



The Relativity of Judgment as a Challenge for Behavioral Law and Economics

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I. Introduction

The impact of the “law and economics” movement on legal scholarship and legal policy analysis has been astonishing. Yale Law Professor Bruce Ackerman has referred to it as “the most important development in legal scholarship of the twentieth century.”²⁾ But while economic theory and research was making inroads into legal scholarship, psychological theory and research was making inroads into economics. Psychologists working in the “judgment and decision making” (JDM) tradition have challenged two core aspects of the rational choice model - its assumptions about human rationality and human motivation.³⁾ Psychologists have conclusively demonstrated persuasively that human cognition routinely operates via processes that systematically violate the axiomatic assumptions of rational choice theory. Less conclusively, psychologists have argued that human motivation is more volatile and more complex than can be captured in a simple self-interested utility function.⁴⁾

In this short essay, I will not attempt to review this literature in any detail, because it is well documented elsewhere.⁵⁾ I will limit my focus to one major theoretical challenge for Behavioral Law and Economics to overcome: “The relativity problem.” *Relativity* refers to a pervasive feature of most psychological judgment processes -- the notion that judgments are relative to a context rather than absolute. The challenge of relativity is that at present, we lack strong predictive theories allowing us to anticipate which of a myriad of potential sources will become most salient to serve as a reference point or relative standard.⁶⁾ Until these challenges are addressed, we face an awkward choice between economic models that are clear and explicit but misleading, or psychological models that are well-

2) Cited in ROBERT COOTER and THOMAS ULEN, *LAW & ECONOMICS* (4th Ed., 2003), at 3.

3) The psychological literature on judgment and decision is vast, but many of the key papers on human judgment processes are collected in Thomas Gilovich, Dale Griffin, & Daniel Kahneman (Eds.), *Heuristics and Biases* (New York: Cambridge University Press, 2002). Key papers on human choice processes are collected in Daniel Kahneman and Amos Tversky (Eds.), *Choices, Values, and Frames* (New York: Cambridge, 2000). Finally, key papers on human satisfaction are collected in Daniel Kahneman, Edward Diener, & Norbert Schwarz (Eds.), *Well-Being: The Foundations of Hedonic Psychology* (New York: Russell Sage, 1999).

4) This point is less conclusive in large part because of the inherent flexibility of the utility concept. Ex post, an economist can identify any observed motivation as “an argument in the utility function.” As discussed below, the challenge is to predict, ex ante, which motivations will matter in a given situation.

5) See Jolls, Christine, Cass R. Sunstein and Richard Thaler. 1998. “A Behavioral Approach to Law and Economics,” *Stanford Law Review*, 50:1471-1550. Korobkin, Russell and Thomas Ulen. 2000. “Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics,” *California Law Review*, 88:1051-1144. Donald Langevoort (1998), “Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review,” *Vanderbilt Law Review*, 51, 1499-1540. Some key critical reactions are Richard Posner (1998), “Rational Choice, Behavioral Economics, and the Law,” *Stanford Law Review*, 50, 1551-1575. Mark Kelman (1998), “Behavioral Economics as Part of a Rhetorical Duet: a Response to Jolls, Sunstein, and Thaler,” *Stanford Law Review*, 50, 1577-1591. Samuel Issacharoff (1998), “Can There Be a Behavioral Law and Economics?” *Vanderbilt Law Review*, 51, 1729-1745. Thomas Ulen (1998), “The Growing Pains of Behavioral Law and Economics,” *Vanderbilt Law Review*, 51, 1747-1763. Jennifer Arlen (1998), “Comment: The Future of Behavioral Economic Analysis of Law,” 51

grounded empirically but too complex and imprecise to provide clear predictions.

II. Theoretical Style in Behavioral Economics

Until quite recently many economists were fiercely resistant and sometimes openly hostile to this work. They argued that outside of the psychology laboratory, people are rational when the stakes matter; people are rational in the aggregate if not individually; people learn from mistakes in ecologically representative situations; and our cognitive strategies must be evolutionarily adaptive or we wouldn't have them. In a recent article in *Journal of Economic Perspectives*, Matthew Rabin and Richard Thaler amusingly compared their profession's state of denial to the pet shop proprietor in the Monty Python comedy sketch who refused to refund the sale of a dead Norwegian Blue parrot, insisting it wasn't dead -- merely "pining for the fjords."⁷⁾

All this changed in the first few years of the 21st century. In 2001, the John Bates Clark Medal in Economics, honoring the most significant American economist under the age of 40, was given to economist Matthew Rabin, a young scholar who had staked his career on the then-risky field of "behavioral economics."⁸⁾ And in 2002, the economics profession awarded their highest honor, the Nobel Prize in Economics, to a psychologist, Daniel Kahneman.⁹⁾ Referring to two of Kahneman's coauthored articles with late Amos Tversky,¹⁰⁾ Harvard economists David Laibson and Richard Zeckhauser argued that "these two publications altered the intellectual history of economics."¹¹⁾

Vanderbilt Law Review, 51, 1765-1788. Many key early essays are collected in Cass Sunstein (Ed.), *Behavioral Law and Economics* (Cambridge, 2000). Published symposia include "Empirical Legal Realism: A New Social Scientific Assessment of Law and Human Behavior" in 97 *Northwestern University Law Review* 1079 (2000), and "The Behavioral Analysis of Legal Institutions: Possibilities, Limitations, and New Directions" in 32 *Florida State University Law Review* 315 (2005).

- 6) Two problems I do not address here might be called the "multiplicity" problem and the "many-to-one" problem. The multiplicity problem refers to growing evidence that we do not behave as unitary actors consciously pursuing intentions; rather, a host of separate cognitive modules and processes in the brain operate in parallel and in competition to determine our behavior. The challenge of multiplicity is that it is difficult to develop simple predictive models when behavior can reflect whichever cognitive process is currently most active or dominant. The many-to-one problem refers to the fact that while any given psychology theory may offer a *ceteris paribus* prediction that can be tested in the laboratory, many relevant psychological theories have something to offer to the analysis of most real-world problems, and psychology offers no rules for integrating and weighting their contributions to form a net prediction.
- 7) Matthew Rabin & Richard H. Thaler, "Anomalies: Risk Aversion," *Journal of Economic Perspectives*, Vol. 15(1) (2001), at 230.
- 8) See Colin Camerer and Richard H. Thaler, In Honor of Matthew Rabin: Winner of the John Bates Clark Medal, *The Journal of Economic Perspectives*, Volume 17, Number 3, 1 August 2003, pp. 159-176(18).
- 9) See Robert J. MacCoun, Why a psychologist won the Nobel Prize in Economics. *American Psychological Society Observer*, 15(10), pp. 1, 8 (2002). Kahneman's Nobel lecture was published in Daniel Kahneman, A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, 58:9, 2003, 697-720.

It has not taken long for the JDM literature in psychology to be incorporated into cutting-edge economics, under the new label “behavioral economics.”¹²⁾ It has taken even less time for behavioral economics to be applied to the law-and-economics literature. Psychologists have been actively involved in legal scholarship for decades, but our contributions have been largely empirical and only theoretical in a very narrow sense - most notably, in work on eyewitness testimony, jury decision making, and mental health law.¹³⁾ But while it is painful for a psychologist to admit this, it is fair to say that the legal community never fully embraced psychological research until its relevance to the law-and-economics movement - as an opportunity or a threat - was recognized. Over the past decade, American law journals have exploded with essays on the new “behavioral law and economics.”

Many other prominent psychologists have documented cognitive and motivational principles at odds with the “economic actor” caricature. Nevertheless, only a small fraction of modern scientific psychology has found its way into behavioral economics or behavioral law and economics. In general, economists have seized upon those aspects of psychology that align most neatly with economic modeling, even when those psychological contributions lead to distinctly different predictions. Consider Kahneman’s work with Tversky. Even when questioning bedrock assumptions of the rational choice model, they framed most of their inquiries in the language (often mathematical) of that model. Their core arguments made only sparing use of hypothetical constructs, focusing instead on functional relationships among observed variables in the tradition of psychophysics. Finally, their collaborations relied less on elaborate experimentation and statistical analysis than on simple but powerful demonstrations of replicable phenomena that were “right under our noses” but had previously escaped our collective attention. One can imagine Bentham or Bernoulli or Bayes reading the 1974 and 1984 *Science* papers with surprised engagement.

Two of the most influential psychological ideas in behavioral economics involve either new pa-

10) Kahneman, D. & Tversky, A. (1974). Judgment Under Uncertainty: Heuristics and Biases. *Science*, 185, 1124-1131.
Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*, 47, 263-291.

11) David Laibson and Richard Zeckhauser. “Amos Tversky and the Ascent of Behavioral Economics” *Journal of Risk and Uncertainty*, 16, 1998, 7-47.

12) Actually, the label is much older, formerly used by psychologists to refer to the use of microeconomic demand principles in the study of animal learning. [ADD CITE.] I conjecture that a careful content analysis of the economic literature would find a steady decrease in references to psychology (and to psychologists) over the past decade, in conjunction with a steady increase in the use of the term behavioral economics. This “imperialistic” aspect of economics is very familiar to political scientists and sociologists. Allison, J. (1983). *Behavioral economics*. New York : Praeger. Hursh, S. R. (1984). Behavioral economics. *Journal of the Experimental Analysis of Behavior*, 42, 435-453.

13) For an overview, see Faigman, D. L., & Monahan, J. (2005). Psychological evidence at the dawn of the law’s scientific age. *Annual Review of Psychology*, 56, 631-659. On eyewitnesses, see Wells, G. L., et al. (2000). From the lab to the police station: A successful application of eyewitness research. *American Psychologist*, 55, 581-598. On juries, see MacCoun, R. J. (1989). Experimental research on jury decision making. *Science*, 244, 1046-1050. On mental illness, see Borum, R., & Fulero, S. M. (1999). Empirical research on the insanity defense and attempted reforms: Evidence toward informed policy. *Law & Human Behavior*, 23, 117-135.

rameters or new functional relationships for existing parameters of the core rational choice model. Thus, the standard formulation for the expected utility of a given choice is:

$$\sum p_i u(x_i) \quad (1)$$

where p_i is the probability of the i th possible outcome of a choice, and x_i is its value; the utility function $u(\cdot)$ is a concave function, implying diminishing marginal utility.¹⁴ In Tversky and Kahneman's prospect theory¹⁵, the formulation is only subtly different:

$$\sum \pi(p_i) v(x_i) \quad (2)$$

although, as discussed below, the $\pi(\cdot)$ and $v(\cdot)$ functions have properties that produce distinctively different predictions.

Another example is the psychological conception of choice over time. In a generalized model, the utility of an outcome to be obtained at time t is discounted relative to its present value. The standard economic formulation uses an exponential function:

$$u(x_t) \delta^t \quad (3)$$

where δ is a single-period discount rate, and t is the number of time periods, whereas in the psychologically modified version, the function is hyperbolic:¹⁶

$$u(x_t) (1 + \alpha t)^{-\beta/\alpha} \quad (4)$$

In many empirical applications, psychologists have found that the latter term can be approximated by $1/t$. Unlike exponential discounting, hyperbolic discounting produces preference reversals over time, and is useful for modeling phenomena like procrastination, regret, and addiction.

Even without strong economics or mathematical training, casual visual inspection reveals that these psychological reformulations are strikingly similar to their classical economic counterparts. Perhaps what most distinguishes "behavioral economics" from the JDM literature in psychology is this desire to retain the tractability and deductive power of formal (mathematical) economic theory. Thus, most of the attention has been given to those aspects of psychology that are most easily incorporated into the formalism of the rational choice model - the functional form of utility functions (concave vs. S -

14) The phrase "diminishing marginal utility" rarely appears in modern economics articles; it is implied whenever authors posit a function in which the first derivative is positive and the second derivative is negative.

15) Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*. 47,263-291.

16) When $(1 + \alpha t) = e$ (i.e., 2.71828 (the base of natural logarithms), this reduces to the exponential model. The generalized version and variations present here come from George Loewenstein & Drazen Prelec, Anomalies in intertemporal choice: Evidence and an interpretation, in George Loewenstein and Jon Elster (Eds), *Choice over Time* (Russell Sage Foundation, 1992, pp.119-145). Also George Ainslie, Derivation of "rational" economic behavior from hyperbolic discount curves, *American Economic Review*, 81, 334-340; George-Marios Angeletos, David Laibson, Andrea Repetto, Jeremy Tobacman, & Stephen Weinberg, The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation, in George Loewenstein, Daniel Read, & Roy Baumeister (Eds), *Time and Decision: Economic and Psychological Perspectives on Intertemporal Choice* (Russell Sage Foundation, 2003, pp. 517-539). Note that Ainslie is a psychiatrist by training; Loewenstein, who frequently publishes in the psychology journals, is an economist by training.

shaped, exponential vs. hyperbolic, etc.), the arguments to those functions (e.g., do others' outcomes count?), and psychological phenomena that directly influence the parameters of subjective valuation, subjective probability, and attitudes toward risk, uncertainty, and the future.

As illustrated below, these mathematical formalisms can create the appearance of greater predictability and clarity than is actually the case. "The devil is in the details" of how the parameters are actually defined and used. Moreover, this kind of mathematical formalism is the exception rather than the rule in psychology.¹⁷⁾ Accompanying the lack of formalism is a lack of integration. Psychological theories tend to be narrow and specialized; there is relatively little use of common core constructs across topics, with greater emphasis on causal and mediating mechanisms and far less interest in specific functional forms. Indeed, many of the variables in psychological theories are "latent constructs" - unobservables that can only be inferred by psychometric or experimental operations on observable but imperfect proxies or "indicators" (e.g., test items as proxies for "intelligence"; reaction time as a proxy for "cognitive accessibility"). Psychology is also less deductive and more inductive than economics. Finally, because of its empirical, inductive nature, academic psychology is almost exclusively "positive" or descriptive; there is almost nothing in psychology that might be characterized as "normative theory," and most academic psychologists are quite reticent to make overtly normative arguments.¹⁸⁾

This difference in the style of theorizing should not be taken to indicate a lack of rigor. Psychology journals have exacting standards about the psychometric, statistical, and experimental procedures used to establish evidentiary support for a hypothesis. In recent years, it has become difficult to publish an article unless it includes multiple experiments showing converging evidence across different experimental methods and measurement approaches. Nevertheless, the lack of explicit and clear formal theory and deductive power means that much if not most of the recent advances in psychology do not readily lend themselves to incorporation into economics.

III. Relativity in Valuation, Perceived Fairness, and Norms

By "relativity," I do not wish to imply that psychology either is or should be characterized in the

17) Arguably, formal theorizing was perhaps more common in the psychology literature of the 1940s and 1950s than it is today. If so, it may be that formal theorizing was too cumbersome to keep up with the explosive growth of new ideas and hypotheses in the latter part of the century. Whether the formalization was premature, or simply inappropriate for psychology, is an open question.

18) See Colin Camerer, Samuel Issacharoff, George Loewenstein, Ted O'Donoghue, and Matthew Rabin (2003). Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism", *University of Pennsylvania Law Review*, Vol 151, No. 3, January 2003, 1211-1254. Rachlinski, Jeffrey J. 2003. "The Uncertain Psychological Case for Paternalism," *Northwestern University Law Review*, 97:1165-1225. For evidence that psychologists do allow "covert" normative arguments to creep into their work, see MacCoun, R. (1998). Biases in the interpretation and use of research results. *Annual Review of Psychology*, 49, 259-287.

kind of relativistic terms used by post-modern, deconstructionist or radically constructionist theories. Rather, I am referring to a one of the most firmly established principles of perceptual, cognitive, and social psychology - the notion that human judgments (whether of loudness, attractiveness, sweetness, or temperature) are rarely (if ever) absolute, but are instead involve relative comparisons to the current environmental context and the goals, expectations, and recent stimulus history of the actor.

Framing and Choice Under Uncertainty in Prospect Theory

Many legal application of prospect theory focus on its novel value function, $v(x)$.¹⁹⁾ Traditional rational choice models posit a concave utility function defined on total wealth. Prospect theory posits an asymmetric S-shaped utility function defined in terms of gains and losses relative to a currently salient reference point, often (but not always) the status quo. This value function suggests that, *ceteris paribus*, decision makers will be risk averse in the domain of gains and risk seeking in the domain of losses, where gains and losses are relative to the reference point.²⁰⁾ The value function is steeper in the domain of losses (“loss aversion”) leading to the empirically well-substantiated finding that decision makers tend to weigh losses over twice as heavily as equivalent gains. Guthrie has recently reviewed a host of applications of these principles to civil settlement negotiations, products liability, plea bargaining, income tax compliance, predatory pricing, and other legal topics.²¹⁾ As an example, traditional economic analysis predicts that plaintiffs and defendants should almost always settle out of court, to avoid the costs of litigation. But Rachlinski argues that plaintiffs frame the choice in the domain of gains, whereas defendants frame the choice in the domain of losses. Hence, defendants will be more risk seeking, and will often prefer to take the case to trial.²²⁾

But, as other legal scholars have discussed, it is not always so simple to derive unambiguous predictions from prospect theory.²³⁾ A major problem is that it is not always clear what reference point an

19) Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *Econometrica* 263(1979). Daniel Kahneman & Amos Tversky (eds.), *Choices, Values and Frames*, New York: Cambridge University Press (2000). The other function in Equation 2, the decision weighting function $\pi(\cdot)$, is nonlinear, such that people will tend to overweight (but not necessarily “overestimate”) small probabilities relative to $p = .00$, and underweight large probabilities relative to $p = 1.00$. For a detailed analysis, see Drazen Prelec, *Compound Invariant Weighting Functions In Prospect Theory*, in D. Kahneman & A. Tversky (Eds.), *Choices, Values, and Frames*. New York: Cambridge University Press (2000).

20) A revised “cumulative” version of prospect theory predicts a reversal of this pattern for very small probabilities below .05, with risk seeking for low probability gains and risk aversion for low probability losses. See Amos Tversky & Daniel Kahneman, *Advances in Prospect Theory: Cumulative Representation of Uncertainty*, 5 *Journal of Risk and Uncertainty* 297 (1992).

21) Chris Guthrie, *Prospect Theory, Risk Preference, & the Law*, 97 *Northwestern University Law Rev.* 1115, 1115 (2003).

22) Jeffrey Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 *S Calif Law Rev* 113 (1996). There are certainly other psychological considerations at play, including the defendant’s motivation to protect his or her reputation, and both sides’ desire to tell their story to a wider audience. See Robert J. MacCoun, *Voice, control, and belonging: The double-edged sword of procedural fairness*, 1 *Annual Review of Law and Social Science* 171 (2006).

23) See, for example, Jeffrey J. Rachlinski, *The New Law and Psychology: A Reply to Critics, Skeptics, and Cautious*

actor is using to evaluate outcomes. A plaintiff who has large medical bills to pay, an inadequate settlement offer from the defendant, and weak evidence of causation may well frame all her prospects as losses relative to the status quo ante, before the accident.

Thus, prospect theory needs a “front-end” theory of the choice of reference points. Sometimes the reference point is obviously the status quo, when a long-static situation is about to change. Sometimes a salient reference point is created by the choice between action and inaction, as when policy makers or contract writers make one option the default and require the actor to either “opt in” or “opt out.” But these are intuitions rather than a firm predictive theory.

Novemsky and Kahneman have partially addressed this concern, proposing that actors’ intentions are the key; for example, a buyer intends to spend money on a good, and hence will not frame that money as a loss.²⁴⁾ But this theory requires tricky attributions of intent, and it may fail in circumstances where actors have conflicting or ambiguous goals. Köszegi and Rabin have addressed the same problem with a sophisticated new model of “reference-dependent preferences.”²⁵⁾ Their model is a hybrid of a traditional economic “consumption utility” and a prospect-theoretic “gain-loss utility.” The gain-loss utility is defined relative to a reference point created by the actor’s expectations about outcomes, and they model these expectations using more traditional “rational expectations” concepts of economic theory. But this may gain deductive clarity at the cost of a loss of psychological realism, for there is much evidence that people do not always form expectations in a consistent, rational fashion; e.g., we overestimate probabilities of events that we have encountered recently.²⁶⁾ This may simply replace one relativity problem (what’s the reference point?) with another (what happened recently?).

Choice of Comparison in Judgments of Fairness

A second example of relativity involves attempts to develop a descriptive and predictive theory of distributive justice judgments - how citizens evaluate the fairness and acceptability of outcomes.²⁷⁾

Supporters, 85 *Cornell Law Review* 739 (2000); Gregory Mitchell, “Why Law and Economics’ Perfect Rationality Should Not Be Traded for Behavioral Law and Economics’ Equal Incompetence,” 91 *Georgetown Law Journal* (2002); Tanina Rostain, *Educating Homo Economicus: Cautionary Notes on the New Behavioral Law and Economics Movement* 34 *Law & Society Review* 973 (2000).

24) Novemsky, N., & Kahneman, D., The boundaries of loss aversion, *Journal of Marketing Research*, 42 (2), 2005, 119-128. Novemsky N., & Kahneman, D., How do intentions affect loss aversion? *Journal of Marketing Research*, 42 (2), 2005, 139-140.

25) See Botond Köszegi and Matthew Rabin, *A Model of Reference-Dependent Preferences*, forthcoming, *Quarterly Journal of Economics*.

26) Gilovich, Griffin, & Kahneman (2002).

27) Psychological research on distributive justice judgments is reviewed in Barbara A. Mellers & Jonathan Baron (eds.) *Psychological Perspectives on Justice*, Cambridge University Press (1993); Tom R Tyler, Robert J. Boeckmann, Heather J. Smith, & Yuen J. Huo, *Social justice in a diverse society*, Westview Press (1997).

One example comes from the analysis of rebellions and political action. Relative deprivation theory (actually a family of related theories across sociology, political science, and psychology) argues that people do not react to an absolute lack of desired outcomes; instead, they rebel when others receive outcomes to that they do not.²⁸⁾ Working backwards, one usually use this theory to successfully “explain” some historical rebellion, urban riot, or social uprising. The problem is that the theory *overpredicts* resentment and rebellion, and *underpredicts* citizen acceptance of poor outcomes. For every documented rebellion that has occurred, there are many more situations where people were “relatively deprived” and yet they did not rebel. Of course, citizen acquiescence can stem from rational calculations about the risks and costs of political action. But survey research shows the theory doesn’t even predict *anger and resentment*.

For example, women do not always report anger or resentment when they are aware that men with similar experience and training get paid more for similar jobs. The explanation seems to be that not all working women compare themselves to men. Some compare their income to that of their mother’s generation, or of women in traditionally female occupations - comparisons that make their income far more satisfying.²⁹⁾

Social psychologists have come to realize that there are many potentially relevant sources of comparison information, with distinctive effects. One dimension is *horizontal* - we can make comparisons across individuals (me vs. her) or across groups (us vs. them). For example, actors tend to experience greater anger, and are more likely to engage in political action, when they perceive that their group is treated unjustly than when they perceive personal injustice.³⁰⁾ And people apply different evaluative standards to the outcomes and actions of “ingroup” vs. “outgroup” members.³¹⁾ A second dimension is *vertical*; psychologists distinguish upward, lateral, and downward comparisons, referring, respectively, to those superior, comparable, or inferior to us on the dimension of interest.³²⁾ People tend to look upward when their goal is to improve their own abilities or to verify the correctness of their beliefs. People tend to compare themselves with similar individuals when their goal is to appraise their

28) For example, Faye Crosby, A model of egoistical relative deprivation, *Psychological Review*, 83:85-113 (1976).

29) See Dahlia Moore, “Entitlement and Justice Evaluations: Who Should Get More, and Why,” 54 *Social Psychology Quarterly* 208 (1991); Brenda Major, “From Social Inequality to Personal Entitlement: The Role of Social Comparisons, Legitimacy Appraisals, and Group Membership,” in M. Zanna (Ed.), 26 *Advances in Experimental Social Psychology* 293 (1994).

30) For a review of evidence on this point, see Tom R. Tyler et al., *Social Justice in a Diverse Society* (Westview, 1997), chapters 2 and 7.

31) Tyler et al, *Social Justice*; Susan Opatow, Moral exclusion and injustice (introduction to special issue), 49 *Journal of Social Issues* 1-20 (1990). For an early experimental demonstration, see Lawrence A. Messé, Robert W. Hymes, & R. J. MacCoun (1986). Group categorization and distributive justice decisions. In H. W. Bierhoff, R. L. Cohen, and J. Greenberg (Eds.), *Justice in social relations* (pp. 227-248). New York: Plenum Press.

32) Leon Festinger, A theory of social comparison processes. *Human Relations*, 7, 117-140 (1954). Jerry Suls and Ladd Wheeler, *Handbook of Social Comparison* (NY: Kluwer, 2000).

own abilities, preferences and outcomes. Evidence is mixed for the proposition that people look downward - to those less able or less fortunate - when their goal is promote their own self-esteem.³³⁾

Another relativity problem involves the choice of standards for judging a comparison. Morton Deutsch pointed out in 1975 that most people have no single principle of fair allocation, but rather, many different and sometimes competing principles: Equal allocation, allocation by need, allocation in proportion to one's effort, allocation in proportion to one's ability, allocation by blood right or identity, and so on.³⁴⁾ Theorists have only begun to identify reliable determinants of the choice of justice rule. For example, proportionality to effort is most likely to be invoked in work settings; equal allocation is common among friends; allocation by need is typical in parent-child relationships. Intimate relationships use different justice rules than relationships among strangers and casual acquaintances.³⁵⁾ The most ambitious theoretical effort has been Fiske's theory that social relations in all societies are governed by four fundamental psychological templates: We sometimes categorize individuals and treat category members identically (communal sharing), we sometimes treat individuals by their rank within a group (authority ranking), we sometimes keep score of outcomes and strive to equalize them (equality matching), and we sometimes value outcomes on an absolute metric and make tradeoffs among them (market pricing). Each template has its own rules of appropriate conduct, its own norms of distributive fairness, and most crucially, its own consensually agreed upon domains of operation in a community's life.³⁶⁾

Finally, the application of some justice standards involve concepts like "deservingness" and "responsibility" that require inferences about causation. There is growing evidence that we often make such inferences by mentally simulating "counterfactuals" - ways in which an event might have happened differently. Yet without some constraints, there are infinite possibilities to simulate.³⁷⁾ Theorists are only beginning to identify reliable principles for predicting what counterfactuals will come to mind. For example, "people keep in mind possibilities that once may have been true possibilities but can be true no longer." They "think about two possibilities when they understand controllable events," but they "think about a single possibility when they understand a strong causal relation (cause and outcome)."³⁸⁾

33) Donelson R. Forsyth, Social Comparison and Influence in Groups, in the Handbook of Social Psychology, 81-103. Jerry Suls, Rene Martin, and Ladd Wheeler, Social Comparison: Why, With Whom, and with What Effect? *Current Directions in Psychological Science*, 11, 159-163 (2002).

34) Morton Deutsch, Equity, equality, and need: What determines which value will be used as the basis of distributive justice? *Journal of Social Issues*, 31:137-149 (1975).

35) Margaret S. Clark, & Judson Mills, The difference between communal and exchange relationships: What it is and is not, 19 *Personality & Soc Psychol Bulletin* 684 (1993).

36) Fiske, A. P. 1992. The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review* 99:689-723.

37) This is perhaps why science fiction is often liberating but often tedious.

38) Ruth M. J. Byrne, *The Rational Imagination: How People Create Alternatives to Reality*. MIT Press, 2005.

IV. Conclusions

To successfully integrate psychology into economics, while retaining the deductive rigor and predictive clarity of economic theory, behavioral economists will have to tackle the relativity problem in its various guises. The fact that we haven't done so already indicates the genuine complexity of human cognition more than any lack of intellectual creativity or clear thinking among psychologists. Progress is being made toward various "special relativity theories." But we are still waiting for an Einstein to provide us with a "general theory of relativity." Perhaps some small set of overarching organizing principle will allow us to predict peoples' choices of reference points and comparison standards in a parsimonious way. If not, legal scholars may have to accept two competing frameworks for analyzing judgment and choice: A rational economic framework with clear predictions but shaky foundations, and a psychological framework with strong empirical foundations but uncertain *a priori* implications for a given situation.