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Is It Rational To Assume Consumer Rationality? Some Consumer Psychological Perspectives On Rational Choice Theory

Jacob Jacoby

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Jacob Jacoby*

INTRODUCTION

We open with a stipulation and an opinion. When invited to provide consumer psychological perspectives on Law and Economics and Rational Choice Theory, this author had no recall of having previously heard of either of these terms. While we have acquired some familiarity with what we understand to be the principal concepts and assumptions of these intellectual thrusts, we make no claim to having read most of the important work or being as conversant on these subjects as we would like. However, bounded by what we currently do know, we opine as follows: Virtually without exception, those familiar with the extensive scholarly empirical literature on (individual) consumer behavior[1] would conclude that,

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1. The most rigorous scholarly literature is to be found in the *Journal of Consumer Research*, *Journal of Consumer Psychology*, *Journal of Marketing* and *Journal of Marketing Research*. Other excellent sources include the *Journal of Public Policy and Marketing*, the *Journal of Advertising Research*, and the annual editions of *Advances in Consumer Research*. Works summarizing the extensive literature include the various chapters on Consumer Psychology that now appear once every three years or so in the *Annual Review of Psychology*. *See, e.g.*, Jacob Jacoby et al., *Consumer Behavior: A Quadrennium*, 49 Ann. Rev. Psychol. 319-44 (1998); Jacob Jacoby et al., *Consumer Psychology: A Octennium*, 27 Ann. Rev. Psychol. 331-58 (1976); Thomas S. Robertson & Harold H. Kassarjian, Handbook of Consumer Behavior (1991). Worthwhile introductory texts include James F. Engel et

as proposed by those contemporary economists and legal theoreticians who espouse it, Rational Choice Theory is a simplistic theory having little correspondence with the real world of (individual) consumer behavior.

Elaborating upon this conclusion, this paper is organized into three sections. Our understanding of early Economic Man Theory and its newer incarnation, Rational Choice Theory, are briefly described in Section I, which then proceeds to discuss why we believe that a number of the key assumptions underlying these theories either are untenable or at least questionable. Section II examines arguments in defense of and elucidating upon Rational Choice Theory made by the Honorable Richard A. Posner,[2] one of those who has spearheaded the introduction and application of this theory.[3] Section III concludes with some suggestions designed to assist Rational Choice Theorists in acquiring deeper understanding that should aid in bringing their theory to a new level.

The following must be emphasized, strongly, at the outset. We understand that most economists (as well as many psychologists, including this one) hold that the tenets of Rational Choice Theory apply *some* of the time in *some* situations. Thus, it is important that our critical comments not be construed as being directed or applying to most economists, or to economists of all stripes and persuasions. Our issue is not that the Economic Man model and Rational Choice Theory do not work. It is that they do not work for all markets and all consumers all of the time or in all situations. Moreover, when they do seem to work, it is generally because they are applied to aggregates and averages, where departures from theory in either direction cancel each other out, potentially masking valid understanding. Human behavior, including human

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al., Consumer Behavior (7th ed. 1993); Wayne D. Hoyer & Deborah J. MacInnis, Consumer Behavior (1997); J. Paul Peter & Jerry C. Olson, Consumer Behavior and Marketing Strategy (5th ed. 1999); Michael R. Solomon, Consumer Behavior: Buying, Having, and Being (4th ed. 1999). For a brief overview of the history, current foci and anticipated directions of Consumer Psychology, see Jacob Jacoby, *Consumer Psychology*, in International Encyclopedia of the Social and Behavioral Sciences (Neil J. Smelser and B. Baltes eds., forthcoming 2001) (on file with author).

2. *See, e.g.*, Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 Stan. L. Rev. 1551 (1998).

3. *See, e.g.*, Richard A. Posner, The Problems of Jurisprudence (1990). While the issue of rationality is discussed at several points, the reader is directed most especially to Chapter 12, "The Economic Approach to Law."

choice behavior, is a complex function of many known and unknown factors. Economic variables play an important, sometimes determinative, role in the equation. But so do psychological variables, sociological variables, cultural variables, environmental variables, etc., and these latter factors will often override economic considerations. And though sometimes stated strongly, our comments are intended to apply only to the strong form of Rational Choice Theory (viz., that the theory holds virtually all the time, for virtually all people, in virtually all circumstances) being promulgated by some economists and members of the legal community. Those who believe that, in this day and age, there are no such individuals may be surprised by what is cited below.

I. AN UNDERSTANDING[4] OF RATIONAL CHOICE THEORY

Tracing its foundation to earlier Economic Man Theory, Rational Choice Theory is a theory of decision-making and choice behavior often applied to marketplace (including individual consumer) decision-making and choice behavior. In its new incarnation, Rational Choice Theory serves as the foundation for what has been termed the law-and-economics movement. As we see it, a number of key assumptions are common to both early Economic Man and Rational Choice Theory, so that (at least to our untutored eye) the distinctions between the two are sometimes blurred. However, for purposes of discussion, we endeavor to treat the two separately below.

Some will no doubt hold that, in our description of Economic Man and, to some extent, Rational Choice Theory, we have erected some easily torched "straw men." In reply, we note the following. First, based upon what we have learned, the positions we describe do not seem to be straw men. While economists have developed what they hold to be refinements to circumvent a number of the problems noted herein, and the vast majority of economists may no longer subscribe to all the Economic Man and Rational Choice Theory positions being outlined, our impression is that some proportion of economists and those seeking to apply an economic orientation in the legal arena remain committed to and continue to

4. Again, it is important to emphasize that it is this author's current understanding, not necessarily the understanding he may arrive at upon greater study of work in this arena.

promulgate these positions. Ergo, these positions have legs and life; being advocated by at least some economists, they are not "straw men."

Second, as one economist friend[5] commented: "we are more interested in the predictions of our theories than whether the assumptions that go into them are realistic, whatever that might mean. If they give us good predictions, we don't care much about the realism of the assumptions." Another commented: "I pay much less attention to the overly restrictive assumptions and much more to the predictions of a theory and how well these hold up and how well they help me understand the world around me." A theme surfacing throughout this paper is that, while predictions (when confirmed via correlational research paradigms) may suggest understanding, they may actually be providing only the *illusion* of understanding. The ancients predicted the seasons and (believing a sacrificed virgin would appease the gods, thereby causing the seasons to re-emerge) sacrificed virgins to assure their coming–and come they did, but not because of any valid understanding of applicable causal factors. Similarly, one might predict that all those who eat bread will die. While this prediction can be confirmed 100% of the time, virtually everyone understands that the hypothesis "eating bread eventually *causes* death" is poppycock. Unfortunately, in other instances—such as when one formulates a sophisticated causal model then, relying upon correlational analyses, a pattern of findings emerge that are consistent with the predictions (thereby leading one to claim that the theory is confirmed)—it is not as easy to recognize or accept that our causal theory may be nothing other than poppycock.

While predictions predicated upon correlational data might be comforting and even useful, the ineluctable fact is that they cannot be relied upon as confirming that we have a valid understanding (qua explanation) of causal relationships. Indeed, sometimes they actually mask such relationships. Particularly in those instances where a theory posits causal explanations for its phenomena, the validity and tenability of the theory's underlying assumptions always merit serious evaluation. Absent such, there can be no claim to being scientific.

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5. We hope our economist friends remain friends, given that we will be citing and addressing remarks, though stated unequivocally, were not necessarily intended for wider dissemination.

Another reason for adumbrating positions as we have stems from a consideration of the potential audience for this paper. Those with background in economics will be able to interpolate where economics has advanced beyond the positions articulated here. On the other hand, others (e.g., law students entering from non-business disciplines, students in psychology, etc.) will arrive with little or no prior grounding in economics. For such readers, this paper may be seen as a primer on historical positions. Analogous to the manner by which most ski students are initially taught how to turn, slow down and come to a stop (by the very inefficient "snowplowing" technique) and only later taught to execute these actions through parallel skiing, we believe that the student who understands the positions as described here will be better able to build upon and revise these understandings in the future. Relatedly, describing the early economists' positions in their extreme form–a form still held by some—makes it easier to see the counterpoint offered by the behavioral approach.

A final reason for describing things as we do will become obvious after reading the *Mea Culpa coda* sub-section near the end of this paper. Given these caveats, we turn to the task at hand.

A. *Early "Economic Man" Theory and its Predictions*

According to some early economic theorists (e.g., Adam Smith, Jeremy Bentham, Alfred Marshall), man's/woman's desire for goods and services exceed his/her[6] ability to pay. Therefore, buying decisions are made through a rational process during which we assign a value to each desired product or service offering based upon our assessment of the ability of that offering to satisfy our needs and desires. This want satisfying ability is termed "utility." As different offerings possess different levels of utility, rational behavior dictates that one seek to maximize utility. In contemporary parlance, this means seeking the most bang for the buck.

When it came to explaining and predicting consumer behavior, early economists believed that the cost/price of the offering was the key element in the utility maximization equation. Raising an offering's price was predicted to lower its sales; lowering its price would increase sales. This seemingly common-sensical proposition

6. Henceforth, we use gender distinctions randomly when the intent is to refer to both males and females alike.

suggests that, given changes in price, consumers respond like billiard balls, buying when prices are lowered and refraining when prices rise. Just like cue balls, consumers will proceed along the path dictated by these external (in this case, economic) forces. To do otherwise would represent an anomaly.[7] As described, this view represents little more than a simple input-output model, where price changes represent the input and purchase/non-purchase represents the output.

When it comes to Rational Choice Theory, little appears to have changed. The assumption that lowering the price provides "the only reasonable explanation" for increased sales finds common expression in the writings of contemporary Rational Choice Theorists. Consider Judge Posner's assertion that: "Buyers do not choose randomly. Rationality is the only reasonable explanation for their reactions to changes in relative prices."[8] As counterpoint, consider how the general behavioral science model treats consumer response to changes in price.

B. *The General Behavioral Science Model and its Predictions*

Regardless of discipline or orientation, most behavioral sciences operate according to some form of a Stimulus-Organism-Response (S-O-R) model–essentially, an input-output model with the important distinction of having the mind of the individual inter-

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7. Not surprisingly, more recent economic thought serving as the wellspring for Rational Choice Theory also contains a cue-ball analogy, albeit of a different spin. As Duxbury writes:

> Despite the bounded nature of economic reality, he [Milton Friedman] suggests it is reasonable to assume that business firms behave as if they are seeking rationality to maximize their profits and as if they are fully aware of the information necessary to succeed in this endeavor. Friedman attempts to demonstrate his proposition by offering the analogy of the expert billiard player:
>
> It seems not at all unreasonable that excellent predictions would be yielded by the hypothesis that the billiard player made his shots *as if* he knew the complicated mathematical formulas that would give the optimum directions of travel, could estimate accurately by eye the angles, etc., describing the location of balls, could make lightening calculations from the formulas, and could then make the balls travel in the directions indicated by the formulas.

Neil Duxbury, Patterns of American Jurisprudence 371 (1995) (quoting Milton Friedman, *The Rationality of Positive Economics, in* Essays in Positive Economics 3, 21 (1953)). Unfortunately, there are few true experts in any field, billiards included. So where does this leave the rest of us?

8. Posner, *supra* note 2, at 1556.

vening between the input and the output (see Figure 1). The external factors impinging upon the individual (including price and price changes, but also word-of-mouth conversations, the influence of packaging, advertising, the "atmospherics" of the retail environment,[9] etc.) are termed *stimuli*, the individual is termed the *organism*, and the output (which includes but is not limited to purchase or even to overtly observable behavior) is termed the *response*. All or virtually all the concepts and variables that populate social science theory can be classified as being either stimulus factors, organismic factors or response factors.[10] Some fundamental insights derived from research on the general behavioral science model are as follows.

As telegraphed above, the objective external world contains a myriad of potentially influential stimuli beyond price or financial considerations. However, regardless of their number and intensity, all that enters into the consumer's decision-making is the consumer's subjective interpretation of (one or more of) these external stimuli. Unlike cue balls or other physical matter, human beings have minds. When evaluating and reacting to incoming information, a wide variety of psychological factors come into play. Among others, these include the person's past experiences, current expectations, motives, mood, personality, attitudes, values, beliefs, memory, etc.

Thus, because of differences in their experiences and mental contents, individuals often differ in the ways in which they evaluate the stimuli impinging from the external world. What this means is two highly rational beings may assign different interpretations to the very same incoming stimulus information. A few simplistic illustrations should suffice to illustrate these points. Consider the interpretations that different observers may assign to the same set of vertical parallel lines. If asked "What number does this represent?," most would interpret this physical stimulus as representing the number eleven. On the other hand, someone accustomed to working with antiquities or signed and numbered lithographic prints might interpret this same objective stimulus as representing the Roman number two. Someone else conversant

9. *See Special Issue: Retail Atmospherics*, 49 J. Bus. Res. (2000).

10. See, e.g., Jacob Jacoby, Stimulus-Organism-Response Reconsidered: An Evolutionary Step In Modeling (Consumer) Behavior, J. Consumer Psychol. (forthcoming) (manuscript on file with author).

with the binary system used in computers might interpret two ones in parallel as representing the binary number four (where 00 = 1, 01 = 2, 10 = 3 and 11 = 4). These interpretations apply not only to how the world is perceived and interpreted, but also to how it is remembered. Upon seeing a bottle of wine priced at $7.99, while forgetting the actual price, one person may later remember it as being a "cheap" bottle of wine while another might remember it as being an "expensive" bottle of wine.

The point is that the external, physical, objective environment is always being interpreted in terms of what the individual already knows. It is not objective reality, but psychologically perceived reality that determines how we interpret and, as a consequence, react to the world about us.

From the perspective of the behavioral sciences, while Economic Man Theory may apply across some to-be-defined aggregate, it falls apart when considering individual consumer behavior. This is because an item's cost is only one of many factors that impinge upon and influence the individual's decision-making and behavior. In any given instance, the individual may deem one or more of these other factors (e.g., a spouse's opinion or even the opinion of a seemingly well- informed stranger one has just met in the store) to be more important than the item's cost.

Recall that, according to Economic Man Theory, lowering the cost of an item leads to a single prediction, namely, an increase in sales. In contrast, the behavioral science model suggests consumers (with a need or desire for the offering in question) may react to lowered price in various ways, some of which lead to purchase, many others of which do not. Clearly, some individuals will behave as predicted by Economic Man Theory, namely, given a reduced price, they will be encouraged to make a purchase. Others also may make a purchase, but for reasons having nothing to do with the price reduction. Indeed, some may not notice nor understand that the price has been lowered. Others may notice, but not care and would have bought the item even at its pre-markdown price. It would be erroneous to consider such purchases as predictions that confirm Economic Man Theory.

In point of fact, a greater number of scenarios may be envisioned under which a price reduction would not lead to purchase or increased purchase. As before, the consumer may not perceive that a reduction has taken place. Or, recognizing there has been a

price reduction, the consumer may consider the amount of the reduction (e.g., from $13.99 to $13.95 or even $12.95) inconsequential and not worth a response. Even if the consumer believes the reduction is consequential (e.g., from $13.99 to $9.99), he may think, perhaps erroneously, that another price reduction was likely to be forthcoming and decide to hold off buying (and, as a consequence, perhaps miss the opportunity to make the purchase at a future time). Who among us has not at one time or another experienced this with regard to a Wall Street security that had dipped in price, then turned around earlier than anticipated, thereby causing us to miss buying in as it began its upward trajectory?

As economists have come to recognize, the lowering of price might be interpreted in a variety of other ways that also lead to non-purchase.[11] Examples include: as a (highly fallible) signal of lower quality;[12] as a signal that the item no longer has the cachet or snob appeal it once had;[13] as a signal that the item was going to be discontinued and replaced by a more advanced model (so that the sale model may now possess lesser value); etc. In another instance, though the consumer may very much want that particular item, she may deem the manufacturer to be socially irresponsible (e.g., perhaps due to its environmental policies, discriminatory hiring practices, etc.) and decide not to purchase for those reasons–reasons having nothing at all to do with economic factors.

As yet another example, though she may have coveted the item for a long time and think that the price reduction makes it a

11. Economists use the term Giffen goods to apply to such situations. Since different people react differently to lowered prices on different offerings, perhaps it is not "Giffen goods" as much as it may be "Giffen people" that account for the observed effect.

12. *See generally* Jacob Jacoby et al., *Price, Brand Name and Product Composition Characteristics as Determinants of Perceived Quality*, 55 J. Applied Psychol. 570 (1971) (discussing price as a signal of quality); Jacob Jacoby et al., *Experience and Expertise in Complex Decision Making*, 13 Advances Consumer Res. 469 (1986) (showing that inexperienced consumers will rely upon price to arrive at judgments of quality while more expert consumers tend to rely on other more diagnostic and predictive information).

13. Discussing why luxury items, such as Rolls Royce cars, Rolex watches and Lalique crystal may sell worse at lower prices than at higher ones, Eric N. Berkowitz et al. write: "The recent success of Swiss watchmaker TAG is an example. The company raised the average price of its watches from $250 to $1,000 and its sales volume increased sevenfold!" Eric N. Berkowitz et al., Marketing 388 (6th ed. 2000). Given that the watches did not change in any material respect, how can Rational Choice Theory explain such phenomena?

genuine bargain, if she expects to be earning less money in the future, she may decide to forgo purchasing the item. Regarding expectations, one of our economist friends wrote: "We can also model expectations and incorporate them into our choice models; the point about someone holding off buying in the expectation of a further price reduction is no problem for us." Questioning the utility of such modeling, Katona wrote:

> Some [economic] scholars who acknowledge the importance of expectations argue that subjective data are not needed because readily available objective data may serve as proxies for the expectations. Economists frequently assume that expectations originate in recent past changes (of prices, or income, or interest rates) and therefore they extrapolate the past data into the future. But recent changes are just one among a variety of factors which form the basis of expectations and which differ from time to time. Thus, to refer only to some fairly obvious instances, inflationary expectations have arisen in periods of price stability and failed to be excessive following large price increases. Notions about what the government will or will not do often influence price expectations more than past price trends do. There is no way to avoid measuring expectations directly because only after knowing what they are can the factors determining them be unraveled.
>
> The "proxy theory" is an example of a mechanistic psychology which is unacceptable because human beings are capable of learning.[14]

Not only do current expectations often have a decisive influence on purchase decisions and behavior, past experience (i.e., learning) can be similarly decisive. Regardless of how much the price is reduced, having previously purchased a product (or brand of a product) only to have it prove highly unsatisfactory, the consumer may decide never to purchase that item again.

Stated somewhat differently, while the early economists preferred to "explain" outcomes by correlating them with inputs (analogous to telling the mechanic "If this dashboard knob is turned to the right, almost without exception, you get this funny noise under

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14. George Katona, *Psychology and Consumer Economics*, 1 J. Consumer Res. 1, 7-8 (1974) (citation omitted) [hereinafter Katona I]. *See also* George Katona, Psychol. Econ. 177-226 (1975) (discussing psychological principles of consumer behavior) [hereinafter Katona II].

the hood"), most other behavioral scientists recognize one has to look under the hood to attain understanding of what is causing that output. This latter approach is in greater correspondence with that employed in the physical and biological sciences. As but one of countless consumer behavior examples that might be cited, although the output (brand-specific purchase behavior) may appear the same on the surface, research shows that "brand loyalty" and "repeat purchasing behavior" are a function of entirely different causal dynamics.[15] This has important, not to be ignored, implications when seeking either to generate or change brand loyal behavior.

C. *Assumptions Underlying Early Economic Theory*[16]

A number of factors explain why the early economic models were highly flawed conceptualizations of consumer behavior. From the perspective of "behavioral man," these may be organized into three categories: those having to do with (1) the stimulus environment, (2) the organism and (3) the response.

Assumptions Pertaining to the Stimulus

As previously discussed, the early economic models focused primarily on economic (price and cost) factors, essentially assuming that these were the only factors that mattered. As such, these models failed to incorporate a vast array of other important non-economic externalities that can and often do supercede economic considerations. Thus, perhaps but 5% of the attention of consumer behavior scholars is devoted to studying economic factors. Con-

15. *See* Jacob Jacoby & David B. Kyner, *Brand Loyalty vs. Repeat Purchasing Behavior*, 10 J. Marketing Research 1 (1973).

16. As we are new to this intellectual arena and our observations seem so obvious and fundamental, it is likely we will be expressing points previously made by others. This has both positive and negative aspects. On the one hand, as proper scholarship requires acknowledging the prior contributions of others, this writer is dismayed at being unable to do so in this instance. (For example, within a few days of the due date of this manuscript, this writer learned of a number of other item he absolutely "should read." Many sounded directly relevant, including one by Robert Shiller with the engaging title "Irrational Exuberance.") On the other hand, not influenced by these writings, it is possible that these naïve eyes (coupled with a sometimes rambling style) may see and express something that has not been recognized nor expressed before.

temporary texts on consumer behavior[17] devote relatively few paragraphs to cost considerations; instead, virtually all the attention is devoted to psychological and sociological considerations.

Assumptions Pertaining to the Organism

One obvious limitation is that, unlike cue balls, all organisms are not the same. There are six billion souls on this earth. As no two have the same set of fingerprints, imagine how unique their minds must be. Nor do we come to the table with the same financial resources. Some of us have more income or accumulated wealth (and accumulated debt) than others, and factors such as these will influence how we react to the same external stimulus (e.g., a price change). Consumers with comparable levels of income, accumulated wealth and accumulated debt can be expected to react differently to the same external stimulus.

More importantly (and perhaps because at the time they were formulated, the other behavioral sciences either were non-existent or poorly defined), early Economic Man theories completely ignored the nuts and bolts of human psychology. Although a limited number of assumptions regarding the consumer were incorporated, these assumptions were seriously flawed. Probably the most fundamental of these was the assumption that human beings *always* seek to rationally behave. For most of us, a moment's introspection should reveal that this assumption could not possibly be correct. First, we all do things that, to others (and sometimes to ourselves as well), we know to be irrational. Second, since Socratic times we have known that there are both rational and emotional bases for our behavior. The early economic models appear to assume that emotional considerations are neither relevant nor important. As the work summarized by Slovic[18] illustrates, this assumption is untenable.

Assigning a value to each desired offering based upon an assessment of the ability of that offering to satisfy our needs and desires necessarily presumes that, at the time we make a purchase

17. *See, e.g.*, Peter & Olson, *supra* note 1; Hoyer & MacInnis, *supra* note 1; Solomon, *supra* note 1.

18. *See* Paul Slovic, *Rational Actors and Rational Fools: The Influence of Affect on Judgment and Decision-Making*, 6 Roger Williams U. L. Rev. 163; Joel B. Cohen & Charles S. Areni, *Affect and Consumer Behavior in* Roberston & Kassarjian, *supra* note 1, at 191.

decision: (a) we have complete and accurate knowledge of (all) our wants and desires, (b) we have complete and accurate knowledge of the available offerings, and (c) we posses the ability to adequately evaluate the offerings at issue. Again, introspection should reveal that, at any given moment in time, it is virtually impossible for us to identify, keep in mind and factor into our mental equation all our short term and long term wants and desires. It is also close to impossible to have knowledge of all the options in many contemporary product categories. Further, in this era of esoteric bio-chemical ingredients and highly complex consumer products, few consumers have the ability to adequately evaluate the labeling information provided for many consumer products. Yet if we cannot identify and keep in mind all our wants and desires, and if we cannot identify all the available offerings, or adequately evaluate information regarding the offerings being considered for purchase, is it rational to expect us always to behave in terms of some external criterion of rationally?

While early economic models did make reference to the individual's needs, wants and desires (concepts that these days are generally subsumed under the rubric "motivation"), essentially, they assumed these were the only important intra-psychic factors that needed to be considered. Completely ignored was the fact that the objective external reality does not govern consumer behavior. Rather, the external reality that enters into their minds and decisions has been filtered, perceived and interpreted. As a consequence, it is subjective internal reality that determines human behavior, including consumer behavior. The internal factors that need to be considered go well beyond needs, wants and desires. They are many in number and highly complex.

Early economic theories often seemed to assume that the consumer's needs and wants remained invariant over time so that, given the same set of economic inputs at different points in time, the consumer would respond comparably at these different points in time. Yet the consumer's needs and wants change over time (see Figure 1). Generally, a satisfied need no longer serves as a motivator of behavior. Satisfying one's hunger by consuming a twenty-four ounce steak at noon does not mean that that same person will be inclined to consume another twenty-four ounce steak at 12:15 p.m. that same day, no matter how much the price is reduced. Since economists, through notions such as elasticity per

unit of time, hold that they can incorporate these changing evaluations and expectations into their models, some will consider this example silly. However, our leitmotif is that prediction predicated upon correlational analysis, though comforting, is not necessarily the equivalent of explanation (qua an understanding of the underlying causal dynamics). For this reason, we find more compelling the counter-argument and data adduced by Katona.[19]

Because it lays the foundation for our later criticizing the "behavioral" orientation championed by some prominent Rational Choice Theorists,[20] it is worthwhile digressing to consider some of the many ways in which needs, wants and desires (*qua* motives) interact with actual behavior. As summarized in Figure 2, rarely is behavior a function of a single dominant motive. More often, it is a function of several (frequently competing) motives. Further, the same motive can easily lead to completely different behaviors across different individuals (e.g., an oral aggressive need can be expressed by one person via eating foods that require hard chewing, by another person via becoming a professional movie critic and by a third person who becomes a scatological comedian) and within the same individual over time. Just as easily, different motives can be manifested via the same behavior. Consider three different souls who regularly attend Sunday church services. One may do so because he strongly believes in god. A second may do so because he strongly wishes to avoid his wife's ire were he not to attend services. A third may do so for social or business reasons (e.g., it's good for his rural hardware business for him to be seen as a god-fearing man). Further complicating the picture is the fact that behavior is determined by more than motives (see Figure 1). Many other factors both internal and external to the individual will influence and often determine the individual's behavior.

The early economic models also ignored the fact that purchase decisions often involve a compromise between two or more consumers (e.g., between a husband and wife who may not share the same values), so that the resultant choice may have little to do with each individual's preferences. Again, this severely limited the explanatory or predictive power of the early models. As one of our colleagues commented: "The husband-wife disagreements are no

19. *See* Katona I, *supra* note 14.
20. *See* Posner, *supra* note 3, at 169.

problem for us–we just define the household as the consuming unit and model its choices." Again, while possibly adequate for prediction, it is debatable whether this approach yields genuine understanding. Further, what happens when the teenage son, a household member, purchases something that neither parent needs or desires? Under what conditions does it make sense (i.e., what are the objective criteria for determining when) to switch from modeling the individual household member to modeling the household, and vice versa?[21]

The early economic models focussed on aggregate behavior, essentially assuming that the individual members of the defined population all behave as the average member of that population; thus, for all intents and purposes, one may treat the population as being homogeneous. This assumption also surfaces in contemporary Rational Choice Theory and is discussed in Section II below.

Assumptions Pertaining to the Response

Contemporary marketplace realities also create difficulties for the ability of early economic models to make specific outcome predictions. Never in all recorded history have consumers had such high levels of discretionary income. Never in all recorded history have consumers confronted an environment that contained such variety in choice. Let us accept for the moment that, at least sometimes, economic models can predict aggregate demand regarding a product category. However, especially when each offering possesses so many different desirable features and options, being able to predict the approximate number of automobiles (or phones, or computers, etc.) consumers will buy during a given year does not enable one to predict just which make of car (phone, computer, etc.) consumers would select. Yet when it comes to issues such as product liability, is not the focus on specific brands or models, not on the generic product itself?[22]

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21. For a summary and critique of the conventional economic approach for treating the household as an economic agent, see Jon D. Hanson & Kyle D. Logue, *The Cost of Cigarettes: The Economic Case for Ex Post Incentive-Based Regulation*, 107 Yale L. J. 1163, 1237-38 (1998). *See also, e.g.*, Barbara R. Bergmann, *Becker's Theory of the Family: Preposterous Conclusions*, 1 Feminist Econ. 141 (1996) (arguing that Becker ignores intra-familial dynamics and power disparities).

22. Rational Choice Theorists sometimes write as if the distinction between product choice and brand choice is inconsequential. For example, Judge Posner writes:

The situation has been summarized thusly:

> Econometric studies are still commonly restricted to an analysis of interrelations among aggregate data that reflect past activities such as consumer expenditures, business investments, incomes, and profits. Correlation among data on results of behavior are deemed preferable to a consideration of the allegedly elusive psychological factors which behavioral economics postulates between stimuli, such as changes in the environment or information transmitted, and spending or savings decisions.[23]

In terms of the S—>O—>R formulation, Katona (virtually a voice in the wilderness during the 1950s, '60s and '70s) was pointing out that traditional economists prefer to work with S—>R or R_1—>R_2 relationships, rather than with S—>O—>R relationships.[24] In that same article, Katona adduces evidence (regarding inflation and consumer spending, personal savings in prosperity and recession, wealth and saving, and saturation with consumer goods) revealing the inadequacy of such thinking.[25]

We understand that most contemporary economists do not subscribe to strong forms of the Economic Man assumptions, accepting that these assumptions represent general tendencies and apply in some instances but not others. Yet many of the assumptions underlying classical Economic Man Theory also surface in Rational Choice Theory, to which attention is now directed.

D. *"Rational Choice Theory:" Economic Man Redux*

"Law-and-economics applies the basic assumption of economics—that people will try to get the most out of what they have (are

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> Moreover, the fact that people are not always rational, even that some are irrational most or all of the time, is not in itself a challenge to rational-choice economics. Many people have an irrational fear of flying . . . . But their irrationality does not invalidate the economic analysis of transportation, although it may show why pecuniary and time costs, and accident rates, may not explain the entire difference between the demand for air transportation and the demand for its substitutes.

Posner, *supra* note 2, at 1554. Choosing to use air versus some other form of transportation is not usually the issue in product liability matters. Rather, it is choosing one air carrier (or one type of aircraft, or one route, or one particular airport (JFK rather than LaGuardia, etc.)) rather than another.

23. Katona I, *supra* note 14, at 1.

24. *See id.*

25. *See id.*

'rational maximizers')—to law."[26] Rational maximization, in turn, may be defined as seeking "wealth/profit maximization" and "cost minimization."[27] The conceptual core of law and economics is Rational Choice Theory, which evolved at and remains strongly identified with the University of Chicago and those who studied there. Rational Choice Theory has been described as follows:

> [I]t is useful first to understand the defining features of law and economics. . . . [T]his approach to the law posits that legal rules are best analyzed and understood in light of standard economic principles. Gary Becker offers a typical account of those principles: "[A]ll human behavior can be viewed as involving participants who [1] maximize their utility [2] from a stable set of preferences and [3] accumulate an optimal amount of information and other inputs in a variety of markets." The task of law and economics is to determine the implications of such rational maximizing behavior in and out of markets, and its legal implications for markets and other institutions . . . . [This] general approach underlies a wide range of work in the economic analysis of the law.[28]

In similar fashion, Judge Posner writes: "The basic assumption of economics that guides the version of economic analysis of law that I shall be presenting is that people are rational maximizers of their satisfactions–*all* people (with the exception of small children and the profoundly retarded) in *all* of their activities (except when under the influence of psychosis or similarly deranged though drug or alcohol abuse) that involve choice."[29] As exemplified by his writings,[30] Judge Posner is a champion of the scientific approach and its greater use in jurisprudence. Yet according to the philosophers of science, such certainty (as is reflected in the assertion "all people

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26. Mark Tushnet, *Idols of the Right: The "Law-and-Economics" Movement*, Dissent, Fall 1993, at 477.

27. Although the concepts of "profit" and "cost" may initially have been confined to financial considerations, as we understand it, Rational Choice Theorists now apply these notions to psychological phenomena and processes; e.g., ego enhancement vs. ego costs.

28. Christine Jolls et al., *Behavioral Approach to Law and Economics*, 50 Stan. L. Rev. 1471, 1476 (1998) (quoting Gary S. Becker, The Economic Approach to Human Behavior 14 (1976) (footnote omitted)). Having devoted thirty-five years to studying the richness and complexity of consumer behavior, the present writer is impressed to learn that three incredibly simple propositions are all one needs to understand "all human behavior."

29. Posner, *supra* note 3, at 353.

30. *See id.* at 7, 26, 62-70, 83, 213-14.

. . . in all their activities") is fundamentally incompatible with the scientific perspective, where one is taught to suspend certainty because one can never tell if one has accounted for all the relevant information.[31] It is also incompatible with Bertrand Russell's eloquent defense of philosophy[32] that Judge Posner advises "is worth pondering,"[33] as well as with the dicta of a distinguished jurist.[34] We agree with Judge Posner when he brings these points to the fore.

With its recognition that the consumer is not a cue ball, but an information processing decision-maker, and its corresponding emphasis on supplying the consumer with information beyond price information, Rational Choice Theory represents improvement over the earlier Economic Man Theory. However, because it continues to ignore the vast body of relevant scholarly thought and empirical findings on human psychology in general and consumer behavior in particular, Rational Choice Theory remains uninformed and unable to recognize that many of its key assumptions are unverifiable and/or untenable.

E. *Assumptions Underlying Rational Choice Theory*

Implicit in Rational Choice Theory are a number of key assumptions.[35] Among these are: (1) objective criteria exist that enable one to differentiate rational from irrational; (2) the differences between organizational behavior and individual (consumer) behav-

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31. It is worth emphasizing that our objection throughout is to the strong form of Rational Choice Theory, namely, the version that holds it applies to *all* people in *all* situations involving choice. We have little problem with those Rational Choice Theorists and other economists who hold that Rational Choice Theory holds some of the time in some situations.

32. Bertrand Russell wrote:

> Philosophy, though unable to tell us with certainty what is the true answer . . . is able to suggest many possibilities which enlarge our thoughts and free them from . . . tyranny . . . . Thus, while diminishing our feeling of certainty as to what things are, it greatly increases our knowledge of what they may be[.]

Bertrand Russell, The Problems of Philosophy 157 (1912).

33. Posner, *supra* note 3, at 4.

34. *See* Posner, *supra* note 3, at 192 (citing Oliver Wendell Holmes, *Natural Law,* 32 Harvard L. Rev. 40 (1918)).

35. We understand that a number of our criticisms of Rational Choice Theory have at one time or another been offered by others. Regrettably, our lack of familiarity with this literature prevents us from giving due credit to or even acknowledging these earlier contributors.

ior are negligible; (3) consumer behavior is predicated upon consciously considered factors; (4) consumer behavior is predicated solely upon rational considerations; (5) consumers make their choices from among "a stable set of preferences;" (6) consumers always seek to maximize utility (7) in maximizing utility, consumers consider the risks involved; (8) when not presumed, satisfaction can easily be assessed; and (9) information provision will translate into information impact.

1. *Objective criteria exist to differentiate what is rational from what is irrational*

For one to contend that a given decision or behavior was irrational, one would first need to have some criterion of what was and what was not rational. Thus, a critical assumption underlying Rational Choice Theory is that widely agreed upon, objectively verifiable criteria exist that enable one to differentiate rational from irrational. Without such objective criteria (or a workable, operationalizable definition of rationality), it becomes impossible for anyone to determine just what is and what is not rational. Yet, we know of no such criterion or set of criteria. As a consequence, the scientific foundation of Rational Choice Theory becomes suspect.

The problem is compounded by the fact that different theorists appear to propound their own, somewhat varying definitions of rationality.[36] Rational Choice Theory thus appears to be more a conceptual orientation than a formal, well-developed theory. Since what is rational needs to be determined by comparing the entity's decision or behavior to some objective model, criterion or authority, how does one proceed when the different models, criteria or authorities disagree? Would it not prove troublesome for Rational Choice Theory when an individual's behavior judged to be rational according to one model, criterion or authority, is judged to be irrational by another model, criterion or authority?[37] And though fish-

36. The discipline of physics appears to serve as an aspirational model for some Rational Choice Theorists. For this reason, it pays to consider Einstein's $E=MC^2$, where the definition of each of the equation's terms does not vary across physicists. In referring to behavioral economics, Judge Posner writes: "The nebulousness of their ruling concept gives rise to all sorts of questions." Posner, *supra* note 2, at 1559. Most assuredly, the same can be said with respect to Rational Choice Theory's ruling concept of rationality.

37. It is not surprising to see Judge Posner comment: "We now know that if we give a difficult legal question to two equally distinguished [and, presumably,

ermen may serve as a source of inspiration,[38] the absence of a standard is reminiscent of the story of the one-armed fisherman who held up his one hand to illustrate having "caught a fish this long."

As Judge Posner notes: "Karl Popper, whose philosophy has been highly influential in economics, claimed that falsifiability was an essential feature of any useful scientific theory. If a theory cannot be falsified, neither it nor its predictions can be validated, for everything that happens is by definition consistent with the theory."[39] In the absence of any universally accepted and agreed upon standard for determining what constitutes rational decision-making and behavior, does not Rational Choice Theory reduce to a theory that cannot be falsified? At the very least, "A theory that is not effectively falsifiable, but only confirmable, is tenuously grounded."[40] Confirmation predicated upon prediction, when both the predictor and criterion (or independent and dependent) variables are not under the control of the researcher, represents a weak form of scientific confirmation.[41]

2. *The differences between organizational behavior and individual consumer behavior are negligible*

Alchian held that economic competition of firms resembled a Darwinian process such that the ability of businesses to survive depended upon their ability to operate at lower costs and maximized profits relative to their competitors.[42] In like fashion, Friedman held that one could assume businesses pursued a strategy of profit maximization since, "unless the behavior of businessmen in some way or other approximated behavior consistent with the maximization of returns, it seems unlikely that they would remain in business for long."[43] Although it is debatable whether profit

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equally rational] legal thinkers, chosen at random, we may well get opposite answers." Posner, *supra* note 3, at 428. Is such an outcome rational?

38. *See* Posner, *supra* note 3, at xii.

39. Posner, *supra* note 2, at 1551, 1560.

40. Posner, *supra* note 3 at 365.

41. *See generally* Thomas D. Cook & Donald T. Campbell, Quasi-Experimentation: Design & Analysis Issues for Field Settings 7-9 (1979) (analyzing scientific research techniques and strategies for assessing causal propositions).

42. *See* Armen A. Alchian, *Uncertainty, Evolution, and Economic Theory* 25 Evolutionary Econ. 65 (1993).

43. Milton Friedman, *The Methodology of Positive Economics*, *in* Essays in Positive Economics 3, 22 (1953).

maximization (as opposed to "reasonable profits consistent with social responsibility") is the principal goal of all for-profit organizations, it is questionable whether individuals can be assumed to always abide by this same profit maximization objective.[44] What applies to firms and other organizations—where cadres of highly educated, professional managers and Boards of Directors are paid large sums to focus on making rational decisions—may not apply, or apply in the same way, to the individual consumer.

3. *Consumer behavior is predicated upon consciously considered factors*[45]

To this writer, rationality implies decision-making that is a function of the deliberate conscious consideration and evaluation of information. However, consistent with Polyani's speculations regarding "tacit knowledge," a considerable amount of research over the past two decades reveals that much, perhaps most, human behavior is controlled by unconscious, not conscious factors.[46] As opposed to being a function of conscious reflection, most psychological phenomena are essentially automatic and subconscious in nature.[47] That is, much of what goes on when one perceives, interprets and responds to information occurs without our ever being consciously aware of our mental processes or behavior. Indeed, "[a]

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44. As an example of the tendency for Rational Choice Theorists to equate businessmen with consumers, consider Judge Posner's comment: "this definition [of Rational Choice Theory] embraces . . . the usual economic actors, such as businessmen and consumers[.]" Posner, *supra* note 3, at 353-54.

45. Judge Posner writes: "Rational choice need not be conscious choice." Posner, *supra* note 2, at 1551. Posner also writes that "decisions, to be rational, need not be conscious." Posner, *supra* note 3, at 354. It is uncertain whether all Rational Choice Theorists would concur. Judge Posner's views on this topic are discussed *infra* in Section II.

46. *See* Michael Polanyi "The Logic of Tacit Inference," *in* Knowing and Being: Essays by Michael Polanyi 138 (Marjorie Grene ed., 1969); Michael Polanyi & Harry Prosch, Meaning 46-65 (1975).

47. *See* John A. Bargh, *The Automaticity of Everyday Life*, *in* The Automaticity of Everyday Life: Advances in Social Cognition 1 (Robert S. Wyer, Jr. ed., 1997); Antonio R. Demasio, Descartes' Error: Emotion, Reason and the Human Brain (G.P. Putnam & Sons 1994); J.A. Hobson, Consciousness (1999); Larry L. Jacoby & L.R. Brooks, *Nonanalytic Cognition: Memory, Perception and Concept Learning*, *in* The Psychology of Learning and Motivation: Advances in Research and Theory (Gordon Bower ed., 1984); Larry L. Jacoby et al., *Unconscious Influences Revealed: Attention, Awareness and Control*, 47 Am. Psychologist 802 (1992). *See generally* Steven Pinker, How the Mind Works 36-42 (1997) (discussing examples of behaviors that occur without thought or reflection).

synthesis of research on consumers' pre-purchase behavior suggests that a substantial proportion of choices does not involve decision-making, not even on the first purchase."[48]

Consumers purchase goods for more than their functional value; many acquire goods for their symbolic value. After all, a Rolex is but a watch and a number of other timepieces, at considerably lesser cost but without the same panache, possess the same objective features. Further, much of the informational content that reaches consciousness has multiple meanings, with some of these meanings exerting their effect, through symbolism or metaphorical allusion, at less than conscious levels. Innumerable examples could be provided. One that was quite memorable is a magazine advertisement, now three decades old, that appeared when cigarette manufacturers began introducing their product in crush-resistant cardboard packaging. The full-page ad was a photograph showing a man sitting on a beach chair on an isolated beach, with a very attractive woman walking from water's edge toward the man holding a pack of Winston cigarettes. The headline read: "Winston brings you the box." This ad communicates various messages, some explicit (Winston is available in a crush-proof box) and immediately obvious, others implicit (symbolic) and not necessarily obvious either to the reader or the creators (note that the ad appeared in an era that preceded "sexism" becoming viewed as a social taboo). Yet, consider the subconscious, brand enhancing impact this photo and caption had on those male cigarette-consuming readers not consciously aware of the double entendre. To the extent that some were encouraged to purchase Winston's as a consequence of this subconscious allusion to sexual fantasy, would we say that these consumers were acting rationally? The assumption that most human behavior, including consumer choice behavior, is a function of conscious or deliberate decision-making is untenable.

4. *Consumer behavior is predicated solely upon rational considerations*

At least since Socratic times it has been understood that human behavior can be rational, emotional or, more often, a combination of the two. For this reason, instead of relying on rational

48. Richard W. Olshavsky & Donald H. Granbois, *Consumer Decision-making–Fact or Fiction?*, 6 J. Consumer Res. 93 (1979).

arguments, litigators often rely on painting emotional pictures when attempting to sway juries. Similarly, many purchase decisions are made because of their emotional or symbolic value, not because of their functional (or rational) value. Is it rational to purchase pet rocks or torn jeans? Is it rational to color one's hair pink, purple and green? Given the pain, healing times that can last weeks or months, risks of serious infection, unsightly scars and potential for permanent deformity, is it rational for hundreds of thousands of Generation X-ers to spend millions of dollars having their noses, eyelids, tongues, lips and genitalia pierced? Is it rational that the celebrity spokesperson in the ad, the color on the outside package, the color of the cleaning fluid inside the package, among other things, should exert any influence, much less a substantial influence, over whether we decide to buy or not buy a particular product? Is it rational to eat fat-filled desserts?[49]

As honest introspection should reveal, at one time or another, we all have made irrational purchase and consumption decisions and done so simply for the sake of enjoyment or giving in to the spirit of the moment.[50] By ignoring pervasive emotional factors,[51] or by pretending that these represent but occasional tendencies or anomalies, Rational Choice Theory cannot claim to provide a comprehensive basis for understanding human behavior, including consumer behavior.

5. *Consumers make their choices from "a stable set of preferences"*

To the extent that Rational Choice Theory (as described by Becker; see above) depends upon "a stable set of preferences," factors both external and internal to the consumer suggests this assumption to be problematic. Consider the consumer's external world. If it reflects nothing else, the contemporary marketplace reflects a state of exponentially increasing dynamic flux. There used

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49. Not according to the author's wife; though, on occasion, he does so anyway. *See generally* Morris B. Holbrook & Elizabeth C. Hirschman, *The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun*, 9 J. Consumer Res. 132 (1982) (introducing thought in this area).

50. In the absence of any workable definition of rationality, Rational Choice Theorists may find some way to interpret this as being rational. This only serves to re-emphasize the indispensable need for a clear definition of what does and what does not qualify as "rational."

51. *See* Slovic, *supra* note 18.

to be but a few commercially available fruit juice options; now we have scores of them. We used to have relatively few brands of pre-packaged breakfast cereals; now we have hundreds of them. We used to have few options for taking photographs; now we have dozens of formats. Sixty years ago, if we wanted to listen to pre-recorded music, we had player piano spools and phonograph records. Today we have these, but also audiotapes, videotapes, compact discs, DVDs, MP3s, etc. More to the point, within each format there are countless numbers of offerings (e.g., composers, individual artists, orchestras, arrangements, etc.) in various permutations and combinations, with this set changing daily.

In other words, the markets for most contemporary consumer goods (not to mention the tens of thousands of new products introduced each year) are exceptionally dynamic, undergoing frequent changes in the brands, models, product features, prices, etc. Never in all recorded history has there been a time when consumers have had such variety of choice. As a consequence, the external world can no longer be counted on to provide "a stable set of purchase options" (which, though not equivalent to "a stable set of preferences," nonetheless may be assumed to affect one's set of preferences in meaningful ways).

Especially in the face of such a dynamic outside world, the internal world can no longer be counted on to provide "a stable set of preferences." Indeed, the consumer behavior literature provides numerous bases from which to argue that the consumer does not necessarily make her choice from "a stable set of preferences." For example, if preference sets remained stable, one might predict high levels of brand loyalty, approaching 100%. Yet, in a very large number of product categories, the rates of brand loyalty are below (sometimes appreciably below) 50%,[52] thereby suggesting that preference sets are not stable. Further, a considerable amount of consumer behavior has been shown to reflect a strong exploratory or variety-seeking component (the strength of which varies across individual consumers). Though they may have a pre-existing set of option preferences, consumers also derive enjoyment in departing from this preference set. Indeed, theoretical reasons have been of-

52. *See generally* Jacob Jacoby & Robert W. Chestnut, Brand Loyalty: Measurement and Management (1975) (revealing more than fifty different ways to measure the concept of brand loyalty). Regardless of which approach is used, virtually all find loyalty rates of less than 50% for a majority of consumer products.

fered to explain how negative affective experiences can be a source of enjoyment.[53]

We are not contending that consumers do not have preference sets. We are contending that there are good (empirically based) reasons to believe that they are not as stable as is assumed by Rational Choice Theorists.

6. *Consumers always seek to maximize their utility*

A fundamental assumption of Rational Choice Theory is that consumers seek to "maximize," that is, to purchase the best (*qua* most satisfying) alternative. But in order to maximize, one need be aware of, then acquire full and complete information regarding, all the available options.[54] While perhaps possible at some earlier point in history, this no longer appears feasible in today's complex and rapidly changing marketplace—a marketplace that offers superabundant choice. Most full service supermarkets around the country carry an incredible assortment of snacks. Rather than die of hunger, most would rather not try to identify and exhaustively evaluate all the available options, but buy one that has usually satisfied in the past—knowing full well that there might be something else immediately available that could be more satisfying. Rather than "maximizing," most consumer behavior reflects such "satisficing," that is, settling for an acceptable ("good enough")[55] option out of the universe of possible purchase alternatives.

Economists have come to recognize that, as introduced, the maximization assumption was problematic. It would be rare for anyone to be able to obtain an awareness of, much less information regarding, all the possible options. Given that the option selected

53. *See generally* Michael J. Apter, The Dangerous Edge: The Psychology of Excitement 63 (1992) (discussing the concept of "detachment frame").

54. "The [Rational Choice/Chicago] credo does . . . assert that economic agents learn all the presently knowable things it pays them to know–always on average–and act with due regard for this knowledge." Duxbury, *supra* note 7, at 371 n.356, (quoting George J. Stigler, *Economists and Public Policy*, 13 Regulation 13, 16 (1982)). We have a serious problem with the phrase "it pays them to know." Since they cannot know in advance whether it does or does not pay them to acquire a particular piece of information, does this not imply that the consumer needs to know everything before they can dismiss anything?

55. James G. March & Herbert A. Simon, Organizations 140-41 (John Wiley ed., 1958); Herbert A. Simon, *Satisficing*, *in* The New Palgrave: A Dictionary of Economics 243-45 (John Eatwell et al. eds., 1987); Herbert A. Simon, Models of Bounded Rationality and Other Topics in Economic Theory (1982).

came from a limited set of options, it could very well be that the option that would maximize utility did not appear in that set. Hence, one could never be certain that the decision-maker had selected the option that would maximize his utility. One could only predict that he would select the best option from among those known to him. His rationality was thus "bounded" by this choice set.

Via introduction of the notion of "information costs," Rational Choice Theorists adjusted the basic assumption to accommodate the fact that consumers need not seek to identify and evaluate all the available options prior to making their choice. As Duxbury[56] writes:

> Chicago economic theorists certainly acknowledge the bounded nature of economic rationality. Indeed, it was George Stigler who first suggested that information can be conceived as an economic commodity. According to Stigler, the standard economic theorem that, in a competitive market, buyers and sellers will seek out and eliminate all differences in prices fails to take account of information costs. Conventional economic wisdom teaches that, so long as there exists a single seller who is willing to accept a price lower than that which the buyer was about to pay, the buyer will seek him out. Yet such a claim, Stigler argues, ignores the fact that buyers must bear the costs of time and travel in gathering information about comparative prices and services. For all this, however, Stigler does not regard information costs as a necessary obstacle to rational economic action. "Ignorance," he asserts, "is like sub-zero weather: by a sufficient expenditure its effects upon people can be kept within tolerable or even comfortable bounds," even though "it would be wholly uneconomic entirely to eliminate all its effects."[57] In other words, despite the fact that individuals contemplating a transaction can never possess perfect information, they will nevertheless acquire and act with due regard for all the available information which they ought, in their own economic interests, to acquire.[58]

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56. *See* Duxbury, *supra* note 7, at 370-71.

57. *Id.* (quoting George J. Stigler, *The Economics of Information*, 69 J. Political Econ. 213, 224 (1961)).

58. *Id.* (citing George J. Stigler, *Economists and Public Policy*, 13 Regulation 13, 16-17 (1982)).

Thus, it seems that economic agents approximate rationality. However, even this modified assumption presents problems. First, by assuming that consumers will "acquire and act with due regard for all the available information which they ought, in their own economic interests, to acquire," the theory makes no allowances for basic human tendencies and momentary shifts.[59] Examples include the possibility that the consumer might be too tired at that particular moment in time to want to maximize, too lazy in general to do so, or motivated by something other than economic interests.

A more fundamental problem concerns the notion of "ought." Ought presumes the existence of some agreed upon identification of "information which they ought . . . to acquire" (versus which information they ought not acquire). Yet there is no such standard. Accordingly, who is it that should determine what information "ought" to be acquired? As is the case with the notion "all the presently knowable things it pays them to know," is it possible we are confronting the one-armed fisherman? Absent an accepted standard for differentiating between information that "ought" to be acquired versus information that "ought not" to be acquired, does not Rational Choice Theory become a theory that, virtually by definition, cannot be falsified? For no matter what information is acquired, it can always be argued that the consumer ought to have acquired something else. As previously noted: "A theory that is not effectively falsifiable, but only confirmable, is tenuously grounded."[60]

True, many economists hold that rationality only assumes that people do the best they can under the prevailing circumstances, not the best under all circumstances. However, when one cannot specify "all the presently knowable things it pays them to know," it enables one to claim that any failure of the theory is not due to flaws in the theory, but to the fact that the decision-makers simply failed to acquire "all the presently knowable things it pays them to know," i.e., all the information they "ought to." The net result is that we are left with a theory that cannot be falsified.

59. *Id.*
60. Posner, *supra* note 3, at 365.

7. In maximizing utility, consumers weigh the risks involved

Many hold that Rational Choice Theory represents an advance over the early economic models because, in addition to having the consumer influenced by cost (including information cost) considerations, the consumer is now presumed to consider information pertaining to risk. Yet Rational Choice Theory appears to ignore the substantial theoretical and empirical literature in the consumer behavior realm that provides insights regarding how consumers perceive and handle risk. Some of these findings are as follows.

As most no doubt appreciate, there is a difference between "objective risk" and subjectively "perceived risk." Consumers may see things as being riskier than they are, or may fail to see things as risky when, objectively, they should. In many instances and for many consumers, there may be little or no relationship between "objective risk" and subjectively "perceived risk." To the extent that Rational Choice Theory focuses upon objective risk, not psychologically perceived risk, it fails to accommodate the realities of consumer decision-making and behavior.

If they perceive risk—a very big "if"[61]—consumers have several options. First, they can forego any effort at evaluating the risks and decide to not make the purchase. While this may avoid some types of risk, it certainly does nothing to avoid the potential risk of "value foregone."[62] It is debatable whether decision-making of this sort is rational and, if so, under what circumstances. Second, the consumer may expend effort to evaluate some or all of the various risks and, at the end of this process, decide to buy (or not buy) the item. This appears to represent a rational approach. As a third approach, recognizing the risks, consumers might go ahead and make the purchase without evaluating these, but by relying on some strategy (e.g., buy the cheapest, buy the most expensive, buy the one with the guarantee, buy the well known brand, etc.). It is uncertain whether reliance upon such heuristics reflects rational

61. *See* Jacob Jacoby, *Some Perspectives on Risk Acceptance*, 8 Advances in Consumer Res. 511 (1981). For example, how many consumers will recognize the incredible amount of health and safety risk lurking behind a label reading "UNCURED FRANKFURTER, . . . keep refrigerated below 40°F at all times." *Id.* at 511-12.

62. In the consumer realm, value foregone refers to the risk incurred when an offering we did not purchase would have been more satisfying than our decision either not to buy it, or to buy some other option. In a very real sense, the risk lies in not taking risk.

decision-making (and, if so, under what circumstances) or just simplified (and potentially irrational) decision-making. Last, with knowledge that there are (many, perhaps some very severe) risks, the consumer essentially may say "Damn the torpedoes" and make the purchase anyway. It is uncertain whether this could be considered rational decision-making.

The literature also reveals that many consumers not only tolerate, but actually enjoy a certain amount of risk. Product offerings and activities possessing little risk often are seen as boring and may be avoided. Consumer behavior does not necessarily reflect an effort to reduce risk, but to keep risk at a comfortable level, even if that sometimes means deliberately seeking risk enhancement. Consumers buy products and engage in activities (e.g., skiing, bungee jumping) that, though known to be objectively risky to life and limb, provide a thrill and sense of accomplishment that results from mastering the risk.[63]

Third, subjective risk is not a present-absent, zero-one sort of phenomenon, but exists at various levels. Even when their objective is to reduce risk, consumers generally reach a decision after reducing risk to acceptable, but non-zero, levels.[64] Moreover, consumers vary in the extent to which they are comfortable accepting different levels of risk and uncertainty. At what level can it be said that the amount of tolerated risk is "rational"?

In addition to financial, performance and safety risks, consumer decision-making often includes a consideration of other forms of risk, including psychological risk (e.g., "As a 22 year-old, how will it make me feel about myself if the doctor tells me I need to take Geritol?"), social risk (e.g., "If I buy the Chevy instead of the Cadillac, what will the neighbors in my upscale community think of me?") and time risk[65] (e.g., if the fancy $18 electric can opener I use has an annoying sound [versus the $18 bottle of wine consumed at a single sitting], though it performs its function quite well, for how long should I feel committed to using it?).

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63. *See* Apter, *supra* note 53, at 3.

64. *See* Jacob Jacoby et al., *Tracing the Impact of Item-by-Item Information Accessing on Uncertainty Reduction*, 21 J. Consumer Res. 291 (1994).

65. *See generally* Leon B. Kaplan et al., *Components of Perceived Risk in Product Purchase: A Cross-Validation*, 59 J. Applied Psychol. 287 (1974) (discussing empirical research on different types of perceived risk in relation to products).

Consumers will engage in risk trade-offs, for example, incurring greater financial risk to avoid incurring greater performance risk. While they may be acting rationally when they do so, they also may be acting irrationally. This is because many consumers haven't the foggiest idea of how to work with independent and especially joint probabilities. (Consider the airline passenger who, in an effort to reduce his risk of dying as a result of a terrorist bomb placed on his plane, carries his own bomb onto the plane, reasoning that the likelihood of there being two bombs on the same plane was infinitesimal.)

Despite the importance of performance, financial and safety risks, there are situations where social, personal and "value-foregone"[66] risks outweigh the former. Suppose a caring mother in the midst of deciding to buy her child a bicycle, comes across the National Emergency Room statistics showing that bicycles are one of the most dangerous toys. She is startled to learn that emergency rooms treat more children as a result of bicycle accidents than accidents involving any other toy. By buying the bicycle, the mother accepts higher levels of safety risk for the child in order to reduce the possibility of the child experiencing ego risk (e.g., thinking less of himself), social risk (e.g., having his friends think less of him) and value foregone risk (e.g., not experiencing the enjoyment that comes from riding a bike). Often, it is not possible to simultaneously maximize (which, in this case, actually means minimize) all forms of risk. What implications does this have for Rational Choice Theory?

Last, because consumers often have little ability (and/or desire) to evaluate various risks inherent in many product purchase and usage situations,[67] they rely on simplifying heuristics to handle risk. Such heuristics include: buy the least expensive option (in an effort to reduce financial risk); buy the most expensive option

66. Value foregone refers to the risk that an unselected purchase option may be more satisfying than the option we do buy.

67. *See generally* Matthew L. Wald, *Crash Statistics vs. Safety Systems*, N.Y. Times, June 23, 2000, at F1 (illustrating that sometimes the effort to reduce a particular form of risk may actually lead to increasing that very same form of risk in unanticipated ways). For example, data reveals that consumers who purchase anti-lock brakes to increase driving safety are involved in a greater rate of fatal crashes than those without anti-lock brakes. Why is the ability to stop faster associated with higher risks? Some speculate it is because drivers having anti-lock brake systems become overconfident, driving faster as a result.

(in an effort to reduce performance risk); buy the option with the best guarantee; rely on the firm with the biggest ad in the Yellow Pages; rely on familiar or major manufacturer brands; rely on what the salesperson recommends; be brand loyal (since, as a consequence of past experience, we already know and accept the risks with that offering); etc. While sometimes rational, these same strategies may also be irrational—as when the consumer follows a salesperson recommendation without factoring in whether the salesperson receives a higher commission on that item, or when being brand loyal means one may be foregoing greater satisfaction and value from a brand not purchased, etc. As a possible example of value foregone (and satisficing rather than maximizing), consider what one author wrote in 1990:

> I have owned Volvo automobiles (a total of four) since 1963, and have been generally satisfied with them. I infer from this experience that if I replace my present Volvo with a new one I probably will be satisfied with the new one too. The prior purchases are "precedents" or "analogies" that create a certain likelihood that I will be satisfied if I buy another Volvo the next time I am in the market for a car.[68]

On the very next page, that same writer acknowledges that "Generalizing from observations is perilous. . . . Some Volvos are lemons." Given this and the many changes in the auto market during the three decades spanning 1963-1990 (including the introduction of directly competing new makes and models, e.g. Acura, Infiniti), assuming this individual is in the market for a new car, would it be rational for him to forgo considering information regarding these other brands and simply buy another Volvo? It might. Then again, it might not—especially if one of the alternatives is likely to be considerably more satisfying, but yet was never considered and evaluated. Under these circumstances—where the person failed to consider all the information it paid him to know and, as a consequence, failed to maximize satisfaction—Rational Choice Theory suggests that remaining brand loyal is not rational.

To the extent that Rational Choice Theory fails to accommodate factors such as (a) when making a purchase decision, consumers either do not perceive or, if perceived, may deliberately ignore risks, (b) others, though interested in reducing risk, have difficulty

68. Posner, *supra* note 3, at 87-88.

appraising or calculating risks, (c) many often engage in deliberate risk enhancement, etc., it represents theory divorced from consumer reality.

8. *When not presumed, satisfaction can easily be measured*

As compared to measuring such things as "love," "intelligence," "fairness" and the like, measuring gender is relatively easy. One's gender is externally detectable and (except for exceptionally rare cases) exists in only two forms: male or female. Different researchers are likely to have no disagreement when measuring whether a particular *homo sapien* was "male" or "female."

In contrast, consider the concept of "hunger" as used in the hypothesis: "The hungrier the person, the more aggressive the person." To test this hypothesis, one would need to measure the degree to which different respondents were or felt "hungry." How could one do this? Of course, one could ask the participants to place a checkmark along some "Extremely hungry" to "Not at all hungry" scale. One could also measure their blood sugar level. Or one could place a standard amount of food in front of each (e.g., two pounds of pasta or five pounds of filet mignon) and weigh how much is left after each has eaten. Since they may not like pasta or steak to the same degree, one might select each person's most favorite food, attach some financial or physical cost to obtaining it, and measure how much the person is willing to spend to secure this food. Yet another approach to testing the above hypothesis would be to deprive people of food for different lengths of time (2 hours, 4 hours, 8 hours, 12 hours, etc.), then measure if those deprived for greater length of time became more aggressive. Suppose one employed all these ways of measuring hunger at the same time and found that they yielded findings that did not agree?

The point of this illustration is as follows. If hunger, a fundamental sensation connected to an objectively measurable physiological state, is so difficult to measure, imagine how difficult it is to measure such abstract concepts as "love," "intelligence" and "satisfaction." Moreover, what if, like intelligence, satisfaction is a multi-faceted concept requiring different approaches to measuring each of its facets? Further, what if a person had different satisfaction levels associated with different features of an offering? For example, suppose he was very satisfied with the zoom lens on his camera, not at all satisfied with the shutter speeds, moderately

satisfied with the quality of the lens, moderately satisfied with the photos under normal lighting, dissatisfied with the photos taken under flash conditions, etc.? What may be easily theorized or assumed may not as easily be defined and measured. Without scientifically reliable, valid measures of "satisfaction," the central dependent variable of Rational Choice Theory is incapable of proper empirical assessment.

9. *Information provision will translate into information impact*

Rational Choice Theory is considered to represent an advance over early economic theory in part due to its emphasis on supplying consumers with information. A key assumption is that the market place works well in supplying consumers with product information. Further, when they possess an optimal or adequate[69] amount of information, people act rationally to maximize their own self-interest. Unfortunately for Rational Choice Theory, numerous empirical studies reveal these assumptions to be untenable.

As a framework for describing the relevant evidence, consider the following. Considerable research exists to show that the majority of consumer purchase behavior is predicated upon "low effort" or "low involvement" decision-making.[70] Such decision-making is characterized by little or no information seeking or evaluation. Instead, decisions are based on such factors as mood, feelings, and easily applied (though not necessarily rational) heuristics. Clearly, when consumers fail to attend to information (as is generally the case in low effort decision-making), there is little opportunity that supplying information (e.g., regarding safety or other forms of risk) will have any effect.

What about "high effort" decision-making, decision-making where the consumer may be expected to process information? When studying deliberate, conscious, "high effort" decision-making and choice behavior, most consumer, marketing, advertising and communication research relies upon an elaboration of the basic S-O-R model known as the General Communication Model, the latter

69. Just what constitutes "adequate" or "optimal" information? Without such a definition, it can always be held that any failure to confirm the theory was not due to the theory, but to the fact that the consumer was not provided with "adequate" or "optimal" information.

70. *See generally* Hoyer & MacInnis, *supra* note 1, at chs. 6 & 10 (discussing low effort decision-making).

subsuming one variant or another of a Hierarchy of Effects (HOE) Model.

As depicted in Figure 3, the General Communication Model holds that communication is a process whereby a source (e.g., a manufacturer, retailer, advertiser, salesperson, friend, *Consumer Reports* magazine, etc.) transmits a message (informational content, including cost and risk information) via one or more media (e.g., a product's package, a TV commercial, a newspaper advertisement or article, etc.) in order to reach a receiver (i.e., the consumer) for the purpose of achieving certain effects (such as generating favorable opinions or purchase behavior). The General Communication Model thus divides the Stimulus into Source and Message, while the Organism is the Receiver/Consumer and the Response is viewed as a series of responses termed Effects. If the Receiver reaches that stage, the very last Effect often takes the form of overt behavior, such as purchase, communicating one's thoughts and feelings to others (via word-of-mouth communications), or reversing roles by becoming the Source and converting the original Source into the Receiver (such as when the consumer then turns to the salesperson and asks "But why is the digital camera better for me?"). In contrast to where the Receiver cannot or does not reverse roles (a situation referred to as "one-way communication" that typifies mass media communications), this latter condition reflects "two-way communication."[71]

The effects produced by a communication are generally conceptualized to occur in sequential or hierarchical form, hence, the name Hierarchy of Effects. According to this widely held perspective,[72] failure at an earlier stage either eliminates or severely limits what happens at subsequent stages.[73] Specifically, exposure to incoming information is assumed to precede attention and perception, attention and perception to information are believed to pre-

71. Though it may seem complex, this is a bare-bones description of the process. For the sake of simplification, important sub-processes (e.g., encoding and decoding) and components have been omitted.

72. The Hierarchy of Effects Model depicted here is a simplification. Many variations of this perspective exist, with some depicting at least 15 separate stages in the receiver's reaction to the incoming communication. *See generally* William J. McGuire, *Some Internal Psychological Factors Influencing Consumer Choice*, 2 J. Consumer Res. 302 (1976) (providing a cogent overview).

73. *See, e.g.*, William J. McGuire, *Attitude Change: The Information Processing Paradigm, in* Experimental Social Psychology 119-20 (C. G. McClintlock ed., 1972).

cede comprehension, comprehension is considered a pre-requisite for evaluation, evaluation precedes reaching a decision, making a choice and forming a purchase intention which, in turn, is considered to be a prerequisite for the actual behavior. Moreover, motivation is presumed to exert a pervasive influence upon all the stages. As discussed below, the HOE stages have very important implications for Rational Choice Theory.

Predicated upon our current familiarity with the pertinent literature in this arena, it seems as if, with few notable exceptions,[74] criticism of[75] and commentaries regarding[76] Rational Choice Theory have tended to focus attention primarily on the evaluation and decision stages. Much of this attention has been devoted to research demonstrating "irrational" biases in evaluation and decision-making, especially as influenced by Herbert A. Simon and exemplified in the work of others, particularly Khanemann and Tversky.[77] What appears to be missing is consideration of the earlier information acquisition and processing stages that are prerequisite for evaluation and decision-making, and other research streams that study how various communication factors (e.g., source credibility; message sidedness) affect evaluation and decision-making.

Both the General Communication and HOE Models have many uses, including the ability to explain why information provision often does not translate into achieving information impact, much less the desired impact. A number of steps intervene between the input (the information provided by the source) and the output (impact on the consumer), any one of which can be responsible for distortion or non-reception of the communication. Consider the following: It should be obvious that it matters not how much or just what information is communicated by the source. Exposure is the first of several critical prerequisites. If the consumer is not

74. *See, e.g.*, Jon D. Hanson and Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 73 N.Y.U. L. Rev. 630 (1999).

75. *See* Jolls et al., supra note 28. *See also* Christine Jolls et al., *Theories and Tropes: A Reply to Posner and Kelman*, 50 Stan. L. Rev. 1593 (1998).

76. *See* Mark Kelman, *Behavioral Economics as Part of a Rhetorical Duet: A Response to Jolls, Sunstein and Thaler*, 50 Stan. L. Rev. 1577 (1998); Richard A. Posner, *supra* note 2, at 1551.

77. *See* Amos Tversky & Daniel Khaneman, *Judgment Under Uncertainty: Heuristics and Biases*, *in* Judgment Under Uncertainty 1 (Daniel Khaneman et al. eds., 1982); Daniel Khaneman & Amos Tversky, Prospect Theory: *An Analysis of Decisions Under Risk*, 47 Econometrica 263 (1979).

exposed to this information, that information cannot exert an influence over that person's decision-making.

Further, just because a person is exposed to information does not necessarily mean that he attends to that information. A consumer may read an article on page four of today's *New York Times* and, by so doing, become exposed to an ad appearing on that page. Yet exposure to the ad does not guarantee attention to that ad. As Lloyd[78] indicates, as part of their daily lives, virtually all consumers in contemporary American society are bombarded with thousands of promotional communications. To avoid having their cognitive (including perceptual and intellectual) systems "overloaded" by letting in and processing too much information,[79] consumers engage in *selective exposure*. Considerable research exists to confirm that most people pay attention to only a fraction of the information available and to which they are exposed.[80]

Because a person attends to a message does not necessarily mean that he attends to the entire message. Indeed, research shows that consumers engage in considerable *selective attention*. For example, today's full-service American supermarket contains approximately 20,000 different products. Limiting attention to one

78. *See* Carla V. Lloyd, *Advertising Media: A Changing Marketplace*, *in* The Advertising Business: Operations, Creativity, Media Planning, Integrated Communications 89, 89-93 (John Philips Jones ed., 1999).

79. *See, e.g.*, Jacob Jacoby, *Perspectives on Information Overload*, 10 J. Consumer Res. 432 (1984); Jacob Jacoby, *Information Load and Decision Quality: Some Contested Issues*, 14 J. Marketing Res. 569 (1977); Jacob Jacoby et al., *Brand Choice Behavior as a Function of Information Load: Replication and Extension*, 1 J. Consumer Res. 33 (1974); Jacob Jacoby et al., *Brand Choice Behavior as a Function of Information Load*, 11 J. Marketing Res. 63 (1974). Interestingly, Greg Duffee, a former researcher for the Federal Reserve and now a professor at Berkeley, attributes stock market volatility to the effect of information overload on efficient markets. *See* Alex Berenson, *On Information Overload and the 'Efficient' Market*, N.Y. Times, May 21, 2000, § 3, at 1.

80. *See* Jacob Jacoby et al., *A Behavioral Process Approach to Information Acquisition in Non-Durable Purchasing*, 15 J. Marketing Res. 532 (1978); Jacob Jacoby et al., *Information Acquisition Behavior in Brand Choice Situations*, 3 J. Consumer Res. 209 (1977). A considerable body of empirical findings reveals that consumers typically attend to only a few of the many features associated with a product. *See, e.g.*, Robert W. Chestnut & Jacob Jacoby, *Behavioral Process Research: Concept and Application in Consumer Decision-making*, *in* Decision-Making: An Interdisciplinary Inquiry 232 (Gerardo R. Ungson & Daniel N. Braunstein eds., 1982); Jacob Jacoby et al., *Pre-Purchase Information Acquisition*, *in* 3 Advances in Consumer Res. 306 (Bevelee B. Anderson ed., 1976); Jacob Jacoby et al., *Consumer Use and Comprehension of Nutrition Information*, 4 J. Consumer Res. 119 (1976).

category of commonly purchased goods, consider trying to be a rational maximizer when purchasing breakfast cereal. Most full service suburban supermarkets typically carry more than one hundred different brands of cereal. As examination readily reveals, the package for each of these brands typically contains more than one hundred separate, objectively identifiable items of information. Even the first time purchaser hardly pays attention to all this information as, at five seconds per item, reading and attempting to comprehend this information would require (100 x 5 =) 500 seconds, or nearly 10 minutes for each carton examined. (Doing this for 100 boxes, without a break, would require in excess of 16 hours.) Instead, consumers typically pay attention only to information that, *a priori,* they think would be relevant, important or interesting, and ignore the remainder.

Rational Choice Theorists might point to selective attention and selective perception as reflecting rational decision-making. However, if these simplifying (not necessarily rational) tendencies lead consumers to ignore information that it pays them to know and which they ought to acquire, then it seems a difficult stretch to interpret these universal human tendencies as reflecting rationality. Relatedly, Rational Choice Theorists accept that, as a basis for reaching rational decisions, an impossible ideal would be to expect the consumer to consider all the pertinent information available in the marketplace. Instead, its theorists hold that, "despite the fact that individuals contemplating a transaction can never possess perfect information, they will nevertheless acquire and act with due regard for all the available information which they ought, in their own economic interests, to acquire."[81] To this writer, it seems that agreement is not likely on what information "ought" to be acquired. (Indeed, what information "ought" Judge Posner consider regarding Volvo and its competitors before making his next automobile purchase decision?) Thus, the construct "ought" seems to defy acceptable operationalization. Yet absent such an operationalization, Rational Choice Theory becomes a theory that cannot be falsified.

For discussion purposes, let us assume that this problem presents no insurmountable obstacle, i.e., it can be shown that de-

81. Duxbury, *supra* note 7, at 371 (quoting George J. Stigler, *Economists and Public Policy*, 13 Regulation 13, 16 (1982)).

cision-makers acting "with due regard for all the available information," actually acquire all the information "which they ought, in their own economic interests, to acquire."[82] Yet information acquisition does not guarantee either accurate perception or accurate comprehension of that information.

Consider perception. Often we see what we expect to see, or see what the context suggests we should see. Expectations or context effects can cause us to ignore disconfirming information and "overwrite" what we objectively do see. In one classic demonstration, researchers exposed test subjects to a handful of playing cards. Among the cards was one very unusual card—either a black four of hearts or a red four of spades. When then asked to identify the cards they saw, what did the respondents report seeing? Upon coming across an incongruent card (such as a red four of spades), more than 96% "called the red four of spades either a red four of hearts, or black four of spades (ignoring either the incongruous color or incongruous form)."[83] In other words, in the context of the other "normal" cards, the respondents overwrote what, objectively, they did see and instead saw what they expected to see.

Now consider comprehension. If attention and perception were all that were required for full and accurate comprehension, readers of this paper most likely would have received grades of 100 and A on all their exams, at least through high school. Using large, projectable nationwide samples, ample evidence exists to show that, on average, television viewers and magazine readers miscomprehend approximately 20% to 25% of the material meanings they read in magazines[84] or see and hear on television.[85]

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82. As one who has devoted a portion of his academic career to developing and applying methods for studying the product information consumers actually do acquire (as opposed to what they say they have acquired or would acquire) and has published a score or more scholarly articles on this very subject, this writer does not recall more than a percent or two of consumers ever having acquired all the relevant information from among the information made immediately available to them. This includes several studies where real world consequences were attached to these decisions.

83. Ernest R. Hilgard, Introduction to Psychology 386 (2d ed. 1957).

84. Jacob Jacoby & Wayne D. Hoyer, The Comprehension and Miscomprehension of Print Communications (1987).

85. Jacob Jacoby et al., *The Miscomprehension of Television Advertising*, American Association of Advertising Agencies (1980) [hereinafter Jacoby et al. I]. Parenthetically, Judge Posner speculates that the potential to misunderstand a written communication is greater than is the potential to misunderstand a spoken communication. "[T]he danger of misunderstanding a spoken communication is

Strikingly, this research shows that virtually 100% of the population miscomprehends at least some portion of these "common denominator mass media" communications, and that this occurs regardless of the level of formal education. J.D.s, L.L.Ds and Ph.Ds miscomprehend material elements of these simple communications at nearly the same rates as do those whose formal education ended with high school diplomas or less.[86] In similar fashion, research on product warning labels[87] and disclaimers[88] reveals that consumer attention to and comprehension of such information is far from optimal, often hovering in the range of 10% to 20%. Research showing that trademark disclaimers tend to be minimally effective[89] formed the basis for several Second Circuit decisions shifting the burden of proof in disclaimer cases from plaintiffs to defendants.[90] Indeed, Section 43a of the Lanham Act, a cornerstone of trademark and advertising law, represents explicit acknowledgement that some factors and actions are likely to cause consumer misperception, miscomprehension and confusion.

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reduced by the fact that the speaker's inflection and facial expressions help dispel ambiguities in his words; it is almost as if inflection and facial expression were additional words. [Further,] a listener can seek clarification from the speaker." Posner, *supra* note 3, at 102. Actually, it is the latter (two-way) aspect of communication that accounts for spoken communications being better comprehended. When the ability to "seek clarification" is removed (i.e., when audio, video and written communications are reduced to one-way communications, as is the case with TV, radio and magazine communications), written communications are significantly better comprehended than are audio-video or audio-only communications. *See* Jacob Jacoby et al., *To Read, View or Listen? A Cross-Media Comparison of Comprehension, in* 201 Current Issues and Research in Advertising (James H. Leigh & Claude R. Martin, Jr. eds., 1983) [hereinafter Jacoby et al. II].

86. *See* Jacoby & Hoyer, *supra* note 84, at 115-19; Jacob Jacoby et al. I, *supra* note 85, at 80-81.

87. *See* Eli P. Cox, III et al., *Do Product Warnings Increase Safe Behavior?*, 16 J. Pub. Pol'y & Marketing 195 (1997); Pam S. Ellen et al., *How Well Do Young People Follow the Label? An Investigation of Four Classes of Over-the-Counter Drugs*, 17 J. Pub. Pol'y & Marketing 70 (1998); Howard Latin, *"Good" Warnings, Bad Products, and Cognitive Limitations*, 41 UCLA L. Rev. 1193 (1994).

88. *See* Jacob Jacoby & Maureen Morrin, *"Not Manufactured or Authorized By . . .": Recent Federal Cases Involving Trademark Disclaimers*, 17 J. Pub. Pol'y & Marketing 97 (1998).

89. *See* Jacob Jacoby & Robert L. Raskopf, *Disclaimers in Trademark Infringement Litigation: More Trouble Than They Are Worth?*, The Trademark Reporter 76 (1986).

90. *See* Charles of the Ritz Group, Ltd. v. Quality King Distrib., Inc., 832 F.2d 1317 (2d Cir. 1987); Home Box Office, Inc. v. Showtime/The Movie Channel, Inc., 832 F.2d 1311 (2d Cir. 1987).

With respect to the information integration and decision-making stages, we simply note that various kinds of "rational" choice models do not rely on linear regression. Discussion of these compensatory, non-compensatory and combinatorial models may be found in most introductory consumer behavior texts.[91]

One objective in describing the HOE and a few of its well confirmed findings is to suggest that, by focussing on one stream of research impacting the evaluation and decision stage, one may ignore much of the real meat underlying consumer decision-making and choice behavior—content having substantial implications for Rational Choice Theory and Behavioral-Law-and-Economics. For example, research on information evaluation and its impact on attitudes shows that a receiver's evaluation of message content may vary considerably, depending upon the order in which the message components are supplied. Given that, except for the fact that it is provided in different orders, the information provided is exactly the same, how does Rational Choice Theory explain such differences?

If one assumes that, for consumers to engage in rational decision-making and choice behavior, one only need provide them with the requisite information, one will be operating with an untenable assumption. It is unclear how Rational Choice Theory handles such issues as consumers attending to only portions of the relevant information or, worse yet, miscomprehending material aspects of said information.

F. *Consumer Behavior Defined: Some Implications for Rational Choice Theory*

Consumer behavior has been defined as *the acquisition, consumption and disposition of goods, services, time and ideas by decision-making units.*[92] As this definition implies, purchase is but one way consumers can acquire products or services. Other ways include finding, trading for, renting, borrowing, receiving as a gift

91. *See, e.g.*, Hoyer & MacInnis, *supra* note 1, at 220-28; Peter & Olson, *supra* note 1, at 160-61.

92. *See* Jacob Jacoby, *Consumer Psychology as a Social Psychological Sphere of Action*, 30 Am. Psychologist 977, 979 (1975); Jacob Jacoby, *Consumer and Industrial Psychology: Prospects for Theory Corroboration and Mutual Contribution*, *in* Handbook of Industrial and Organizational Behavior 1031, 1031-33 (Marvin D. Dunnette ed., 1976); Arch Woodside et al., Consumer and Industrial Buying Behavior (1977); Hoyer and MacInnis, *supra* note 1, at 3.

and stealing. Regarding stealing, given the embarrassment, the possible pain inflicted upon one's family and the implications that a conviction might have for future employment possibilities, most would agree that stealing is an irrational form of product acquisition. Yet nearly two-thirds of the general public admits to having shoplifted at one time or another.[93] Consumer theft of products and services (e.g., cable TV) is widespread. "Officials at Holiday Inn estimate that a towel is stolen every 11 seconds. Clocks, hair dryers, and even artwork are among the items stolen from hotels."[94] Do such behaviors represent relying upon irrational means to achieve short term "rational" ends?

Moreover, there are many aspects to acquisition qua purchase. One can envision scenarios where one may be satisfied with the item acquired but not with the payment mode, e.g., the merchant wont accept credit cards. Another aspect of acquisition is the environment and its various components, e.g., in-store (including atmosphere,[95] clientele, sales force, etc.), phone, Internet, etc. One can envision scenarios where one may be satisfied with the item acquired, but not the salesperson helping us. It is unclear how these various factors are incorporated into the utility maximization formula.

Like acquisition, consumption also admits to various forms of irrational decision-making and behavior. This includes addictive and compulsive consumption behaviors. "For example, betting twice one's weekly salary on a horse is not a rational act;. . . . Eating two dozen donuts is not rational, but compulsive (binge) eaters might consume food in such quantities."[96] Evidence exists to show that addictive and compulsive behaviors may have their roots in genetic factors, dysfunctional families, the consumer's personality and various other factors.[97] To what extent, if any, is Rational

93. *See* Hoyer and MacInnis, *supra* note 1, at 530.

94. *Id.*

95. *See Retail Atmospherics*, *supra* note 9.

96. Hoyer and MacInnis, *supra* note 1, at 535.

97. *See generally* George Loewenstein, *Out of Control: Visceral Influences on Behavior*, 65 Org. Behavior and Human Decision Processes 272 (1996) (theorizing why people behave in contradiction to what they correctly perceive to be their own self-interest); George Loewenstein, *A Visceral Account of Addiction*, *in* Getting Hooked 235 (Jon Elster & Jorgen Skog eds., 1999) (applying this theory to addictive behaviors).

Choice Theory able to accommodate these influences and determinants of consumer behavior?

Consumption is also the stage where the consumer arrives at impressions of satisfaction or dissatisfaction. Consumer researchers have devoted considerable attention to studying how consumers arrive at such impressions (and what they do as a consequence).[98] At core, work in this area holds that dissatisfaction is the result of a discrepancy between the consumer's pre-purchase expectations and the consumer's post-purchase evaluation of product performance. Dissatisfaction results when performance falls below expectations. When strong, dissatisfaction can motivate the person to action. As an illustration of how the same motive may lead to different behaviors (see Figure 2), consider how a consumer may react in the face of dissatisfaction. He may decide to complain (either to the retailer or the manufacturer); though not complaining to those with a commercial interest, he may engage in negative word-of-mouth conversations with family, friends and neighbors; he may decide never to purchase the item again; he may decide to re-purchase the item one more time on a trial basis; he may revise his expectations and continue to purchase the item on more than one subsequent occasion; he may decide to do nothing; etc.

The work on consumer satisfaction/dissatisfaction raises several questions for Rational Choice Theory. As examples, what happens when the consumer's expectations are unrealistically inflated, so that even good performance is viewed as inferior performance? Under these circumstances, is dissatisfaction rational (according to the common understanding of the term rational)? Or what about the many instances where the consumer is unable or incapable of evaluating performance,[99] but does so anyway, often basing their evaluations on irrelevant, non-diagnostic informa-

98. *See generally* Hoyer & MacInnis, *supra* note 1, at 274-80 (providing a brief overview of this work); Peter & Olson, *supra* note 1, at 377-80 (same); Richard L. Oliver, Satisfaction: A Behavioral Perspective on the Consumer (1997) (providing a more detailed description of customer satisfaction).

99. *See generally* Jacob Jacoby & James J. Jaccard, *The Sources, Meaning, and Validity of Consumer Complaint Behavior: A Psychological Analysis*, 57 J. Retailing 4 (1981) (examining factors which might have brought about consumer complaints and actions for redress regarding the Firestone 500 steel belted radial tires).

tion[100] or subjective impressions that disregard objective performance?[101] Again, under these circumstances, is dissatisfaction rational (according to the common understanding of the term rational)? Though we have noted but a few, numerous other implications flow from the above definition.

II. JUDGE POSNER'S DEFENSE AND ELUCIDATION OF RATIONAL CHOICE THEORY

Some in economics (including at least one of its spiritual founders[102]) and law have challenged Rational Choice Theory in entirety or in part. A number of these challengers adopt a perspective that has been termed "behavioral economics" (which is not the same as "*behaviorist economics*," something discussed below under the rubric "The Question of Theory"). One perspective on behavioral economics was provided by Jolls, Sunstein and Thaler.[103] As perhaps the most prominent proponent of Rational Choice Theory, the Honorable Richard A. Posner of the United States Court of Appeals, Seventh Circuit, was invited to comment upon the Jolls et al. paper. In that commentary,[104] Judge Posner sets forth a number of arguments that, while critical of behavioral economics, also represent a defense and elucidation of Rational Choice Theory.

Each time we read Judge Posner's writings—whether in the form of a judicial decision,[105] a scholarly treatise,[106] or as discussed by others[107]—we find in them exceptionally rich, thought-

100. *See* Jacob Jacoby et al., *Price, Brand Name, and Product Composition Characteristics as Determinants of Perceived Quality*, 55 J. Appl. Psychol 570 (1971).

101. *See* David K. Tse & Peter C. Wilson, *Models of Consumer Satisfaction Formation: An Extension*, J. Marketing Res. 204 (1998).

102. *See* Posner, *supra* note 2, at 1552 n.4. "It is noteworthy that Professor Coase, whom [one may] properly regard as a principal founder of 'conventional' law and economics. . ., rejects the traditional economic model of man as a rational maximizer of his satisfactions." *Id.*

103. *See* Jolls, *supra* note 28, at 1471.

104. *See* Posner, *supra* note 2, at 1551.

105. *See* Indianapolis Colts, Inc. v. Metropolitan Baltimore Football Club Ltd. P'ship, 34 F.3d 410 (7th Cir. 1994).

106. *See, e.g.,* Posner, *supra* note 3.

107. *See, e.g.,* J. Thomas McCarthy, McCarthy on Trademarks and Unfair Competition 27-168 (1999).

provoking ideas.[108] One cannot help but be awed by the erudition and breadth of intellect displayed. In the majority of instances, we agree with (often to the point of being inspired by) Judge Posner's observations.[109]

When it comes to Rational Choice Theory, however, our familiarity with behavioral science research and, more generally, the logic of scientific research, suggests to us that a number of Judge Posner's comments in opposition to behavioral economics and in support of Rational Choice Theory may be misguided and untenable. In our opening paragraph, we opined: "Virtually without exception, those familiar with the extensive scholarly empirical literature on consumer behavior would conclude that, as proposed by contemporary economists and legal theoreticians who espouse it, Rational Choice Theory is a simplistic theory having little correspondence with the real world of (individual) consumer behavior."[110] Elucidating upon why we hold this opinion, this section discusses a number of the arguments made by Judge Posner in *The Problems of Jurisprudence*[111] and, more recently, in the aforementioned *Stanford Law Review* article.[112]

A brief digression is in order before turning to this discussion. This writer has been involved in several hundred federally adjudicated matters, usually proffering testimony on the empirical research he designed and conducted for the matter at hand. From time to time, some of these matters (including his research) have come before the Seventh Circuit. In the past, Judge Posner has, in the main, commented favorably upon this work.[113] However, there may come a time when the writer's research again comes before

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108. *See* Posner, *supra* note 2, at 1570. Indeed, Judge Posner observes: "People who are unusually 'fair' will avoid [or . . . be forced out of] roughhouse activities–including . . . the academic rat race." *Id.* This helps to explain why, in a study of a medium sized scholarly association, this author found an inverse correlation between years in the association and support for a code of ethics and related enforcement mechanisms.

109. Having virtually nothing to do with Judge Posner's courtroom decisions, a manuscript we are now preparing (entitled "The role of the judiciary in fostering and creating junk science"), owes some of its inspiration to and uses many citations from Judge Posner's *The Problems of Jurisprudence*.

110. *See supra* text, at 83-84.

111. *See* Posner, *supra* note 3.

112. *See* Posner, *supra* note 2.

113. *See* Indianapolis Colts, Inc. v. Metropolitan Baltimore Football Club Ltd. P'ship, 34 F.3d 410, 415 (7th Cir. 1994).

Judge Posner. In light of the various risks involved, one might ask whether, by so publicly sharing opinions critical of Judge Posner's views, is this writer acting rationally and in his own best (maximizing) self-interest? One answer may be that, in this instance, he is not behaving as a rational actor, but as an irrational fool.

On the other hand, Judge Posner seems to be open to and, indeed, invite criticism of his positions.[114] Accepting Judge Posner's "preoccupation with objectivity,"[115] and oft-expressed openness to inquiry, criticism, the scientific approach[116] and feedback,[117] this writer's commentary may be understood as being rational. Indeed, it would be difficult for it to be interpreted as anything else, especially by someone describing his values as follows:

> The brand of pragmatism I like emphasizes the scientific virtues (open-minded, no nonsense inquiry), elevates the process of inquiry over the results of inquiry, prefers ferment to stasis, . . . likes experimentation, likes to kick sacred cows, and–within the bounds of prudence–prefers shaping the future to maintaining continuity with the past.[118]
>
> . . . law needs more of the scientific spirit than it has–the spirit of inquiry, challenge, fallibilism, open-mindedness, respect for fact, and acceptance of change.[119]
>
> . . . a fallibilist theory of knowledge emphasizes, as preconditions to the growth of scientific and other forms of knowledge, the continual testing and retesting of accepted "truths," the constant kicking over of sacred cows–in short, a commitment to robust and free-wheeling inquiry with no intellectual quarter asked or given.[120]
>
> A lawyer who loses a case in the Supreme Court, a judge who is reversed by the Court, a law professor commenting on the Court's latest (and let us say unanimous) decision–none of these is speaking nonsense, or even violating professional etiquette, if he says the decision is wrong. Our legal discourse is

114. *See* Posner, *supra* note 3, at 362 ("Stated as boldly, as provocatively, as I have stated it, the economic thesis invites attack from a variety of quarters."). *Id.*

115. *Id.* at 454.

116. *See id.* at 70, 458, 468.

117. *See id.* at 459-60.

118. *Id.* at 28.

119. *Id.* at 465.

120. *See* Posner, *supra* note 3, at 466.

> not so positivistic that one is forbidden to appeal to a "higher law" even after the oracles of law have spoken.[121]
>
> To quote William Blake, "without contraries is no progression."[122]
>
> . . . if the shoe happens to fit–it is not responsive to point out that the criticism comes from outside [economics or] the legal system . . . . That is an ostrich's tactic."[123]

Hence, we anticipate that the commentary and criticisms offered here will be understood not as a sign of disrespect (as nothing would be further from the truth), but as coming from one who shares the same values articulated immediately above.

A. *Defining Rational and Rationality*

Acknowledging that Jolls et al. "complain with some justice that economists and economically minded lawyers do not always make clear what they mean by 'rationality,'" Judge Posner continues: "let me make clear at the outset what I mean by the word: choosing the best means to the chooser's ends . . . . No doubt my definition lacks precision and rigor . . . . Rational choice need not be conscious choice."[124] We have three principal problems with this definition. These have to do with 1) the means-end distinction; 2) the objectivity (and operationalizability) of this definition of rationality; and 3) the notion of unconscious rationality.

The means-end distinction

Four combinations are possible with regard to the rationality of means and ends. Both can be rational; both can be irrational; or one can be rational while the other is not (rational means, irrational ends and vice versa). Regarding ends, just which ends are we talking about–our short term, intermediate term or long term ends? What if these ends (or the means for achieving them) conflict with one another? According to Judge Posner, Rational Choice Theory is not concerned with whether or not the ends are rational:

> The difference between the ex ante and ex post perspectives is fundamental, and failure to attend to it underlies much

121. *Id.* at 80.
122. *Id.* at 461.
123. *Id.* at 440.
124. Posner, *supra* note 2, at 1551; *see also* Posner, *supra* note 3, at 354 ("rational denotes suiting means to ends, rather than mulling things over . . . .").

> confused thinking . . . . Because many choices are made, unavoidably, under conditions of uncertainty, a fair number *must* turn out badly. Ex post, they are regarded as mistaken and engender regret, yet ex ante they may have been perfectly sensible.[125]

Yet if the ends are irrational, does it matter that we use rational means in attaining them?

The Objectivity of Rationality (as Defined)

From whose perspective is rationality defined? Is it from the individual decision-maker's perspective or from the vantage point of some external, objective criterion? If one employs the decision-maker's perspective, then (aside from wondering what the heck economists and quasi-economists unschooled in and obviously unfamiliar with psychological theory and research are doing playing psychologist), we anticipate almost insurmountable difficulties in testing this theory.

Consider, first, attempting to measure rationality directly by asking the individual decision-maker to judge the rationality of her decisions. Is it not possible that many will consider all or most of their decisions to be rational, regardless of how well or poorly these decisions stack up against some external criterion or are viewed by some external observer? Alternatively, consider the following indirect approach. Presumably, rational decision-making leads to maximizing satisfaction. Ignoring whether one measures satisfaction with the decision process or with the outcome of the process (and the obvious circularity involved), it might be suggested that one could infer rationality from measuring the individual's level of satisfaction. If so, would this mean that all decisions that produce satisfaction are necessarily rational while those decisions that produce dissatisfaction are necessarily irrational? And what if a particular decision process and outcome that the individual once considered to have been exceptionally satisfying is no longer seen as such by that individual? Does this mean that what once was determined to be rational is no longer so? For these as well as numerous other reasons (e.g., the well documented problems with human memory, including those with information retrieval from

125. Posner, *supra* note 3, at 389.

memory and memory confabulation,[126] the individual's use of defense mechanisms when assessing and interpreting his motives and behavior, etc.), we consider reliance upon a subjective determination of rationality to be particularly troublesome for empirical assessment. This leaves the possibility of testing Rational Choice Theory from the vantage point of some external, objective criterion.

As a prerequisite for scientific research, to contend that a given consumer decision or behavior is irrational, one would first need to have some agreed upon definition or criterion of what was and was not rational. Yet, as noted earlier, no such consensus exists. In the absence of an accepted, agreed upon standard for determining what constitutes rational decision-making and behavior, does not Rational Choice Theory reduce to untestable theory?

Assume for the moment Rational Choice Theorists would all agree with Judge Posner's definition of rationality as "choosing the best means to the chooser's ends." This prompts several questions. What if the consumer has no understanding of his ends? Or suppose the consumer can identify his ends (e.g., having an interesting journey travelling from City A to City B), but the route that best maximizes utility cannot be determined *ex ante,* but only *ex post*? Under these circumstances if, by chance, the consumer happens to select what he later understands to be the route that best satisfied his ends, can we contend that this chance selection is a reflection of rational choice?[127] Or what if (during our ex ante deliberations)

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126. Henry L. Roediger, III and Kathleen B. McDermott, *Distortions of Memory, in* Oxford Handbook of Memory 149-162 (Fergus I.M. Craik & Endel Tulving eds., 2000); Ulrich Hoffrage et al., *Hindsight Bias: A By-Product of Knowledge Updating?,* 26 J. Experimental Psychol: Learning, Memory and Cognition 566 (2000).

127. The day he read Chapter 12 ("The economic approach to law") in Judge Posner's *The Problems of Jurisprudence,* this writer was vacationing in southern France. On the recommendation of the concierge at his hotel, that night, he drove to Villefranche to have dinner at one of the dozen or so open air sea food restaurants that line a 100 yard section of the dock. As a sometimes rational consumer, he walked the dock, looking at the décor of every restaurant and carefully studying every menu along the way. After narrowing his choice to three, he selected the nearest of the three restaurants–a seemingly rational choice, as it lowered his walking costs by a few steps. Only after sitting down and having broken bread did he realize he had selected the restaurant that most obscured his view of the water and surrounding hills, view being an attribute he prizes most highly. Clearly, essentially free information regarding view was available at every one of the restaurants stopped at along the dock. To gather this information, he needed only to turn his back to each of the menus. Yet despite being very deliberate and presumably rational in selecting a restaurant, and despite the fact that view information was readily accessible at virtually no cost (other than having to turn around), he

we understand that our short term ends conflict with our intermediate or long term ends? Or what if there are multiple routes that may be taken travelling from City A to City B, each possessing unique costs and benefits, e.g., one route is more scenic while another route takes the traveler through interesting towns? Under such circumstances (presumably of roughly comparable utility), it is unclear just what predictions would flow from Rational Choice Theory.

The Notion of Unconscious Rationality

In addition to stating that "Rational choice need not be conscious choice," Judge Posner also writes "rational denotes suiting means to ends, rather than mulling things over. . ."; i.e., rational does not necessarily involve thinking (qua "mulling things over").[128] As unconscious choice seemed so fundamentally inconsistent with the notion of rational choice, (indeed, many have spent considerable time and money in and out of therapy wrestling with their "unconscious irrationalities"), it prompted this writer to consult two dictionaries.

The first definition Webster's, a traditional dictionary, provides for rational is "having reason or understanding;" the first definition it provides for rationality is "the quality or state of being rational."[129] According to the Dictionary Disk in Microsoft's "Encarta Reference Suite," the definition of rational includes "showing evidence of, clear and sensible thinking and judgment, based on reason" and "understandable in terms that accord with reason and logic."[130]

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failed to incorporate this valuable information into his utility equation. As a consequence, he definitely did not maximize his satisfaction and ended up having a less than satisfactory dining experience. As he drove back to his hotel, he realized that, inasmuch as his *ex ante* evaluations failed to incorporate his highly valued view information, he failed to consider all the information it paid him to know (i.e., which he "ought" to have acquired). Thus, despite his systematic, deliberate efforts at rationally acquiring and evaluating the readily available information regarding each of these options, his means had not been rational and he had behaved as an irrational actor. At this point, not only was he dissatisfied with his meal, but also with his irrational behavior. Of course, that was not the first time he had acted irrationally, nor would it be the last.

128. *See* Posner, *supra* note 3, at 354.

129. Webster's New Collegiate Dictionary 969 (10th ed. 1996).

130. Microsoft Encarta Reference Suite 2000.

When it comes to defining unconscious, Webster's definitions include: "not marked by conscious thought, sensation or feeling" and "not consciously planned or deliberately carried out."[131] The definitions of unconscious on the Dictionary Disk in Microsoft's "Encarta Reference Suite" include "unaware: not aware of something; unintentional: not intended, or not realized or recognized."[132]

According to our understanding, "mulling things over" and "showing evidence of clear and sensible thinking" have meanings that are incompatible with "not marked by conscious thought." As it is accomplished without understanding, unconscious choice can be and often is inconsistent with and, indeed, the antithesis of, rational choice.[133]

The bottom line: We have great difficulty understanding how, as currently conceptualized, Judge Posner's definition of rational/rationality can be operationalized. Without specifying a criterion, we tend to think that the concept and accompanying theory are rendered incapable of solid empirical study or support. As things stand now, virtually any finding or behavior can be interpreted and classified as being rational or irrational, depending upon the unique perspective of the classifier. This situation presents a critical impediment to scientific advance.

B. *Information Acquisition and Rational Behavior*

We agree with Judge Posner's observation that: "Rationality does not imply omniscience. Indeed, it would be profoundly irrational to spend all one's time in the acquisition of information."[134] Research shows that, operating under conditions that have both financial and ego consequences and where information acquisition costs are virtually zero, even professional security analysts decid-

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131. Webster's, *supra* note 129, at 1273.

132. Microsoft, *supra* note 130.

133. One reviewer remarked that Judge Posner might contend his definition was his definition, and dictionary definitions of these terms possessed little or no relevance. Yet this writer cannot envision Judge Posner adopting such a position, as it would align him with the Humpty Dumpty in C. L. Dogson's (a.k.a. Lewis Carroll) whimsical tale, Through the Looking Glass, who held "when *I* use a word . . . it means just what I choose it to mean—neither more nor less." Lewis Carroll, Through the Looking Glass 79 (Macmillan 1966) (1871).

134. Posner, *supra* note 2, at 1553.

ing on which securities to select do not acquire most (or even much) of the information available.[135]

Judge Posner holds "it would be profoundly irrational to spend all one's time in the acquisition of information."[136] However, in this information age, it is widely accepted that information has value. Thus, other Rational Choice Theorists might assume that acquiring more information cannot help but yield more value and thereby lead to better decision-making. The more information one possesses, the greater the likelihood of acquiring information it pays one to know and therefore one ought to acquire, and the better decision one can make; how could it be otherwise? Again, considerable research reveals that, up to a point, as the amount of information acquired increases, consumers do make better decisions (where "better" is defined in terms of each respondent's personal, previously measured, utilities). However, beyond that point, acquiring more information leads consumers to make poorer decisions.[137] In other words, when it comes to making decisions, more information is not necessarily better, and sometimes may be considerably worse.

Moreover, the amount of information acquired is not the only—nor often the most—important consideration. Research shows that the content (type) of the acquired information[138] and especially the sequence in which this information is acquired[139] can be as or more important than how much information is ac-

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135. *See* Jacob Jacoby et al., *Effectiveness of Security Analyst Information Accessing Strategies: A Computer Interactive Assessment*, 1 Computer Hum. Behav. 95 (1985); Jacob Jacoby et al., *When Feedback is Ignored: The Disutility of Outcome Feedback*, 69 J. Applied Psychol. 531 (1984); *see also* Jacob Jacoby et al., *New Directions in Behavioral Process Research: Implications for Social Psychology*, 23 J. Exper. Soc. Psychol. 146 (1987) (discussing information gathering sequences that differentiate between better versus poorer performing security analysts).

136. Posner, *supra* note 2, at 1553.

137. *See* Jacob Jacoby et al., *Brand Choice Behavior as a Function of Information Load*, 11 J. Marketing Res. 63, 63-69 (1974); Jacob Jacoby et al., *Brand Choice Behavior as a Function of Information Load: Replication and Extension*, 1 J. Cons. Res. 40 (1974); Jacob Jacoby, *Information Load and Decision Quality: Some Contested Issues*, 14 J. Marketing Res. 569, 569-73 (1977); Jacob Jacoby, *Perspectives on Information Overload*, 10 J. Cons. Res. 432, 432-35 (1984).

138. *See* Jacob Jacoby et al., *Effectiveness of Security Analyst Information Accessing Strategies: A Computer Interactive Assessment*, 1 Computer Hum. Behav. 107 (1985).

139. *See* Jacob Jacoby et al., *New Directions in Behavioral Process Research: Implications for Social Psychology*, 23 J. Exper. Soc. Psychol. 171 (1987); *see generally* Solomon E. Asch, *Forming Impressions of Personality*, 41 J. Abnor. Psychol.

quired. How does Rational Choice Theory accommodate the fact that when professional security analysts working to maximize financial performance acquire the same information in a different sequence, this one difference may exert dramatic impact on the decision quality and performance?

C. *Relying on the Assumption of Randomness to Trivialize Irrationality*

Judge Posner relies on the concept of randomness to explain why "the fact that people are not always rational, even that some are irrational most or all of the time, is not in itself a challenge to rational-choice economists."[140] According to Judge Posner:

> Most questions economists ask concern aggregate rather than individual behavior. . . . . Suppose [a] tax increase [on cigarettes] is two percent and rational smokers respond by reducing their purchase of cigarettes by an average of one percent, while the irrational ones respond randomly. . . .If the distribution of these random behaviors has the same mean as the rational smokers' reaction to the tax, the effect of the tax on the quantity demanded of cigarettes will be identical to what it would be if all cigarette consumers were rational. And this is true no matter what fraction of cigarette consumers is irrational.[141]

Given closer scrutiny, we believe this seemingly rational explanation fails. Consider, first, the following distributions, where each number represents a different decision (either by an individual over time, or by different individuals from the same population).

A. 3, 3, 3, 3, 3
B. 1, 2, 3, 4, 5
C. 1, 1, 1, 1, 1, 5, 5, 5, 5, 5

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258 (1946) (applying these factors in determining individual impressions of personality).

140. Posner, *supra* note 2, at 1554.

141. *Id.* at 1556-57; *see also* Gary S. Becker, *Irrational Behavior and Economic Theory*, 70 J. Pol. Econ. 1, 4 (1962) (making a similar argument: "[N]egatively inclined market demand curves result not so much from rational behavior per se as from a general principle which includes a wide class of irrational behaviors as well.").

Assume that "3" represents rationality while the other numbers represent departures from rationality, with greater distances from 3 representing greater departures. In Distribution A, all five decisions reflect rationality. In contrast, in Distribution B, only one out of five decisions reflect rationality while, to varying degrees, four out of five (80%) do not. In Distribution C, none of the ten decisions reflects anything close to rationality. Yet in all three distributions, the distribution average is 3, or perfect rationality.

Now consider Distribution D, which begins to approximate a normal distribution. Again, though the mean is 3 (rationality), a greater percentage of the ten decisions (60%) reflect non-rationality of varying degrees.

D. 1, 2, 2, 3, 3, 3, 3, 4, 4, 5

It is relatively easy to develop large-scale distributions illustrating little or no rationality. Without becoming overly complicated, consider the following, where perfect rationality is captured by a 6. Though it depicts thirty independent decisions, not a single one of the values in Distribution G represents rationality.

E. 6, 6, 6, 6, 6, 6, 6, 6, 6, 6, 6
F. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
G. 1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5, 7, 7, 7, 7, 7, 8, 8, 8, 8, 9, 9, 9, 10, 10, 11

Indeed, Distribution G is reminiscent of the following apocryphal story. During the Korean War, as the Chinese and North Koreans poured across the Yalu River and every man was needed for combat, two statisticians were called up to the front. After being told to focus on a tree stump and shoot at anything that moved, then seeing some movement, both fired their rifles where they had seen movement. One shot kicked up dust to the left of the stump while the other kicked up dust an equivalent distance to the right of the stump. Having seen the two dust swirls, the statisticians stood up, shook hands, and exclaimed: "Well, I guess we got him"–whereupon both became vulnerable to enemy fire from behind the stump!

Just as it was dangerous for the statisticians to deduce that their average meant that they had confirmed their hypothesis, it is similarly risky for Rational Choice Theorists to argue that because the average of a random distribution supports the theory, Rational

Choice Theory is supported. In the case of Distribution F, only one out of eleven predictions (or 9%) is confirmed; in the case of Distribution G, none out of thirty predictions are confirmed. It cannot be claimed that because the theory is supported "on average," it is supported "in general," and we believe few experienced scientists would claim confirmation of a theory under such circumstances.

As the averages of these distributions reveal, in the absence of any genuine understanding or explanatory power, it is possible to have high predictive accuracy. One of many amusing illustrations of this fact is the "Super Bowl theory" of stock market performance. It holds "that if a team from the old National Football League wins the Super Bowl, stocks will rise over the next year. But if a team from the old American Football League prevails, the stock market is in for trouble."[142] As of the time that passage was written (1998), the predictive accuracy was twenty-seven out of thirty-one years, or 87%. Thus, until and unless our plausible alternative hypothesis (namely, the average reveals only that, even in the absence of any genuine understanding or explanatory power, it is possible to have predictive accuracy) can be shown to be false, it seems risky to rely on group averages to claim that Rational Choice Theory was "confirmed."

Of course, it might be argued that rationality is not an all or nothing affair. According to this approach, given a normal distribution, rationality might reasonably be held to be best described as a range (say, +/- one standard deviation) around the mean. This suggests that instead of being "perfectly rational," most decisions–68% or so–can be considered "reasonably rational." Aside from wondering why we need Rational Choice Theorists to tell us this, one is left to ponder what such an argument does to Rational Choice Theory, with its emphasis on maximization.

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142. Floyd Norris, *The Continued Rise of the Market Rests in the Hands of the Super Bowl Team From Green Bay*, N.Y. Times, Jan. 22, 1998, at D11. The author writes:

> this columnist decided that it made at least as much sense to assume that the stock market could forecast a football game as it did to assume that a football game could forecast the stock market. The fact that both were absurd was not seen as a deterrent. [Thus,] if the stock market rose from the end of November to the Super Bowl, then the team whose city appears later in the alphabet will win.

Id. This hypothesis was confirmed in twenty of the preceding twenty-three years, also 87% of the time.

Though assuming randomness may be convenient, when employed without supporting data, such an assumption is suspect in many important ways. As examples, the distributions of wealth and annual income—important economic factors that can be expected to interact with and influence how consumers react to price changes—are decidedly non-normal. While it may be convenient to assume randomness, when said assumption is amenable to empirical confirmation, doing so becomes an essential part of the scientific process. Consider Judge Posner's cigarette tax example: *If* "the irrational ones respond randomly [*and if*] the distribution of these random behaviors has the same mean as the rational smokers' reaction to the task . . . ."[143]While convenient, one would hope that if and when such sequentially contingent assumptions are offered for consideration in litigated matters, they would be accompanied by supporting data. Having often proffered opinions in litigated matters, this writer well appreciates that failing to provide empirical support for the key assumptions underlying his opinions leaves them vulnerable to a trier of fact concluding that they are predicated on "junk science," something rightly considered impermissible and inadmissible under recent Supreme Court rulings.[144] One would trust that, if and when its propositions are proffered or relied upon in litigated matters, the same requirement for scientific rigor would apply to evaluating the key assumptions underlying Rational Choice Theory.

As Judge Posner notes: "We now know that if we give a difficult legal question to two equally distinguished [and, presumably, equally rational] legal thinkers, *chosen at random*, we may well get opposite answers."[145] Here we have "randomness." Here we have the rational deliberations of means to an end by two equally distinguished legal thinkers. But is it a rational outcome when the decisions reached under these circumstances are diametrically opposed? (And if, so, according to what generally accepted criterion?)

Last and perhaps most importantly, needing to rely on the notion of randomness to support Rational Choice Theory seems fun-

143. Posner, *supra* note 2, at 1556.

144. *See* Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999); General Electric Co. v. Joiner, 552 U.S. 136 (1997); Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579 (1993).

145. Posner *supra* note 3, at 428 (emphasis added).

damentally inconsistent with the emphasis on "*all* people. . . in *all* of their activities. . ."[146] We have difficulty understanding how it can be asserted that one's theory applies to "*all* people in *all* their activities" and simultaneously hold "the fact that people *are not always* rational *most or all* of the time even that *some* are irrational *most or all* of the time, is not in itself a challenge to rational-choice [theory]."[147] Or is the ability to steadfastly hold both propositions a consequence of the fact that "economic theory has become so rich, so complex, that almost any hypothesis, even one that appeared to deny a fundamental implication of the theory, . . . could be made to conform to the theory"[148]? Among scientists, it is generally accepted that inconsistent theory is invalid theory.[149]

D. *Relying on the Assumption of Non-Randomness to Trivialize Irrationality*

While Judge Posner is comfortable employing the assumption of randomness to defend Rational Choice Theory, he appears uncomfortable when behavioral economists rely upon the same assumption. Consider the following:

> [Jolls, Sunstein & Thaler] make exaggerated claims for the empirical robustness of behavioral economics. The problem of extrapolating to normal human behavior from behavior in unusual experimental settings . . . is obvious. . . One would like to know the theoretical or empirical basis for supposing that the experimental environment is relatively similar to the real world. That would be the first question an experimental scientist would address. Selection effects suggest that the experimental and real-world environment will differ systematically. The experimental subjects are chosen more or less randomly; but people are not randomly sorted to jobs and

146. *Id.* at 353.

147. Posner, *supra* note 2, at 1554 (emphasis added).

148. Posner, *supra* note 3, at 363-64.

149. A colleague who reviewed an earlier version of this paper wrote:

> Here, it seems to me that your refutation is a good one but does not really capture the absurdity of the judge's supposition. If we suppose the rational folks reduce purchases by 1% while the irrational folks, on average, also reduce purchases by 1% (albeit with a larger variance), then at the aggregate level both responses are in some sense the same. But a 1% reduction is NOT a random response. It's a systematic tendency with error variance. The judge's statement is a statistical mess and doesn't deserve to be taken as seriously as you proceed to take it. . . . this leaves you in the position of battling . . . against an argument that is absurd to begin with.

> other activities. People who cannot calculate probabilities will either avoid gambling, if they know their cognitive weaknesses, or, if they do not, will be wiped out and thus forced to discontinue gambling. People who are unusually "fair" will avoid (or, again, be forced out of) roughhouse activities–including highly competitive businesses, trial lawyering and the academic rat race.[150]

This passage cited is pregnant with meaning. Consistent with other comments Judge Posner has made regarding experimental design,[151] asserting that determining whether "the experimental environment is relatively similar to the real world. . .would be the first question an experimental scientist would address" reveals an imperfect understanding of experimental design and how it is applied. It is widely accepted across the sciences that "full" (as opposed to "quasi"[152]) experimentation is the optimal research design for testing causal propositions. Judge Posner is correct in noting[153] that being able to unambiguously contend it was the changes in variable X that caused the observed changes in variable Y, and not changes in or the influence of some other variable, is the essential challenge of experimentation. To the extent that one is able to rule out plausible alternative explanations (to the effect that, it was not changes in variable X but something else that caused the changes in variable Y), the experiment is said to pos-

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150. Posner, *supra* note 2, at 1570.

151. *See* Posner, *supra* note 3, at 65 ("'Controlled' experiments suppress features of the natural environment that are deemed irrelevant, in order to isolate the effect of the variable under investigation."); *see also* Indianapolis Colts, Inc. v. Metropolitan Baltimore Football Club Ltd. P'ship, 34 F.3d 410, 416 (7th Cir. 1994) (discussing why "field" or "natural world" experiments need not require suppression of a single feature of the natural environment).

152. The most sophisticated discussion of experimental design (*qua* data collection strategy) is found in the works of Thomas D. Cook and Donald T. Campbell. Examples include: Cook & Campbell, *supra* note 41; Thomas D. Cook et al., *Quasi-Experimentation, in* Handbook of Industrial and Organizational Psychology, 491-576 (Marvin D. Dunnette & Leaetta M. Hough eds., 1990). A considerably abbreviated description of the rudiments of experimental design prepared expressly for the needs of practicing attorneys may be found in Jacob Jacoby, *Experimental Designs in Deceptive Advertising and Claims Substantiation Research, in* Advances in Claims Substantiation 119-41 (Cynthia M. Hampton-Sosa ed., 1991). The latter article has been reprinted in False Advertising and the Law (Jeffrey S. Edelstein ed., 1996). A briefer discussion may be found in David H. Kaye & David A. Freedman. *Reference Guide on Statistics, in* Reference Manual on Scientific Evidence, 331, 346-50 (1994).

153. *See* Posner, *supra* note 3, at 65.

sess a high degree of "internal validity."[154] In contrast, the ability to extrapolate from an experiment's findings to the world beyond is limited by the experiment's "external validity." A different set of plausible explanations limit external validity.[155]

In different ways, "selection" has the potential to affect both internal and external validity. With respect to "internal validity," if the individuals selected for the test (experimental) group differ in a systematic way from the individuals selected for the control group, then a plausible alternative explanation for one's findings might be that it was the differences in the people assigned to the two groups, not the changes in variable X that caused the observed changes in variable Y. To remove this possibility, respondents selected for an experiment need to be *randomly assigned* to the test and control groups. Random assignment enables us to conclude that what the experimenter did, and not differences across the respondents in the two groups, was the cause of the observed effect.

"Random assignment," however, is not the same thing as "random selection." While random assignment refers to how, once selected, the respondents were assigned to the test and control conditions, random selection pertains to our ability to generalize from the experiment to the world beyond. It poses the question: "Were the respondents (used in both the test and control groups) been selected in a manner that makes them representative of the respondents in the world beyond to whom we wish to apply our findings?" The best way to assure such representativeness is to *randomly select* respondents from the population of interest. Given that our experiment uses respondents representative of the population of interest, we can be much more confident that our findings can be validly extrapolated to the population of interest. Importantly, even when applied to assessing causation in the real world, internal validity is acknowledged to be more important than external validity.[156] Thus, "insuring that "the experimental environment is relatively similar to the real world" clearly is not "the first question an experimental scientist would ask."[157]

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154. *See* Cook & Campbell, *supra* note 41, at 50-59.

155. *See id.* at 73-74.

156. *See generally id.* at 83 (stating: "[T]he primacy of internal validity should be noted for both basic and applied researchers").

157. More serious instances of Judge Posner's flawed understanding of experimental design are revealed in Indianapolis Colts, Inc. v. Metropolitan Baltimore Football Club Ltd. P'ship, 34 F.3d 410 (1994).

Judge Posner's criticism regarding the "empirical robustness of behavioral economics" pertains to external validity. Essentially, the judge is conjecturing that, by selecting respondents randomly, the researchers do not represent people who calculate probabilities. This reasoning permits this writer to understand why he terms the findings "cognitive quirks that belong to cognitive psychology."[158] As we see it, the hysteron proteron used by Judge Posner is that, because they may be able to calculate probabilities, those who rise to the top in competitive "roughhouse" domains are relatively free of cognitive "quirks" and irrationalities. This understanding suggests that Judge Posner believes the findings on these cognitive effects are not sufficiently robust to apply to such high-functioning people. What Judge Posner does not recognize is that, just as people with J.D.s, L.L.D.s and Ph.Ds are almost as likely as high school graduates to miscomprehend the basic material meanings in TV programs and mass media magazine communications,[159] the cognitive quirks identified in the scholarly literature apply to us all.

The cognitive quirks that Judge Posner suggests possess questionable "empirical robustness" have been established, confirmed and re-confirmed via the application of experimental designs (which, according to virtually all scientists, are the preferred methodology for assessing causal relationships[160]). However, as Judge Posner acknowledges, "Falsifiability is placed still farther beyond the economist's reach by the infeasibility in most areas of economic inquiry of performing controlled experiments."[161] This being so, Rational Choice Theorists seem precariously positioned to question the empirical robustness of findings reported in the cognitive psychological literature.

No empirical (or, for that matter, conceptual) investigation can capture the "real world" in all its blooming, buzzing complexity. Of necessity, tradeoffs and limitations are a part of all research. Though understanding this to be so,[162] Judge Posner's comments regarding the empirical robustness of behavioral economic theory

158. Posner, *supra* note 2, at 1558.

159. *See* Jacoby & Hoyer, *supra* note 84, at 80-81, 115-19.

160. *See* Kaye & Freedman, *supra* note 152, at 347.

161. Posner, *supra* note 3, at 364.

162. *See generally Indianapolis Colts*, 34 F.3d at 415 (stating "Trials would be very short if only perfect evidence were admissible").

remind this writer of post-concert criticism to the effect that "the pianist had a weak fourth finger." In point of fact, every pianist has (and therefore can be criticized for having) a weak fourth finger–if not on the left, then on the right hand. Within the scientific community, it is well accepted that empirical robustness is achieved when findings are replicated by different scientists using different methods, different respondents, different measuring instruments, different situations, etc.[163] In other words, robustness is achieved by multiple overlapping replications. In this respect, most of the so-called "cognitive quirks" have achieved and earned "empirically robust" status. On the other hand, we have yet to come across hard (i.e., non-correlational, but causal) research showing that Rational Choice Theory is as empirically robust.

E. *"Behavioral Man Behaves in Unpredictable Ways"*

In contrasting the predictive efficiency of Rational Choice Theory with that of behavioral economics, Judge Posner writes:

> The rational-choice economist asks what "rational man" would do in a given situation, and usually the answer is pretty clear and it can be compared with actual behavior to see whether the prediction is confirmed. Sometimes it is not confirmed–and so we have behavioral economics. But it is profoundly unclear what "behavioral man" would do in any given situation. He is a compound of rational and irrational capacities and impulses. He might do anything. [Jolls, Sunstein and Thaler] have neither a causal account of behavioral man nor a model of his decisional structure.[164]

In his penultimate paragraph, Judge Posner re-emphasizes this theme: "Behavioral man behaves in unpredictable ways. Dare we vest responsibility for curing irrationality in the irrational?"[165] Given the effects credited to Reagan economics—according to which important predictions either failed to be made or, when made, often failed to be confirmed—it would appear that the question, "Dare we vest responsibility for curing irrationality in the irrational?" might just as well be applied to Rational Choice

163. *See, e.g.*, Lee J. Cronbach et al., The Dependability of Behavioral Measurements: Theory of Generalizability for Scores and Profiles (1972).

164. Posner, *supra* note 2, at 1559. Beyond claiming this is so, where is the hard evidence showing that when its causal propositions are properly tested, it is only "sometimes" that rational Choice Theory is not confirmed?

165. *Id.* at 1575.

economists. Indeed, is this not why economics is sometimes referred to as "the dismal science"?

As Mark Twain commented upon hearing reports of his demise, the claims of behavioral man's unpredictability are highly exaggerated. Indeed, if the reference to "actual behavior" is meant to encompass all human (including non-economic) behavior, one could just as easily contend that the behavioral scientist asks what 'behavioral man' would do in a given situation, and usually the answer is pretty clear and it can be compared with actual behavior to see whether the prediction is confirmed. Sometimes it is not confirmed.[166] We can predict that when attending a Harvard-Yale football game, in the vast majority of instances, a graduate of Yale will choose to root for Yale and a graduate of Harvard will choose to root for Harvard. Only in some special circumstances (e.g., when one has degrees from both Yale and Harvard) does prediction become muddied. Even in these instances, additional information (e.g., where was the undergraduate degree obtained?) sometimes makes prediction easier. Of course there are exceptions. By the same token, do not a comparable number of offsetting exceptions pertain to economic theory? One may ask: Just what additional understanding does Rational Choice Theory bring to understanding the choices made in this situation?

During the presentation upon which this paper is based, the author posed the rhetorical question: "Is behavioral man really so unpredictable?" He then asked the audience to participate in a brief word-association task. Upon mentioning a word, all members of the audience were asked to write down the first word that came to their minds. Excluding most chemical, biological and other technical terms, the English language contains approximately 700,000 basic words. Thus, the probability of a member of the audience coming up with a particular word should be 1 in 700,000. Yet in response to his saying "chair," nearly 90% of the audience wrote down "table." In response to asking for "the name of the first flower that comes to your mind," approximately 50% of the audience wrote down "rose." This was during the month of April. Had the latter question been asked on or during the week immediately preceding February 14th, one could predict there would be an even higher rate of "rose" responses. Though these behavioral predic-

166. *See id.* at 1559.

tions can be confirmed with audience after audience, one suspects that Rational Choice Theory has no ability to predict such behavior. Accordingly, the opinion that it is "profoundly unclear what 'behavioral man' would do in any given situation" cannot be supported.[167] Just as clearly, it is "profoundly unclear what 'economic/rational man' would do in [m]any given situation[s]" when these "situations" are meant to encompass all forms of human behavior and relationships.[168]

Of course, there are exceptions–10% of the audience selected a word other than "table" and approximately 50% selected a flower other than a rose. So behavioral science has an imperfect track record when it comes to making accurate predictions. But is Rational Choice Theory any better? To assert that, for Rational Choice Theory, "the answer is pretty clear and it can be compared with actual behavior to see whether the prediction is confirmed" but that the same is not true with regard to behavioral man seems to be an insupportable stretch. Indeed, we suspect the balance has not shifted since Herbert A. Simon wrote: "in the limited range of situtations where the two theories have been compared. . . the [psychological] learning theories appear to account for the observed behavior better than do the [economic] theories of rational behavior."[169]

F. *On Dispelling "Quirky Irrational Tendencies"*

In his concluding paragraph, Judge Posner comments: "One might have thought that behavioral economics had at least one clear normative implication: that efforts should be made through education and perhaps psychiatry to cure the cognitive quirks and weaknesses of will that prevent people from acting rationally. . . . . All their [Jolls, Sunstein and Thaler's] suggestions for legal reform are of devices for getting around, rather than dispelling, our irrational tendencies. . ."[170]

As noted, our reading thus far suggests that much attention has been focussed on the judgment and evaluation literature.

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167. *See id.*

168. *See id.*

169. Herbert A. Simon, *Rational Choice*, 63 Psychol. Rev. 129, 129 (1956); *see* David M. Dreman & Eric A. Lufkin, *Investor Overreaction: Evidence That Its Basis is Psychological*, 1 J. Psychol. & Fin. Markets 61 (2000).

170. Posner, *supra* note 2, at 1575.

Though important, this work represents but a stream, not the river of relevant findings in cognitive psychology, much less the ocean of pertinent literature in psychology and the other behavioral sciences. Large numbers of counter-intuitive and seemingly irrational thinking and behavior have been found, confirmed and re-confirmed in these other realms as well. As but a few examples: Is it rational to judge things as being lighter in color when they appear against a dark background vs. when the same items appear against a lighter background? Is it rational for consumers to rely on the color of a package or the pronouncements of paid celebrity spokespersons to judge a product's quality?[171] Not really—but they do. Is it rational for consumers to have unreasonably high expectations for products or services, then be dissatisfied when their expectations are not met? Is it rational for survey respondents to have a greater tendency to answer "yes" than "no," regardless of the question being asked? When it comes to answering survey questions or making choices (such as when voting for candidates listed alphabetically), is it rational for people to exhibit primacy, recency or serial position effects,[172] so that candidates whose names appear first or last on a ballot tend to have a built-in advantage.

Hardly an issue of the *Journal of Consumer Psychology*, the *Journal of Consumer Research*, or the *Journal of Marketing Research* goes by without at least an article or two providing additional evidence on the pervasiveness of "cognitive quirks" or suggesting how an all-encompassing Rational Choice Theory would likely be inapplicable in the real world of individual consumer behavior. Examples of both appear in the most recent issue of the *Journal of Marketing Research*. The abstract of one article reads:

> The authors examine the effects of using a subtractive versus an additive option-framing method on consumers' option

171. Here we mean situations where the celebrity has no special expertise (such as when Michael Jordan promotes MCI) as opposed to when the spokesperson's expertise is directly relevant (as when Michael Jordan promotes Nike athletic shoes).

172. Termed "order effects," they typically surface across different realms of content. A "primacy" effect occurs when a person learns, is influenced by or selects an option simply because it comes first. As the name implies, a "recency" effect is the reverse. A "serial position effect" occurs when the beginning and end of a series of items or communications are learned first (as when a two-year old asked to recite the alphabet says something like "A, B, C, D, E, K, O, W, X, Y, Z"), best or are more persuasive.

> choice decisions in three studies. The former option-framing method presents consumers with a fully loaded product and asks them to delete options they do not want. The latter presents them with a base model and asks them to add the options they do want. Combined, the studies support the managerial attractiveness of subtractive versus additive option framing. Consumers tend to choose more options with a higher total option price when they use subtractive versus additive option framing. This effect holds across different option price levels and product categories of varying price. Moreover, the effect is magnified when subjects are asked to anticipate regret from their option choice decisions.[173]

The second article[174] has implications for how, in the interest of maximizing profits and maintaining or enhancing brand equity, management needs to respond when consumers hear "product-harm" reports. As an example of such reports, the authors cite an *Economist* article[175] regarding "the recent consumer outrage at contaminated Coca-Cola cans in Belgium and France and the subsequent ineffective corporate response."[176] Summarizing their findings from a field survey and two experiments, these authors conclude: "From a managerial perspective, the result that consumers' interpretation of [a]. . . firm['s] response is moderated by their prior expectations about the firm indicates that an identical response [by the firm] can have dramatically different effects on brand equity, depending upon consumers' prior expectations about the firm."[177] In other words, the rational response of management will be interpreted differently by different consumers, depending upon the expectations held by the latter. Is this rational? When providing information to the public in the effort to put out the fires created by reports of product harm, what is management to do?

Literally thousands of additional examples can be supplied. Labeling these "quirks" (defined as "a peculiar trait, idiosyncrasy,

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173. C. Whan Park et al., *Choosing What I Want Versus Rejecting What I Do Not Want: An Application of Decision Framing to Product Option Choice Decisions*, 27 J. Marketing Res. 187 (2000).

174. *See* Niraj Dawar & Madan M. Pillutla, *Impact of Product-Harm Crises on Brand Equity: The Moderating Role of Consumer Expectations*, 27 J. Marketing Res. 215 (2000).

175. *See Coca Cola: Bad for You*, Economist, June 19, 1999, at 62-63.

176. Dawar & Pillutla, *supra* note 174, at 215.

177. *Id.* at 224.

accident, vagary"[178]) is to misrepresent their pervasive presence as part and parcel of the human condition. From a behavioral scientist's perspective, it would be naïve to believe that education or therapy would be sufficient to dispel such deep-rooted irrational tendencies. As many of these so-called "cognitive quirks and weaknesses of will" go unrecognized by educators and skilled therapists alike, it is doubtful whether years of education or therapy would have any effect, much less the desired effect.

For example, consider educating the population regarding the well-documented tendency for respondents to be "acquiescent" and "yea-saying" when answering closed-ended survey questions. Far from being a trivial matter, this tendency has important implications for public referenda and public policy when said policy is predicated upon survey findings. Given that yea-saying can introduce error into a survey's results, leading to misinformed policymaker decision-making, what should be done? Right now, competent researchers understand how to design questions to minimize such tendencies or to assess their effect. Imagine, however, trying to educate and train the population to guard against yea-saying. By sensitizing them to this irrational tendency, do we dispel it (if so, for all, some, or a few people) or simply end up modifying it in unknown and immeasurable ways? That is, being so sensitized, we can expect some not to care, and others to care and (to greater or lesser degrees) try to control their tendency to agree. How would we know whether the latter individuals were successful, or even who they were? A reduction of the percent of "yes" answers might signify some effect or simply that, in an effort to control their irrational tendencies, some respondents have now become more likely to respond "no" when they have no firm opinion (producing a consistent nay-saying effect).

Consider another example. Though it would not appear to reflect rational evaluation and response, there is a highly significant difference in the degree of positivity/negativity expressed by consumers when survey questions are phrased "Do you agree or disagree. . ." versus "Do you disagree or agree. . .", or when a response scale is labeled from +1 to +7 as opposed to +7 to +1.[179] Given this

178. Webster's New Collegiate Dictionary, *supra* note 129, at 960.

179. *See* David A. Sheluga et al., *Whether to Agree-Disagree or Disagree-Agree: The Effects of Anchor Order on Item Response*, *in* 5 Advances in Consumer Research 109-13 (H. Keith Hunt ed., 1978).

propensity, just what would education or therapy seek to have the consumer do? The bottom line is that while education and therapy may have some effect at the margins, in an experience not uncommon for economists, they are more likely not to produce any substantial impact in the desired direction.

G. *"The Question of Theory"*

Under the rubric "The Question of Theory," this author was surprised to find that Judge Posner acknowledges that the picture painted by Jolls, Sunstein and Thaler "may be a psychologically realistic picture of the average person, and it responds to the familiar complaint that 'economic man' is unrecognizable in real life. But in theory making, descriptive accuracy is purchased at a price, the price being loss of predictive power."[180] Judge Posner continues: "JST have neither a causal account of behavioral man nor a model of his decision structure."[181] This same theme is echoed in Judge Posner's *The Problems of Jurisprudence*:[182]

> Should the weakness of economics discourage attempts to apply economics to nonmarket behavior? Surely not. Although much nonmarket behavior is indeed baffling, this is so whether one approaches it from the standpoint of economics, which assumes that human beings behave rationally, or from the standpoint of other human sciences, which do not make the assumption *but have nothing to put in its place.*[183]

It seems odd to find Judge Posner arguing that, because behavioral economists "have neither a causal account of behavioral man nor a model of his decision structure" and, hence, "have nothing to put in [Rational Choice Theory's] place," the criticisms behavioral economists have of Rational Choice Theory merit little weight. Odd because Judge Posner is the same author who urged readers of *Problems of Jurisprudence:*

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180. Posner, *supra* note 2, at 1559.

181. *Id.*

182. *See* Posner, *supra* note 3, at 367.

183. *See id.* (emphasis added). Parenthetically, it is clear that Judge Posner believes economics is "the strongest of the human sciences." *Id.* at 366. However, while economics arguably may be the most quantitative of the human sciences, by themselves, mathematical sophistication, quantitative modeling and number crunching are not to be confused with strong (*qua* valid) science. The two may be completely independent. Accordingly, in the absence of supporting evidence, we respectfully disagree with Judge Posner's opinion to the effect that economics is the "strongest of the human sciences."

> to attend to the particulars of my analysis [and if] having done so, they still conclude that the ratio of destructive to constructive criticism is too high, I ask them to ponder Voltaire's reply when he was taken to task for offering no substitute for Christianity, which he had attacked: 'I save you from a ferocious beast and you ask me what you replace it with!'.[184]

Having acknowledged that the picture painted by Jolls, Sunstein and Thaler "may be a psychologically realistic picture of the average person, and it responds to the familiar complaint that 'economic man' is unrecognizable in real life,"[185] is it that difficult to accept that Rational Choice Theory may represent some sort of "beast" from which we merit being saved? At which point does Rational Choice Theory become Rationalized Choice Theory?

Under the same rubric ("The Question of Theory"), after referring to what he views as "the undertheorization of behavioral economics," Judge Posner writes:

> JST may have overlooked the distinction between a description and a theory because they confuse explanation and prediction. It's easy to formulate a theory that will explain, in the sense of subsume, all observations within its domain, however anomalous they are from another theoretical standpoint. . . . [I]f rational-choice theory bumps up against some example of irrational behavior, the example can be accommodated by changing the theory to allow for irrational behavior. But there is no greater gain in predictive power. . .[186]

It appears that Judge Posner believes, mistakenly, that prediction and predictive power represent the Holy Grail of scientific endeavor. In contrast, if there is a Holy Grail, we believe most scientists would agree that it lies in developing empirically supportable and supported explanations (particularly causal explanations) that provide valid understanding of the world about us. (The issue of "description" is moot as, regardless of whether one's focus is prediction or explanation, description is an essential prerequisite. It provides the necessary foundation for theory and measurement. Without adequate description, one can have neither adequate theory nor adequate measurement. Both predic-

184. *Id.* at 33.
185. Posner, *supra* note 2, at 1559.
186. *Id.* at 1560.

tion and explanation necessarily rely upon clear descriptions of their predictor-criterion or independent-dependent variables.)

More importantly, prediction may but need not imply understanding. As illustrated by the "Super Bowl theory" of stock market performance described earlier, high predictive power can be devoid of any genuine understanding and only provide the illusion of understanding. Though we may be reading more into the statement than its author intended, acknowledging that the picture painted by Jolls, Sunstein and Thaler "may be a psychologically realistic picture of the average person, and it responds to the familiar complaint that 'economic man' is unrecognizable in real life"[187] suggests, to us, at least implicit recognition that Rational Choice Theory may provide little more than illusory understanding.

It is not surprising to find one taken with prediction claiming to adopt a "behaviorist" perspective. "The economic perspective is thoroughly (and fruitfully) behaviorist."[188] Further: "Law itself is best approached in behaviorist terms."[189] Psychologists and marketers of earlier eras also thought that the behaviorist perspective was "the answer." This perspective was the dominant one among empirically oriented psychologists during the early part of the 20th Century. It fell out of favor by the 1930s, as research findings made other perspectives more compelling. The behaviorist perspective was also the dominant orientation of professional, profit-maximizing marketing managers through the mid- to late1950s. Near the end of that period, with the need not only to predict, but also to influence and shape consumer behavior, they began recognizing the importance and practical utility of understanding and explaining the workings of the consumer's mind. Though still important, prediction was relegated to a secondary role behind explaining and attempting to verify causal propositions.

187. *Id.* at 1559.

188. Posner, *supra* note 3, at 382.

189. *Id.* at 456. It seems to us that a theory that relies upon "satisfaction" (an internal mental state not amenable to direct external observation) as its principal explanatory variable cannot be said to be compatible with a pure behaviorist approach, as the latter is an externally oriented approach that ignores internal variables.

H. *When Rational Choice Theorists Become Psychologists*

In support of Rational Choice Theory, Judge Posner writes: "Faced with anomalous behavior, the rational-choice economists . . . . wracks his brains for some theoretical extension or modification that will accommodate the seeming anomaly to the assumption of rationality. From these efforts have come the advances in economic theory listed in the preceding paragraph."[190]

Perhaps as an illustration of this point, earlier in that same article, Judge Posner proposes a theoretical extension to accommodate a seeming anomaly to the assumption of rationality:

> We can be torn between alternative courses of action because of uncertainty. That poses no puzzle at all for rational-choice theory. What does pose a puzzle is refusing to keep chocolate in the house because of fear of not being able to overcome temptation. Explaining such behavior in rational choice terms may nevertheless be possible, but it may require abandoning a tacit assumption of most economic analysis—that the self is a unity—in favor of a conception of the person as a locus of different selves. All the selves are rational, but they have inconsistent preferences.[191]

Reading this passage, this writer found one of his own selves pondering: "Wait a minute. Did I miss something here? Is this still economics or have we entered the realm of psychology?" If utility changes with our different selves, then what are we really studying—economic factors or psychological factors? Though eclecticism is to be admired, at what point does Rational Choice Theory become so broad that it becomes or subsumes psychological theory? And if it becomes psychological theory, are economists or quasi-economists, with their lack of training or knowledge in the psychological domain (and somewhat less than perfect performance in their own) the best qualified to study such phenomena or to promulgate and adjudicate public policy based on their unsupportable assumptions regarding consumer behavior?[192]

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190. Posner, *supra* note 2, at 1567. The advances identified were: risk aversion, risk preference, altruism, time preference, positive information costs and strategic and habitual behavior.

191. *Id.* at 1555.

192. According to one anonymous wag: "An economist is an expert who will know tomorrow why the things he predicted yesterday did not happen today." So as to be fair to all involved, this author, an experimental social psychologist by training, wishes to note that another wag defined psychology as "the study of the

Think of the situation this way. Suppose two facts: the reader was in need of brain surgery and Albert Einstein was alive and well today. If Einstein had no formal training or experience in brain surgery, would you want this brilliant physicist performing the operation? As it would not be rational, I suspect not. No matter how brilliant the economist, does it really make sense having laws passed and adjudicated based on conceptually flawed and empirically unsupported views of human consumer behavior? I suspect not, as this would amount to the essence of what the Supreme Court's decisions in regard to junk science[193] are specifically designed to prevent.

When asked how he managed to arrive at such brilliant ideas, Einstein is reported to have said: "By standing on the shoulders of those who came before me." If, when operating as a Rational Choice Theorist, Judge Posner is going to introduce hypotheses regarding different selves, he might find it worthwhile to consult the pertinent scholarly literature.[194]

I. *Mea Culpa Coda*

Those who read the criticisms of Rational Choice Theory offered here may point out that, as this author acknowledged at the outset, he did not recall awareness of the terms Law and Economics or Rational Choice Theory prior to being invited to provide consumer psychological perspective on these subjects, and makes no claim to being as conversant on these subjects as he would like.[195] As a consequence of our limited and imperfect understanding, we may even have caricatured some of the positions held by Rational Choice Theorists. From this, some may argue that, by this author's own admission, he has a limited and imperfect understanding of the vast body of pertinent literature in Law and Economics.

Id by the odd." Also amusing is Ambrose Bierce's definition of "lawful" and Henry L. Menken's description of judges, both of which are quoted by Judge Posner. *See* Posner, *supra* note 3, at 25, 32.

193. *See generally* Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999); General Electric Co. v. Joiner, 552 U.S. 136 (1997); Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579 (1993) (discussing the admissibility into evidence of various scientific techniques).

194. *See generally* Roy F. Baumeister, *The Self, in* 1 The Handbook of Social Psychology, 680-740 (Daniel T. Gilbert et al., eds., 4th ed. 1998) (1954) (reviewing the Rational Choice Theory as depicted in some scholarly literature).

195. *See supra* pp. 83-85.

Hence, his criticisms must be considered naïve and misguided and deserve to be ignored.

In response, we acknowledge that those who offer such an argument may be correct. But would not the very same argument apply to Rational Choice Theorists who, on the basis of limited and demonstrably imperfect understanding (e.g., of experimental methodology[196]), dismiss what behavioral scientists have to offer?

The bottom line is this: Just as it would behoove this writer to learn more about Rational Choice Theory (as it might cause him to revise and possibly retract at least some of his criticisms), it would seem equally appropriate for Rational Choice Theorists to learn more about what behavioral science has to offer before dismissing these findings as, at best, bothersome "quirks." Below, we offer a few additional suggestions.

III. Some (Rational) Suggestions for Rational Choice Theorists

Given that the "end" sought by Rational Choice Theorists is to acquire genuine (rather than illusory or spurious) understanding of the causal dynamics underlying their predictions, then we have some suggestions as to what, ex ante, might represent rational means for closing in on this objective.

Based upon comments sprinkled throughout *The Problems of Jurisprudence,* it is clear that Judge Posner appreciates employing a scientific orientation. Moreover, of all the sciences, he seems to most admire physics. "One could perhaps *imagine* law on the model of a science–say, physics."[197] From the sentence: "The pro-

196. As noted earlier, Judge Posner is mistaken when he represents that the first question an experimenter would ask pertains to external validity. and is mistaken when he expresses the view that experiments necessarily require one to suppress features of the natural environment. Judge Posner is mistaken when he fails to recognize that what he describes as "a whole other survey" is actually the control group of a tightly controlled field experiment (*cf.* Indianapolis Colts, Inc. v. Metropolitan Football Club Ltd. P'ship and Canadian Football League, 34 F.3d 410, 414 (7th Cir. 1994)). In that same matter, Judge Posner opined that it would have been less "loaded" had the control shirts not substituted "Horses" for "Colts" but used some other generic animal name such as "Leopards." *See id.* at 415. This suggestion not only fails to appreciate how strange it would be to have the term Leopards appear immediately above a 12" x 10" illustration of a horse head, but that adopting such an approach would have rendered the findings regarding the alleged causal relationship ambiguous and uninterpretable.

197. Posner, *supra* note 3, at 62.

ject of reducing the common law . . . to a handful of mathematical formulas may seem quixotic, but the economic analyst can give reasons for doubting this assessment,"[198] we infer that one thing Judge Posner appreciates about physics is the fact that its knowledge may be expressed via powerful and parsimonious mathematical formulae.

Using physics (along with its mathematical sophistication) as an aspirational model for law or rational choice economics is understandable. Across the sciences, it would be difficult to find a more famous mathematical formula than Einstein's $E=MC^2$. Just as Einstein's theory of relativity, though consisting of but three variables, is exceedingly powerful, our reading suggests that Rational Choice Theorists seek to emulate physics by developing their own grand but parsimonious theory, also consisting of a few powerful variables. Consider Becker's three-point formulation, which he contends explains "*all* human behavior."[199] As another example, consider Judge Posner's contention that "*all* people . . . in *all* of their activities . . . that involve choice"[200] (which pretty much incorporates most human behavior of consequence) are rational maximizers.

Describing the differences in research philosophy between economics and psychology, Katona wrote as follows:

> The underlying posture of economics, over the past 100 or 200 years, may be characterized as starting with a well-developed theory or an a priori model of human nature. Derivations from the theory of rational behavior are confronted with empirical data and modified stepwise if necessary. When, as frequently happens, forecasts derived from the theory proved incorrect, the specification of relationships or the failure to include some additional objective factors were blamed and subjective factors ignored.
>
> The paradigm of the behavioral sciences consists of developing low-level preliminary hypotheses, testing them, revising the hypotheses as the result of the tests, testing the new hypotheses, and so on. Instead of deriving predictions from immutable principles of human nature, the behavioral scientist assumes that under conditions a_1, b_1, c_1, a set of stimuli would elicit one response whereas under conditions

198. *Id.* at 361.
199. *See* Jolls et al., *supra* note 28.
200. Posner, *supra* note 3, at 353.

> a_2, b_2, c_2, the same set of stimuli would elicit a different response. . . . Instead of searching for a single necessary response to changes in income, prices or interest rates, the behavioral scientist studies circumstances under which a stimulus will produce the same or a different response.[201]

The reason behavioral scientist tend to begin with low-level preliminary hypotheses, testing and refining these, then integrating them into larger units, testing and refining these, and so forth, is because they generally operate using the following implicit equation:

B = f (. . . . . etc.).

According to this equation, human behavior (B) is a function of a large number of complex, interacting variables, many of which (especially the intra-psychological states and processes) are hidden from direct view. Particularly at this early time in its development, it is only possible for behavioral science researchers to study relatively few of these pertinent variables at a time. Thus, empirical psychologists, sociologists, communication theorists, etc. generally develop and test limited-in-scope mini-theories. When formulated, their equations take the form of specifying a particular aspect of human behavior to the left of the equal sign, then identifying a handful of specific variables hypothesized to cause (or at least influence) that behavior to the right of the equal sign.

Reliance on mini-theories is reinforced by an emphasis on explanation (which requires experimental and quasi-experimental methods to assess putative causal relationships) in preference to an emphasis on mere prediction (which can rely on correlational methods). Most behavioral scientists appear content (at least for the moment) to develop, test and attempt to validate low-level theories rather than develop and then weakly test (i.e., via correlational designs) much grander theories whose causal propositions cannot possibly be validated or invalidated. Mini-theories that fail to be supported fall by the wayside. As more is learned and confirmed, the validated mini-theories that remain will be integrated into larger mosaics—a process previously reflected in the development of the physical sciences.

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201. Katona I, *supra* note 14, at 1-2.

Note that behavioral scientists in general, including this author,[202] are not adverse to developing mathematical formulae to model, describe and evaluate, among other things, human information processing, decision-making and behavior. Examination of scholarly journals across the behavioral sciences reveals many such instances. But regardless of how sophisticated or complex, this writer does not recall ever coming across a single mathematical formula that claimed to encompass or address all human behavior. In contrast, we consider the suggestion that *all* human behavior may be explained by a few rudimentary concepts or may be reducible to "*a handful* of mathematical formulas" to reflect a considerable degree of naivete regarding the human condition.

Though the physical sciences have generated impressive levels of understanding regarding the world around us, it remains true that nuclear particles have no minds of their own. Human beings do–and this makes all the difference. Because of this, at least at this stage in the development of the behavioral sciences, no grand theory is possible (unless, of course, one is willing to accept a theory that, while it may have some predictive power, does not depend on valid, empirically confirmed causal explanations).

When describing the sciences, a distinction traditionally made is between the "hard" and "soft" sciences, e.g., between physics and psychology, respectively. Although not as well known as this "hard v. soft" distinction, Daniel Suits, an economist, draws a distinction between the "hard" v. the "easy" sciences.[203] According to Suits, because the phenomena they examine are amenable to description via crisp, parsimonious formulae, sciences such as physics and chemistry are relatively "easy" sciences. On the other hand, because they deal with the inner workings of complex minds, psychology, sociology and the other behavioral sciences truly are the "hard" sciences.

When Rational Choice Theorists deal with matters such as financial currencies, securities evaluation, interest rates and the

202. *See, e.g.*, Jacob Jacoby et al., *Attitude Formation as a Function of Incremental Information Input: A Procedure For Studying On-Line Processing Models of Attitude Formation*, J. Consumer Psychol (forthcoming) (manuscript on file with author); Gita V. Johar et al., *A Varying Parameter Averaging Model of On-Line Brand Evaluations*, 24 J. Consumer Res. 232-47 (1997) (using these types of mathematical formulas); Jacob Jacoby et al., *Tracing the Impact of Item-by-Item Information Accessing Uncertainty Reduction*, 21 J. Consumer Res. 291 (1994).

203. *See* Earl R. Babbie, Survey Research Methods 50 (1973).

like, they are working with phenomena that have no minds. Hence, they can afford to adopt a "behaviorist" approach. However, they should remain mindful that the concepts and approaches they develop and profitably employ in those spheres might not be infinitely elastic. To this writer, it seems as if these concepts and approaches snap when used to understand causal dynamics involving the human psyche. In realms such as the latter, we suggest that Rational Choice Theorists forego their quest for a grand equation the equivalent of an $E=MC^2$. Assuming an interest in acquiring genuine understanding (as exemplified by explanation, not mere prediction of causal factors), Rational Choice Theorists are well-advised to try a bottom-up approach by developing falsifiable mini-theories theories, then testing these utilizing experimental (including quasi-experimental) designs.[204] Via such means, we suspect progress will be one inevitable result.

CONCLUSION

Admittedly, each of the other behavioral sciences has its own (possibly even more serious) problems. But identifying and discussing these was not our present charge. Rather, it was to offer some consumer psychological perspectives on Rational Choice Theory.

In reviewing Paul Ormerod's book, "*Butterfly Economics*," an Associate economics editor of *Business Week* writes: "Ormerod is on to something. Too many economists still waste their time on tiny tweaks and elaborations of orthodox economic models that are simply wrong. . . . . Economists who stick to linear models because they are more tractable are like drunks who look for their car keys under the street lamp because the light is better there."[205] To some extent, we believe this describes the current state affairs existing with regard to Rational Choice Theory. Being a bit presumptuous (as is our nature), to rectify the situation, we suggest that Rational Choice Theorists (1) identify and attempt to verify their assumptions, (2) acquire a more detailed understanding of

204. *See* Gunduz Caginalp et al., *Overreactions, Momentum, Liquidity and Price Bubbles in Laboratory and Field Asset Markets*, 1 J. Psychol. & Fin. Markets 24 (2000) (illustrating the application of experimental designs to financial issues).

205. Peter Coy, *Is the Dismal Science Dazed and Confused?*, Bus. Wk., Jan. 24, 2000, at 24, *reviewing* Paul Ormerod, Butterfly Economics: A New General Theory of Social and Economic Behavior (1998).

pertinent behavior science theory and research findings, (3) try developing more testable (and falsifiable) mini-theories, and (4) where possible, seek to apply experimental designs to supplement their correlational designs. This could not hurt. In the long run, it may prove exceedingly rational.

APPENDIX

FIGURE 1

THE GENERAL BEHAVIORAL SCIENCE (S-O-R) MODEL

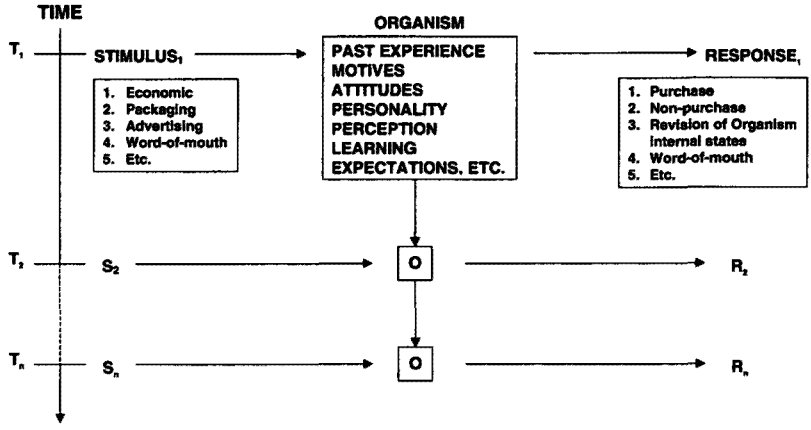
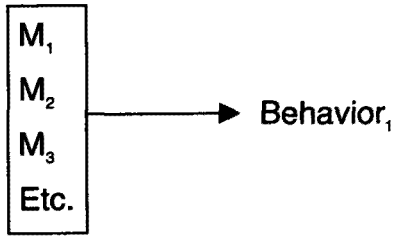


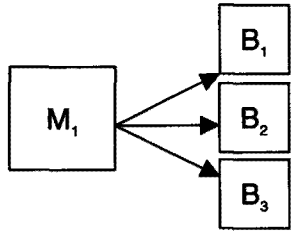
FIGURE 2

SOME RELATIONSHIPS BETWEEN
MOTIVATION AND BEHAVIOR

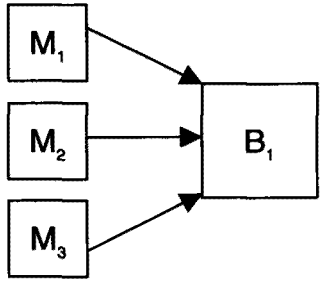
1. Behavior Is usually Multi-Caused (Many motives can cause a single behavior)



2. Motives may be in conflict with one another
3. Same motive can lead to different behaviors (Across different individuals; for the same individual, across time)



4. Different motives can lead to the same behavior (Across different individuals; for the same individual, across time)



5. Behavior is Multi-Determined (B = f[Motives + a wide variety of other factors])

FIGURE 3

THE GENERAL COMMUNICATION MODEL AND A TYPICAL HIERARCHY OF EFFECTS MODEL