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Reconceptualizing Behaviorally Informed Consumer Law and Policy

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RECONCEPTUALIZING BEHAVIORALLY INFORMED CONSUMER LAW AND POLICY

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Behaviorally informed consumer law and policy uses empirical evidence about consumer behavior to inform the design and enforcement of effective laws and policy. This legal innovation sits at the heart of current debates about (1) the use of nudging as a regulatory tool to make consumers better off, (2) the appropriate regulation of personalized online advertising that exploits consumer weaknesses and vulnerabilities, and (3) the regulation of design choices on digital platforms that manipulate consumers to purchase goods and services they do not want or reveal personal information they would prefer not to disclose. Scholars and policymakers commonly discuss these issues within two paradigms: Behavioral law and economics as an approach to legal analysis and the implications of human biases for law and policy.

This Article advances novel critiques of both paradigms and develops alternatives. First, it demonstrates that behavioral law and economics is not an appropriate approach to legal analysis under conditions of true uncertainty and computational intractability, which are common in the real consumer world. Second, the Article shows how two alternative frameworks – ecological rationality theory and autonomy theory – can function as normative foundations for behaviorally informed consumer law and policy. Adopting either one of the alternative frameworks would lead to significant changes (compared to behavioral law and economics) in terms of what consumer biases are, when they occur, how they are caused, and when they warrant regulation.

Third, the Article constructs a new theoretical legal perspective against

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the preoccupation of behavioral law with human biases by highlighting frictions between the concepts of consumer bias and consumer harm. This perspective is further developed into a novel frame of analysis for behaviorally informed consumer law and policy that is grounded in the study of consumer heuristics (mental shortcuts) rather than consumer biases. Applying this new frame of analysis, fourth, the Article reconceptualizes the regulatory contexts of behavioral exploitation (commercial practices that exploit consumer biases) and biased consumer decisions that are the result of a biased mind as well as the regulatory tools of nudging and debiasing. Public policymakers can adopt this new frame of analysis and apply the approach to nudging, debiasing, and regulating behavioral exploitation that is devised in this Article.

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INTRODUCTION

The shaping of consumer law and policy based on empirical evidence of consumer and firm behavior is a significant legal innovation in recent times. This innovation promises the design and enforcement of effective consumer laws based on a realistic account of the drivers of consumer behavior. Behaviorally informed consumer law and policy has certainly been a success story in the United States and around the globe. A prime example is the success of nudging as a regulatory tool,[1] which is evidenced by the creation of special units in governments around the world whose role is to advance behaviorally informed policies.[2] From a legal perspective, behaviorally informed consumer law needs to answer two key questions. What implications arise from empirical insights about actual consumer behavior for consumer law? How can we incorporate these insights into legal analysis? Behavioral law and economics provides answers to both questions. Driven by U.S. scholarship, this movement came of age in the 1990s. It is nowadays the predominant approach for integrating behavioral insights into consumer law both in theory and practice.

The success of behavioral law and economics is linked to the highly influential heuristics-and-biases research program, which investigates human biases that are the result of using heuristics (mental shortcuts).[3] A bias occurs when actual human judgment and decision-making systematically departs from a normative benchmark (from how a decision-maker ought to decide).[4] The most common benchmark used by the heuristics-and-biases research program is rational choice theory, which refers to the optimal beliefs and choices assumed in the rational agent model that is dominant in neoclassical economics. A vast body of psychological and behavioral economics research has demonstrated that human judgment and decision-making often deviates from the ideals laid out in rational choice theory.[5] That explains why consumer biases are the poster child of behaviorally informed consumer law. When empirical findings of consumer biases relative to

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[1] *See* RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: THE FINAL EDITION (2021).
[2] *See generally* OECD, BEHAVIOURAL INSIGHTS AND PUBLIC POLICY: LESSONS FROM AROUND THE WORLD (2017).
[3] *See generally* DANIEL KAHNEMAN, THINKING, FAST AND SLOW (2011) (providing a popular account of heuristics-and-biases research program).
[4] *See* Linda Babcock et al., *Creating Convergence: Debiasing Biased Litigants*, 22 LAW & SOC. INQUIRY 913, 916 (1997).
[5] *See infra* Part II.A.

rational choice theory are integrated into consumer law, rational choice theory is imported into legal analysis as a normative benchmark for consumer choice. It is therefore not surprising that orthodox behavioral law and economics scholars adopt rational choice theory as a normative theory of choice.[6]

This Article argues that orthodox behavioral law and economics is not an appropriate approach to legal analysis under conditions of true uncertainty and computational intractability. Since both conditions are common in the real consumer world in which legal policymaking occurs, behaviorally informed consumer law should be underpinned by a different normative framework. Even though scholarly criticism of behavioral law and economics exists,[7] alternative behavioral approaches to legal analysis have hardly been developed in legal scholarship. This Article addresses this gap by showing how two alternative approaches – ecological rationality theory and autonomy theory – can function as normative foundations for behaviorally informed consumer law and policy. Both alternative frameworks have their roots outside of economics and are not grounded in welfare analysis. Both reject rational choice theory as a normative theory of consumer choice. It is shown that each of the two alternative frameworks, if adopted, would lead to significant changes (compared to orthodox behavioral law and economics) in terms of what consumer biases are, when they occur, how they are caused, and when they warrant regulation. Another novelty of this Article is that it develops both alternative approaches within the dominant paradigm of behavioral law that analyzes the implications of human biases for law and policy. This paradigm is not without critics, and the heuristics-and-biases research program, behavioral economics, and behavioral law and economics have been criticized for their preoccupation with consumer biases.[8] The Article adds a new legal perspective to this criticism, which highlights frictions

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[6] *See infra* Part I. "Orthodox behavioral law and economics" refers to the behavioral law and economics literature that adopts rational choice theory as a normative theory of choice.

[7] *See, e.g.*, Ryan Bubb & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 HARVARD L. REV., 1593-678 (2014); Gregory Mitchell, *Alternative Behavioral Law and Economics, in* THE OXFORD HANDBOOK OF BEHAVIORAL ECONOMICS AND THE LAW, 167-85 (Eyal Zamir & Doron Teichman eds., 2014); Joshua D. Wright & Douglas H. Ginsburg, *Behavioral Law and Economics: Its Origins, Fatal Flaws, and Implications for Liberty*, 106 NW. U. L. REV., 1033-90 (2012).

[8] *See* Gerd Gigerenzer, *The Bias Bias in Behavioral Economics*, 5 REV. BEHAV. ECON., 303-36 (2018).

between the concepts of consumer bias and harm and posits that avoiding the latter rather than the former serves as a rationale for state intervention in consumer markets. This perspective is then further developed into a novel frame of analysis for behaviorally informed consumer law and policy that breaks with the dominant paradigm and is grounded in the study of consumer heuristics rather than consumer biases.

The Article applies its new conceptual foundations for behaviorally informed consumer law and policy to (1) two behaviorally informed regulatory contexts in which public policymakers may intervene in consumer markets and (2) two behaviorally informed tools that public policymakers often use in these contexts. With regard to the regulatory contexts, the Article builds upon scholarship that distinguishes between (a) commercial practices that steer consumer choices by exploiting consumer biases in the pursuit of maximizing firm profits (behavioral exploitation) and (b) biased consumer decisions that are the result of a *biased mind* irrespective of the influence of commercial practices on choice.[9] With regard to the regulatory tools, the Article distinguishes between nudging and debiasing. Debiasing refers to state measures that intend to reduce or eliminate behavioral biases by addressing them at a cognitive level.[10] Nudging by the state involves the state attempting to steer people's behavior by modifying the choice architecture while preserving freedom of choice, which often works by harnessing people's cognitive biases.[11] The Article redefines both regulatory contexts and tools based on its novel behavioral approach to legal analysis. Public policymakers in the U.S. and worldwide can adopt these new meanings when designing and enforcing effective consumer laws. Rather than giving equal space to each regulatory context and tool, the Article focuses on the discussion of behavioral exploitation. This is justified for two reasons. First, behavioral exploitation remains a fuzzy concept to date. The terminology in this area is less coherent and has benefited from less theoretical exposition compared to nudging by the state which intends to alter biased consumer

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[9] *See* Anne-Lise Sibony & Alberto Alemanno, *The Emergence of Behavioural Policy-Making: A European Perspective*, *in* NUDGE AND THE LAW 1, 17-19 (Anne-Lise Sibony & Alberto Alemanno eds., 2015).

[10] *See* Christine Jolls & Cass Sunstein, *Debiasing Through Law*, 35 J. LEGAL STUD. 199, 225, n.21 (2006).

[11] *See* Luca Congiu & Ivan Moscati, *Message and Environment: A Framework for Nudges and Choice Architecture*, 4 BEHAV. PUB. POL'Y 71, 71-72 (2020).

behavior regardless of commercial influence. Second, the focus on commercial practices answers scholarly calls that the nudging literature has not paid sufficient attention to the circumstance that consumer biases might not be the result of an inherently biased consumer mind but of exploitative "choice environments"[12] designed by firms.[13]

The Article is structured as follows. Part I documents that the predominant approach to legal analysis relied on by the literature on behaviorally informed consumer law is orthodox behavioral law and economics. Part II highlights significant limitations of orthodox behavioral law and economics that are often ignored in legal scholarship. This Part argues that orthodox behavioral law and economics and rational choice theory should not be used as normative foundations for behaviorally informed consumer law and policy. Part III explores two alternative frameworks – ecological rationality theory and autonomy theory – as normative foundations for behaviorally informed consumer law and policy. While Part III stays within the confines of the dominant paradigm of behavioral law that analyzes the implications of human biases for law and policy, Part IV breaks with this paradigm. Part IV develops a frame of analysis for behaviorally informed consumer law and policy that is grounded in the study of consumer heuristics rather than consumer biases. Based on this new behavioral approach to legal analysis, Part IV reconceptualizes the regulatory contexts of behavioral exploitation and biased consumer decisions that are the result of a biased mind and the regulatory tools of nudging and debiasing. It is shown that both regulatory contexts and tools can be redefined without recourse to the concept of consumer bias.

I. BEHAVIORAL LAW AND ECONOMICS IN CONSUMER LAW SCHOLARSHIP

This Part documents that orthodox behavioral law and economics is the predominant approach for integrating behavioral insights into consumer law and policy. This is illustrated by the prevalence of the term consumer bias, which scholars commonly define relative to rational choice theory. For example, it is uncontentious that most of the

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[12] The term "choice environment" refers to all elements that characterize the context in which people make choices. *See id.*, at 72 (defining the term "choice architecture").

[13] *See* Gigerenzer, *supra* note 8, at 310.

literature on pure public nudging[14] and debiasing[15] adopts rational choice theory as a normative benchmark for how consumers ought to decide. What is less clear is whether this is also the case for the literature analyzing non-coercive commercial practices that exploit consumer biases by shaping the context of consumer decision-making. Whether and to what extent these practices require regulation is controversial, and this debate has gained momentum due to technological innovations like big data analytics paired with smart algorithms that have increased the effectiveness of such practices.[16] Scholars use different terms to cover these commercial practices: Behavioral exploitation, phishing, exploitative private nudges, manipulation, market manipulation, and dark patterns are the most common ones. The following paragraphs provide a short overview of the meaning of these terms. It is demonstrated that, despite the diverse terminology, these terms do not describe distinct phenomena. Instead, the terms overlap significantly. All of them incorporate the exploitation of consumer biases, and all of them imply that the term bias is defined relative to rational choice theory.

Wagner and Eidenmüller, for example, analyze whether algorithmic behavioral exploitation should be regulated. Their concept of algorithmic behavioral exploitation refers to firms using big data analytics and artificial intelligence to create choice environments that systematically exploit consumer biases.[17] Wagner and Eidenmüller define a bias as human decision-making that deviates from the model of a fully rational economic agent.[18] This meaning of the term bias relative to rational choice theory is also prevalent in other literature on behavioral exploitation.[19] It is also adopted by Akerlof and Shiller, who develop the concept of "phishing", which includes the exploitation of

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[14] *See, e.g.*, CASS R. SUNSTEIN, WHY NUDGE? 154 (2014); Sibony & Alemanno, *supra* note 9, at 18 (Pure public nudging refers to a public authority seeking to steer consumer behavior in the public interest by making use of consumer biases).

[15] *See, e.g.*, Jolls & Sunstein, *supra* note 10, at 200-201, 203.

[16] *See, e.g.*, Ryan Calo, *Digital Market Manipulation*, 82 GEO. WASH. L. REV. 995-1051 (2014).

[17] Gerhard Wagner & Horst Eidenmüller, *Down by Algorithms?: Siphoning Rents, Exploiting Biases, and Shaping Preferences: Regulating the Dark Side of Personalized Transactions*, 86 U. CHI. L. REV. 581, 582-83 (2019).

[18] *See id.* at 592-93.

[19] *See* ARIEL EZRACHI & MAURICE E. STUCKE, VIRTUAL COMPETITION 97, 105, 120 (2016); Max Huffman, *Marrying Neo-Chicago with Behavioral Antitrust*, 78 ANTITRUST L.J. 105, 116, 127 (2012).

consumer behavioral biases by commercial practices.[20] They argue that competitive free markets reach a phishing equilibrium, which is characterized by market failure and may thus require state intervention.[21] Another body of scholarship which commonly defines the term bias relative to rational choice theory is scholarship assessing the regulation of private nudges that exploit consumer biases.[22] Esposito, for example, discusses the regulation of private nudges that exploit behavioral traits by market forces. He defines a nudge as "an effect of the choice architecture that alters people's behavior by making use of one or more behavioural traits".[23] Behavioral traits incorporate consumer biases and "indicate all those elements of decision-making disregarded by rational choice theory".[24]

Commercial strategies that exploit consumer biases are often labeled manipulative in scholarship.[25] Susser et al.'s influential article defines manipulation as imposing a hidden or covert influence on another person's decision-making.[26] They argue that manipulative practices which alter people's choice environments involve three characteristics. These practices (1) contain a hidden influence, (2) exploit cognitive, emotional, or other decision-making vulnerabilities, and (3) are targeted.[27] Susser et al. categorize cognitive biases as a vulnerability that manipulators can exploit.[28] They adopt Kahneman and Tversky's terminology of cognitive biases,[29] which indicates that they define bias relative to rational choice theory. This meaning of the term bias is also used in other literature on manipulation. Sunstein, for example, regards a commercial practice as manipulative "to the extent that it does not sufficiently engage or appeal to their [people's]

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[20] *See* GEORGE AKERLOF & ROBERT J. SHILLER, PHISHING FOR PHOOLS: THE ECONOMICS OF MANIPULATION & DECEPTION xi, 170, 172 (2015).
[21] *See id.* at 152, 164, 166, 170.
[22] *See* Sibony & Alemanno, *supra* note 9, at 18; Karen Yeung, *Hypernudge: Big Data as a Mode of Regulation by Design*, 20 INFO., COMM. & SOC'Y. 118, 120 (2017).
[23] Fabrizio Esposito, *Conceptual Foundations for a European Consumer Law and Behavioural Sciences Scholarship*, RESEARCH METHODS IN CONSUMER LAW: A HANDBOOK 1, 45 (Hans-Wolfgang Micklitz et al. eds., 2018).
[24] *Id.*
[25] *See, e.g.*, Susser et al., *Online Manipulation: Hidden Influences in a Digital World*, 4 GEO. L. TECH. REV. 1, 40 (2019).
[26] *Id.* at 26.
[27] *Id.* at 27.
[28] *Id.* at 22.
[29] *Id.* at 21-22.

capacity for reflection and deliberation".[30] Marketing strategies that trigger consumer biases may be manipulative depending upon the circumstances of the individual case according to Sunstein.[31] The term bias in Sunstein's writings refers to deviations from rational choice theory.[32]

Closely related to manipulation is the concept of market manipulation. In his influential article on digital market manipulation, Calo argues that regulating market manipulation in the digital world is justified if certain conditions are met.[33] Calo adopts Hanson and Kysar's definition of market manipulation, which refers to companies exploiting consumers' cognitive limitations and biases.[34] The term bias in Hanson and Kysar's concept of market manipulation is defined relative to rational choice theory.[35] This meaning of the term bias is also adopted by some nascent literature on dark patterns.[36] The dark patterns literature currently lacks a clear conceptual foundation. Many definitions of dark patterns exist in the literature, and not all of them refer to consumer biases when specifying the mechanism relied on by dark patterns to influence consumers. A legal analysis of dark patterns is provided by Luguri and Strahilevitz. They define dark patterns as online user interface design choices that maximize firm profits and manipulate users to do things they would not otherwise do like purchasing goods and services that they do not want or reveal personal information they would prefer not to disclose.[37] Luguri and Strahilevitz do not further specify what they mean by "manipulate" in their definition of dark patterns, but they propose that dark patterns are effective in steering consumer behavior because dark patterns typically exploit consumers' cognitive biases like framing or anchoring.[38]

To summarize, the concepts of behavioral exploitation,

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[30] Cass R. Sunstein, *Fifty Shades of Manipulation*, 1 J. MARKETING BEHAV. 213 (2016), available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2565892.

[31] *Id.* at 16-17.

[32] *See* Jolls & Sunstein, *supra* note 10, at 200-01, 203.

[33] *See* Calo, *supra* note 16, at 998-99.

[34] *See id.* at 1002.

[35] *See* Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420, 1425-26 (1999).

[36] *See* Arunesh Mathur et al., *Dark Patterns at Scale*, 3 PROC. ACM HUMAN-COMPUTER INTERACTION 81:5-6 (2019).

[37] *See* Jamie Luguri & Lior J. Strahilevitz, *Shining a Light on Dark Patterns*, 13 J. LEGAL ANALYSIS 43, 44, 59 (2021).

[38] *Id.* at 44.

phishing, exploitative private nudges, manipulation, market manipulation, and dark patterns all capture non-coercive commercial practices that steer consumer choice behavior in particular directions by exploiting consumer biases. The literature analyzing these commercial practices commonly defines the term bias relative to rational choice theory. Hence, this literature adopts an orthodox behavioral law and economics approach to legal analysis. Even though this Article uses the umbrella term "behavioral exploitation" to refer to these commercial practices, it deviates from the existing literature in two important respects. First, the next Part argues that behaviorally informed consumer law and policy should not be underpinned by orthodox behavioral law and economics but by a different approach. Second, Part IV breaks with the dominant paradigm of human biases and develops a novel conception of behavioral exploitation that is grounded in the study of consumer heuristics rather than consumer biases.

II. LIMITATIONS OF BEHAVIORAL LAW AND ECONOMICS

The implications of empirical insights about consumer behavior for law and policy depend on the normative theory of choice that a policymaker adopts. For example, consumer decisions that are biased relative to rational choice theory may not be biased relative to a different normative benchmark. The normative theory of choice requires justification given that there are several competing benchmarks that a policymaker could adopt. This Part argues that this justification is lacking for rational choice theory. The Part begins by outlining the meaning of rational choice theory. It then develops two limitations of behavioral law and economics that are often ignored in legal scholarship. One limitation is based on the decision-theoretical distinction between decisions made under risk and uncertainty. The other one is based on computational complexity theory. It is argued that rational choice theory is not an appropriate normative theory of choice in conditions of true uncertainty and computational intractability. Since both conditions are common in the real consumer world in which legal policymaking occurs, orthodox behavioral law and economics and rational choice theory should not be used as normative foundations for behaviorally informed consumer law and policy.

A. Assumptions of Rational Choice Theory

When rational choice theory is adopted as a normative theory of choice, it functions as a normative benchmark against which actual consumer decisions are assessed. Rational choice theory comes in many variants, and these variants differ in the assumptions (axioms) that they make regarding the type of rationality, preferences, and individualism. These assumptions constitute the normative benchmark. They are domain-general rather than domain-specific in the sense that compliance with these assumptions leads to rational decisions in *any* environment. A dominant neoclassical model of rationality, which is also instrumental for orthodox welfare economics, assumes that rational market actors have complete, transitive,[39] and stable preferences, form preferences independently of the way the various alternatives are presented if the frames are informationally equivalent (description invariance),[40] consider all available relevant information and exclude all irrelevant information, do not make mistakes when calculating or processing probabilities, conform to the axioms of expected utility theory in situations of risk and uncertainty and maximize expected utility.[41] The term utility in neoclassical economics indicates the extent to which an individual's preferences are satisfied.[42] A rational consumer chooses the alternative that best satisfies her preferences, namely the alternative with the highest level of utility.

Rational choice theory requires sets of choice outcomes to be consistent (coherent),[43] and consistency is defined by the assumptions of rational choice. An important characteristic of these assumptions is

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[39] DANIEL M. HAUSMAN, *The Inexact and Separate Science of Economics* 14 (1992) ("An agent A's preferences are . . . transitive if for all options x, y, and z, if A prefers x to y and y to z, then A prefers x to z; and if A is indifferent between x and y and y and z, then A is indifferent between x and z.").

[40] Frames (framing effects) refer to different but formally equivalent descriptions of a decision problem that can give rise to different preferences and thus lead to different decisions. Frames can trigger particular heuristics.

[41] *See* Sanjit Dhami et al., *Heuristics and Public Policy: Decision-Making Under Bounded Rationality*, 7 STUD. MICROECONOMICS 7, 8 (2019); Eyal Zamir, *The Efficiency of Paternalism*, 84 VA. L. REV. 229, 248 (1998).

[42] *See* Nick Chater et al., *Fast, Frugal, and Rational: How Rational Norms Explain Behavior*, 90 ORGANIZATIONAL BEHAV. & HUMAN DECISION PROCESSES 63, 67 (2003).

[43] *See* Gregory Mitchell, *Libertarian Paternalism is an Oxymoron*, 99 NW. U. L. REV. 1245, 1266 (2005).

that they are only "as if" assumptions.[44] The assumptions are necessary to model, calculate, or predict the utility-maximizing choice of a rational actor. They are neither intended to describe the decision-making process nor intended to stipulate a process that a rational consumer ought to follow. Rational choice theory does not assume that market actors actually engage in probabilistic or decision-theoretic calculations.[45] Instead, utility maximization provides a normative ideal for the choice outcome, and different choice processes – including heuristics – can reach an optimal, utility-maximizing outcome.[46] What that means is that rational choice theory determines normative decisions only in terms of choice outcomes but not in terms of reasoning processes whereby a consumer arrives at a decision. The theory does not contain any claim about the causal processes underlying choice or about which choice process ought to be the rational one.[47]

Empirical studies have shown that consumer decisions can systematically deviate from the assumptions of rational choice theory. Such decisions are biased relative to rational choice theory. A systematic deviation is consistent, which makes the deviation predictable and exploitable. Typical systematic deviations from the assumptions of rational choice theory in the real consumer world include unstable preferences, preference reversals, time-inconsistent preferences, framing effects, non-probabilistic weighting of outcomes, systematic mistakes in probabilistic reasoning due to base rate neglect, loss aversion, overconfidence, or the availability heuristic, and decisions-making based on emotions.[48]

B. Decision-Making Under True Uncertainty

Adopting rational choice theory as a normative theory of choice for behaviorally informed consumer law and policy faces serious objections. One objection is based on the distinction which decision theory makes between decision-making under certainty, risk, and

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[44] *See* Milton Friedman, *The Methodology of Positive Economics*, THE PHILOSOPHY OF ECONOMICS: AN ANTHOLOGY 145, 157-58 (Daniel M. Hausman ed., 3d ed. 2012).
[45] Chater et al., *supra* note 42, at 67.
[46] *See* Till Grüne-Yanoff, *Bounded Rationality*, 2 PHIL. COMPASS 534, 558 (2007).
[47] *See id.* at 558.
[48] For discussion, with reference to numerous empirical studies, *see* Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LITERATURE 315-372 (2009); Eyal Zamir & Doron Teichman, BEHAVIORAL LAW AND ECONOMICS Chapter 2 (2018).

uncertainty.[49] This Section argues that rational choice theory is not an appropriate normative benchmark for consumer judgment and decision-making in conditions of true uncertainty, which are common in the real consumer world. To lay the foundations for this argument, it is necessary to explain the distinction between certainty, risk, and uncertainty. A choice between two or more alternatives (courses of action, options) is certain if each alternative is known to lead invariably to a specific outcome (consequence). In situations of risk as opposed to certainty, possible outcomes are probabilistic rather than certain. Decision-making under risk refers to decisions where all possible alternatives, possible outcomes of alternatives, and the probabilities of such outcomes occurring are objectively known. A decision-maker can then determine the expected, that is probability-weighted, utility of each alternative and choose the optimal, i.e., best, alternative, which is the alternative with the highest expected utility. Playing a game of chance in a casino like roulette is a prototypical example of decision-making under risk. Decision-making under uncertainty refers to decisions involving unknown alternatives, unknown outcomes of alternatives, or unknown probabilities of outcomes.[50] Uncertainty exists on a continuum, and it is possible to differentiate between subjective uncertainty and true uncertainty. In a situation of subjective uncertainty, probabilities of outcomes are not objectively known, but an individual can assign subjective probabilities to outcomes.[51] True uncertainty is characterized by unknown alternatives or unknown outcomes of alternatives. True uncertainty is unmeasurable as neither objective nor subjective probabilities of outcomes are available.[52] True uncertainty has also been labeled radical uncertainty or characterized as decision-making in "large worlds" as opposed to "small worlds" in scholarship.[53]

How common are situations of true uncertainty for consumers? Some scholars assume that decisions in the real world often involve

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[49] For this distinction, *see* R. Duncan Luce & Howard Raiffa, GAMES AND DECISIONS 13 (1957).

[50] *See* Shabnam Mousavi & Gerd Gigerenzer, *Heuristics Are Tools for Uncertainty*, 34 HOMO OECONOMICUS 361, 363 (2017).

[51] Dhami et al., *supra* note 41, at 12-13.

[52] *See id.* at 13.

[53] John Kay & Mervyn King, RADICAL UNCERTAINTY: DECISION-MAKING BEYOND THE NUMBERS (2020); Gerd Gigerenzer & Wolfgang Gaissmaier, *Heuristic Decision Making*, 62 ANN. REV. PSYCH. 451, 453 (2011).

true uncertainty.[54] This is because the decision-making environment in the real world is often complex, dynamic, and interdependent on events that the decision-maker cannot control or foresee.[55] Even in stable environments, unforeseen consequences may emerge. Today's consumers live in an environment characterized by a vast and fast-increasing range of products and services with a high level of complexity, new digital technologies, and rapid technological change, which translates into an increased level of true uncertainty in choice environments. A typical example of consumer decision-making under true uncertainty is investment decisions in the stock market.[56] Another example is the decision which restaurant to pick out of more than 100 possibilities on an online food delivery service.[57] Schwartz et al. have argued that the following decisions are made under radical uncertainty: buying a car, choosing a place to go on vacation, choosing investments for retirement, and choosing a treatment plan for a serious medical condition.[58] In April 2020, during the Covid-19 outbreak, a consumer may have considered purchasing a face mask to protect herself from contracting the virus. Scientific evidence about the efficacy of the multitude of different face masks on the market to protect a consumer from contracting Covid-19 was not available. This information, which is needed in order to set accurate probabilities, did not exist at the time of decision-making, which makes it a situation of uncertainty.[59] What is more, other factors affecting the consumer's decision were simply unknowable or unimaginable at the time of decision-making, which makes it a situation of true uncertainty. Such factors include the future development of the Covid-19 pandemic and governmental responses attempting to reduce transmission of Covid-19 in the population. Another example

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[54] *See* Henry Brighton & Gerd Gigerenzer, *Are Rational Actor Models "Rational" Outside Small Worlds?*, EVOLUTION AND RATIONALITY: DECISIONS, CO-OPERATION AND STRATEGIC BEHAVIOR 84, 103 (Samir Okasha & Ken Binmore eds., 2012).

[55] *See* David Tuckett & Milena Nikolic, *The Role of Conviction and Narrative in Decision-Making Under Radical Uncertainty*, 27 THEORY & PSYCH. 501, 502 (2017).

[56] Dhami et al., *supra* note 41, at 40-41.

[57] *See* Eric Schulz et al., *Structured, Uncertainty-Driven Exploration in Real-World Consumer Choice*, 116 PNAS 13903-08 (2019).

[58] Barry Schwartz et al., *What Makes a Good Decision? Robust Satisficing as a Normative Standard of Rational Decision Making*, 41 J. THEORY SOC. BEHAV. 209, 212 (2010).

[59] *See* David Dequech, *Bounded Rationality, Institutions, and Uncertainty*, 35 J. ECON. ISSUES 911, 919, 923 (2001) (defining "fundamental uncertainty" as a situation in which some information does not exist at the time of decision).

of a choice under true uncertainty is a consumer's decision about whether she should add flood damage protection to her home insurance policy. In order to calculate an optimal choice, a consumer would have to determine the probability of a flood occurring during the insured period, determine the magnitude of the flood, and determine the expected extent of the damage to her house. No one knows the probability that a flood will hit a specific consumer's house during the next year, let alone what magnitude the flood will have. No one knows the full set of factors and the relation between these factors that affect and determine flooding events. These factors, which may be inconceivable at the time of decision-making, include future innovations in flood protection technology and future governmental action to prevent flooding of homes. Even though insurance companies rely on data about frequency distributions of previous floods, it is questionable whether these frequencies will remain roughly stable over time due to climate change. Moreover, a frequency distribution of previous floods does not help our consumer as outcomes for individual cases are unknown.[60] To conclude, these examples illustrate that typical consumer choices often involve decision-making under true uncertainty.

Can rational choice theory be a normative benchmark for consumer choice in conditions of true uncertainty? The answer to this question is "yes" according to neoclassical economics. Expected utility theory in neoclassical economics does not distinguish between risk and uncertainty. Subjective expected utility theory holds that any source of uncertainty can and should be quantified probabilistically.[61] Probabilities are assigned to possible outcomes based on an individual's subjective degrees of belief. All situations of uncertainty are reinterpreted as situations of risk. This view does not convince for true uncertainty, however. The examples given above illustrate that probabilistic information can be missing in situations of true uncertainty. Kay and King have argued that "[i]f there are possibilities of which we cannot conceive then we cannot attach probabilities to them . . . ."[62] Similarly, Dequech has pointed out that we cannot attribute a probability to an event that we cannot imagine in the present even though the event may occur in the future.[63] What that means is that consumers can assign

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[60] *See* KAY & KING, *supra* note 53, at 326-27.
[61] *See* ITZHAK GILBOA, RATIONAL CHOICE (2010).
[62] KAY & KING, *supra* note 53, at 438.
[63] David Dequech, *Fundamental Uncertainty and Ambiguity*, 26 E. ECON. J. 41, 48 (2000).

neither objective nor subjective probabilities to outcomes that are unknowable or unimaginable. This explains why true uncertainty precludes the formation of subjective probabilities for all possible outcomes.[64] Yet, a prerequisite for expected utility theory is that decision-makers have preferences between all pairs of alternatives (completeness axiom),[65] which implies that numerical probabilities can be formed for all possible outcomes of alternatives. It follows from this reasoning that the assumption that a rational consumer chooses in accordance with a complete preference ordering is incompatible with cases of true uncertainty. Dold and Rizzo have further pointed out that preferences are unstable in a decision situation that involves unknown alternatives or unknown outcomes of alternatives.[66] Preferences are formed at the moment of choice in such decision situations. If a future situation has never been conceived of by a consumer, a choice cannot be said to maximize utility from a stable set of preferences. Therefore, the assumption of a stable preference ordering in rational choice theory is incompatible with cases of true uncertainty.

What these arguments show is that the assumptions of rational choice theory do not hold in conditions of true uncertainty. A consumer who selects an alternative in these conditions cannot know or determine whether this alternative is the best alternative that maximizes expected utility. This conclusion does not derive from consumers' cognitive limitations but from epistemic uncertainties inherent in the environment. If a decision problem is characterized by true uncertainty, it is not possible to identify the best, optimal choice outcome.[67] This finding is not only based on theoretical arguments showing that true uncertainty cannot be reduced to risk but also supported by empirical studies demonstrating that heuristics can perform better in uncertain environments than competing decision-making strategies that attempt to optimize and use all the available information.[68] According to Brighton and Gigerenzer, the best model of decision-making under conditions of true uncertainty can only determine whether a decision-making strategy is better than a competing one, but it cannot determine

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[64] *See* KAY & KING, *supra* note 53, at 435.

[65] GILBOA, *supra* note 61, at 26.

[66] *See* Malte F. Dold & Mario J. Rizzo, *Old Chicago Against Static Welfare Economics*, 50 J. LEGAL STUD. S179, S193 (2021).

[67] *See* Brighton & Gigerenzer, *supra* note 54, at 98, 103.

[68] For an overview and discussion of empirical studies, *see* Gerd Gigerenzer & Thomas Sturm, *How (Far) Can Rationality Be Naturalized?*, 187 SYNTHESE 243, 245-247 (2012).

which decision-making strategy is the optimal and best one.[69] An optimization benchmark does not exist for cases of decision-making under true uncertainty, which is why they fall outside the scope of rational choice theory.[70] It follows that rational choice theory is not an appropriate normative standard for consumer judgment and decision-making in conditions of true uncertainty. Since conditions of true uncertainty are prevalent in the real consumer world, orthodox behavioral law and economics should not be used as a conceptual foundation for behaviorally informed consumer law and policy.

C. Computationally Intractable Decisions

My next critique of rational choice theory builds on the implications of computational complexity theory for decision theory. I argue that rational choice theory is not an appropriate normative standard for consumer judgment and decision-making in situations of computational intractability, which are common in the real consumer world. Computational complexity theory has recently been used to quantify the computational resources required to apply rational choice theory.[71] This research assesses the computational tractability of rational choice theory. Scholars have argued that the rational calculations involved in maximizing expected utility are often computationally intractable for complex decision problems that consumers face in the real world.[72] A computationally intractable problem is defined as one for which no algorithm exists that can solve the problem in a reasonable time.[73] Even though a computationally intractable problem is solvable in theory, it cannot be computed in reality. For example, supermarket shoppers ought to select the basket of goods with the highest total utility to them subject to budget constraints.[74] Finding the combination of goods with the highest total utility would involve intractable computations if the

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[69] Brighton & Gigerenzer, *supra* note 54, at 98, 103.
[70] *See* Dhami et al., *supra* note 41, at 10, 16.
[71] *See* Peter Bossaerts & Carsten Murawski, *Computational Complexity and Human Decision-Making*, 21 TRENDS COGNITIVE SCI. 917, 918, 920 (2017).
[72] *See id.* at 918, 920; Chater et al., *supra* note 42, at 70.
[73] Gerd Gigerenzer, *Axiomatic Rationality and Ecological Rationality*, 198 SYNTHESE 3547, 3549 (2021).
[74] Bossaerts & Murawski, *supra* note 71, at 918.

supermarket only stocked 100 goods.[75] The main reason for this finding is that rational choice theory assumes a complete preference ordering.[76] That means that a consumer needs to have her preferences defined over all available alternatives. Computations can become intractable in situations where the set of available alternatives is large, as is typical for today's consumer environments characterized by a vast range of products or services with a high level of computational complexity. Another example of computational intractability is the selection of a mobile phone with the highest total utility to a consumer from a website offering 100 mobile phones that can be compared against each other based on multiple features.[77]

Proponents of rational choice theory have rejected these objections of computational complexity theory. They have argued that rational choice theory only applies to the choice outcome and that the theory's "as if" assumptions do not apply to decision processes and, therefore, make no assumptions about the computations underlying observed decisions.[78] I contend that this argument is beside the point for rational choice theory as a normative theory of consumer decision-making. As a normative benchmark, rational choice theory prescribes that a consumer ought to make a utility-maximizing choice. The normative side of rational choice theory thus provides an answer to the following optimization problem: What is the optimal, utility-maximizing alternative that a consumer ought to select? Maximization refers to the selection of the alternative with the highest utility subject to given constraints like budget constraints. A rational consumer ought to select the best possible option among all the available decision alternatives, which is the option that best satisfies the consumer's preferences. Such a best possible option cannot be computed and identified when a decision problem is computationally intractable.[79] What that means is that the optimal, utility-maximizing outcome of a decision problem cannot be identified or calculated. If it could, the decision problem would not be computationally intractable. Implicit in the normative demand to select the optimal alternative is the condition that a specific choice

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[75] *Id.*

[76] For a detailed explanation, *see* Peter Bossaerts et al., *Uncertainty and Computational Complexity*, 374 PHIL. TRANSACTIONS ROYAL SOC'Y B 1, 1-12 (2019).

[77] *See* Michael Yee et al., *Greedoid-Based Noncompensatory Inference*, 26 MKTG. SCI. 532, 533 (2007).

[78] *See, e.g.*, Chater et al., *supra* note 42, at 67, 70.

[79] *See* Gigerenzer & Sturm, *supra* note 68, at 256-57.

outcome is identifiable as the optimal, best alternative. Yet, if no one, neither human nor machine, can identify the best option in a specific decision situation, then no one knows what the optimal outcome of a decision problem is and ought to be. It follows that the normative claim that a rational consumer should choose the utility-maximizing alternative in such a situation is untenable. Computationally intractable decision problems do not allow for optimization, which is why they fall outside the scope of rational choice theory. Rational choice theory is not an appropriate normative standard for consumer judgment and decision-making in situations of computational intractability. Since conditions of computational intractability are common in the real consumer world, orthodox behavioral law and economics should not be used as a conceptual foundation for behaviorally informed consumer law and policy.

III. ALTERNATIVE FOUNDATIONS FOR BEHAVIORALLY INFORMED CONSUMER LAW AND POLICY

Even though multiple behavioral approaches to legal analysis can be conceptualized, legal scholarship has hardly developed alternatives to behavioral law and economics. This Part addresses this gap by showing how two alternative frameworks – ecological rationality theory and autonomy theory – can function as normative foundations for behaviorally informed consumer law and policy. Both frameworks are applicable in conditions of true uncertainty and computational intractability. Since they overcome limitations of behavioral law and economics, they deserve more attention from scholars and policymakers. Adopting an alternative behavioral approach to legal analysis has significant implications. First, the normative theory of choice that is imported into legal analysis changes, and both ecological rationality theory and autonomy theory differ significantly from rational choice theory. This affects how consumer biases and their causes are conceptualized. For example, Sections A and B of this Part illustrate that ecological rationality theory and autonomy theory lead to a fundamentally different meaning of the term consumer bias and the concept of behavioral exploitation compared to orthodox behavioral law and economics. Second, adopting an alternative normative theory of choice can mean that "virtually all previous findings on heuristics and biases will

have to be re-evaluated."[80] The reason for this is that consumer behavior that is biased relative to rational choice theory can be normative relative to a different theory of choice. That does not mean that empirical studies in the heuristics-and-biases research program should be ignored outside of behavioral law and economics. These studies still provide significant insights about the drivers of consumer behavior, in particular about heuristic decision strategies. Third, biased consumer decisions relative to an alternative theory of choice may call for different types of policy interventions compared to biased consumer decisions relative to rational choice theory.

A. Ecological Rationality Theory

This Section explores ecological rationality theory as a normative foundation for behaviorally informed consumer law and policy. It first outlines core elements of ecological rationality as a normative decision theory and then discusses the ecological rationality of heuristics. Second, the Section specifies the meaning of the term bias relative to ecological rationality theory and of behavioral exploitation under the theory of ecological rationality. Third, the Section explains why a public policymaker who intends to rely on ecological rationality theory faces significant obstacles.

Similar to rational choice theory, ecological rationality comes in different variants. This Section discusses one dominant form of this normative theory of choice, which was originally developed by Gigerenzer and colleagues.[81] Their empirical research is also known as the fast-and-frugal heuristics research program, and it investigates in what environments particular heuristics are ecologically rational and perform well, and why.[82] This empirical research focuses predominantly on the benefits of heuristic decision-making and not on human biases. Two key implications follow from this focus. First, it explains

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[80] Falk Lieder, Beyond Bounded Rationality: Reverse-Engineering and Enhancing human Intelligence 289 (Spring 2018) (Ph.D. Dissertation, University of California, Berkely), https://escholarship.org/uc/item/0mh5z130.

[81] *See* ECOLOGICAL RATIONALITY: INTELLIGENCE IN THE WORLD (Peter M. Todd & Gerd Gigerenzer eds., 2012).

[82] *See* Peter M. Todd & Gerd Gigerenzer, *What Is Ecological Rationality?* in ECOLOGICAL RATIONALITY: INTELLIGENCE IN THE WORLD 3, 15, 25 (Peter M. Todd & Gerd Gigerenzer eds., 2012).

why research specifying the conditions under which fast-and-frugal heuristics are not ecologically rational and fail is scarce. Second, it explains why ecological rationality theory has rarely been used as a normative theory of choice in the dominant paradigm of behavioral law that analyzes the implications of human biases for law and policy. This Section addresses this second gap in the literature. Its key novelty is that it demonstrates how the theory of ecological rationality fits within the dominant paradigm of behavioral law.

1. Ecological Rationality as a Normative Theory of Choice

Ecological rationality determines rational choice by taking into account the constraints posed by both the environment and an individual's cognitive limitations.[83] Ecological rationality thus takes into account that consumer decisions in the real world are made under conditions of uncertainty, limited time, limited information, and limited computational abilities.[84] This allows ecological rationality theory to set normative standards of choice in conditions of true uncertainty and computational intractability. The theory holds that the rationality of decision mechanisms (processes) depends on how well they fit specific choice environments.[85] Specific decision mechanisms fit to particular environmental structures but not to others, which is why different decision mechanisms are rational in different environments. For example, the recognition heuristic works well in environments in which a lack of recognition, which is used as an informational cue,[86] has high predictive power.[87] Since the ecological rationality of a decision mechanism is domain-specific, there cannot be a single, domain-general mechanism like axiomatic reasoning that is ecologically rational in all

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[83] *See* Peter M. Todd & Henry Brighton, *Building the Theory of Ecological Rationality*, 26 MINDS & MACH. 9, 11 (2016).

[84] *See* Gerd Gigerenzer & Peter M. Todd, *Ecological Rationality: The Normative Study of Heuristics*, *in* ECOLOGICAL RATIONALITY: INTELLIGENCE IN THE WORLD 487, 497 (Peter M. Todd & Gerd Gigerenzer eds., 2012).

[85] *See* Anastasia Kozyreva et al., *Interpreting Uncertainty: A Brief History of Not Knowing*, *in* TAMING UNCERTAINTY 343, 360 (Ralph Hertwig et al. eds., 2019).

[86] A cue is a piece of information present in the external decision-making environment or in the decision-maker's memory. A cue relates to reasons and predictors that market actors rely on when deciding between alternatives. Gerd Gigerenzer & Reinhard Selten, *Rethinking Rationality*, *in* BOUNDED RATIONALITY: THE ADAPTIVE TOOLBOX 1, 5 (Gerd Gigerenzer & Reinhard Selten eds., 2001).

[87] Pete C. Trimmer et al., *The Zoo of Models of Deliberate Ignorance*, *in* DELIBERATE IGNORANCE 155, 164 (Ralph Hertwig & Christoph Engel eds., 2021).

environments.[88] It follows that ecological rationality theory does not assess the conformity of decisions or decision processes with a set of universal axioms. This is a fundamental distinction to rational choice theory.

Another key characteristic of ecological rationality theory is that it determines normative rationality in terms of success (better performance) of cognitive strategies in the real world.[89] That means that a decision mechanism is ecologically rational if it performs better than other available mechanisms in a given environment and reaches a good enough decision in real time and with real resources.[90] "Good enough" indicates that optimization, finding the absolute best decision or a decision that maximizes utility, is not a necessary condition of ecologically rational decision-making.[91] Whether a specific decision mechanism is good enough is determined by performance metrics. Ecological rationality scholars commonly use the performance metrics of accuracy, frugality, and speed.[92] In short, a decision mechanism is successful, and thus ecologically rational, if it reaches an accurate outcome with little time and effort. While the accuracy criterion characterizes the outcome of the decision, the frugality and speed criteria characterize the decision-making process. The theory of ecological rationality, therefore, provides a standard that a choice outcome as well as a decision process ought to conform with. This conclusion is questioned by scholars who contend that ecological rationality is not about the rationality of decision processes.[93] I disagree with this view. Ecological rationality determines which decision processes work well in which environments.[94] It specifies procedures--like heuristics--that a rational actor ought to follow. Therefore, it incorporates process rationality,

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[88] *See* Nathan Berg, *Against Nudging: Simon-Inspired Behavioral Law and Economics Founded on Ecological Rationality*, *in* ROUTLEDGE HANDBOOK OF BOUNDED RATIONALITY 578, 582 (Riccardo Viale ed., 2020).

[89] *See* Gigerenzer & Sturm, *supra* note 68, at 255.

[90] *See id.* at 247.

[91] *See* Gigerenzer & Todd, *supra* note 84, at 497.

[92] *See* Gigerenzer, *supra* note 73, at 3556.

[93] *See* Yulie Foka-Kavalieraki & Niki Sotiriou, *Libertarian Paternalism in Policy Making* 33 (Inst. for Rsch. in Econ. and Fiscal Issues, IREF Working Paper Series, No. 202006) (Oct. 1, 2020), https://enirefeurope.b-cdn.net/wp-content/uploads/sites/3/2020/10/foka-kavalieraki_sotiriou_final.pdf; Lewis A. Kornhauser, *Reflections on Deliberate Ignorance*, *in* DELIBERATE IGNORANCE 217, 232 (Ralph Hertwig & Christoph Engel eds., 2021).

[94] *See, e.g.*, Nathan Berg & Gerd Gigerenzer, *As-if Behavioral Economics: Neoclassical Economics in Disguise?*, XVIII HIST. ECON. IDEAS 133, 149 (2010).

which is another fundamental distinction to rational choice theory, which only determines normative decisions in terms of choice outcomes. Moreover, two further differences to rational choice theory are noteworthy: First, ecological rationality determines the success of a decision-making strategy relative to alternative strategies and not relative to the benchmark of a single rational actor model.[95] Second, the performance metrics of accuracy, frugality, and speed are correspondence criteria, which measure how successful a cognitive strategy matches the structure of the environment.[96] In comparison, rational choice theory assesses actual human judgment and decision-making against coherence criteria (e.g., logical consistency, rules of probability) rather than correspondence criteria.[97]

Having clarified the core elements of ecological rationality theory, we can now assess heuristic decision-making. Heuristics are strategies used by individuals like consumers that are fast and frugal.[98] A heuristic is fast if it can make a decision within little time and thus requires little cognitive resources for its execution and frugal if it only uses a limited part of the available information for its execution.[99] Thus, heuristics economize on information gathering and processing, reducing decision costs. They can be "deployed to simplify matters of judgement, that is, the evaluation of options (including the estimation of probabilities), and/or matters of choice, that is, the process of choosing between those options".[100] Heuristics can be normative under the theory of ecological rationality, and the specific properties of the decision environment determine which heuristic is ecologically rational to use.[101] The normativity of heuristics may appear surprising given that: (1) heuristics are procedures that do not attempt to find the optimal solution to a decision task; and (2) reliance on heuristics cannot guarantee utility-maximizing outcomes. However, ecological rationality scholars have argued that heuristic decision-making can be superior to

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[95] *See* Brighton & Gigerenzer, *supra* note 54, at 97.
[96] *See* Hal R. Arkes et al., *How Bad Is Incoherence?*, 3 DECISION 20, 33 (2016).
[97] *Id.*
[98] *See* Adrien Barton & Till Grüne-Yanoff, *From Libertarian Paternalism to Nudging – and Beyond*, 6 REV. PHIL. & PSYCH. 341, 343 (2015).
[99] *See* Gigerenzer, *supra* note 73, at 3556.
[100] Judith Mehta, *The Discourse of Bounded Rationality in Academic and Policy Arenas: Pathologising the Errant Consumer*, 37 CAMBRIDGE J. ECON. 1243, 1248 (2013).
[101] Sebastian Hafenbrädl et al., *Applied Decision Making with Fast-and-Frugal Heuristics*, 5 J. APPLIED RSCH. MEMORY & COGNITION 215, 218 (2016).

complex optimization strategies in environments characterized by conditions of true uncertainty, computational intractability, and limited knowledge.[102] Their empirical research has shown that heuristics can be as accurate or even more accurate than strategies that use more computation and all the available information in certain environments.[103] These findings do not mean that heuristics always trump optimization strategies, and ecological rationality theory does certainly not claim that heuristics are never maladaptive. In environments in which an optimization strategy like maximizing your expected utility performs better than heuristic decision-making, the optimization strategy is ecologically rational.[104] According to Luan et al., an optimization strategy will generally be superior to a heuristic under conditions of high predictability (risk rather than uncertainty) and little or no limits in knowledge.[105]

2. On the Meaning of Bias and Behavioral Exploitation

Even though the fast-and-frugal heuristics research program focuses on the ecological rationality of heuristics, it is also acknowledged that decision-making based on heuristics can create errors and poor choices.[106] Errors in decision-making can be categorized, and this sheds light on the meaning of the term bias relative to ecological rationality theory and on how behavioral exploitation is assessed under this theory. First, selection errors in decision-making can occur when a consumer selects a decision process that does not fit the environment.[107] Second, application errors in decision-making can result from a maladaptive application of otherwise ecologically rational decision

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[102] *See, e.g.*, Gigerenzer, *supra* note 73, at 3561-62.

[103] *See* Gigerenzer and Sturm, *supra* note 68, at 245-47 (for an overview of empirical research).

[104] *See* Ralph Hertwig et al., *Studies in Ecological Rationality*, TOPICS COGNITIVE SCI. (forthcoming) (manuscript at 19), https://doi.org/10.1111/tops.12567.

[105] Shenghua Luan et al., *Ecological Rationality: Fast-and-Frugal Heuristics for Managerial Decision Making Under Uncertainty*, 62 ACAD. MGMT. J. 1735, 1738 (2019).

[106] *See* Robin M. Hogarth & Natalia Karelaia, *Heuristic and Linear Models of Judgement: Matching Rules and Environments*, 114 PSYCH. REV. 733, 742-44 (2007).

[107] The process of selecting a decision strategy can occur without a conscious decision on how to decide. *See* John W. Payne & James R. Bettman, *Preferential Choice and Adaptive Strategy Use*, *in* BOUNDED RATIONALITY: THE ADAPTIVE TOOLBOX 123, 130-32 (Gerd Gigerenzer & Reinhard Selten eds., 2001) (discussing how decision strategies are selected).

processes. Application errors can occur, for example, when a decision-maker, like a consumer, selects wrong informational cues in an environment or makes mistakes when determining cue validity,[108] weighing cues, or ordering cues according to their validities.[109] Based on this error categorization, consumer decisions are biased if they contain systematic errors in selecting or applying a decision process and therefore systematically deviate from the normative benchmark of an ecologically rational decision. The presence of a bias in decision-making does not necessarily indicate that cognitive limitations or cognitive structures in the human brain (a biased mind) are the reason why the human mind commits errors. The fast-and-frugal heuristics research program actually denies that poor decisions based on heuristics are attributable to cognitive structures in the human brain.[110] Poor decisions are attributed to other reasons like the use of heuristics in unfamiliar environments or behavioral exploitation. A key characteristic of behavioral exploitation is that commercial practices modify consumers' decision environments by setting specific (verbal or non-verbal) cues. Consumers then rely on these cues, causing errors in selecting or applying a decision process, which ultimately leads them to make inaccurate decisions. Such commercial influences on consumer decision-making can cause systematic deviations from ecological rationality theory.

An example of behavioral exploitation in a casino environment is explored by Bennis et al.[111] The authors argue that casino operators typically design the casino environment in such a way that it contributes to gamblers' false beliefs and a corresponding maladaptive application of (normally adaptive) heuristics to the casino's economic advantage.[112] Casino environments contain cues about the success and failure of gambling and about the way machines operate. These cues are relied on by gamblers' heuristics. For example, slot machines emphasize winnings through a wide variety of visual and audio cues, but losses are rarely signaled. This non-representative construction of cues

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[108] *See* Laura Martignon & Ulrich Hoffrage, *Fast, Frugal, and Fit: Simple Heuristics for Paired Comparison*, 52 THEORY & DECISION 29, 34 (2002) (the validity of a cue is its predictive accuracy, ie the probability that the cue identifies the correct alternative).

[109] *Cf.* Hogarth & Karelaia, *supra* note 106, at 742-44.

[110] *See* GERD GIGERENZER, RATIONALITY FOR MORTALS 13-16 (2008).

[111] *See* Will M. Bennis et al., *Designed to Fit Minds: Institutions and Ecological Rationality*, *in* ECOLOGICAL RATIONALITY: INTELLIGENCE IN THE WORLD 410, 421-27 (Peter M. Todd & Gerd Gigerenzer eds., 2012).

[112] *Id.* at 421-22.

creates a perception that players win more often than is actually the case.[113] The perceived validity of the visual and audio cues for winning deviates from the actual cue validity. Gamblers who rely on these cues to form probability judgments about winning or losing create errors in decision-making compared to an ecologically rational decision process.[114] Their decisions are biased. An ecologically rational decision process in a typical casino environment could either be heuristic decision-making that does not take these uninformative cues into account, as argued by Bennis et al.,[115] or it could be an optimization method like utility maximization given that games of chance in a casino are a prototypical example for decision-making under risk.

3. Obstacles for Adopting Ecological Rationality Theory in Consumer Law

What this Section has shown so far is that ecological rationality theory can be used as a frame of analysis for integrating behavioral findings of consumer biases and their exploitation by commercial practices into consumer law and policy. The theory can operate within the dominant paradigm of behavioral law. Yet, a public policymaker who intends to rely on this theory faces significant obstacles. At a theoretical level, a critic may argue that the theory in its current state lacks normative determinacy.[116] For example, the meaning of the accuracy criterion is difficult to establish for decision tasks like consumer choices that are determined by preferences. A clear right answer and an external success criterion does not exist for these tasks. Whereas beliefs can be true or false, preferences cannot. Moreover, the relationship between the different performance metrics is underspecified. It is not clear how much the criteria of speed and frugality should be weighted relative to accuracy. It is not clear whether or in which environments an accuracy-effort trade-off is acceptable.

A further obstacle that is crucial for a public policymaker is a lack of empirical research. This also affects the normative level of ecological rationality theory. In contrast to rational choice theory, the ecological rationality of a decision mechanism cannot be determined a

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[113] *See id.* at 422-23 (in detail).
[114] *Id.*
[115] *See id.* at 421, 427.
[116] *See* Patricia Rich, *Axiomatic and Ecological Rationality: Choosing Costs and Benefits*, 9 ERASMUS J. FOR PHIL. & ECON. 90, 103-05 (2016).

priori based on abstract principles but requires empirical research.[117] Empirical research rather than axiomatic reasoning can show whether a specific decision mechanism, like a heuristic, is (mal)adaptive in a particular environment. Even if empirical research is available, a public policymaker cannot simply extrapolate empirical results for one environment to other environments because the ecological rationality of a decision mechanism is environment-specific. This issue could be overcome or mitigated with a theory of the environment or a typology of environments. These theories would not only allow for generalizations from empirical findings in one environment to other environments, but eventually, also allow the identification of a priori conditions in which a particular decision mechanism should or should not be used.[118] Ecological rationality scholars have indeed worked on clarifying – in the abstract – the environmental conditions under which heuristics are ecologically rational. So far, however, these findings remain at a level that lacks the theoretical specificity that a public policymaker requires. The consequence is that the normative benchmark of ecological rationality theory is indeterminate. For example, the theoretical prediction that heuristics will generally be inferior to an optimization strategy under conditions of high predictability (risk rather than uncertainty) and little or no limits in knowledge remains too vague to be workable for legal purposes. Furthermore, there are many dimensions by which an environment can be described. Relevant environmental properties are, for example, the degree of uncertainty in the environment, the number of available alternatives, the number of available cues, the predictive validity of cues, the variations of cue validities in an environment, the level of redundancy (correlation between cues) and the size of the learning sample (the smaller the sample size, the greater the advantage for heuristics).[119] Gigerenzer and Sturm admit that they "do not yet know whether it is possible to completely classify environmental structures".[120] The bottom line is that the theory of ecological rationality in its current state cannot predict whether and the extent to which the success of a particular heuristic in a specific environment can generalize to other environments.[121] Likewise, it cannot predict whether and the extent to which the failure of a heuristic in

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[117] *See* Gigerenzer & Sturm, *supra* note 68, at 247, 261.
[118] *See* Hertwig et al., *supra* note 104 at 16.
[119] *See id.* at 5.
[120] Gigerenzer & Sturm, *supra* note 68 at 256.
[121] *See* Hogarth & Karelaia, *supra* note 106, at 737.

a specific environment can generalize to other environments. Ecological rationality scholars have not yet developed a typology of heuristic failures or mapped the environmental conditions under which heuristics are unsuccessful. Given that fast-and-frugal heuristics researchers rarely analyze environments in which heuristics fail, there is limited empirical and theoretical work on which a public policymaker can rely. This limits the utility of ecological rationality theory for behaviorally informed consumer law and policy that operates within the dominant paradigm of human biases. This limitation however, can be overcome by future research.

B. Autonomy Theory

This Section advances the literature by mapping out how autonomy theory can function as a normative foundation for behaviorally informed consumer law and policy that operates within the dominant paradigm of behavioral law. First, the Section introduces autonomy as a theoretical concept, a foundational value for consumer choice, and a meta-objective of consumer law. Second, it specifies the meaning of autonomy as a normative benchmark for consumer decisions by detailing the requirements for an autonomous choice. Third, the Section defines the term bias relative to the dominant autonomy benchmark in legal scholarship and determines the meaning of behavioral exploitation in an autonomy framework. Fourth, the Section discusses behaviorally informed conceptions of autonomous choice, which highlights how behavioral insights about consumer decision-making can affect the normative autonomy benchmark.

1. Autonomy as a Normative Theory of Choice

Individual autonomy is often defined as the capacity to be one's own person. That is, to determine the course of one's life by oneself according to reasons and motives that one takes to be one's own and not the product of manipulative or distorting external forces.[122] In exercising this capacity, individuals make their own choices, choose how

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[122] *See e.g.*, John Christman, *Autonomy in Moral and Political Philosophy*, *in* STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., 2015) (June 29, 2020), https://plato.stanford.edu/entries/autonomy-moral/.

to live a particular life, and build their own identity.[123] It is the actual exercise of this capacity of self-authored choice that is at the heart of the concept of autonomy.[124] The discussion in this Section therefore focuses on autonomous consumer choices rather than on autonomous consumers' general capacity for self-governance. In moral philosophy, Rawls has identified autonomy as non-instrumentally valuable as it is among the "highest-order interests of moral personality" that "enable human beings to realize and exercise their moral powers and to pursue their final ends".[125] Young has added that the exercise of personal autonomy is intrinsically valuable because determining the course of one's life by oneself is foundational for one's self-esteem.[126] Both scholars see autonomy as an independent value and not simply a means to achieve welfare by satisfying one's preferences. If making one's own decisions is valuable in itself, the normative justification for consumer choice lies in enabling autonomous decision-making rather than generating welfare. Autonomy thus functions as the rationale and foundational value for consumer choice. Given that consumer law aims to facilitate the exercise of effective consumer choice,[127] autonomy can function as a foundational value and meta-objective of consumer law. What that means is that a key purpose of consumer law is to ensure that consumers can make autonomous choices. In such a frame of analysis, autonomy theory is imported into behaviorally informed legal analysis as a normative theory of choice. It sets the normative benchmark against which actual consumer decisions are assessed.

2. Requirements of an Autonomous Choice

The normative benchmark for autonomous consumer judgment and decision-making can be specified by detailing the requirements for an autonomous choice. In order to unpack those requirements, it is necessary to distinguish between two components of autonomous choice:

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[123] *See* Christine Korsgaard, *Personal Identity and the Unity of Agency*, 18 PHIL. & PUB. AFF. 101, 119-26 (1989).

[124] *See* Michal S. Gal, *Algorithmic Challenges to Autonomous Choice*, 25 MICH. TECH. L. REV. 59, 79-80 (2018).

[125] John Rawls, *Kantian Constructivism in Moral Theory*, 77 J. PHIL. 515, 526-7 (1980).

[126] *See* Robert Young, *The Value of Autonomy*, 32 PHIL. Q. 35, 40, 43 (1982).

[127] Neil W. Averitt & Robert H. Lande, *Consumer Choice: The Practical Reason for Both Antitrust and Consumer Protection Law*, 10 LOY. CONSUMER L. REV. 44 (1998).

freedom of choice and freedom of the process of decision-making. It is the latter component of autonomy theory that is particularly relevant for behaviorally informed consumer law. That is because behavioral exploitation and nudging do not alter or block off choice options, i.e., these influences on consumer decision-making preserve freedom of choice, but they interfere with consumers' freedom of the process of decision-making.[128] It is therefore necessary to specify when a consumer's process of decision-making is autonomous. This is a complex venture because it requires one to determine the controversial relationship between autonomy and rationality. Scholars often demand that a rationality requirement of some sort is a necessary condition for autonomous decision-making.[129] In these accounts of autonomy, rationality is not an attribute of the choice outcome like in rational choice theory. It is an attribute of the decision-making process instead. In contrast to rational choice theory, autonomy theory determines normative decisions in terms of decision processes and not in terms of choice outcomes. Even though process rationality can come in many forms, there is widespread agreement in the literature on rationality that a rational choice must be a choice based on reasons.[130] A dominant view in the literature on autonomy has adopted this basic element of process rationality and requires reasoned decision-making as a necessary condition for autonomous choice.[131] Another way to express this requirement is to stipulate that an autonomous choice is a choice that is the result of deliberation.

What does it mean to deliberate, and how should a consumer deliberate? Even though it is theoretically possible to demand that an autonomous consumer ought to adopt (expected) utility maximization as a deliberation process,[132] three arguments militate against adopting

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[128] *See infra* Part IV.C and IV.D.

[129] For discussion, *see* John Christman, *Constructing the Inner Citadel: Recent Work on the Concept of Autonomy*, 99 ETHICS 109, 115-16 (1988); RICHARD LINDLEY, AUTONOMY 13-70 (1986).

[130] *See, e.g.*, Nomy Arpaly, *On Acting Rationally Against One's Best Judgment*, 110 ETHICS 488, 512 (2000); AMARTYA SEN, RATIONALITY AND FREEDOM 4, 47 (2002).

[131] *See, e.g.*, Richard J. Arneson, *Autonomy and Preference Formation*, *in* IN HARM'S WAY: ESSAYS IN HONOR OF JOEL FEINBERG 42, 46-7 (Jules L. Coleman & Allan Buchanan eds., 1994); GERALD DWORKIN, THE THEORY AND PRACTICE OF AUTONOMY 15 (1988); Lawrence Haworth, *Autonomy and Utility*, 95 ETHICS 5, 10 (1984).

[132] What that means is that an autonomous consumer ought to take all competing alternatives into account, examine every available alternative for its likely consequences/outcomes, compute the probability of each consequence/outcome in accordance with the rules of Bayesian probability theory, calculate the (expected) utility of

such a meaning of deliberation. First, a decision process that maximizes expected utility can involve elaborate calculations with the consequence that the decision process can become prohibitively costly – in terms of time spent on making the decision – to perform.[133] Other scholars take this argument further and assert that the computational demands of applying expected utility theory to the complex problems consumers face in everyday life far exceed their cognitive capacities due to the human brain's finite computational resources.[134] Second, expected utility maximization cannot guide consumer decision-making in conditions of true uncertainty as I have explained previously in this Article. Third, Schwartz has identified the following dimensions of psychological detriment that are associated with maximizing decision processes: Maximizers, compared to satisficers, are (a) more inclined to regret choices, (b) have lower life satisfaction, (c) give lower happiness ratings, (d) are more pessimistic and (e) get higher depression scores.[135]

The dominant view in legal scholarship has adopted a different meaning of deliberation: reasoned decision-making which is based on conscious reflection is seen as the model of autonomous choice.[136] This implies that an individual must be aware of the reasons that drive her choice and accept that those reasons drive her choice.[137] According to Yeung, a model autonomous decision is "made by a mentally competent, fully informed agent, arrived at through a process of rational self-deliberation, so that the agent's chosen outcome can be justified and explained by reference to reasons which the agent has identified and endorsed."[138] Yeung's normative autonomy standard can arguably accommodate incoherent preferences because an autonomous consumer can hold incoherent preferences which are based on reasons that

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each alternative, rank the alternatives, and then maximize (expected) utility by choosing the alternative with the highest expected utility (the alternative that maximizes expected benefits and minimizes expected costs).

[133] *See* Falk Lieder et al., *The Anchoring Bias Reflects Rational Use of Cognitive Resources*, 25 PSYCHONOMIC BULL. & REV. 322, 323 (2018).

[134] *See* Bossaerts & Murawski, *supra* note 71, at 917-29.

[135] See BARRY SCHWARTZ, THE PARADOX OF CHOICE: WHY MORE IS LESS (2004).

[136] *See e.g.*, Cass R. Sunstein, *Manipulation, Welfare, and Dignity: A Reply*, SSRN 1-2 (Mar. 1, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2661534; Susser et al., *supra* note 25, at 36; Karen Yeung, *Nudge as Fudge*, 75 MOD. L. REV. 122, 135 (2012).

[137] *See* GUILHEM LECOUTEUX, RECONCILING NORMATIVE AND BEHAVIOURAL ECONOMICS 130-31 (2015).

[138] Yeung, *supra* note 136, at 135.

the consumer is aware of and accepts as her own. For example, a consumer can act on context-dependent preferences when purchasing food items, reflect on the actions she has taken, recognize that her choices vary depending on the way the various food options are presented, and still think of the choices as her own. This clarifies that autonomous decisions may not comply with the "as if" assumptions of rational choice theory or achieve utility-maximizing outcomes. Autonomous decisions may not and do not have to maximize the welfare of the consumer if welfare is understood as preference satisfaction. This is also illustrated by the argument that autonomy incorporates the freedom to make mistakes and to live out one's own life in accordance with them.[139] Such an account of autonomy shows that reasoned decision-making as a necessary condition for autonomous choice does not depend on compliance with norms like logic or probability theory. Even though orthodox accounts of process rationality require that rational reasoning follows certain domain-general rules like logic or probability theory,[140] a rationality requirement that is incorporated into the autonomy benchmark does not have to be identical with and can deviate from one's understanding of process rationality. One can be autonomous without being fully process rational. Lindley has explained the difference between both concepts as follows: "[W]hilst autonomy is primarily a matter of authorship, rationality is essentially a matter of acceptability".[141]

3. On the Meaning of Bias and Behavioral Exploitation

Legal scholars who analyze the implications of consumer biases for consumer law and who adopt autonomy theory as a conceptual framework for consumer law often define the term consumer bias relative to rational choice theory.[142] This mixing together of elements of orthodox behavioral law and economics and autonomy theory is not convincing. In an autonomy framework, autonomy theory functions as a normative benchmark against which actual consumer decisions are assessed. Hence, the term bias should be defined as a systematic

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[139] *See* Wright & Ginsburg, *supra* note 7, at 1072.

[140] *See* Susan Hurley & Matthew Nudds, *The Questions of Animal Rationality: Theory and Evidence*, *in* RATIONAL ANIMALS? 1, 10-11 (Susan Hurley & Matthew Nudds eds., 2006) for a discussion of these accounts.

[141] LINDLEY, *supra* note 129, at 21.

[142] *See* Sibony & Alemanno, *supra* note 9, at 18-19; Susser et al., *supra* note 25, at 22, 35, 38; Yeung, *supra* note 22, at 120, 123.

deviation of actual consumer judgment and decision-making from autonomous judgment and decision-making. If one were to adopt Yeung's normative autonomy standard, consumer decisions would be biased if they systematically deviated from this normative standard.

This meaning of the term bias can be further specified by distinguishing between two elements of autonomy: procedural independence and self-determination (self-control).[143] "Procedural independence refers to one's relationship with others; self-control, to one's relationship with oneself".[144] Procedural independence means that autonomy encompasses the freedom from coercion and manipulation or other distorting external influences.[145] An autonomous choice must therefore be independent of such distorting external influences. Whereas procedural independence can be described as an external condition of autonomous choice (relating to a person's environment), self-determination can be described as an internal condition of autonomous choice (relating to the person themselves). The distinction between procedural independence and self-determination maps onto the two regulatory contexts mentioned in the Introduction of this Article as follows. A non-deliberative choice is biased relative to autonomy as self-determination if the choice is the result of a biased mind irrespective of the influence of commercial practices on choice. A non-deliberative choice is biased relative to autonomy as procedural independence if the choice was caused by a distorting external influence like behavioral exploitation.

What is clear is that not every external influence on the decision-making process is distorting and can be deemed a violation of autonomy.[146] The difficulty lies in differentiating between autonomy-violating and non-violating influences. This issue of where to draw the line between a distorting external influence and a permissible burden on autonomy has to be resolved when determining the meaning of the term bias relative to a normative autonomy standard in an individual case. At an abstract level, it is possible to further specify the meaning of behavioral exploitation in an autonomy framework as follows. Based on Yeung's normative autonomy standard, a key characteristic of behavioral exploitation is that a commercial practice affects a

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[143] *See* Arneson, *supra* note 131, at 54, who speaks of "the independence condition" and the "real self condition".

[144] Haworth, *supra* note 131, at 8.

[145] *See* JOSEPH RAZ, THE MORALITY OF FREEDOM 372-73 (1986).

[146] *See* Susser et al., *supra* note 25, at 17.

bypassing, undermining, or impairing of a consumer's reflective decision-making processes, for example by setting a default or an anchor that triggers unreflective decision-making.[147] The resulting decision is determined by non-deliberative processes that the consumer is not aware of and that, therefore, do not constitute reasons that the consumer has identified and endorsed. This illustrates the difference between behavioral exploitation and rational persuasion. Rational persuasion occurs if a business practice changes consumer decision-making by giving reasons that a consumer consciously deliberates and reflects on.[148]

4. Behaviorally Informed Conceptions of Autonomous Choice

Having mapped out autonomy theory as a normative foundation for behaviorally informed consumer law, I now discuss possible implications of behavioral insights about consumer decision-making for the normative autonomy benchmark itself. This is necessary because calls for adopting a more psychologically realistic conception of autonomy are growing.[149] However, the aim of this Section is not to develop a critique of conscious reflection as a normative autonomy benchmark. The aim is to show that autonomy theory can function as a normative foundation for behaviorally informed consumer law irrespective of the specific autonomy standard that one adopts. Deviating from conscious reflection and adopting a behaviorally informed autonomy benchmark would of course affect the meaning of the term bias and behavioral exploitation. It would also widen the differences between autonomy theory and rational choice theory.

A behaviorally informed conception of autonomy can come in different forms, and this Section introduces three such forms in the following. First, it is possible to relax the condition that autonomous agents, like consumers, must be fully informed. This position is adopted by Mongin, for example, who argues that a well-conducted deliberation is a good reason for a choice it results in, which makes the

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[147] Not all defaults trigger unreflective decision-making. A default may be perceived by consumers as a recommendation from the default setter. Consumers may use the default as an information surrogate and deliberately choose the default (for discussion, *see* MARIO J RIZZO & GLEN WHITMAN, ESCAPING PATERNALISM 285-86 (2020).

[148] *See* Susser et al., *supra* note 25, at 14.

[149] *See e.g.*, Bart Engelen & Thomas Nys, *Nudging and Autonomy: Analyzing and Alleviating the Worries*, 11 REV. PHIL. & PSYCH. 137, 143 (2020).

choice a rational choice.[150] "Well-conducted" refers to the properties of the deliberation process, and different well-conducted, and therefore rational, deliberations can lead to different outcomes.[151] Well-conducted in this context does not have to mean that the decision must be based on full information. This view is supported by empirical research. Research on fast-and-frugal heuristics has shown, for example, that ignoring information can yield better performance compared to a decision strategy that uses all the available information in certain environments.[152] Other empirical research demonstrates that excessive information may lead to information overload, which reduces the ability to critically reflect and the quality of decision-making.[153] Hacker concludes based on this research that providing excessive information to a consumer violates the procedural independence requirement of autonomy.[154] Engel and Hertwig go even further in relaxing the condition of full information. They argue that deliberate ignorance – the conscious choice not to seek or use decision-relevant information in situations where the marginal acquisition costs are negligible and the benefits potentially large – does not necessarily undermine the capacity to make autonomous choices based on reasons, because using one's own reason can mean choosing not to know.[155] A consumer can use deliberate ignorance as a cognitive tool for various reasons, for example as a tool for information management to avoid information overload in informationally fattening digital environments.[156] What is clear is that theories of autonomous choice that relax the condition of full information can deviate from the assumption of rational choice theory that a rational actor considers all available relevant information.

A second behaviorally informed conception of autonomy relaxes the condition of conscious reflection. It could be argued that a normative autonomy standard can accommodate heuristic decision-

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[150] Philippe Mongin, *Does Optimization Imply Rationality?*, 124 SYNTHESE 73, 94 (2000).
[151] *Id.*
[152] *See supra* Part III.A.1.
[153] *See* Simona Botti and Sheena S. Iyengar, *The Dark Side of Choice: When Choice Impairs Social Welfare*, 25 J. PUB. POL'Y & MARKETING 24, 26-28 (2006).
[154] *See* Philipp Hacker, *Nudging and Autonomy*, *in* RESEARCH METHODS IN CONSUMER LAW: A HANDBOOK 77, 109 (Hans-Wolfgang Micklitz et al. eds., 2018).
[155] *See* Ralph Hertwig & Christoph Engel, *Homo Ignorans: Deliberately Choosing Not to Know*, 11 PERSP. ON PSYCH. SCI. 359, 365 (2016).
[156] *See* Anastasia Kozyreva et al., *Citizens Versus the Internet: Confronting Digital Challenges with Cognitive Tools*, 21 PSYCH. SCI. PUB. INT. 103, 135-36 (2020).

making as long as it includes limited conscious reflection. This view takes into account that consumers have limited time and limited cognitive resources that impose computational constraints. Linking heuristics with conscious reflection is possible because heuristic decision-making is based on information and, importantly, it can be reflective. It is often said that heuristics are automatic processes that do not involve conscious cognitive control.[157] This view has to be qualified as heuristics can be either consciously deployed strategies or automatic, intuitive processes that are deployed without active awareness.[158] According to Kruglanski and Gigerenzer, heuristics can form the basis of deliberative judgments, when deliberative denotes judgments rendered with forethought and cognitive effort.[159]

A third behaviorally informed conception of autonomy assumes that choices can be guided by good reasons without consumers engaging in conscious reflection. There exist different accounts of such a normative autonomy standard. Mullin, for example, does not adopt an understanding of autonomy that requires a person to govern the self in accordance with what is reflected upon. Instead, she adopts an understanding of autonomy that requires a person to govern the self in accordance with what the person cares about.[160] What a person cares about can include ideals, things, or people that are not easily accessible by conscious reflection.[161] Unconscious thought processes, imaginative activity, and emotional responses can determine what one cares about.[162] If Mullin's account of autonomy were adopted as a normative theory of choice, consumer decision-making would be biased if it systematically deviated from decision-making that is governed by what the consumer cares about. This meaning of the term bias would differ markedly from how the term bias is understood in orthodox behavioral law and economics. It is important to note that Mullin's account and other behaviorally informed conceptions of autonomy that incorporate decision-making without conscious reflection do not necessarily break

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[157] *See, e.g.*, Tim Rakow & William J. Skylark, *Judgement Heuristics*, *in* THE ROUTLEDGE INTERNATIONAL HANDBOOK OF THINKING AND REASONING 451, 453 (Linden J. Ball & Valerie A. Thompson eds., 2017).

[158] *See* Arie W. Kruglanski & Gerd Gigerenzer, *Intuitive and Deliberate Judgments Are Based on Common Principles*, (2011) 118 PSYCH. REV. 97, 100-01.

[159] *Id.* at 100.

[160] *See* Amy Mullin, *Children, Autonomy, and Care*, 38 J. SOC. PHIL. 536, 538 (2007).

[161] See *id.* at 540.

[162] See *id.* at 539-40.

the connection between autonomous and rational decision-making. That is because heuristic decision-making without conscious reflection can be rational under some accounts of normative rationality. Ecological rationality is one such account. Heuristics can be expressed as decision rules one *reasons* in accordance with,[163] and an ecologically rational heuristic is a good reason for a decision, even if the heuristic does not involve conscious reflection. Another account is Lieder and Griffiths's "resource rationality". They define human rationality as reasoning and deciding according to cognitive strategies that make the optimal use of finite time and the mind's limited cognitive resources.[164] Heuristic decision-making can be rational it if reflects the optimal use of finite time and limited computational resources.[165] If using a resource-rational heuristic were to satisfy the rationality requirement of autonomous decision-making, autonomy theory would deviate from rational choice theory because adopting a resource-rational decision-making process can lead to systematic deviations from the tenets of expected utility theory.[166]

To summarize, this Section has demonstrated that autonomy theory can function as a normative framework for behaviorally informed consumer law and policy within the dominant paradigm of behavioral law. The Section also highlighted the differences between autonomy theory and rational choice theory as normative theories of choice. These differences are most pronounced if a behaviorally informed conception of autonomy is adopted. Due to these differences, it cannot be assumed that adopting either orthodox behavioral law and economics or autonomy theory as a frame of analysis for consumer law would lead to roughly equivalent results. For example, if a commercial

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[163] *See* Kruglanski & Gigerenzer, *supra* note 158, at 100. Even if one disagrees with the view that heuristics can be conceptualized as reasoning processes (*see* Hurley & Nudds, *supra* note 140, at 12-13), it does not follow that heuristic decision-making is irrational and non-autonomous. The connections between heuristics and rationality and rationality and autonomous choice can still be established, but this would require non-standard theories of process rationality and autonomy. For example, heuristics can be a rational decision process under ecological rationality theory. The use of an ecologically rational heuristic may then establish the link between rationality and autonomy, but this would require an alternative conception of autonomous choice that is not dependent on reasoned decision-making.

[164] *See* Falk Lieder & Thomas L. Griffiths, *Resource-Rational Analysis: Understanding Human Cognition as the Optimal Use of Limited Computational Resources*, 43 BEHAV. & BRAIN SCI. e1: 1, 13 (2020).

[165] *See id.* at 13.

[166] *See* Lieder, *supra* note 80, at 287-89.

practice triggers a consumer bias relative to rational choice theory, the decision-making may still be autonomous. If a commercial practice triggers a consumer bias relative to autonomy theory, the consumer choice may still be utility-maximizing. Biased consumer choice relative to rational choice theory is not equivalent to biased consumer decision-making relative to autonomy theory.

IV. BEYOND THE DOMINANT PARADIGM OF BEHAVIORAL LAW

The previous Part of this Article has developed alternative foundations for behaviorally informed consumer law and policy within the dominant paradigm of behavioral law that analyzes the implications of human biases for law and policy. This Part breaks with this paradigm. Section A adds a new theoretical legal perspective against the preoccupation of behavioral law with human biases. This perspective highlights frictions between the concepts of consumer bias and consumer harm and is then further developed into a novel frame of analysis for behaviorally informed consumer law and policy that is grounded in the study of consumer heuristics rather than consumer biases. Section B identifies characteristics of heuristic decision-making and differentiates heuristics from the concept of bias. Applying the novel frame of analysis, Section C reconceptualizes the regulatory contexts of behavioral exploitation and biased consumer decisions that are the result of a biased mind, and Section D redefines the regulatory tools of nudging and debiasing. Sections C and D provide answers to the two key questions for behaviorally informed consumer law that were raised in the Introduction to this Article: What implications arise from empirical insights about actual consumer behavior (here: consumer heuristic decision-making) for consumer law? How can we incorporate these insights into legal analysis?

A. Consumer Biases v. Consumer Harm

This Section begins by positing that preventing or reducing harm serves as the rationale for state intervention in consumer markets with biased consumers. The Section then explains the distinction between consumer biases and consumer harm. Applying both concepts in public policymaking can lead to frictions. In order to demonstrate this, the Section shows that the policy objective that a public

policymaker pursues with consumer law is a key determinant of a consumer law's theory of harm. Since this objective can itself incorporate a normative theory of choice, mismatches between bias and harm can occur. To prevent these mismatches, the Section argues that the distinctive concept of consumer bias should be avoided when defining regulatory contexts for public policymaking.

What is the rationale for state intervention in consumer markets with biased consumers? In the field of judgment and decision-making, the term bias describes a systematic deviation of actual judgment and decision-making from a normative model.[167] If such a deviation occurs, it may be possible to improve judgments and decisions with interventions so that they align closer with the normative model. From a legal perspective, however, a consumer bias is, by itself, not a sufficient reason for state intervention. The state may intervene in consumer markets when market outcomes fail to achieve a policy objective that the state pursues. Hence, the rationale for intervention is to prevent or reduce harm to this objective, which may be caused by commercial practices exploiting consumer biases or by biased consumer behavior irrespective of the influence of commercial practices on choice. Bias and harm are two separate concepts. They can diverge because a biased consumer choice does not necessarily lead to harm. For example, biased consumer decisions relative to a normative autonomy standard may not reduce market efficiency, that is, they may not create harm to social welfare. This example shows that the concept of harm is not limited to harm to individuals. Just like the term bias can be defined relative to different normative theories of choice, the concept of harm can be defined relative to different policy objectives. Depending on the policy objective, harm may be assessed at societal level. For example, harm can be determined in a social welfare framework, in which welfare is not assessed at individual consumer but at societal level (overall market efficiency). Biased consumer decisions that do not enhance welfare at individual level may not lead to harm to aggregate welfare at societal level. One reason for this is that it cannot be ruled out that different biases in different consumer populations offset each other at market level. Another reason is that a commercial practice may only trigger a bias and lead to harm to individual welfare in a specific consumer population. After taking the benefits of the

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[167] *See* Jonathan Baron, *The Point of Normative Models in Judgment and Decision Making*, 3 FRONTIERS PSYCH. 1 (2012).

commercial practice at market level into account, the benefits may outweigh the harm in the aggregate. A market-specific analysis is therefore required to determine whether consumer biases are detrimental to overall social or consumer welfare.[168] The concepts of bias and harm can also diverge if bias is defined relative to rational choice theory and welfare harm is assessed at individual consumer level. Schwartz has argued, for example, that if a consumer suffers from numerous biases in particular choice situations, these biases may offset each other with the consequence that welfare harm does not occur.[169] Lunn and Lyons opine that it is possible that for some consumers a bias makes them better off.[170] Gigerenzer and Berg further observe that "[n]o studies we are aware of show that deviators from rational choice earn less money, live shorter lives, or are less happy".[171]

Having analyzed the difference between the concepts of consumer bias and consumer harm, I will now show that applying both concepts in public policymaking can lead to frictions. In order to develop this argument, it is first of all necessary to further specify the meaning of consumer harm. What a legal system "considers at any point in time as the harm(s) to consumers which are to be avoided or reduced is a matter of normative choice".[172] It is the theory of harm that specifies which market outcomes are considered injurious and sets general propositions describing when consumers suffer harm that calls for legal intervention.[173] Examples of consumer harm are a restriction of consumer choice, financial harms, physical harms, time loss, or psychological harms. Yet, what concerns us here are the determinants of a theory of harm at a more abstract level. These determinants include the protective aims (ultimate goals) of consumer law. These aims are

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[168] *See* Pete Lunn & Sean Lyons, *Behavioural Economics and "Vulnerable Consumers": A Summary of Evidence* 8 (Report for the Communications Consumer Panel) (Dec. 9, 2010), https://www.communicationsconsumerpanel.org.uk/downloads/what-we-do/previous-projects/access-and-inclusion/Behavioural%20Economics%20and%20Vulnerable%20Consumers%20final%20report%20correct%20date.pdf.

[169] *See* Alan Schwartz, *Regulating for Rationality*, 67 STAN. L. REV. 1373, 1380 (2015).

[170] Lunn & Lyons, *supra* note 168, at 8.

[171] Berg & Gigerenzer, *supra* note 94, at 148.

[172] Fabrizio Esposito & Anne-Lise Sibony, *In Search of the Theory of Harm in EU Consumer Law: Lessons from the Consumer Fitness Check*, SSRN 9 (Cahiers du CeDIE working papers, No. 2019/04) (June 28, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3410990.

[173] *See id.* at 8, 10.

not limited to economic regulation targeted at enhancing social welfare. Regulation in general is neither limited by an economic theory of harm nor dependent on market failures that state intervention intends to correct in order to maximize economic efficiency. Regulation can pursue various aims that stand outside the correction of economic market failures.[174] Such aims include the upholding of fundamental values like human rights, equality, non-discrimination, fairness, or the rule of law.[175] It is ultimately the policymaker who exercises discretion when determining the regulatory aim, which is subject to compliance with constitutional law rather than economic theory. What that means for consumer law is that consumer law can pursue a variety of legitimate aims, such as overall social welfare, consumer welfare (consumer surplus), consumer autonomy, fair consumer market outcomes, consumer privacy, or protecting reasonable consumer expectations. A consumer law's conception of harm is shaped by the law's protective aim(s), or in other words by the policy objective(s) that a policymaker pursues. From a policymaker's rather than an individual litigant's perspective, consumer harm can therefore be defined as negative outcomes for consumers relative to a normative benchmark set by a policy objective. State intervention in consumer markets may be warranted if commercial practices or consumer behavior violate and, therefore, harm this objective.[176] Since this objective can itself incorporate a normative theory of choice, mismatches between bias and harm can occur when the theory of choice inherent in the policy objective is not consistent with the normative benchmark for judgment and decision-making inherent in the term bias. The following scenario illustrates this point.

Let us assume that (1) the term bias is defined relative to a normative autonomy standard and (2) a public policymaker intervenes in

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[174] *See* TONY PROSSER, THE REGULATORY ENTERPRISE: GOVERNMENT, REGULATION, AND LEGITIMACY 11-19 (2010); ZAMIR & TEICHMAN, *supra* note 48, at 164.

[175] Julia Black & Andrew Murray, *Regulating AI and Machine Learning: Setting the Regulatory Agenda*, (2019) 10 EUR. J. L. & TECH. 1, 10.

[176] Private law scholarship often distinguishes between a violation of a right or a law and the harm to individuals caused by this violation. This distinction is important from an individual litigant's perspective as a violation of a right or a law may not result in cognizable harm and may thus not be actionable (*see* Gideon Parchomovsky & Alex Stein, *Autonomy*, 71 U. TORONTO L.J. 61, 73-74 (2021) (criticizing the possibility of harmless and, hence, non-actionable violations of rights). This distinction is not relevant from the perspective of a public policymaker who intervenes in consumer markets if a policy objective is violated. In such a case, the violation of the policy objective coincides with the harm to that policy objective.

commercial practices that exploit consumer biases in order to protect overall social welfare. Let us further assume a scenario in which consumer decisions are influenced by a commercial practice but remain autonomous. Part III.B of this Article already explained that consumers who reach an autonomous decision can fail to advance their welfare, for example, when they hold incoherent preferences. It is therefore possible in this scenario that the choice outcomes do not enhance consumer welfare, which may lead to harm to social welfare, even though the consumer decision-making is autonomous, which means that there is no bias. This scenario shows that relying on the term bias to define behavioral exploitation risks that the concept of behavioral exploitation remains under-inclusive and fails to capture all relevant harms. The issue is that two different normative benchmarks for the separate concepts of bias and harm, that are not in harmony with each other, are in operation in this scenario. The autonomy benchmark for judgment and decision-making that is incorporated in the term bias is not consistent with the welfare standard that is used to assess consumer harm, which according to orthodox welfare economics incorporates rational choice theory as a normative benchmark for judgment and decision-making.[177] The starting point for solving this issue was laid out at the beginning of this Section: It is the avoidance or reduction of harm that justifies state intervention in consumer markets. If commercial practices violate a policy objective that a public policymaker intends to pursue with consumer law, but the law does not capture these cases due to the normative theory of choice inherent in the term bias, then the meaning or use of the term bias ought to be questioned. Such mismatches between bias and harm can indeed be avoided. A first option would be to ensure that the normative theories of choice in the concepts of bias and harm are identical. For example, if bias were determined relative to autonomous choice, harm could be assessed relative to consumer autonomy as a policy objective. The scenario at the beginning of this paragraph illustrates that this option is not attractive as it would fail to capture all relevant harms. A public policymaker may prefer to capture both harms to welfare and autonomy when regulating behavioral exploitation. This goal can be achieved by adopting a definition

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[177] One of the conditions of efficient (welfare-maximizing) market outcomes is that individual market actors conform to the assumptions of rational choice theory (*see* Zamir, *supra* note 41, at 246-47). Using rational choice theory as a normative benchmark for consumer choice that is integrated into a theory of consumer harm faces the same objections that were laid out in Part II.B and Part II.C of this Article.

of behavioral exploitation which is not limited in its scope by a specific normative theory of consumer choice that is incorporated in the term bias. A second option that prevents mismatches between bias and harm is therefore more attractive. This option avoids a distinctive concept of bias when defining behavioral exploitation. It has the advantage that regulating behavioral exploitation can capture both harms to welfare and autonomy without being under-inclusive.

Before elucidating this option in Section C below, it is necessary to point out that the argumentation in the previous paragraph also holds for state intervention in biased consumer decisions that are the result of a biased mind irrespective of the influence of commercial practices on choice. Whereas behavioral exploitation refers to exogenous causes of biased consumer behavior, a biased mind has endogenous causes. For example, biased consumer choices can originate in limited cognitive capacities. In economic parlance, the source of the behavioral market failure in this context is seen in the human mind rather than in market mechanisms that promote consumer biases.[178] Bias is attributed to a person's own fallibility rather than exploitation by others. Sunstein, for example, speaks of market failures that "stem from the human propensity to err".[179] Kahneman and Tversky use the term "cognitive illusion".[180] This Article uses the expression "biased mind". State intervention in biased consumer decisions that are the result of a biased mind may be justified if these consumer decisions fall short of reaching a policy objective that the state protects, for example, overall social welfare or public health.[181] The protected objective is adversely affected by these consumer decisions, which means that it is harmed. The previous paragraph has explained why the concepts of bias and harm may not correspond with each other. These arguments apply here, too. For example, unbiased consumer decisions relative to a normative autonomy standard may result in choice outcomes that do not enhance consumer welfare, which may lead to harm to social

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[178] *See* SUNSTEIN, *supra* note 14, at 15 (2014).

[179] *Id.* at 16.

[180] Daniel Kahneman & Amos Tversky, *On the Reality of Cognitive Illusions*, 103 PSYCH. REV. 582-91 (1996).

[181] State interventions in biased consumer choices that are the result of a biased mind are often aimed at furthering a consumer's own good. A discussion of the possible justifications for these paternalistic interventions in people's freedom lies outside the scope of this Article. Behavioral paternalism is hotly debated, and the literature on this topic is vast. *See, e.g.*, SUNSTEIN, *supra* note 14; RIZZO & WHITMAN, *supra* note 147.

welfare. If the concept of a biased mind were used to characterize the regulatory context that may call for state intervention, a public policymaker could not pursue the welfare objective in this example due to the absence of consumer biases. This illustrates that the concept of a biased mind can fail to capture all relevant types of consumer harm. The reason for this shortcoming is a mismatch between bias and harm, which can be avoided if the term bias is omitted.

B. Heuristics as an Alternative to Biases

If consumer biases should be omitted when defining regulatory contexts for public policymaking, what is the alternative? The starting point for answering this question is empirical insights about actual consumer behavior. A plethora of psychological and economic research has argued that the underlying psychological processes of a multitude of actual consumer judgments and choices are heuristics. The heuristics-and-biases research program, for example, has established that biases result from people's use of heuristics.[182] This view is also prominent in the literature on reasoning.[183] The fast-and-frugal heuristics research program agrees with the notion that people's decision-making in the real world is based on heuristics.[184] Rachlinski has contended that the public's reliance on heuristics is inevitable for managing complexity and uncertainty in the real world.[185] Sections C and D below specify how these empirical insights about consumer heuristics can be incorporated into legal analysis. Prior to this, this Section differentiates heuristics from the concept of bias and identifies characteristics of heuristic decision-making.

Biases and heuristics are certainly not the same. Heuristics characterize the decision-making process, whereas the term bias is determined relative to a normative standard. Heuristics can be defined without reference to a normative standard of judgment and decision-making. This is clear for fast-and-frugal heuristics that are formulated as models of cognitive processes that frequently contain search rules,

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[182] *See* Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124-31 (1974); HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT (Thomas Gilovich et al. eds., 2002).

[183] *See*, Jonathan Evans, *The Heuristic-Analytic Theory of Reasoning: Extension and Evaluation*, 13 PSYCHONOMIC BULL. & REV. 378-395 (2006).

[184] *See, e.g.*, Gigerenzer & Selten, *supra* note 86, at 1-11.

[185] Jeffrey J. Rachlinski, *Selling Heuristics*, 64 ALA. L. REV. 389, 390-92 (2012).

stopping rules, and decision rules as building blocks.[186] In relation to the heuristics-and-biases research program, Frederick has claimed that the representativeness heuristic is called a heuristic only by reference to a normative standard of judgment.[187] However, the representativeness heuristic and other heuristics that are typically evaluated in the heuristics-and-biases research program have also been defined without reference to a normative standard.[188] Other scholars, who define bias relative to rational choice theory, have equated the use of heuristics in decision-making with bias.[189] This is not convincing because heuristics relate to the process of decision-making whereas rational choice theory is silent about the causal processes underlying choice and about which choice process ought to be the rational one. Stanovich has argued repeatedly that heuristic decision-making is efficacious most of the time and does not always lead to error.[190]

Heuristic decision processes share certain common characteristics. Gigerenzer and Gaissmaier define heuristics as decision strategies that ignore part of the available information to make decisions faster, more frugally, and/or more accurately than more complex methods.[191] According to Chow, "comparatively little cognitive resources are needed in their [heuristics] processing, which is achieved by processing only readily available or easily accessible information (in the environment or within the mind)."[192] Shah and Oppenheimer propose that all heuristics rely on effort reduction by one or more of the following: (a) examining fewer cues, (b) reducing the effort of retrieving cue values, (c) simplifying the weighting of cues, (d) integrating less

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[186] *See* Hansjörg Neth & Gerd Gigerenzer, *Heuristics: Tools for an Uncertain World*, *in* EMERGING TRENDS IN THE SOCIAL AND BEHAVIORAL SCIENCES: AN INTERDISCIPLINARY, SEARCHABLE, AND LINKABLE RESOURCE 1, 11 (Robert Scott et al. eds., 2015).

[187] Shane Frederick, *Automated Choice Heuristics*, *in* HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 548, 549 (Thomas Gilovich et al. eds., 2002).

[188] *See* Dhami et al., *supra* note 41, at 18 (representativeness heuristic), 19 (availability heuristic).

[189] *See* Lunn & Lyons, *supra* note 168, at 4; Shaun B. Spencer, *The Problem of Online Manipulation*, U. ILL. L. REV. 959, 963 (2020).

[190] *See, e.g.*, Keith E. Stanovich, *Perceiving Rationality Correctly*, 25 PSYCHONOMIC BULL. & REV. 809, 810, 812 (2018).

[191] GIGERENZER & GAISSMAIER, *supra* note 53, at 454.

[192] Sheldon J. Chow, *Many Meanings of 'Heuristic'*, 66 BRIT. J. FOR PHIL. SCI. 977, 1006 (2015).

information, and (e) examining fewer alternatives.[193] Based on these general characteristics of heuristics, psychological scholarship has uncovered a variety of heuristics that are relied on by consumers in the marketplace. Well-known examples are the availability, anchoring, representativeness, recognition, take-the-best, satisficing, default, and status quo heuristics.[194] Furthermore, heuristics are not limited to cognitive processes but also encompass emotional processes. For example, Slovic et al. label the reliance on feelings in judgment and decision-making the "affect heuristic", with the experienced feeling being used as information in the decision process.[195] They define affect as the "specific quality of goodness or badness (a) experienced as a feeling state (with or without consciousness) and (b) demarcating a positive or negative quality of a stimulus".[196]

C. Regulatory Contexts Without Consumer Biases

Having specified the meaning of heuristics, it is now possible to reconceptualize the regulatory contexts for public policymaking based on a behavioral approach to legal analysis that is grounded in the study of consumer heuristics. First, this Section develops a novel definition of behavioral exploitation. Second, the Section redefines the regulatory context of biased consumer decisions that are the result of a biased mind. Both regulatory contexts are redefined without reference to consumer biases and, thus, outside of the dominant paradigm of behavioral law.

Turning first to behavioral exploitation, numerous experiments and studies have shown that non-coercive cues set in the choice environment like anchors, frames, images, or sounds can influence and determine the selection and execution of an individual's heuristics when making a judgment or decision.[197] Commercial practices setting such

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[193] Anuj K. Shah & Daniel M. Oppenheimer, *Heuristics Made Easy: An Effort-Reduction Framework*, 137 PSYCH. BULL. 207, 209 (2008).

[194] For an overview of heuristics in the heuristics-and-biases research program, *see* HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT (Thomas Gilovich et al. eds., 2002). For an overview of heuristics in the fast-and-frugal heuristics research program, *see* HEURISTICS: THE FOUNDATIONS OF ADAPTIVE BEHAVIOR (Gerd Gigerenzer et al., 2011).

[195] Paul Slovic et al., *Affect, Risk and Decision Making*, 24 HEALTH PSYCH. S35 (2005).

[196] *Id.* at S35.

[197] For a discussion and an overview of empirical studies, *see, e.g.*, Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market*

verbal or non-verbal cues can trigger, create, or exacerbate consumer heuristics. Such commercial practices affect the success of heuristic decision-making, and they may cause consumer harm. Stanovich has pointed out that the successful use of heuristics depends on benign environments.[198] A benign choice environment contains (1) useful cues (for example accurate anchors) that can be relied on by heuristics and (2) no other individuals who will adjust their behavior to exploit those relying on heuristics.[199] In contrast, a hostile environment for heuristics contains few useful cues that heuristics can rely on or misleading cues.[200] Stanovich highlights that an environment can turn hostile if other agents discern the cues that are being used by heuristic decision-makers and arrange the cues for their own advantage.[201] This captures the undesirable state of affairs that characterizes behavioral exploitation: the exploitation of heuristic decision-making by commercial practices. This is an increasing social problem in the digital world due to technological advances that facilitate the creation of hostile environments. The key advance is arguably big data analytics paired with smart algorithms, which has dramatically increased the possibilities for firms to identify, trigger, and exploit consumer heuristics systematically,[202] for example through personalized advertising on social media. Based on Stanovich's depiction of hostile environments, behavioral exploitation can be further specified for legal and policy purposes as follows:

> The concept of behavioral exploitation captures commercial practices that set non-coercive, verbal or non-verbal cues in the choice environment if these cues predictably affect consumer choices by influencing the

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Manipulation, 74 N.Y.U. L. REV. 630, 727-43 (1999); HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT (Thomas Gilovich et al. eds., 2002).

[198] Keith E. Stanovich, *On the Distinction Between Rationality and Intelligence: Implications for Understanding Individual Differences in Reasoning*, *in* OXFORD HANDBOOK OF THINKING AND REASONING 343, 350 (Keith J. Holyoak & Robert J. Morrison eds., 2012).

[199] *Id.*

[200] *Id.* at 351.

[201] *Id.* at 351.

[202] *See, e.g.*, Wagner & Eidenmüller, *supra* note 17, at 593-94.

> selection or application of heuristics,[203] which are used systematically by consumers in the marketplace when making a judgment or decision, in such a way that they cause consumer harm. Consumer harm occurs if the influence of the commercial practice on consumer heuristic decision-making creates negative outcomes for consumers relative to a normative benchmark set by a policy objective that a public policymaker intends to protect.

This definition of behavioral exploitation averts mismatches between bias and harm as explained in Section A above. Even though the definition does not include the concept of bias, it is not devoid of a normative benchmark for consumer choice. Rather than incorporated in the term bias, the normative benchmark can be incorporated in the concept of harm for reasons that were explained in Section A above. Even if this definition of behavioral exploitation were devoid of a normative benchmark for consumer choice, this would not be an argument against adopting it. The reason is that the regulation of commercial practices that exploit consumer heuristics does not depend on whether consumer choices deviate from a normative benchmark for how consumers ought to decide. It depends on whether firm behavior deviates from a normative benchmark for how firms ought to behave, and this benchmark is incorporated in the notion of exploitation. The regulation of behavioral exploitation does not primarily aim to correct consumer decisions and bring them in line with a normative benchmark for consumer choice. Instead, regulating behavioral exploitation targets commercial practices that harm consumers and aims to correct or prohibit firm behavior that falls short of a normative benchmark for how firms ought to behave when interacting with consumers. The term consumer bias is therefore not needed in a definition of behavioral exploitation.

The definition adopts an empirically grounded consumer model. Hence, the question of to what extent a commercial practice influences consumer heuristic decision-making is first and foremost an empirical question. This question can be split into two components: (a) whether consumers rely on specific heuristic(s) in a particular choice

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[203] Influencing means that the cues are relied on by the decision-maker. Influencing includes triggering, creating, or exacerbating a heuristic. The process of selecting a heuristic can occur without a conscious decision on how to decide.

environment when making decisions, and (b) whether cues in the choice environment, set by a commercial practice, influence the selection or execution of those specific heuristics. This empirical question is not easy to answer for a public policymaker due to multiple reasons. One of the reasons is that the results of empirical studies are affected by a variety of context-sensitive factors.[204] Another reason is consumer heterogeneity, which exists at at least three different levels. First, studies typically show that heuristic and non-heuristic users co-exist in consumer markets.[205] Second, heuristics are not universal, and among the subjects who use heuristics, studies typically show individual differences.[206] Third, different consumers face different environments. Consumers with the same tendency towards using a particular heuristic may thus produce different decisions because the heuristic interacts with the environment. Even though the variability between individuals does not imply that there are no predictable and systematic patterns of human judgment and decision-making, it does imply that a strictly empirical consumer model would not be workable. A public policymaker has to abstract from the details of empirical studies for regulatory purposes. The resulting empirical-normative gap cannot be bridged by more empirical studies.[207] Instead, a policymaker has to make a normative decision about what a legally acceptable generalization is. One way to make such a decision is to normatively "load" questions of causality, for example by applying a presumption of effectiveness of a commercial practice on consumer heuristic decision-making based on robust empirical evidence. The requirement of robust empirical findings points to multiple issues. One issue is that it may not be possible to draw direct inferences from robust studies for one consumer market to other consumer markets due to limited transferability of findings. Another issue is that empirical studies about consumer heuristic decision-making are often laboratory experiments rather than field studies. Extrapolating from heuristic decision-making by experimental subjects in artificial settings to heuristic decision-making in consumer markets in the real world raises concerns about the generalizability of

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[204] RIZZO & WHITMAN, *supra* note 147, at 192-196, 248.
[205] *See* Stanovich, *supra* note 198, at 347.
[206] *See id.* at 347-48.
[207] Anne-Lise Sibony, *Can EU Consumer Law Benefit from Behavioural Insights?*, 6 EUR. REV. PRIV. L. 901, 939 (2014).

the results of lab experiments (external validity concern).[208] One such concern is that consumers may rely on multiple heuristics in complex environments in the real consumer world. The possible co-occurrence and interaction of those heuristics may have consequences for consumer choice, which requires empirical testing.[209] One way to overcome such concerns would be to rely on a general theory of consumer heuristics or consumer decision-making,[210] but no such theory exists.

As I complete the analysis of behavioral exploitation, let me clarify the scope of my proposed definition of behavioral exploitation. The definition can be applied by a policymaker to determine at an initial stage whether a commercial practice that influences consumer heuristic decision-making warrants further investigation. The definition can be used to assess a wide range of commercial practices that are currently being discussed in theory and practice: (1) (personalized) behaviorally targeted advertising, (2) pre-ticked checkboxes on websites, (3) algorithmic recommender systems that structure online spaces for consumers, (4) interface design choices on digital platforms (e.g., websites and apps) like cookie banners that are used to obtain users' consent for processing personal data, (5) interface design choices on digital platforms that make it difficult for consumers to unsubscribe from a service or cancel an account, (6) subscriptions or free trial memberships that automatically renew or convert into a paid membership at the end of the subscription or trial period unless consumers take action, (7) game-like elements that increase revenue, data collection or time a consumer spends on a digital platform, and (8) the promotion of products high in fat, sugar, and salt in store entrances, aisle ends, and checkouts. Despite the wide scope of the definition, it does not lead to an excessive level of state intervention in these commercial practices. This is because it is not a definition of behavioral exploitation that a policymaker could copy into a statute one-to-one. The definition does not fully specify the element of exploitation, which is why it does not fully determine the question of whether a specific commercial practice warrants regulation. The fact that a commercial practice influences consumer heuristic decision-making and causes consumer harm does not automatically justify state intervention. One reason for this is that

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[208] *See* Jennifer Arlen, *The Essential Role of Empirical Analysis in Developing Law and Economics Theory*, 38 YALE J. ON REG. 480, 499-500 (2021).

[209] *See* Avishalom Tor, *The Methodology of the Behavioral Analysis of Law*, 4 HAIFA L. REV. 237, 301-02 (2008).

[210] *Cf. generally* Schwartz, *supra* note 169, at 1378-79.

a policymaker may want to weigh the harm caused to consumers against the costs of regulation before intervening in commercial practices. More importantly, harmful acts may be justified all things considered if they advance protected interests, rights, or policy objectives. Before intervening in commercial practices, a public policymaker must also establish that a harmful commercial practice is "exploitative" and, therefore, warrants intervention. Where to draw the line between exploitative commercial practices that require regulation on the one hand and harmful but justifiable commercial practices that influence consumer heuristic decision-making on the other hand is a complex normative question for another time.

Moving on from behavioral exploitation to the regulatory context of biased consumer decisions that are the result of a biased mind, it is clear that this regulatory context must be rethought when applying a behavioral approach to legal analysis that is grounded in the study of consumer heuristics rather than consumer biases. Based on the arguments that were provided in Sections A and B above, this regulatory context should be reconceptualized as consumer heuristic decision-making that occurs systematically irrespective of private influence on choice and that creates negative outcomes for consumers relative to a normative benchmark set by a policy objective that a public policymaker intends to protect.

D. Nudging and Debiasing Without Consumer Biases

This Section reconceptualizes the regulatory tools of nudging and debiasing based on the approach to behaviorally informed consumer law and policy that was developed in Part IV. Nudging and debiasing are often used by public policymakers as interventions in biased consumer choices. In such a case, both regulatory tools operate within the dominant paradigm of behavioral law and policy that analyzes the implications of human biases for law and policy. Since this Article has developed a frame of analysis that is grounded in the study of consumer heuristics, the question arises whether both regulatory tools can function outside of this paradigm. Some scholars appear to answer this question in the negative as they claim that terms like nudging, debiasing, and bias are path-dependent on orthodox behavioral economics.[211] This Article rejects such claims and answers this

[211] *See* Pelle G. Hansen, *The Definition of Nudge and Libertarian Paternalism: Does the Hand Fit the Glove?*, 7 EUR. J. RISK REG. 1, 6, 8 (2016).

question in the affirmative, first in relation to nudging and then debiasing.

The meaning of nudging as a regulatory tool is controversial in scholarship. There is widespread agreement that nudging does not alter or block off choice options and thus preserves freedom of choice.[212] It works independently of significantly changing incentives. It alters the choice environment, for example by changing how options are presented, in order to predictably steer decision-makers in a certain direction in pursuit of a policy objective.[213] It is, however, controversial whether (1) the mere provision of factual information can qualify as nudging, (2) nudging must improve individuals' welfare, (3) biased decisions are a precondition for nudging, (4) nudging alters people's behavior by making use of their biases (where bias is defined relative to rational choice theory), (5) nudging has to be intentional, and (6) nudging works by harnessing people's automatic, intuitive decision-making processes rather than improving their capacities for conscious, deliberative decision-making.[214]

This Article understands nudging as a behaviorally informed regulatory tool that differs from traditional forms of state interventions like mandates, bans, the setting of incentives, or the provision of mere factual information, where the information as such causes the behavioral effect. A definition of nudging should capture the novelty of this regulatory tool compared to traditional tools.[215] Despite contrary statements in the literature,[216] nudging can be defined without reference to the term bias, rational choice theory as a normative theory of choice, and the theoretical foundations of behavioral economics. Even without the connection to an economic framework, nudging remains a specific regulatory tool that is deployed to influence consumer choice in a particular way while preserving freedom of choice.

> Nudging occurs if, in order to achieve a

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[212] *See, e.g.*, SUNSTEIN, *supra* note 14, at 17.

[213] *See, e.g.*, Barton & Grüne-Yanoff, *supra* note 98, at 342, 344.

[214] For a discussion of these issues, *see* Hansen, *supra* note 211, at 1-20; Philippe Mongin & Mikael Cozic, *Rethinking Nudge: Not One but Three Concepts*, 2 BEHAV. PUB. POL'Y 107-24 (2018).

[215] *See* Till Grüne-Yanoff & Ralph Hertwig, *Nudge Versus Boost: How Coherent Are Policy and Theory?*, 26 MINDS & MACHINES 149, 153 (2016).

[216] *See* Hansen, *supra* note 211, at 8, 20 (linking nudging to the theoretical foundations of behavioral economics and rational choice theory).

> policy objective, a public policymaker sets non-coercive, verbal or non-verbal cues in the choice environment that predictably steer consumer decisions in a certain direction by influencing the selection or application of heuristics, which are used systematically by consumers in the marketplace when making a judgment or decision. In short: nudges steer consumer behavior by harnessing heuristics.

The harnessing of heuristics is the novelty that distinguishes nudging from other regulatory tools. This characterization of nudging means that it is not tethered to the dominant paradigm of behavioral law and policy. It is not limited to being deployed for improving people's welfare. Nudging can be used to achieve other policy objectives. The heuristic decision-making that the state intervention is harnessing can either be a rational or irrational decision process. It can either be automatic, intuitive decision-making or a consciously deployed strategy. Heuristic decision-making itself is not a precondition for nudging. Nudging, if it is justified, can be used to intervene in any kind of consumer decision-making that falls short of reaching a legitimate policy objective that a public policymaker pursues.

Moving on from nudging to debiasing, can debiasing function outside of behavioral law and economics and outside of the dominant paradigm of behavioral law and policy? In order to answer this question, it is necessary to clarify the meaning of debiasing first. Even though many meanings of the term debiasing exist in the literature, there is widespread agreement that debiasing is a regulatory strategy that aims to reduce or eliminate behavioral biases and does not block off choice options, change incentives, or change individuals' preferences.[217] Educating, training in cognitive strategies, or informing consumers about their biases are examples of debiasing.[218] The legal literature often refers to debiasing as a regulatory tool that aims to improve welfare at individual or societal level by reducing or eliminating

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[217] *See* Daniel Pi et al., *Biasing, Debiasing, and the Law*, *in* THE OXFORD HANDBOOK OF BEHAVIORAL ECONOMICS AND THE LAW 143, 146-47, 153 (Eyal Zamir & Doron Teichman eds., 2014).
[218] *See id.* at 150.

decision-making biases relative to rational choice theory.[219] What is controversial in this scholarship is to what extent debiasing differs from or overlaps with nudging as used in the behavioral law and economics literature. On the one hand, one could argue that debiasing does not involve the harnessing of consumer biases as a strategy to correct other behavioral biases. Therefore, debiasing would differ from nudging if the latter were characterized as harnessing biases in order to steer consumers in certain directions. On the other hand, other scholars have argued that debiasing includes attempts to reduce or eliminate behavioral biases by harnessing other behavioral biases.[220]

Irrespective of these controversies, a semantic analysis of the term debiasing would reach the result that debiasing is conditional on the presence of biases. Even though Part III has shown that this conclusion does not confine debiasing to a behavioral law and economics framework, it does confine the term to the dominant paradigm of behavioral law. This may spell the end for debiasing as a regulatory tool within a frame of analysis that is grounded in the study of consumer heuristics rather than consumer biases. It is, however, possible to reconceptualize debiasing for this frame of analysis as follows. If consumer heuristic decision-making causes harm to a policy objective, a public policymaker may attempt to reduce or eliminate heuristic decision-making. This strategy may be called "de-heuristicizing" (rather than debiasing). De-heuristicizing can accommodate different normative theories of choice and different policy objectives and categories of harms. One difference to debiasing is that heuristic decision-making can be normative under some theories of consumer choice, whereas debiasing implies that the decision-making deviates from a normative theory of choice, which means that the decision-making is *per definitionem* non-normative. De-heuristicizing can also be differentiated from nudging if the former is seen as a regulatory tool that attempts to reduce or eliminate heuristic decision-making without harnessing other heuristics.

To conclude, this Section has demonstrated that nudging and debiasing can operate outside of the dominant paradigm of behavioral law and outside of a behavioral law and economics framework. The Section has provided novel meanings for nudging and debiasing that rely on the concept of consumer heuristics rather than biases.

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[219] *See* Jolls & Sunstein, *supra* note 10, at 203.
[220] *See* ZAMIR & TEICHMAN, *supra* note 48, at 134.

CONCLUSION

This Article has developed new normative foundations for behaviorally informed consumer law and policy interventions in consumer markets. These foundations provide novel answers to the questions of how empirical insights about consumer decision-making should be incorporated into legal analysis and what implications arise from these insights for consumer law. First, the Article challenged orthodox behavioral law and economics as a frame of analysis. Second, it explored two alternative frameworks – ecological rationality theory and autonomy theory – for integrating behavioral insights into consumer law and policy. Both alternative frameworks were discussed within the dominant paradigm of behavioral law that analyzes the implications of human biases for law and policy. Third, the Article added a new theoretical legal perspective against the preoccupation of behavioral law with human biases. This perspective highlighted frictions between the concepts of consumer bias and consumer harm and was then further developed into a behavioral approach to legal analysis of consumer law that breaks with the dominant paradigm and is rooted in the study of heuristics rather than biases. Fourth, based on this novel approach, the Article reconceptualized the regulatory contexts of behavioral exploitation and biased consumer decisions that are the result of a biased mind and the regulatory tools of nudging and debiasing.

The Article's findings do not remain at a theoretical level but also affect public policymaking. Policymakers in the U.S. and around the world can rely on the new foundations for behaviorally informed consumer law when designing and enforcing effective consumer laws. Specifically, policymakers can adopt the approach to nudging, debiasing, and regulating behavioral exploitation that was developed in this Article.

Finally, the implications of the Article's findings go far beyond consumer law. The critique of orthodox behavioral law and economics applies to all markets that are characterized by human decision-making that occurs in conditions of uncertainty and computational intractability. Within the dominant paradigm of behavioral law, ecological rationality theory or autonomy theory may function as alternative foundations for law and policy in those markets. My critique of the dominant paradigm of behavioral law is also not limited to consumer law. Behavioral law undertakes legal analysis on the basis of empirical findings of human behavior. Empirical studies have shown that

humans, including experts, use heuristics in judgment and decision-making not just in consumer contexts but in a variety of areas and markets. In these areas and markets, it is possible to apply the novel frame of analysis for behaviorally informed law and policy, which is grounded in the study of heuristics rather than biases. Hence, the redefined regulatory tools of nudging and debiasing can be used outside of consumer law, e.g., in public health or environmental law. Even though the two regulatory contexts that were reconceptualized in Part IV of this Article were limited to consumer harm, they too can be adopted outside of consumer law if consumer harm is replaced with other types of harm (e.g., harm to public health or the environment).