



Heuristics & Biases

Description

In psychology, heuristics are simple, efficient rules which people often use to form judgments and make decisions. They are mental shortcuts that usually involve focusing on one aspect of a complex problem and ignoring others.

[More at Wikipedia](#)



Related References

Morvan, C., & Jenkins, B.. (2017). Judgment under uncertainty: Heuristics and biases. Judgment Under Uncertainty: Heuristics and Biases

Plain numerical DOI: 10.4324/9781912282562

DOI URL

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“Bibliographie p. [521] – 551. index. – autre(s) tirage(s) : 2007”

Kahneman, D., Slovic, P., Tversky, A., & Kahneman, D.. (1974). Judgment under Uncertainty – Heuristics and Biases. Science

Plain numerical DOI: 10.1126/science.185.4157.1124

DOI URL

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"This article described three heuristics that are employed in making judgements under uncertainty: (i) representativeness, which is usually employed when people are asked to judge the probability that an object or event belongs to class or process b; (ii) availability of instances or scenarios, which is often employed when people are asked to assess the frequency of a class or the plausibility of a particular development; and (iii) adjustment from an anchor, which is usually employed in numerical prediction when a relevant value is available. these heuristics are highly economical and usually effective, but they lead to systematic and predictable errors. a better understanding of these heuristics and of the biases to which they lead could improve judgements and decisions in situations of uncertainty."

Kahneman, D., & Tversky, A.. (1996). On the reality of cognitive illusions.. Psychological Review

Plain numerical DOI: 10.1037/0033-295X.103.3.582

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Show/hide publication abstract

"The study of heuristics and biases in judgement has been criticized in several publications by g. gigerenzer, who argues that 'biases are not biases' and 'heuristics are meant to explain what does not exist' (1991, p. 102). the article responds to gigerenzer's critique and shows that it misrepresents the authors' theoretical position and ignores critical evidence. contrary to gigerenzer's central empirical claim, judgments of frequency—not only subjective probabilities—are susceptible to large and systematic biases. a postscript responds to gigerenzer's (1996) reply."

Busenitz, L. W., & Barney, J. B.. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. Journal of Business Venturing

Plain numerical DOI: 10.1016/S0883-9026(96)00003-1

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"The purpose of this study was to further explore differences between entrepreneurs and managers in large organizations. however, rather than focusing on previously examined individual differences, this study examined differences in the decision-making processes used by entrepreneurs and managers in large organizations. building on nonrational decision-making models from behavioral decision theory, we asserted that entrepreneurs are more susceptible to the use decision-making biases and heuristics than are managers in large organizations. to understand why entrepreneurs and managers in large organizations may vary in the extent to which they manifest biases and heuristics in their decision-making, it is important to understand the utility of nonrational decision-making. under conditions of environmental uncertainty and complexity, biases and heuristics can be an effective and efficient guide to decision-making. in such settings, more comprehensive and cautious decision-making is not possible, and biases and heuristics may provide an effective way to approximate the appropriate decisions. the use of heuristics has also been found to be associated with innovativeness. perhaps a critical difference between these sets of individuals is the extent to which they manifest biases and



heuristics in their decision-making. we examined differences between entrepreneurs and managers in large organizations with respect to two biases and heuristics: overconfidence (overestimating the probability of being right) and representativeness (the tendency to overgeneralize from a few characteristics or observations). in this study, entrepreneurs are those who have founded their own firms and are currently involved in the start-up process with the average time since founding of 1.7 years. the analysis for this study involved responses from 124 entrepreneurs. managers are individuals with middle to upper level responsibilities with substantial oversight in large organizations. to be included in this study, the managers had to oversee at least two functional areas (sample average was 4.55 functional areas). usable responses were received from 95 managers. the results from the logistic regression analysis show strong support for both hypotheses. even after controlling for numerous factors, such as several traits and demographic factors, enduring support was found for the way entrepreneurs and managers in large organizations make decisions. our overconfidence and representativeness..."

Benartzi, S., & Thaler, R. H.. (2007). Heuristics and Biases in Retirement Savings Behavior. *Journal of Economic Perspectives*

Plain numerical DOI: 10.1257/jep.21.3.81

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"A ll around the world, in both the public and private sectors, retirement plans are shifting away from 'defined benefit' plans toward 'defined contribution' plans.1 poterba, venti, and wise (2006), for example, fol- lowed the cohort of americans who were 45 years old in 1984 and report a decrease in defined benefit plan coverage from about 40 percent to 20 percent and a corresponding increase in defined contribution plan coverage from about 5 percent to more than 30 percent. defined contribution plans have many attrac- tive features for participants, such as portability and flexibility, but these attractions come with an increased responsibility to choose wisely. the plans also provide economists with an attractive domain in which to study saving behavior. the standard economic theories of saving (like the life-cycle or permanent income models) contain three embedded rationality assumptions, one explicit and two implicit. the explicit assumption is that savers accumulate and then decumu- late assets to maximize some lifetime utility function (possibly including bequests). the first implicit assumption is that households have the cognitive ability to solve the necessary optimization problem. the second implicit assumption is that the households also have sufficient willpower to execute this optimal plan.both of the implicit assumptions are suspect. even among economists, few spend much time calculating a personal optimal savings rate, given the uncertain- ties about future rates of return, income flows, retirement plans, health, and so forth. instead, most people cope by adopting simple heuristics, or rules of thumb. however, psychology teaches that such heuristics, though often useful and accu- rate, can lead to systematic biases (gilovich, griffen, and kahneman, 2002). in this paper, we investigate both the heuristics and the biases that emerge in the area of retirement savings. we do not discuss how to determine whether people are saving enough for retirement; that topic is covered in a companion paper by jonathan skinner in this issue. instead, we examine the decisions employees make about whether to join a savings plan, how much to contribute, and how to invest. we then discuss the possible role of interventions aiming to improve retirement decision making,"

Bottom, W. P.. (2004). Heuristics and Biases: The Psychology of Intuitive Judgment.. *Academy of*



Management Review

Plain numerical DOI: 10.5465/AMR.2004.14497675

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"A review is presented of the book 'heuristics and biases: the psychology of intuitive judgment,' edited by thomas gilovich, dale griffin, and daniel kahneman."

Gigerenzer, G.. (1991). How to make Cognitive Illusions Disappear: Beyond "Heuristics and Biases". European Review of Social Psychology

Plain numerical DOI: 10.1080/14792779143000033

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"Most so-called 'errors' in probabilistic reasoning are in fact not violations of probability theory. examples of such 'errors' include overconfidence bias, conjunction fallacy, and base-rate neglect. research-ers have relied on a very narrow normative view, and have ignored conceptual distinctions—for example, single case versus relative frequency—fundamental to probability theory. by recognizing and using these distinctions, however, we can make apparently stable 'errors' disappear, reappear, or even invert. i suggest what a reformed understanding of judgments under uncertainty might look like."

Dale, S.. (2015). Heuristics and biases. Business Information Review

Plain numerical DOI: 10.1016/S0021-9673(98)00665-7

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"Characteristic features of the throughout-capillary technique of in-capillary derivatization for capillary electrophoretic analysis were explored using a rapid derivatization model. selected amino acids (phenylalanine, glycine and glutamic acid) were converted to their opa derivatives, while they were moving through an electrophoretic solution containing opa in the electric field, and the resultant opa-amino acids were concurrently analyzed by zone electrophoresis with uv detection. a deep trough appeared based on sample-reagent displacement, and the base line was noisy and drifts, especially at high reagent concentrations. peaks were fronting and peak width varied among amino acid species, presumably due to the variation of the difference in velocity between an amino acid and its opa derivative. however, the throughout-capillary technique is the simplest of all techniques of pre-capillary and in-capillary derivatizations, and there was good linearity between relative peak area and amino acid concentration. the quantification was reproducible with r.s.d.~3.5%. the rate constant of the derivatization reaction could be roughly estimated by plotting logarithm of amino acid concentration vs.



reaction time. the obtained values were approximately identical with the values obtained by the zone-passing technique. this paper also compares this technique with other techniques of in-capillary derivatization with respect to peak area, signal-to-noise ratio and column efficiency. copyright (c) 1998 elsevier science b.v."

Kahneman, D.. (2016). Heuristics and biases. In Scientists Making a Difference: One Hundred Eminent Behavioral and Brain Scientists Talk about their Most Important Contributions

Plain numerical DOI: 10.1017/CBO9781316422250.038

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"Applicability for this approach."

Horowitz, I.. (1984). Judgement under Uncertainty: Heuristics and Biases (Book). Interfaces

Plain numerical DOI: 10.1126/science.185.4157.1124

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"This article described three heuristics that are employed in making judgements under uncertainty: (i) representativeness, which is usually employed when people are asked to judge the probability that an object or event belongs to class or process b; (ii) availability of instances or scenarios, which is often employed when people are asked to assess the frequency of a class or the plausibility of a particular development; and (iii) adjustment from an anchor, which is usually employed in numerical prediction when a relevant value is available. these heuristics are highly economical and usually effective, but they lead to systematic and predictable errors. a better understanding of these heuristics and of the biases to which they lead could improve judgements and decisions in situations of uncertainty."

Park, C. W., & Lessig, V. P.. (1981). Familiarity and Its Impact on Consumer Decision Biases and Heuristics. Journal of Consumer Research

Plain numerical DOI: 10.1086/208859

[DOI URL](#)

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"The impact of familiarity on consumer decision biases and heuristics is examined. subjects at three different familiarity levels revealed interesting differences in perceptual category breadth, usage of functional and nonfunctional product dimensions, decision time, and confidence."

Gilovich, T., & Griffin, D. W.. (2004). Introduction – Heuristics and Biases: Then and Now. In Heuristics and Biases: The Psychology of Intuitive Judgment

Plain numerical DOI: 10.5465/AMR.2004.14497675



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"A review is presented of the book 'heuristics and biases: the psychology of intuitive judgment,' edited by thomas gilovich, dale griffin, and daniel kahneman."

Blumenthal-Barby, J. S., & Krieger, H.. (2015). Cognitive biases and heuristics in medical decision making: A critical review using a systematic search strategy. Medical Decision Making

Plain numerical DOI: 10.1177/0272989X14547740

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"Background. the role of cognitive biases and heuristics in medical decision making is of growing interest. the purpose of this study was to determine whether studies on cognitive biases and heuristics in medical decision making are based on actual or hypothetical decisions and are conducted with populations that are representative of those who typically make the medical decision; to categorize the types of cognitive biases and heuristics found and whether they are found in patients or in medical personnel; and to critically review the studies based on standard methodological quality criteria. method. data sources were original, peer-reviewed, empirical studies on cognitive biases and heuristics in medical decision making found in ovid medline, psycinfo, and the cinahl databases published in 1980–2013. predefined exclusion criteria were used to identify 213 studies. during data extraction, information was collected on type of bias or heuristic studied, respondent population, decision type, study type (actu..."

Stanovich, K. E., & West, R. F.. (2008). On the Relative Independence of Thinking Biases and Cognitive Ability. Journal of Personality and Social Psychology

Plain numerical DOI: 10.1037/0022-3514.94.4.672

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"In 7 different studies, the authors observed that a large number of thinking biases are uncorrelated with cognitive ability. these thinking biases include some of the most classic and well-studied biases in the heuristics and biases literature, including the conjunction effect, framing effects, anchoring effects, outcome bias, base-rate neglect, 'less is more' effects, affect biases, omission bias, myside bias, sunk-cost effect, and certainty effects that violate the axioms of expected utility theory. in a further experiment, the authors nonetheless showed that cognitive ability does correlate with the tendency to avoid some rational thinking biases, specifically the tendency to display denominator neglect, probability matching rather than maximizing, belief bias, and matching bias on the 4-card selection task. the authors present a framework for predicting when cognitive ability will and will not correlate



with a rational thinking tendency. (psycinfo database record (c) 2016 apa, all rights reserved)"
Prentice, R.. (2004). Teaching ethics, heuristics and biases. Journal of Business Ethics Education

Plain numerical DOI: 10.5840/jbee2004117

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"Although economists often model decision makers as rational actors, the heuristics and biases literature that springs from the work of nobel prize winner daniel kahneman and his late colleague amos tversky demonstrates that people make decisions that depart from the optimal model in systematic ways. these cognitive and behavioral limitations not only cause inefficient decision making, but also lead people to make decisions that are unethical. this article seeks to introduce a selected portion of the heuristics and biases and related psychological literature, to highlight its implications for ethical decision making, and to serve as the basis for a lecture that could inform students regarding these matters. if business actors are on guard against errors in their own decision making processes, perhaps they can avoid some of the ethical pitfalls that recently put enron and so many other companies in the news. [publication abstract]"

Tversky, A., & Kahneman, D.. (1974). Judgment under Uncertainty : Heuristics and Biases Linked references are available on JSTOR for this article : Judgment under Uncertainty : Heuristics and Biases . Science

Plain numerical DOI: 10.1126/science.185.4157.1124

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"This article describes the pathophysiology of, and treatment strategy for, cerebral ischemia. it is useful to think of an ischemic lesion as a densely ischemic core surrounded by better perfused 'penumbra' tissue that is silent electrically but remains viable. reperfusion plays an important role in the pathophysiology of cerebral ischemia. magnetic resonance imaging (mri) and histological studies in rat focal ischemia models using transient middle cerebral artery (mca) occlusion indicate that reperfusion after an ischemic episode of 2- to 3-hour duration does not result in reduction of the size of the infarct. brief occlusion of the mca produces a characteristic, cell-type specific injury in the striatum where medium-sized spinous projection neurons are selectively lost; this injury is accompanied by gliosis. transient forebrain ischemia leads to delayed death of the ca1 neurons in the hippocampus. immunohistochemical and biochemical investigations of ca2+/calmodulin-dependent protein kinase ii(cam kinase ii) and protein phosphatase (calcineurin) after transient forebrain ischemia demonstrated that the activity of cam kinase ii was decreased in the ca1 region of the hippocampus early (6-12 hours) after ischemia. however, calcineurin was preserved in the ca1 region until 1.5 days after the ischemic insult and then lost; a subsequent increase in the morphological degeneration of neurons was observed. we hypothesized that an imbalance of ca2+/calmodulin dependent protein phosphorylation-dephosphorylation may be involved in delayed neuronal death after ischemia. in the treatment of acute ischemic stroke, immediate recanalization of the occluded artery, using systemic or local thrombolysis, is optimal for restoring the blood flow and rescuing the ischemic brain from complete infarction.



however, the window of therapeutic effectiveness is very narrow. the development of effective neuroprotection methods and the establishment of reliable imaging modalities for an early and accurate diagnosis of the extent and degree of the ischemia are imperative."

Kahneman, D., & Klein, G.. (2009). Conditions for Intuitive Expertise: A Failure to Disagree. American Psychologist

Plain numerical DOI: 10.1037/a0016755

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"This article reports on an effort to explore the differences between two approaches to intuition and expertise that are often viewed as conflicting: heuristics and biases (hb) and naturalistic decision making (ndm). starting from the obvious fact that professional intuition is sometimes marvelous and sometimes flawed, the authors attempt to map the boundary conditions that separate true intuitive skill from overconfident and biased impressions. they conclude that evaluating the likely quality of an intuitive judgment requires an assessment of the predictability of the environment in which the judgment is made and of the individual's opportunity to learn the regularities of that environment. subjective experience is not a reliable indicator of judgment accuracy."

Strough, J., Karns, T. E., & Schlosnagle, L.. (2011). Decision-making heuristics and biases across the life span. Annals of the New York Academy of Sciences

Plain numerical DOI: 10.1111/j.1749-6632.2011.06208.x

[DOI URL](#)

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"We outline a contextual and motivational model of judgment and decision-making (jdm) biases across the life span. our model focuses on abilities and skills that correspond to deliberative, experiential, and affective decision-making processes. we review research that addresses links between jdm biases and these processes as represented by individual differences in specific abilities and skills (e.g., fluid and crystallized intelligence, executive functioning, emotion regulation, personality traits). we focus on two jdm biases-the sunk-cost fallacy (scf) and the framing effect. we trace the developmental trajectory of each bias from preschool through middle childhood, adolescence, early adulthood, and later adulthood. we conclude that life-span developmental trajectories differ depending on the bias investigated. existing research suggests relative stability in the framing effect across the life span and decreases in the scf with age, including in later life. we highlight directions for future research on jdm biases across the life span, emphasizing the need for process-oriented research and research that increases our understanding of jdm biases in people's everyday lives."

Toplak, M. E., West, R. F., & Stanovich, K. E.. (2011). The Cognitive Reflection Test as a predictor of performance on heuristics-and-biases tasks. Memory and Cognition



Plain numerical DOI: 10.3758/s13421-011-0104-1

[DOI URL](#)

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"The cognitive reflection test (crt; frederick, 2005) is designed to measure the tendency to override a prepotent response alternative that is incorrect and to engage in further reflection that leads to the correct response. in this study, we showed that the crt is a more potent predictor of performance on a wide sample of tasks from the heuristics-and-biases literature than measures of cognitive ability, thinking dispositions, and executive functioning. although the crt has a substantial correlation with cognitive ability, a series of regression analyses indicated that the crt was a unique predictor of performance on heuristics-and-biases tasks. it accounted for substantial additional variance after the other measures of individual differences had been statistically controlled. we conjecture that this is because neither intelligence tests nor measures of executive functioning assess the tendency toward miserly processing in the way that the crt does. we argue that the crt is a particularly potent measure of the tendency toward miserly processing because it is a performance measure rather than a self-report measure."

West, R. F., Toplak, M. E., & Stanovich, K. E.. (2008). Heuristics and Biases as Measures of Critical Thinking: Associations with Cognitive Ability and Thinking Dispositions. *Journal of Educational Psychology*

Plain numerical DOI: 10.1037/a0012842

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" In this article, the authors argue that there are a range of effects usually studied within cognitive psychology that are legitimately thought of as aspects of critical thinking: the cognitive biases studied in the heuristics and biases literature. in a study of 793 student participants, the authors found that the ability to avoid these biases was moderately correlated with a more traditional laboratory measure of critical thinking—the ability to reason logically when logic conflicts with prior belief. the correlation between these two classes of critical thinking skills was not due to a joint connection with general cognitive ability because it remained statistically significant after the variance due to cognitive ability was partialled out. measures of thinking dispositions (actively open-minded thinking and need for cognition) predicted unique variance in both classes of critical thinking skills after general cognitive ability had been controlled. (psycinfo database record (c) 2010 apa, all rights reserved)"

Petersen, M. B.. (2015). Evolutionary political psychology: On the origin and structure of heuristics and biases in politics. *Political Psychology*

Plain numerical DOI: 10.1111/pops.12237

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"People decide on political issues by the use of judgmental short cuts called heuristics. what are the origins of these political heuristics? traditionally, heuristics have been viewed as learned from the structure of elite debates. in this article, i outline a different view: that many political heuristics are evolved, biological adaptations that evolved to help our ancestors deal with political problems in small-scale social groups. by analyzing these evolved origins, it is possible to develop novel, testable predictions on the structure of political heuristics. this argument is illustrated through an extensive review of studies on the structure of the so-called deservingness heuristic. the article concludes by outlining four principles that should guide future research on heuristics in political psychology."

Category

1. General

Date Created

November 2018

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