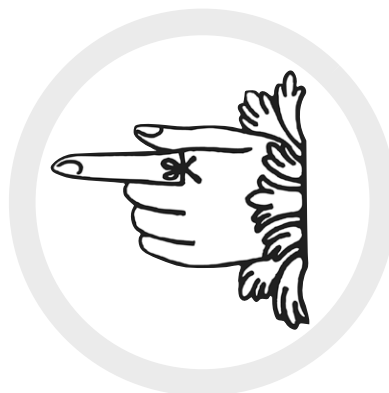
## Cryptomnesia / False memory

A form of misattribution where a memory is mistaken for imagination, or the confusion of true memories with false memories.



## Consistency bias

Incorrectly remembering one's past attitudes and behavior as resembling present attitudes and behavior.



# 8\* memory biases

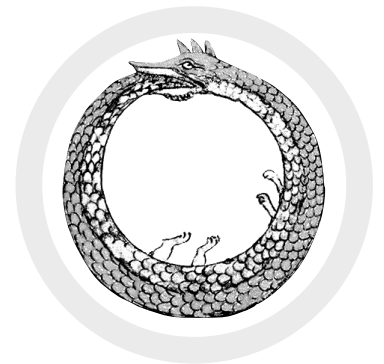
## Rosy retrospection

The tendency to rate past events more positively than they had actually rated them when the event occurred.



## Self-serving bias

Perceiving oneself responsible for desirable outcomes but not responsible for undesirable ones.



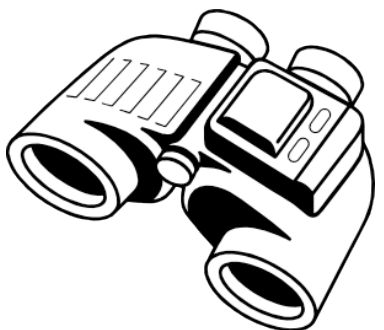
## Egocentric bias

Recalling the past in a self-serving manner, e.g. remembering one's exam grades as being better than they were, or remembering a caught fish as being bigger than it was.



## Hindsight bias

Filtering memory of past events through present knowledge, so that those events look more predictable than they actually were; also known as the 'I-knew-it-all-along effect'.







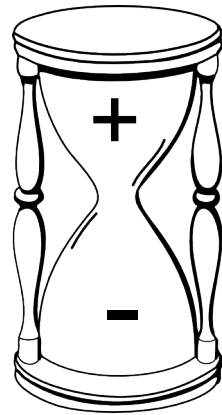
**decision-making  
biases**



# 42\* decision-making biases

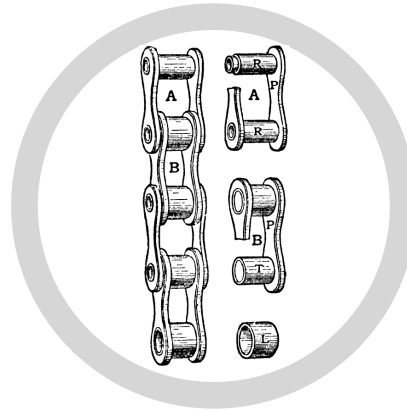
## Hyperbolic discounting

The tendency for people to have a stronger preference for more immediate payoffs relative to later payoffs, where the tendency increases the closer to the present both payoffs are.



## Irrational escalation

The tendency to make irrational decisions based upon rational decisions in the past or to justify actions already taken.



## Omission bias

The tendency to judge harmful actions as worse, or less moral, than equally harmful omissions (inactions).



## Mere exposure effect

The tendency for people to express undue liking for things merely because they are familiar with them.



# 42\* decision-making biases



## Negativity bias

Phenomenon by which humans pay more attention to and give more weight to negative than positive experiences or other kinds of information.



## Interloper effect / Consultation paradox

The tendency to value third party consultation as objective, confirming, and without motive. Also consultation paradox, the conclusion that solutions proposed by existing personnel within an organization are less likely to receive support than from those recruited for that purpose.



## Normalcy bias

The refusal to plan for, or react to, a disaster which has never happened before.



## Neglect of probability

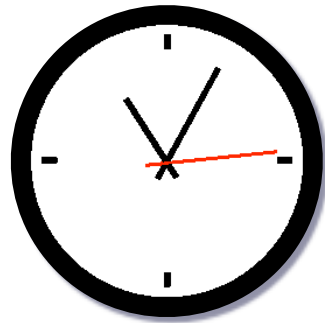
The tendency to completely disregard probability when making a decision under uncertainty.



# 42\* decision-making biases

## Planning fallacy

The tendency to underestimate task-completion times.



## Déformation professionnelle

The tendency to look at things according to the conventions of one's own profession, forgetting any broader point of view.



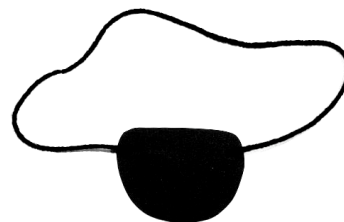
## Impact bias

The tendency for people to overestimate the length or the intensity of the impact of future feeling states.



## Bias blind spot

The tendency not to compensate for one's own cognitive biases.



# 42\* decision-making biases



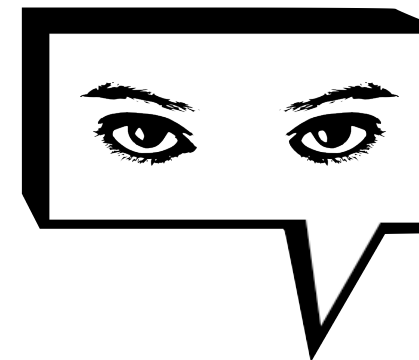
## Semmelweis reflex

The tendency to reject new evidence that contradicts an established paradigm.



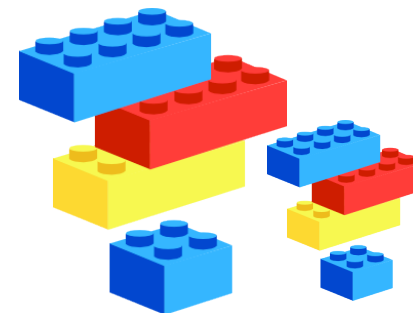
## Not Invented Here

The tendency to ignore that a product or solution already exists, because its source is seen as an "enemy" or as "inferior".



## Moral credential effect

The tendency of a track record of non-prejudice to increase subsequent prejudice.



## Base rate fallacy

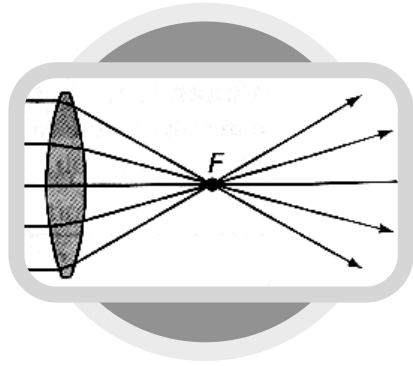
Ignoring available statistical data in favor of particulars.



# 42\* decision-making biases

## Focusing effect

Prediction bias occurring when people place too much importance on one aspect of an event; causes error in accurately predicting the utility of a future outcome.



## Illusion of control

The tendency for human beings to believe they can control or at least influence outcomes that they clearly cannot.



## Outcome bias

The tendency to judge a decision by its eventual outcome instead of based on the quality of the decision at the time it was made.



## Post-purchase rationalization

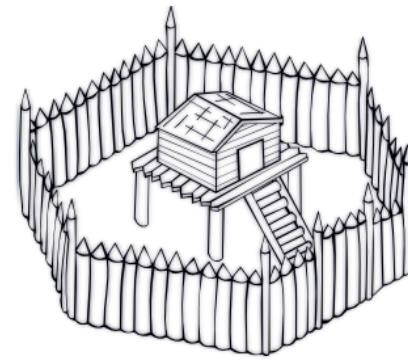
The tendency to persuade oneself through rational argument that a purchase was a good value.



# 42\* decision-making biases

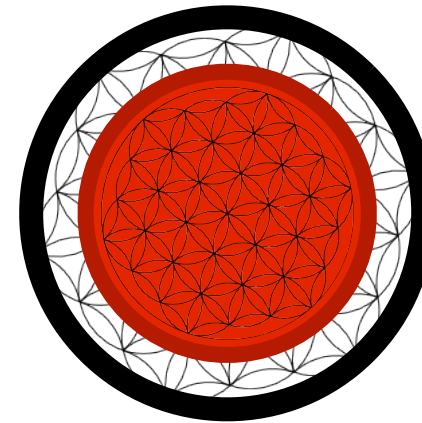
## Framing

Using an approach or description of the situation or issue that is too narrow. Also framing effect – drawing different conclusions based on how data is presented.



## Experimenter's or Expectation bias

The tendency for experimenters to believe, certify, and publish data that agree with their expectations for the outcome of an experiment, and to disbelieve, discard, or downgrade the corresponding weightings for data that appear to conflict with those expectations.



## Information bias

The tendency to seek information even when it cannot affect action.



## Extraordinariness bias

The tendency to value an object more than others in the same category as a result of an extraordinariness of that object that does not, in itself, change the value.

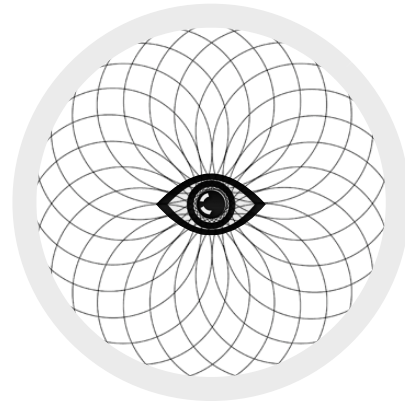




# 42\* decision-making biases

## Confirmation bias

The tendency to search for or interpret information in a way that confirms one's preconceptions.



## Choice-supportive bias

The tendency to remember one's choices as better than they actually were.



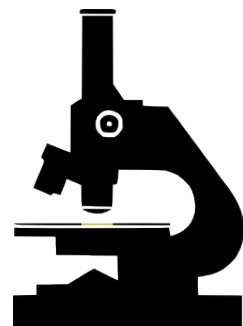
## Endowment effect / Loss aversion

"the fact that people often demand much more to give up an object than they would be willing to pay to acquire it".  
(see also sunk cost effects)



## Congruence bias

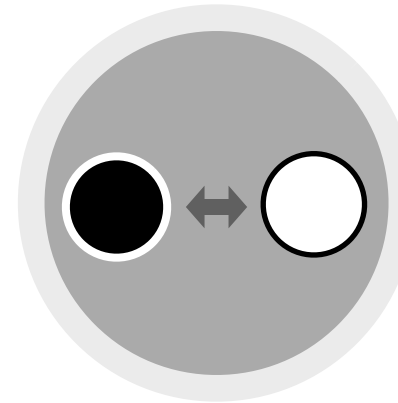
The tendency to test hypotheses exclusively through direct testing, in contrast to tests of possible alternative hypotheses.



# 42\* decision-making biases

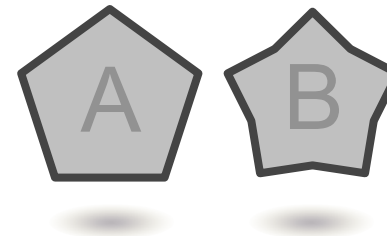
## Distinction bias

The tendency to view two options as more dissimilar when evaluating them simultaneously than when evaluating them separately.



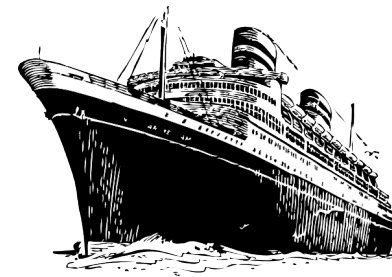
## Contrast effect

The enhancement or diminishing of a weight or other measurement when compared with a recently observed contrasting object.



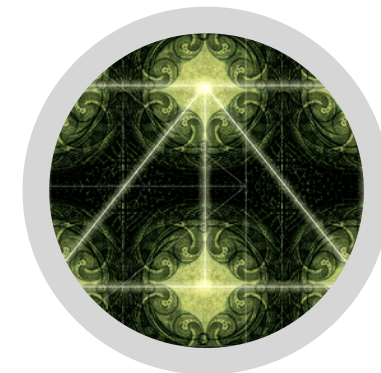
## Bandwagon effect

The tendency to do (or believe) things because many other people do (or believe) the same. Related to groupthink and herd behavior.



## Denomination effect

The tendency to spend more money when it is denominated in small amounts (e.g. coins) rather than large amounts (e.g. bills).





# 42\* decision-making biases

## Selective perception

The tendency for expectations to affect perception.



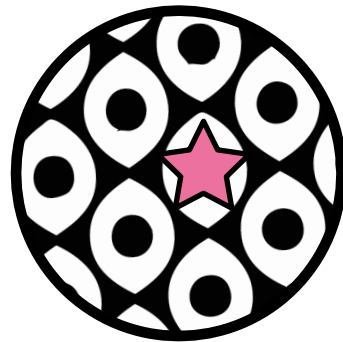
## Restraint bias

The tendency to overestimate one's ability to show restraint in the face of temptation.



## Von Restorff effect

The tendency for an item that "stands out like a sore thumb" to be more likely to be remembered than other items.



## Pseudocertainty effect

The tendency to make risk-averse choices if the expected outcome is positive, but make risk-seeking choices to avoid negative outcomes.



## Money illusion

The tendency of people to concentrate on the nominal (face value) of money rather than its value in terms of purchasing power.

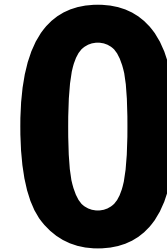


# 42\* decision-making biases



## Wishful thinking

The formation of beliefs and the making of decisions according to what is pleasing to imagine instead of by appeal to evidence or rationality.



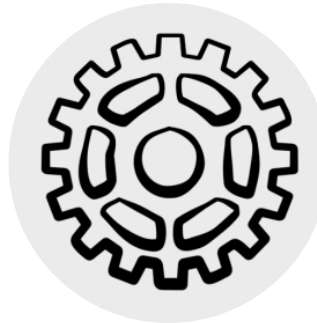
## Zero-risk bias

Preference for reducing a small risk to zero over a greater reduction in a larger risk.



## Reactance

The urge to do the opposite of what someone wants you to do out of a need to resist a perceived attempt to constrain your freedom of choice.



## Status quo bias

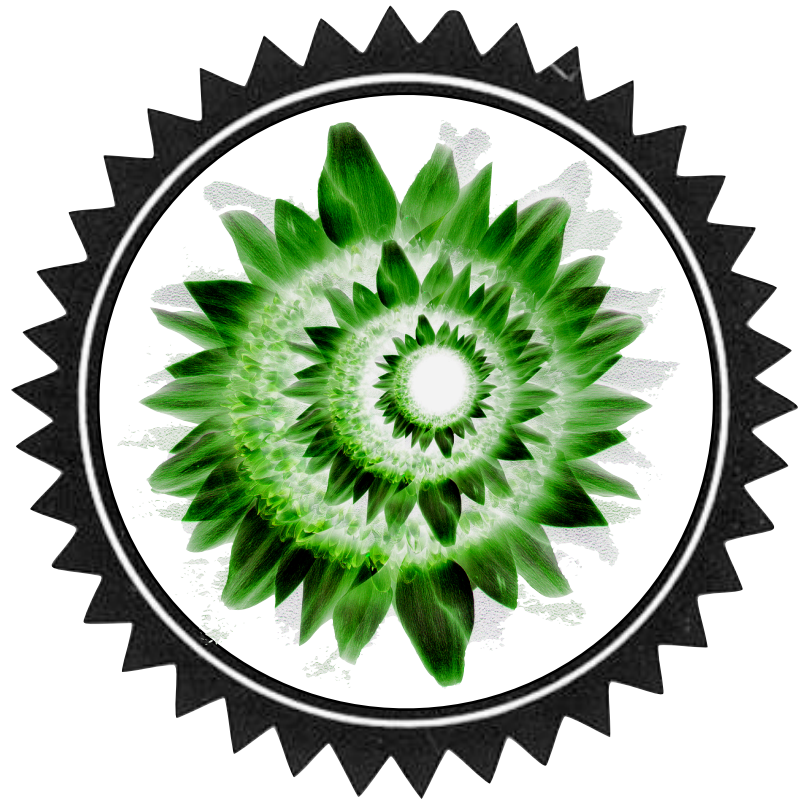
The tendency for people to like things to stay relatively the same (see also loss aversion, endowment effect, and system justification).



## Need for Closure

The need to reach a verdict in important matters; to have an answer and to escape the feeling of doubt and uncertainty. The personal context (time or social pressure) might increase this bias.





**probability  
/ belief biases**



# 35\* probability / belief biases

Quoted from [http://en.wikipedia.org/wiki/List\\_of\\_cognitive\\_biases](http://en.wikipedia.org/wiki/List_of_cognitive_biases)

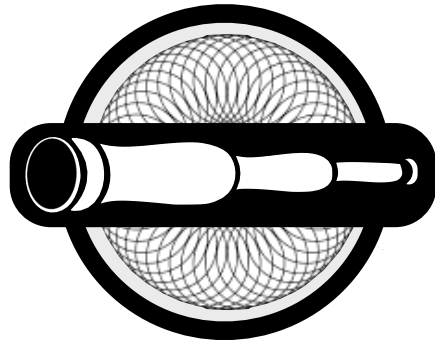
## Positive outcome bias

The tendency to overestimate the probability of good things happening to them (see also wishful thinking, optimism bias, and valence effect).



## Telescoping effect

The effect that recent events appear to have occurred more remotely and remote events appear to have occurred more recently.



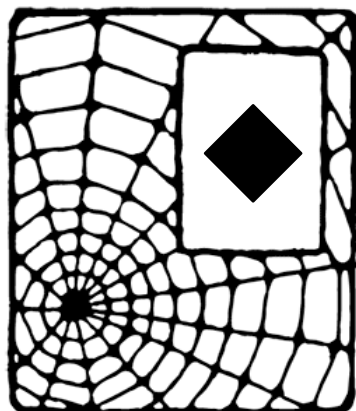
## Survivorship bias

The tendency to concentrate on the people or things that "survived" some process and ignoring those that didn't, or arguing that a strategy is effective given the winners, while ignoring the large amount of losers.



## Selection bias

A distortion of evidence or data that arises from the way that the data are collected.



# 35\* probability / belief biases



## Texas sharpshooter fallacy

The fallacy of selecting or adjusting a hypothesis after the data is collected, making it impossible to test the hypothesis fairly. Refers to the concept of firing shots at a barn door, drawing a circle around the best group, and declaring that to be the target.



## Pareidolia

A vague and random stimulus (often an image or sound) is perceived as significant, e.g., seeing images of animals or faces in clouds, the man in the moon, and hearing hidden messages on records played in reverse.



## Outcome bias

The tendency to judge a decision by its eventual outcome instead of based on the quality of the decision at the time it was made.



## Disregard of regression toward the mean

The tendency to expect extreme performance to continue.



# 35\* probability / belief biases

Quoted from [http://en.wikipedia.org/wiki/List\\_of\\_cognitive\\_biases](http://en.wikipedia.org/wiki/List_of_cognitive_biases)

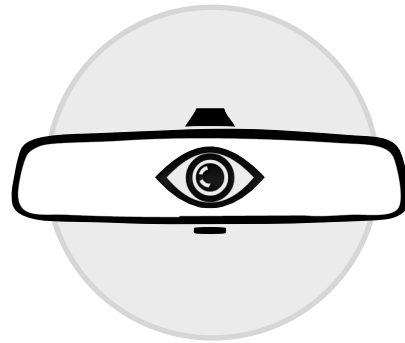
## Overconfidence effect

Excessive confidence in one's own answers to questions. For example, for certain types of question, answers that people rate as "99% certain" turn out to be wrong 40% of the time.



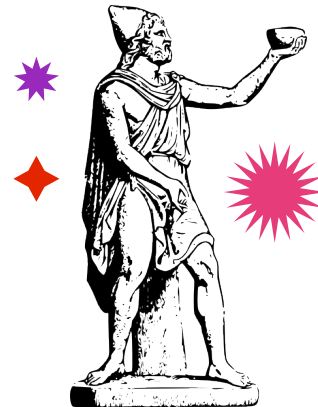
## Hindsight bias

Sometimes called the "I-knew-it-all-along" effect, the tendency to see past events as being predictable.



## Observer-expectancy effect

When a researcher expects a given result and therefore unconsciously manipulates an experiment or misinterprets data in order to find it (see also subject-expectancy effect).



## Hawthorne effect

The tendency to perform or perceive differently when one knows they are being observed.



# 35\* probability / belief biases

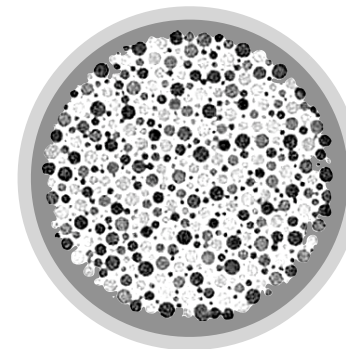
## Gambler's fallacy

The tendency to think that future probabilities are altered by past events, when in reality they are unchanged. Results from an erroneous conceptualization of the Law of large numbers. For example, "I've flipped heads with this coin five times consecutively, so the chance of tails coming out on the sixth flip is much greater than heads."



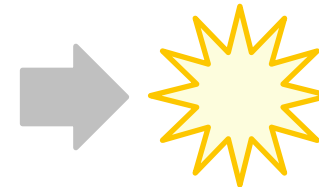
## Clustering illusion

The tendency to see patterns where actually none exist. Gilovich example: "OXXXOXXXOXXOOOXOXXOO"



## Illusory correlation

Beliefs that inaccurately suppose a relationship between a certain type of action and an effect.



## Last illusion

The belief that someone must know what is going on.





# 35\* probability / belief biases

Quoted from [http://en.wikipedia.org/wiki/List\\_of\\_cognitive\\_biases](http://en.wikipedia.org/wiki/List_of_cognitive_biases)

## Availability heuristic

Estimating what is more likely by what is more available in memory, which is biased toward vivid, unusual, or emotionally charged examples.



## Belief bias

An effect where someone's evaluation of the logical strength of an argument is biased by the believability of the conclusion.



## Ostrich effect

Ignoring an obvious (negative) situation.



## Attentional bias

The tendency to neglect relevant data when making judgments of a correlation or association.



## Disposition effect

The tendency to sell assets that have increased in value but hold assets that have decreased in value.

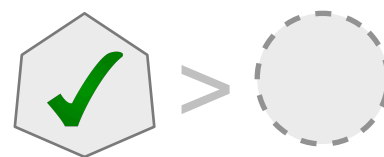


# 35\* probability / belief biases



## Availability cascade

A self-reinforcing process in which a collective belief gains more and more plausibility through its increasing repetition in public discourse (or "repeat something long enough and it will become true").



## Conjunction fallacy

The tendency to assume that specific conditions are more probable than general ones.



## Ambiguity effect

The tendency to avoid options for which missing information makes the probability seem "unknown".



## Capability bias

The tendency to believe that the closer average performance is to a target, the tighter the distribution of the data set.



## Authority bias

The tendency to value an ambiguous stimulus (e.g., an art performance) according to the opinion of someone who is seen as an authority on the topic.



# 35\* probability / belief biases

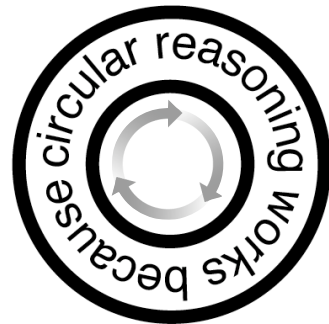
## Stereotyping

Expecting a member of a group to have certain characteristics without having actual information about that individual.



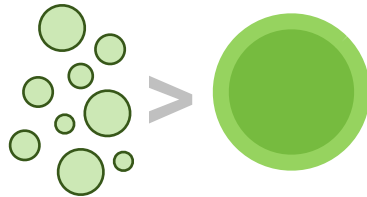
## Subjective validation

perception that something is true if a subject's belief demands it to be true. Also assigns perceived connections between coincidences.



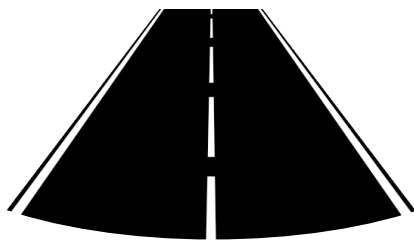
## Subadditivity effect

The tendency to judge probability of the whole to be less than the probabilities of the parts.



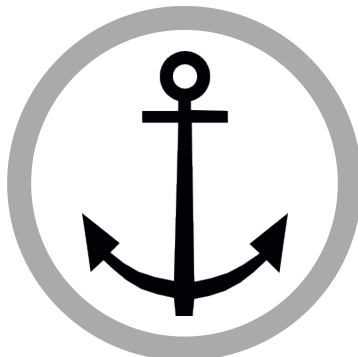
## Well travelled road effect

Underestimation of the duration taken to traverse off-traveled routes and over-estimate the duration taken to traverse less familiar routes.



## Anchoring effect

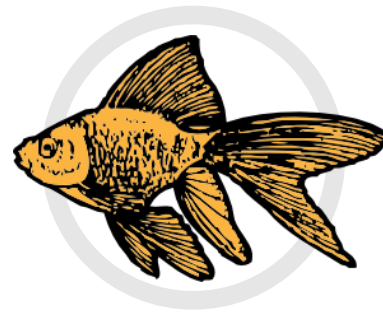
The tendency to rely too heavily, or "anchor," on a past reference or on one trait or piece of information when making decisions (also called "insufficient adjustment").



# 35\* probability / belief biases

## Recency effect / Peak-end rule

The tendency to weigh recent events more than earlier events.



## Primacy effect

The tendency to weigh initial events more than subsequent events.



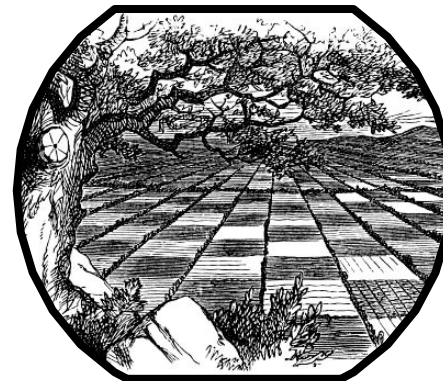
## Neglect of prior base rates effect

The tendency to neglect known odds when reevaluating odds in light of weak evidence.



## Optimism bias

The tendency to be over-optimistic about the outcome of planned actions.







If you are a cognitive expert, join “Operation Fix The Cognitive Bias Wiki!” Add your suggestion here: [http://en.wikipedia.org/wiki/Talk:List of cognitive biases](http://en.wikipedia.org/wiki/Talk:List_of_cognitive_biases).

This document will be updated periodically as the Wiki improves. Thank you for your interest!