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COLLECTION



## Kahneman in Quotes and Reflections

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### ABSTRACT

In this retrospective honoring the exemplary psychologist Daniel Kahneman (1934–2024), the authors present a curated selection of quotes from the academic community reflecting on his ideas. These submissions, gathered from a wide range of scholars, highlight Kahneman's contributions to fields spanning attention, judgment, decision-making, and well-being. From his exploration of cognitive biases to his groundbreaking work on prospect theory, Kahneman's research revolutionized researchers' understanding of human behavior and decision-making. Beyond his research, many quotes also emphasize Kahneman's thoughts on what it means to be a behavioral scientist—focusing on a commitment to criticism, transparency, and adversarial collaboration; showcasing the dynamic nature of scientific inquiry across disciplinary divides; and highlighting his dedication to advancing the greater good. Together, these reflections paint a portrait of a visionary thinker whose theoretical and meta-scientific contributions have left an indelible mark on psychology and other social sciences.

### KEYWORDS

Kahneman; prospect theory; adversarial collaboration; credibility; theory-induced blindness; affect heuristic; biases

### I hope that more efficient procedures for the conduct of controversies will be part of my legacy. (Kahneman & Smith, *n.d.*, p. 1)

To me, Professor Kahneman's advocacy for “adversarial collaboration” stands out as one of his most notable and impactful contributions to science. It stands as a refreshing departure from what he aptly terms “angry science,” in which opposing scholars engage in a competitive spectacle aimed at scoring points and undermining each other. Instead, adversarial collaboration promotes constructive discussion and cooperation among adversaries in the face of academic controversies, guiding them toward a shared pursuit of truth.

At its core, this approach rests on three principles: first, a dedication to articulating each other's perspectives in good faith; second, a joint effort to design studies that fairly test competing ideas; and third, a commitment to publishing the results regardless of the outcome. By necessitating the rigorous testing

of hypotheses and transparency, adversarial collaboration reduces blind spots, mitigates biases, and curtails questionable research practices. In doing so, it advances scientific inquiry, yielding more reliable and robust insights for all involved.

Over the years, Professor Kahneman has engaged in adversarial collaborations with some of his fiercest opponents. Collaborations like those with Gary Klein have yielded nuanced insights into the boundary conditions of intuitive expertise, while others have presented more challenges. Yet, even in cases in which consensus was not achieved, these collaborations sparked enriching discussions and contributed to scientific knowledge.

In an era marked by escalating polarization and dwindling civility, the significance of adversarial collaboration is more pertinent than ever. By transcending theoretical divides and fostering constructive engagement, it serves as a beacon of hope for the advancement of science and the

pursuit of truth. It is no surprise that Professor Kahneman, amid his immense contributions, envisions adversarial collaboration as part of his illustrious legacy.

*Submitted by Qiao Kang Teo  
Department of Psychology, National University  
of Singapore, Singapore*

**The unusually high openness to scrutiny may be annoying and even offensive, but it is a small price to pay for the big prize of restored credibility. (Kahneman, 2012, p. 1)**

Embarking on an academic career, many of us dream of contributing to society and effecting positive change, inspired by luminaries like Newton and Einstein. These figures stand as monumental heroes, symbols of what we aspire to achieve. Their stories, not just their discoveries, fuel our ambition and pride in our work. Yet, when our research faces intense scrutiny, it can feel like a personal affront, threatening the very pride we've cultivated in our achievements.

Kahneman's perspective offers a transformative realization: It's not the individual, but their contributions to the collective knowledge that truly matter. Newton and Einstein are revered not merely for their personas but for how their work propelled humanity forward, offering us a deeper understanding of the universe. Their legacy is not in their fame but in the societal advancements their discoveries enabled, which reminds us that science thrives on collective progress rather than individual recognition. This realization demands that we detach from our work. Accepting that our theories might be eclipsed by better ones is not a defeat but a contribution to the greater body of knowledge. In this process, the ego takes a backseat to the pursuit of truth.

Kahneman also highlights the critical role of credibility in science. Our contributions gain significance only when the public, from the average Joe to Yehor and Chen, trusts in their validity. The pandemic starkly illustrated this: Despite the swift development of vaccines, skepticism prevailed among many. To counter this, a portion of our ego must be sacrificed for the greater good, emphasizing that detachment from personal accolades is crucial for fostering trust and advancing society.

*Submitted by Michał Białek  
Institute of Psychology, University of Wrocław,  
Wrocław, Poland*

**I call it theory-induced blindness: Once you have accepted a theory and used it as a tool in your thinking, it is extraordinarily difficult to notice its flaws. If you come upon an observation that does not seem to fit the model, you assume that there must be a perfectly good explanation that you are somehow missing. (Kahneman, 2011a, p. 277)**

Thanks to Kahneman's work, we may have come to terms with our own cognitive biases. However, it is still disquieting when one considers the extent of their impact on

science. Consider the replication crisis: We were slow to acknowledge that our methods had flaws, and, even today, replication efforts remain poorly incentivized. We excel at coming up with justifications for our findings rather than questioning them. We tend to think, "There must be a reason they can't be reproduced, but the effect still exists." Combine this with overconfidence and confirmation bias, and you have a recipe for extremely stubborn minds that overlook evidence more rational minds would not.

Initially met with lukewarm reception by psychologists and outright coldness by economists, prospect theory nowadays commands the respect that comes with a Nobel Prize. Economists are finally listening to behavioral scientists. However, despite hard-to-ignore evidence, it took years for the acceptance that expected utility theory might not accurately describe human behavior. We scientists must admit that we are reluctant to embrace change and update our beliefs. All of this makes scientific progress slow.

Scholars are now identifying flaws in prospect theory. Sufficient time has passed for it to stir theory-induced blindness too, and I wonder whether we will fall victim to the same cognitive biases. What makes me hopeful is that behavioral economics is a field born from challenging preexisting theories. Could this be optimism bias? Perhaps. Yet, even Kahneman, a natural pessimist, has acknowledged that optimism takes you places too.

*Submitted by Ángela Jiang-Wang  
Luxembourg Institute of Socio-Economic Research (LISER),  
Esch-sur-Alzette, Luxembourg*

**This true story [about flight instructor] illustrates a saddening aspect of the human condition. We normally reinforce others when their behavior is good and punish them when their behavior is bad. By regression alone, therefore, they are most likely to improve after being punished and most likely to deteriorate after being rewarded. Consequently, we are exposed to a lifetime schedule in which we are most often rewarded for punishing others, and punished for rewarding. (Kahneman & Tversky, 1973, p. 251)**

Kahneman and Tversky's (1973) paper not only challenges intuitive predictions with the representativeness heuristic but also illuminates the common oversight of regression-to-the-mean, a principle vividly illustrated through Kahneman's conversation with a flight instructor. This concept, while statistically fundamental, reveals unsettling truths about human judgment and superstitious learning.

The implications of ignoring regression-to-the-mean are widespread and documented in subsequent studies. For instance, firms celebrating their leaders as "best CEOs" often witness a decline in performance following their accolades. Sports teams that replace their coaches due to poor performance frequently see an uptick. The performance changes are not necessarily due to CEOs becoming complacent or new coaches saving the day but to statistical regression from high or low performances.

Despite compelling evidence, the allure of causal narratives often overshadows regression-to-the-mean. This tendency to seek explanations beyond randomness reflects a deep-seated human need, even in the face of contrary evidence. However, the increasing interest in regression-to-the-mean, according to Google Trends, notably since Kahneman's *Thinking, Fast and Slow*, suggests a growing appreciation for statistical principles in understanding human behavior and decision-making. This gradual shift toward acknowledging statistical regression's role offers hope for more informed interpretations of success, failure, and the dynamics of change. The power of the idea prevails over the regression of regression-to-the-mean.

*Submitted by Chengwei Liu  
Imperial College London, London, UK*

**The illusion that we understand the past fosters overconfidence in our ability to predict the future. (Kahneman, 2011a, p. 212)**

Daniel Kahneman holds the title of being my “academic grandfather.” I had the honor of being supervised during my doctoral thesis by Bradley Ruffle, who was mentored by Kahneman during his time at Princeton University. The extent of Kahneman's impact on research can be measured by the multitude of citations his work has garnered. Google Scholar records indicate that his papers and books have been cited a total of 530,146 times over the years.

One of the concepts emphasized in Kahneman's research is overconfidence. Overconfidence may appear as a trivial and insignificant human weakness. Nonetheless, this quote from Kahneman's book *Thinking, Fast and Slow* underscores the significance of this concept: “The illusion that we understand the past fosters overconfidence in our ability to predict the future.”

Before the research conducted by Kahneman and his coauthor Amos Tversky, economic models were predicated on the assumption of “rational actors,” meaning that individuals' financial decisions were believed to be made rationally to maximize personal profits as much as possible. Kahneman and Tversky demonstrated that this assumption is not entirely accurate and that various influences, sometimes challenging to predict, play a role in our decisions.

Another example is provided by economic forecasts, which frequently depend on historical economic data and models to anticipate future economic conditions, covering aspects such as GDP growth, inflation rates, and unemployment levels. Relying excessively on past economic trends can lead to overly optimistic or pessimistic forecasts, potentially resulting in policy errors and missed opportunities for intervention.

*Submitted by Zeev Shtudiner  
Economics and Business Administration Department,  
Ariel University, Ariel, Israel*

**The affect heuristic is an instance of substitution, in which the answer to an easy question (How do I feel**

**about it?) serves as an answer to a much harder question (What do I think about it?). (Kahneman, 2011b, p. 1)**

Affect and emotion were central to Danny Kahneman's work, from his early studies on attention and effort to the development of prospect theory (initially intended to be called regret theory), the heuristics and biases program, the discovery of the peak-end rule, his research on hedonic well-being, and ultimately the concept of “System 1.” Yet, Kahneman never explicitly labeled any of the effects he studied as the “affect heuristic”; instead, his longtime friend and collaborator, Paul Slovic, coined the term. I'd like to believe that this is because Kahneman treated affect as integral to many of the problems he explored throughout his career. As the quote above suggests, Kahneman regarded the affect heuristic as one of the all-purpose heuristics (along with representativeness and availability) and perhaps the best example of attribute substitution, where affect (the associated attribute) tends to be more accessible and salient than most target attributes. The substitution of the target attribute with affective feelings often goes undetected by System 2, thus exerting a significant influence on many of our everyday judgments and decisions. This substitution process can be heuristic and mostly helpful, but at times it biases behavior. Therefore, it might be fitting to consider the role of affect in judgments and decisions as “affect, good and bad.” Kahneman's work has been central in advancing our understanding of the interplay between affect and cognition in judgments and decisions and its implications for behavioral interventions and public policy. When I read and teach about Kahneman, I see affect everywhere in his work. I like to believe that Danny would have agreed.

*Submitted by Daniel Västfjäll  
Department of Behavioral Sciences and Learning, Linköping  
University, Linköping, Sweden; Decision Research, Eugene,  
Oregon, USA*

**Nothing in life is as important as you think it is when you are thinking about it. (Kahneman, 2011b, p. 1)**

This statement is about what Daniel Kahneman calls “the focusing illusion”: the idea that some aspect of life is a major contributor to well-being, which often turns out to be an illusion, created because you are focusing on that aspect of life at the time. Consider, for example, the question of whether you would be happier living in Miami or instead Chicago. If you focus on weather, you might think that you would be happier in Miami; it's much warmer there. But for most people, weather has little or no impact on happiness. Most of the time, people's happiness is a product of numerous other things: their relationships, their work, their wealth, their health. If you are thinking about weather, a car, or a restaurant, you will likely exaggerate its impact on your well-being.

Kahneman was keenly interested in attention, and his work on the focusing illusion was connected with that interest. Hedonic forecasting errors may well be a product of the



focusing illusion. You might wrongly think that some change—a new job, a new city—will have a large effect on your state of mind, simply because you are focusing on that change.

*Submitted by Cass Sunstein  
Harvard Law School, Cambridge, Massachusetts, USA*

**Nothing in life is as important as you think it is while thinking about it. (Kahneman, 2011b, p. 1)**

Danny often summarized the focusing illusion in the pithy format of a Chinese fortune cookie. It is an insight to heed in daily life: Many things seem extremely important and elicit intense feelings while we focus on them—and once attention moves elsewhere, importance, pain, and pleasure fade. Unfortunately, we rarely remember that insight when we need it most—in thrall of what we focus on.

*Submitted by Norbert Schwarz  
Mind & Society Center, University of Southern  
California, Los Angeles, California, USA*

**[1] The moment-based approach raises a question that should not be dismissed too lightly. How much time will be spent in such consumption of memories relative to the duration of the original experience? The weight of memory relative to actual experience is likely to be reduced when time is taken seriously ... [2] Because memories and stories of the past are all we ultimately get to keep, memory and stories often appear to be all that matters ... [3] Although wholly devoid of permanence, the experiencing subject deserves a voice. (Kahneman, 2000, p. 691–692)**

Many know that Daniel Kahneman described himself as the grandfather of behavioral economics, but perhaps few know that he also regarded himself as the intellectual grandson of Kurt Lewin, the father of social psychology. At least, that was how he described himself in our final correspondence in 2022. Danny's self-description reflects keen self-insight for much of his work indeed reveals a deep appreciation of Lewinian tension systems. His exploration of experienced utility provides a poignant example. As many know, Danny drew an important distinction between moment utility, the utility experienced in discrete time slices of the moving present, and remembered utility, the utility we reconstruct looking back on hedonic experiences. But, as Quote 1 reveals, he went much further, encouraging us to grapple with the psychological tension between these irreconcilable perspectives and with how much weight each should receive. He eschewed oversimplification, acknowledging—as Quote 2 suggests—that weight must also reflect qualitative considerations, such as the value of meaning imbued in episodic memory. Yet, in true dialectical style, he returns to the tension, imploring us in Quote 3 to give voice to the perspective of the fleeting underdog. Let's remember that the grandfather of behavioral economics was also a

skillful neo-Lewinian practiced in the art of exposing psychological tension systems.

*Submitted by David Mandel,  
Department of Psychology, University of Waterloo, Waterloo,  
Ontario, Canada; Department of Psychology, York University,  
Toronto, Ontario, Canada*

**Because people are limited in their ability to comprehend and evaluate extreme probabilities, highly unlikely events are either ignored or overweighted, and the difference between high probability and certainty is either neglected or exaggerated. Consequently,  $\pi$  is not well-behaved near the end-points. (Kahneman & Tversky, 1979)**

This is admittedly not the most inspiring or the most groundbreaking thing that Danny has ever written or said. Rather, it is simply a reiteration of an empirical fact and a brief explanation of how it is expressed in the context of prospect theory (subsequently restated for cumulative prospect theory). I chose to emphasize this quote, not because it is an important aspect of the theory (although it is) but because I think it illustrates an important point that we should all bear in mind when looking back at Danny's work.

Because—hand over heart—how many of us actually know that  $\pi$  is not well behaved near the end points? I certainly did not, until I read the original paper. This is a risk we inevitably run into when a theory becomes as successful and as widely cited as cumulative prospect theory; the basic components of the theory—in this case, the statement that small probabilities are overweighted—are cited and referenced so often that we are led to believe that is the extent of what the theory implies. As such, we might end up believing that we “know” the theory without even reading the original work, meaning that references to the theory might become watered down, simplified, or simply incorrect. This is not just bad for research; it is also disrespectful to the original authors. Danny left behind a treasure trove of excellent research. We owe it to him to treat this inheritance with respect, by reading the original works and representing them properly.

*Submitted by Joakim Sundh  
Department of Psychology, Uppsala University,  
Uppsala, Sweden*

**The mathematical psychologists who participated in the survey not only should have known better—they did know better. Although their intuitive guesses were off the mark, most of them could have computed the correct answers on the back of an envelope.**

In their 2002 paper that reconceptualized (most) judgment heuristics as the product of “attribute substitution,” Kahneman and Frederick described the failure of members of the Mathematical Psychology Society to give sufficient weight to sample size when making statistical estimates.

Their words, in turn, capture a key finding from the heuristics and biases program of research: that many of our most common errors of judgment result, as the economist Matthew Rabin put it, “not because the right answers are so complex ... [but] because the wrong answers are so enticing” (Rabin, 2013). That perspective is important because it has proven to be unusually effective in disarming frequently encountered objections to Kahneman and Tversky’s research: “People aren’t that stupid” or “Things are different in the real world, where the stakes are higher than in the lab.” Tellingly, even those who raise such objections will confess to having whatever rational analysis they might have conducted in response to some challenging problem beaten to the punch by a compelling intuitive assessment. More broadly, Kahneman and Frederick’s words also highlight the utility of the two systems perspective on judgment and decision-making, even to those critics who take a dim view of such an approach. Although critics offer several reasons for their skepticism (parsimony among them), even two-systems skeptics often find themselves using two-systems language. Indeed, I wish I had a dollar for every time I’ve heard a behavioral scientist say, “I don’t believe in the two-systems idea, but ...”

*Submitted by Thomas Gilovich  
Department of Psychology, Cornell University,  
Ithaca, New York, USA*

**In his consideration of evidence, man is not a conservative Bayesian, he is not Bayesian at all. (Kahneman & Tversky, 1972)**

Looking beyond the sexist language of the time, this sentence—uttered more than 50 years ago—was a plea to recognize the limitations of humanity, a step helpful in overcoming those limitations. The brilliance of Kahneman and Tversky was to show, in the most direct and unassailable ways, not that people are inherently irrational (irrationality depends on one’s goals and can be overcome) but that individual thinking deviates systematically from normative prescription. Not only did they demonstrate that people violate the most basic principles of good judgment, but they revealed what the cognitive system is actually doing (following principles of similarity and availability in memory). To do the right thing, people need help. They need the help of normative theories, of other people, and of social institutions.

When I look at what’s going on in the world, it could not be more obvious that individuals—and some communities—have beliefs and behaviors that are (to put it mildly) counternormative. I have never really overcome the shock that instead of taking Kahneman and Tversky’s insights as a starting point, many psychologists have instead insisted that we should use a rational analysis to model human behavior. It’s not that people are necessarily irrational; it’s that, if we are going to build a science of human behavior that provides a service to society, we need to recognize the way the system is built, how it is adaptive, and how it is not. I take it as some justification for their project that the non-human

systems that are most like humans—large-language models (LLMs)—are built from the same core principles as those identified by Kahneman and Tversky.

*Submitted by Steven Sloman  
Cognitive and Psychological Sciences, Brown University,  
Providence, Rhode Island, USA*

**Irrational is a strong word, which connotes impulsivity, emotionality, and a stubborn resistance to reasonable argument. I often cringe when my work with Amos is credited with demonstrating that human choices are irrational, when in fact our research only showed that Humans are not well described by the rational-agent model. (Kahneman, 2011b)**

When reflecting on Kahneman’s legacy to the field, it is important to override what many take to be the intuitive implication of his work: that people are irredeemably irrational. As Kahneman consistently argued, the implication of his work is that humans are (simply) not rational. This is a subtle but important distinction. Being irrational is different from not being rational; someone who is irrational cannot be reasoned with and may have little hope of improving. Nowhere in Kahneman’s work can you find a picture of humanity that is so bleak.

If the goal is not to demonstrate that people are irrational, then why focus so much on errors? There is a straightforward answer to this: We often learn the most from our errors. As George Miller famously argued in his 1969 address to the American Psychological Association (APA), the most significant problems that humanity faces are ones that we’ve created for ourselves. In this context, Kahneman’s work on the limitations of our cognition is absolutely critical if we are to improve our decision-making.

Kahneman understood that humans are imperfect but have the potential for improvement. We make predictable mistakes, sure, but with some help we can make more accurate judgments and better decisions. It is for this reason that the implication that I take from Kahneman’s work is often opposite to what is commonly assumed: Not only is it inaccurate to characterize people as being fundamentally irrational, but there is tangible hope for improvement!

*Submitted by Gordon Pennycook  
Department of Psychology, Cornell University,  
Ithaca, New York, USA*

**The reliance on heuristics and the prevalence of biases are not restricted to laymen. (Tversky & Kahneman, 1974, p. 1130)**

In his life’s work with Amos Tversky, Daniel Kahneman revolutionized the field of behavioral economics, shedding light on the inherent biases and reliance on heuristics that infiltrate human decision-making. However, as behavioral economics has evolved, it has encountered challenges, including a replication crisis and issues with research falsification.

Kahneman's quote, "The reliance on heuristics and the prevalence of biases are not restricted to laymen" (Tversky & Kahneman, 1974, p. 1130), contains a fundamental truth about human cognition that even experts are susceptible to cognitive biases and heuristic thinking. This acknowledgment is particularly touching given the current state of behavioral economics.

In recent years, the field has faced scrutiny for the integrity of its research. Scholars have raised concerns about replication failures and the prevalence of underpowered studies, which compromise the reliability of findings. Despite these challenges, some researchers have been reluctant to confront the issues head-on, choosing instead to downplay the significance of replication failures or ignore them altogether.

However, Kahneman stands out as a beacon of intellectual honesty within the field. By acknowledging the limitations of his own work and the broader challenges facing behavioral economics, he sets an example for others to follow. Rather than shying away from criticism or clinging to dogma, Kahneman's willingness to confront uncomfortable truths demonstrates a commitment to rigorous inquiry and intellectual integrity.

In conclusion, Kahneman's quote serves as a poignant reminder that the pitfalls of heuristic thinking and cognitive biases are not exclusive to laypeople; even experts in behavioral economics are susceptible. However, by acknowledging these limitations and striving for transparency and honesty in research, scholars can uphold the integrity of the field and continue to advance our understanding of human decision-making.

*Submitted by Vojtech Kotrba*

*Department of Economics and Management, J. E. Purkyně  
University, Ústí nad Labem, Czechia*

*Department of Economics, Prague University of Economics  
and Business, Prague, Czechia*

**Psychological theories of intuitive thinking cannot match the elegance and precision of formal normative models of belief and choice, but this is just another way of saying that rational models are psychologically unrealistic. (Kahneman, 2003, p. 1449)**

In his keynote address at the 2017 APA convention, Daniel Kahneman expressed the opinion that, although behavioral economics is, in fact, applied social psychology, its prominence in shaping public policy stems from the fact that economics is portrayed as a mathematics-based, "hard" science. The fruitful connection between psychology and economics was strengthened through the collaborative work of Tversky and Kahneman, which, though psychological in nature, drew upon the formal normative model of economics because it required a standard against which judgment and decision-making could be evaluated.

Initially, statistics provided such a standard, exemplified by concepts such as the law of large numbers, which were used to discern correct and incorrect responses to their

constructed scenarios. As their research progressed, the criteria for sound reasoning expanded beyond statistics to encompass the rational agent model, the basis of economics. By systematically identifying behavioral deviations from the rational agent model, their psychological work exposed weaknesses in traditional economic theories.

Psychology defies confinement within a rigid set of rules and theorems, continually challenging our understanding of human nature. In contrast, the economics view of human nature can be neatly encapsulated in an hour-long presentation. As Kahneman's quote suggests, the dynamic between the two fields presents a dichotomous conundrum: Psychology cannot elegantly explain human behavior in a restricted number of statements, while economics will struggle to offer a realistic interpretation of human behavior. Nevertheless, the ongoing dialogue between these disciplines propels the overarching field of behavioral science forward. Daniel Kahneman's contributions have been pivotal in initiating and advancing this discourse.

*Submitted by Alexios Arvanitis*

*Department of Psychology, University of Crete,  
Rethymno, Greece*

**An algorithm that is constructed on the back of an envelope is often good enough to compete with an optimally weighted formula, and certainly good enough to outdo expert judgment. (Kahneman, 2011b)**

Daniel Kahneman opened our eyes to the limitations of human judgment and prediction. He taught us that the world is less certain than we think, that the future does not resemble the past, and that people—even experts—are far worse at forecasting than they expect. One of the major takeaways was the need for objective, bias-free forecasting instruments. Indeed, newly developed algorithms avoid many traps that fail humans. Algorithms favor the informative and diagnostic over the vivid and available, weight uncertainty properly, and are impervious to emotional and social influences. Consequently, they can answer medical, financial, and geopolitical questions more accurately than humans and form the basis for better decision-making. Problem solved? Not quite. The flaws of human judgment get in the way again. Although algorithms generally achieve vastly superior performance, people keep rejecting them. In trying to understand the impediments to the acceptance of algorithms, Kahneman has the answers yet again. His findings on overconfidence, confirmation bias, and regret aversion explain the tendency of people to favor their own faulty judgments over those of more accurate systematic tools. Kahneman's insights have brought together psychologists, computer scientists, and scholars from related fields, collaborating to integrate behavioral insights in the design of algorithmic decision aids to which people would be receptive. Multidisciplinary research on the cognitive and behavioral aspects of algorithm acceptance is still in its infant stages, with so much yet to explore. Thus, Daniel Kahneman's work not only has influenced decades of research so far but

will continue to shape the study of decision-making for decades to come.

*Submitted by Uriel Haran*

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**Declarations of high confidence mainly tell you that an individual has constructed a coherent story in his mind, not necessarily that the story is true. (Kahneman, 2011a, p. 212)**

In the digital age, people increasingly interact with LLMs that are primarily trained and fine-tuned to tell coherent stories. However, “declarations of high confidence mainly tell you that an individual has constructed a coherent story in his mind, not necessarily that the story is true” (Kahneman, 2011a, p. 212). By promoting the “illusion of validity,” the coherence of AI-generated text is often criticized for communicating falsities with high confidence. Similar to overconfident human advisors, System 2, or slow thinking, could thus be a countermeasure against hallucinatory generative AI. In education, LLMs in tutoring systems are enabled to “think” in the back end. Output that is not observable to student users in the front end is necessary because relevant context, such as the solution path for a task, must be generated before students can be given valuable hints on how to approach the problem themselves. Instead of “jump[ing] to conclusions from little evidence” (Kahneman, 2011a, p. 209), or *context* in LLM terminology, thinking in the back end can be seen as slowly thinking through the problem. On the one hand, this is due to the fact that the corresponding text generation requires more time and computational resources. On the other hand, and much more importantly, the inherent enforcement of multi-shot prompting triggers more deliberate and logical thinking, which is reflected in the improved quality of such LLM-generated output. Students benefit from being trained to solve the task on their own, rather than being provided with the correct solution immediately. The intention is to help them to improve their own slow-thinking skills through fruitful and affordable one-on-one tutoring in LLM-augmented digital learning environments. System 2 not only will facilitate this transition in individualized education but also has the potential to be a game-changer in everyday life, which is increasingly threatened by overconfidence in hallucinatory generative AI.

*Submitted by Tobias R. Rebholz*

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**A failure to disagree. (Kahneman & Klein, 2009)**

Truth, not consensus, is science’s ultimate goal. Although a state of consensus signals to the world that we, as a

scientific community, have reached (for the time being) some semblance of the truth, reaching the truth requires disagreement, not harmony. The path to the truth requires academic debate, not academic unity. Our goal should never be a room of similarly minded others nodding their heads or a first-round acceptance by a prestigious journal. Our goal has always been, and always should be, disagreement. No psychologist in recent memory has embodied this goal better than Daniel Kahneman. Daniel Kahneman has, without a doubt, taught us a lot about the inner workings of the human mind. Yet, he has given us much more than that. Kahneman has given us a road map, a goal, and an understanding of what we, as scientists, should be striving for. It’s all there, in the title of one of his most provocative articles, a blueprint for how we should all be doing science: “a failure to disagree” (Kahneman & Klein, 2009). In trying to understand human judgment, Kahneman tried, and failed, to disagree. Luckily, we are still reaping the fruits of his failure.

Only when we find the truth and finally understand the ins and outs of the human experience should we stop trying to disagree. Reaching scientific consensus may be satisfying, but it should never be our objective. Only when we fail to disagree will we know that we have reached the truth. Until then, we must never stop trying. By striving for the truth rather than for consensus, Daniel Kahneman was the embodiment of intellectual humility. I hope you disagree.

*Submitted by Shai Davidai*

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**My position when I wrote *Thinking, Fast and Slow* was that if a large body of evidence published in reputable journals supports an initially implausible conclusion, then scientific norms require us to believe that conclusion. Implausibility is not sufficient to justify disbelief, and belief in well-supported scientific conclusions is not optional. This position still seems reasonable to me—it is why I think people should believe in climate change. But the argument only holds when all relevant results are published. ... The lesson I have learned, however, is that authors who review a field should be wary of using memorable results of underpowered studies as evidence for their claims. (Kahneman, 2017, p. 1)**

There are many papers I read and talks when I heard Daniel Kahneman live at conferences, but what immediately came to my mind was a comment in the above blog post. To me, these lines summarize Daniel Kahneman’s approach to science and also speak to his character. Admitting error is something that brings any science forward and saves hundreds of hours of work and ultimately public money. If a Nobel laureate can do it, everybody should be able to adhere to these standards of scientific work.

*Submitted by Michael Schulte-Mecklenbeck*

*University of Bern, Bern, Switzerland*



**We need a common label for our shared activities. [...] I would be proud to be called an applied behavioral scientist. (Kahneman, 2013, p. ix)**

Kahneman's words are taken from a foreword of a book on behavioral science and public policy. In a characteristically humble manner, Kahneman recalls how his collaborators planted the seeds for the creation of "nudge" units embedded in the United States and United Kingdom governments. What commenced with a focus on nudging in central government quickly turned into a global movement. Specialized consultancies and agencies have sprung up, and behavioral insight units are now embedded in governments, industries, and third-sector organizations around the world. As the movement gained traction, practitioners moved beyond nudging and embraced the full spectrum of behavior change approaches.

Kahneman describes the movement as one of the major achievements of applied social and cognitive psychology. It is one of Kahneman's enduring legacies. The movement has touched the lives of thousands if not millions of people benefiting from improved policies and services around the world. It has also profoundly changed the lives of many psychology graduates who are, and will be, working in this area.

For many, nudging is synonymous with behavioral economics. Kahneman recognized the opportunities and challenges arising from applied social and cognitive psychology becoming popular under the mantle of economics. In the foreword, he expressed concerns that young psychologists may be put off and may not recognize the achievements of their own discipline. Kahneman suggested "behavioral scientist" as a unifying label for those working in this space. It is incumbent upon us to honor Kahneman's legacy by educating psychology students about the behavioral insights movement, giving them the skills they need, and instilling a sense of pride and confidence to lead the way as the next generation of behavioral scientists.

*Submitted by Mario Weick*

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## Author note

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