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## ARTICLE

# WHEN ARE LAW AND ECONOMICS ISOMORPHIC?

JOHN CIRACE\*

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## WHEN ARE LAW AND ECONOMICS ISOMORPHIC?

A foolish consistency is the hobgoblin of little minds,  
 adored by little statesmen and philosophers and divines.  
 With consistency a great soul has simply nothing to do.  
 Ralph Waldo Emerson, *Essay on Self-Reliance* (1841)

## INTRODUCTION

The legal community generally views the way in which judges decide cases as a rational decision process. However, the concept of judicial rationality is ambiguous, because judges use two rational decision processes: legal rationality and economic rationality. Legal rationality is based on the principle of precedent, or *stare decisis*, which requires that judges decide like cases alike. Judges determine whether cases are like or distinguishable through the construction of legal classifications and through recognition of factual similarities and differences.<sup>1</sup>

Economic rationality is based on economic optimization theory,<sup>2</sup> which requires that judges balance competing interests through marginal trade-offs as in cost-benefit analysis. In the law of torts, Judge Learned Hand's negligence test ( $B < PL$ ) is a specific example of cost-benefit analysis: the optimal level of care occurs when the marginal cost of accident prevention ( $B$ ) equals the marginal benefit from reduced damage ( $PL$ ). According to Judge Richard Posner, Judge Hand's negligence test illustrates a "pervasive" isomorphic relationship between legal doctrine and economic theory.<sup>3</sup>

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<sup>1</sup> KARL N. LLEWELLYN, *THE BRAMBLE BUSH* Chs. III-IV (1960); EDWARD H. LEVI, *AN INTRODUCTION TO LEGAL REASONING* 1-27 (1948).

<sup>2</sup> Economic optimization theory is the theory that economic actors, whether individuals or firms, behave so as to maximize or optimize their goals, such as satisfaction or utility for individuals or profit for firms. Cost-benefit analysis is an example of economic optimization. In tort cases involving accidents, cost-benefit analysis assumes that the behavior of individuals or firms is less than optimal as long as the marginal benefit in terms of the reduction of accident damage from an increase in the level of precaution or care taken to avoid an accident exceeds the marginal cost from that increase in the level of care. When the marginal benefit from additional precaution just equals the marginal cost of that additional precaution, the level of precaution or care is optimal. Conversely, if the marginal cost of additional precaution exceeds the marginal benefit from a reduction of accident damage from additional precaution, the level of precaution or care is greater than optimal.

<sup>3</sup> Richard A. Posner, *The Law and Economics of the Expert Witness*, 13 J. OF ECON. PERSPECTIVES 91 (1999) ("There is a remarkable isomorphism between legal doctrine and economic theory. . . . The isomorphic relation is illustrated by Judge Learned Hand's formula of negligence in *United States v. Carroll Towing Co.* [159 F.2d 173 (2d Cir. 1947)] . . . . There are many other important examples of isomorphism between legal doctrine and economic theory; indeed, I regard it as

An isomorphic relationship exists between law and economics if concepts from one discipline can be mapped onto the other in a way that preserves the properties and results of operations in both disciplines.<sup>4</sup> The Judge Hand test exemplifies an isomorphism between law and economics. In tort law, whenever the economic relation  $B < PL$  is satisfied in a negligence case, the case corresponds to or can be mapped into the legal category of “negligence.” Conversely, whenever the economic relation  $B \geq PL$  exists in a negligence case, the case corresponds to or can be mapped into the legal category of “due care.” In other words, whether they apply legal rationality (did the actor use reasonable care?) or economic rationality (is  $B < PL$ ?) to the negligence issue in the case, judges will reach the same conclusion.<sup>5</sup>

Although Judge Posner has asserted that examples of isomorphism between law and economics are “pervasive,”<sup>6</sup> in other contexts, he has denigrated legal reasoning and placed it in a subordinate position to economic reasoning.<sup>7</sup> Other law and economics scholars also tend to argue that law should adopt the methodology and the efficiency goal of economics.<sup>8</sup> Economists tend to think that economic rationality is the only rational decision process. However, legal reasoning is a separate and distinct rational decision process that is sometimes consistent (isomorphic) with economic rationality and sometimes inconsistent with economic rationality. When these two rational decision processes conflict, economic rationality should not be automatically preferred.

This article answers three questions: first, *how does “thinking like a*

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pervasive.”).

<sup>4</sup> ROSEMARY HIRSCHFELDER & JOHN HIRSCHFELDER, INTRODUCTION TO DISCRETE MATHEMATICS 139, 221 (1991).

<sup>5</sup> For example, assume that a driver of an automobile, who habitually runs red lights whenever he is within 50 feet of the light when it turns red, has a 10% increased probability of getting into an auto accident than someone who does not run red lights in similar circumstances. This is P in the Judge Hand test. Further assume that if an accident occurs in such circumstances, it will on average cause \$5,000 worth of economic damage. This is L. Lastly, assume that the additional economic cost to the driver in terms of delay he would experience from not running red lights is \$50. This is B. According to the Judge Hand test,  $B (\$50) < P (10\%) \times L (\$5,000) = \$500$ ; therefore, the driver who habitually runs red lights has used an inefficiently low level of care because his actions save him on average \$50 every time he runs a red light but cost society \$500 on average. His low level of care is both negligent in terms of economics and less than due care in terms of the “reasonably prudent person” standard of law.

<sup>6</sup> RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW (5th ed. 1998).

<sup>7</sup> RICHARD A. POSNER, LAW, PRAGMATISM, AND DEMOCRACY 73 (2003) (“There is no intrinsic or fundamental difference between how a judge approaches a legal problem and how a business man approaches a problem of production or marketing.” In general, Posner prefers pragmatism to precedent.); RICHARD A. POSNER, NOT A SUICIDE PACT: THE CONSTITUTION IN A TIME OF NATIONAL EMERGENCY 24, 28, 66 (2006) (discussed in Section V.C).

<sup>8</sup> STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW ch. 28 (2004).

lawyer" (or a judge) differ from "thinking like an economist"? Section I defines the three essential elements that a rational decision process, whether economic or legal, must have. Section II defines the standard model of economic rationality, what thinking like an economist means, in terms of two principles and their symbolic interpretation as binary relations. Two properties of the binary relations, completeness and transitivity, are shown to be essential characteristics of what it means to think like an economist.

In Section III, the classic Tussman & tenBroek model is discussed because it is a specific precursor to the general model of legal rationality presented in this article. In the Tussman & tenBroek model, equal-protection categories and relations from constitutional law are described with Venn diagrams. In order to show that the Tussman & tenBroek model is a precursor to the general model of legal rationality, its Venn diagrams are translated into binary relations, the translation of which allows their model to be generalized.

Section IV.A presents a model of legal rationality in a manner that parallels and can be compared to the model of economic rationality. Legal rationality is defined in terms of two principles and their interpretation as binary relations. Two properties of binary relations, incompleteness and transitivity, are shown to be essential characteristics of what it means to think like a lawyer.

The question of what it means to think like a lawyer or judge includes the question, *what is the role of precedent in legal rationality?* Section IV.B shows how courts are constrained by stare decisis from employing *over-inclusive* rules of law in order to retain the freedom to distinguish future cases.

In Section IV.C, legal rationality is shown to be characterized by multiple rules of case law. The crucial question is whether legal rationality's rules of case law are discrete and unrelated to each other or nested (completely included) within broader rules of law such as due process, equity, or equal protection. The answer to this question determines whether the principle of precedent is a weak or a strong constraint on *under-inclusive* decisions; under-inclusive decisions may eviscerate stare decisis by distinguishing a case on spurious grounds.

In Section IV.D, it is shown that both economic rationality and legal rationality include theories that conclude that case law tends toward rules that are optimal in the sense that cases involving rules that are less than optimal are more likely to be "selected" for litigation. In economic rationality, the common law becomes more efficient over time; in legal rationality, with its multiple goals, rules of law tend toward optimal scope, neither over-inclusive nor under-inclusive.

Section IV.E concerns a problem in judicial decision making that is common to both economic rationality and legal rationality. Arrow's Impossibility Theorem is used to show that individual consistency is not sufficient to guarantee that collective decisions by a panel of judges, who decide cases by majority rule, will also be consistent because of the "aggregation" problem.

The second question answered by this article is: *what is the relationship between economic rationality and legal rationality in judicial decisions?* In Section V, economic rationality and legal rationality are shown to have two usual relationships in judicial decisions. When judges use economic rationality they will adopt the goal of efficiency and balance competing interests through marginal trade-offs. Under these circumstances, economic rationality and legal rationality will be isomorphic, or close to it, because economic concepts can be mapped onto relevant legal concepts and judges will tend to interpret legal concepts to preserve the properties and results in both disciplines. However, if judges employ legal rationality as the dominant rationality, legal rationality and economic rationality will rarely be isomorphic or consistent, because legal concepts based upon goals that are often inconsistent with efficiency cannot be mapped into economic concepts.

The third question this article answers is: *when thinking like an economist and thinking like a lawyer conflict, should economics trump law?* The conflict between economic rationality and legal rationality is most pronounced in disputes involving fundamental rights (e.g., Fourth Amendment rights). One side employs economic rationality (balancing interests, e.g., civil rights vs. security) and the other side employs legal rationality (recognizes that a past case mandating a high level of civil rights protection, is a binding precedent that includes another case). In such disputes, the opposing parties might as well be talking different languages for which there is no translation. Section V.C concerns two such disputes. One involves the exclusionary rule for evidence seized in violation of the Fourth Amendment.<sup>9</sup> The other questions whether national security measures advocated by Judge Posner in response to the terrorist attacks, of September 11, 2001, violate the U.S. Constitution.<sup>10</sup> The article concludes that when economic rationality and legal rationality conflict, *no a priori*<sup>11</sup> reason exists why economic rationality should trump legal rationality. Such conflicts have to be resolved by asking which ab-

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<sup>9</sup> U.S. v. Leon, 468 U.S. 897 (1984).

<sup>10</sup> POSNER, *supra* note 7 at 64, 80, 86, 87, 95, 103, 108-10.

<sup>11</sup> "A priori" means knowledge based upon logical reasoning alone without any reference to knowledge based upon experience.

stract logical model, economics or law, more accurately reflects experience in the real world. The answer is a matter of judgment over which reasonable persons can and do differ.

## I. THE THREE ELEMENTS OF A RATIONAL DECISION PROCESS

Economic optimization and legal adjudication have in common the three elements of a rational decision process: consistency, purposefulness, and constraint. As philosopher Robert Nozick wrote, "rationality is a matter of reliability."<sup>12</sup> The reliability element of rationality accounts for the emphasis that both economists and lawyers place on consistency in their explanations of economic and legal decision-making.<sup>13</sup>

In addition to consistency, both economic optimization and legal adjudication require purposefulness. Nozick also said that rationality is a goal-directed or instrumental process.<sup>14</sup> The textbook definition of economics, the allocation of scarce resources among competing ends, includes the goal-directed element because individuals who allocate resources are assumed to maximize satisfaction, utility, or profits. Purposefulness and consistency are related because consistency criteria restrict the permissible means that can be used to achieve the desired ends.<sup>15</sup>

Similarly, legal adjudication is purposeful because judges and lawyers are constantly refining and clarifying the goals and issues that are to be decided in cases. One cannot determine which facts of a case are material unless one knows the purpose for which the facts are probative. For example, in a negligence case, if the goal is deterrence of careless behavior, one set of facts is material; however, if the goal is risk distribution or enterprise liability, another set of facts, determining who is the cheapest insurer, is material.<sup>16</sup> First-year law students are taught to begin briefs for mock appellate court competitions with a question that frames the issue in a way that will focus the court on facts most favorable to their side of the case. In other words, an appellate brief poses a question

<sup>12</sup> ROBERT NOZICK, *THE NATURE OF RATIONALITY* 64 (1993).

<sup>13</sup> JOSEPH STIGLITZ, *ECONOMICS* 28-29 (1997); Frank Esterbrook, *Ways of Criticizing the Court*, 95 HARV. L. REV. 802, 812 (1982).

<sup>14</sup> NOZICK, note 12 at 64.

<sup>15</sup> Legal reasoning and economic reasoning have different restrictions on the moves that are allowed. Legitimate moves in economics involve the symbols  $>$  or  $=$ , whereas the legitimate moves in law involve the symbol  $\supset$ . See STEVEN BURTON, *AN INTRODUCTION TO LEGAL REASONING* xv (1985) ("The strong claim that legal reasoning is not different from reasoning in other fields is misleading in a significant respect. The characteristics of a field's data and language, as well as the laws of logic, determine the transformations, or 'moves,' that can or cannot be made within a field.")

<sup>16</sup> See *O'Brien v. Muskin Corp.*, 463 A.2d 298, 305-06 (N.J. 1983).

to suggest the purpose of the decision, making some facts material and other facts immaterial.

With respect to the third element, constraint, a rational decision process must take into consideration the constraints that hinder a rational actor from achieving her or his goals. In economic rationality, various scarcities in the form of budget, cost, and other constraints stand in the way of one's purpose. The principal institutional constraint on judicial decisions is precedent, which mandates that judges must decide like cases alike.

## II. THE MODEL OF ECONOMIC RATIONALITY

This section presents the standard model of economic rationality that is found in many intermediate microeconomic textbooks.<sup>17</sup> Section IV presents a new model of legal rationality that parallels and can be compared to the model of legal rationality.

### A. THE ECONOMIC AXIOMS

Two accepted principles define economic rationality, or what it means to "think like an economist." The first is that more of a good is preferred to less, and the second is that for any two bundles of goods, an individual can determine whether he or she prefers one bundle to the other or is indifferent. These principles can be translated into binary relations. Two properties of these relations, transitivity and completeness,<sup>18</sup> are essential to understanding what thinking like an economist means. The two principles also provide the logical foundation for the balancing of competing interests through marginal trade-offs, which is used in the theory of optimal choice and cost-benefit analysis.

The first principle, that individuals maximize their goals, can be stated as Axiom E1: More of a good is preferred to less. A "good" represents a product or a service; collections of goods are called "bundles." Although an individual can become satiated with any one good, the economic choices individuals really care about concern choices they must make among competing goods in circumstances in which they have less

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<sup>17</sup> HAL VARIAN, *INTERMEDIATE MICROECONOMICS: A MODERN APPROACH* 34-36 (7th ed. 2006).

<sup>18</sup> See HIRSCHFELDER & HIRSCHFELDER, *supra* note 4, at 90. The binary relation  $x \succ y$ , which is defined on real numbers, is reflexive, transitive, antisymmetric, and complete. A binary relation having these four properties is called a total order (linear order) relation. A total order relation is also suggestively called a linear order relation because its properties guarantee that it is possible to *rank order* all bundles, outputs, or even cases at law (when economic rationality is being used by judges). *Id.*

than they want of most goods.<sup>19</sup>

The symbolic representation for Axiom E1 is the binary relation  $x \succ y$  which reads “ $x$  is strictly preferred to  $y$ .”<sup>20</sup> This means that, if there are two bundles of goods, and the second bundle has at least as much of every good as the first bundle and more of one good, then the second bundle is strictly preferred.<sup>21</sup> For example, if there are two bundles, bundle  $x$ , which has one apple and one orange, and bundle  $y$ , which has one apple and two oranges, Axiom E1 says that bundle  $y$  is strictly preferred to bundle  $x$  ( $y \succ x$ ) because it contains more goods.

However, Axiom E1 cannot be used to decide an economic preference when one bundle has more of one good and the other bundle has more of the other good. For example, if bundle  $y$  has one apple and three oranges, and bundle  $z$ , has two apples and one orange, then bundle  $y$  has more oranges and bundle  $z$  has more apples and Axiom E1 does not apply. It is here that the second economic principle becomes important, because it eliminates indeterminacy between bundle  $y$  and bundle  $z$ .

The second principle can be stated as Axiom E2: For any two bundles of goods, an individual can determine whether he or she prefers one bundle to the other or is indifferent. Each of an individual’s preferences under Axiom E2 can be symbolically represented by one of three binary relations. For any two bundles of goods,  $x$  and  $y$ , one of the binary relations must be true. First,  $x \succ y$ , which reads either “ $x$  is weakly preferred to  $y$ ” or “ $x$  is at least as good as  $y$ ”; second, the converse  $y \succ x$ ; or third,  $x = y$ , which reads either “ $x$  is equal to  $y$ ” or “an individual is indifferent between  $x$  and  $y$ .”

Axiom E2 says for any two bundles, an economically rational individual must be able to say whether he or she weakly prefers one bundle to the other or is indifferent. Not everyone will have the same preferences. Those who prefer oranges to apples may prefer bundle  $y$  (one apple and three oranges) to bundle  $z$  (two apples and one orange), and the binary relation  $y \succ z$  will be true. Those who prefer apples to oranges may prefer bundle  $z$  to bundle  $y$ , and the binary relation  $z \succ y$  will be true.

Or, a person may be indifferent between the bundles, and  $y = z$  will be true. But, due to the completeness property of economic rationality, one of the three binary relations that express an individual’s preferences under Axiom E2 must be true for any two bundles. The completeness property is important because it justifies one of economic rationality’s

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<sup>19</sup> VARIAN, *supra* note 17 at 44.

<sup>20</sup> The binary relations  $x \succ y$  is defined on real numbers.

<sup>21</sup> Axiom E1 states that preferences are monotonic.

fundamental principles, “opportunity cost.”<sup>22</sup>

The binary relations which express Axioms E1 and E2 also have the transitivity property. Transitivity is defined as a relationship between any three bundles such that if bundle  $x$  is preferred to bundle  $y$ , and bundle  $y$  is preferred to bundle  $z$ , then bundle  $x$  must be preferred to bundle  $z$  (If  $x \succ y$  and  $y \succ z$ , then  $x \succ z$ ). Transitivity is the consistency criterion of economic rationality. For example, if an economically rational person prefers apples to oranges and prefers oranges to pineapples, then that person must prefer apples to pineapples; the person’s preference for apples is transitive to pineapples. If a person’s preferences are “intransitive” such that he or she prefers apples to oranges and prefers oranges to pineapples, but prefers pineapples to apples, that person has inconsistent preferences in terms of economic rationality. In other words, such a person is economically irrational. Transitivity gives a rigid structure to economic rationality; it is the backbone of economic reasoning.

In addition to its inherent properties of transitivity and completeness, Axiom E2 also provides economic rationality with the logical foundation for *balancing competing interests via marginal trade-offs*, which is used in *the theory of efficient (or optimal) choice* and cost-benefit analysis.

## B. THE THEORY OF OPTIMAL (CONSTRAINED) CHOICE

Assume that apples and oranges represent competing interests. Consider two bundles: bundle  $x$ , which has 3 apples and 3 oranges, and bundle  $y$ , which has 4 apples and 2 oranges. If an individual is indifferent ( $x = y$ ), both bundles give this particular consumer the same level of satisfaction or utility. He or she is willing to trade one apple for one orange (1-1).

Now consider bundle  $y$  (above) and a third bundle, bundle  $z$ , which has 6 apples and 1 orange. If this individual is indifferent ( $y = z$ ), both bundles give this particular consumer the same level of satisfaction. He or she must now get two apples in order to be willing to give up one orange (2-1).

By transitivity, if  $x = y$ , and  $y = z$ , then  $x = z$ . Notice that the marginal trade-off of apples for oranges that maintains indifference between  $x = y$  is (1-1), but that the marginal trade-off of apples for oranges that maintains indifference between  $y = z$  has increased to (2-1). This makes

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<sup>22</sup> A decision to use resources in some way results in the loss of an opportunity to use them in another way. That loss is called “opportunity cost.” For example, the opportunity cost of fighting a war is the forgoing of additional civilian spending. The cost of a decision to use resources in some way is the next best alternative use for those resources.

sense because as an individual has more of one good, apples, and less of another good, oranges, the good that the individual has less of becomes more valued relative to the more plentiful good, so that indifference can only be maintained if more and more of the good that is becoming more plentiful is added for each unit of relatively scarce good that is taken away. This is called the law of increasing marginal rate of substitution in consumption.

Given that this individual is indifferent among bundles x, y, and z, which bundle should he or she buy? The *efficient or optimal choice* depends upon the prices of apples and oranges and the individual's income. Economists say that an individual's choices are *constrained* by income. If the amount he or she has to spend on apples and oranges is limited and the price of oranges is very high relative to the price of apples due to extreme weather damage to the orange crop, bundle z, which has the fewest oranges, is the efficient choice in the sense that it is the cheapest of the three bundles that give the same satisfaction; if the price of apples were high relative to the price of oranges, bundle x would be the efficient choice among the three bundles. Thus, the optimal choice involves the relationship between the marginal trade-off of apples and oranges according to one's preferences (the benefits) and the marginal trade-off of apples and oranges according to market prices (the costs).

Thinking like an economist means employing the economic axioms and the theory of optimal (constrained) choice rigorously (respecting transitivity) to any and every possible pair of the infinitely variable choices (completeness). In other words, most individuals want more goods than they can afford; their wants are constrained by their income. This means that they must choose among myriad competing goods. An economically rational person functions like a computer and makes choices by weighing the costs and benefits of potential marginal changes in consumption of each good against every other good they purchase or could purchase. Moreover, according to the theory of optimal choice, the nearly infinite number of calculations that are required to make are completely consistent with each other; that is they respect transitivity.

### III. THE TUSSMAN & TENBROEK MODEL OF EQUAL PROTECTION

*The Equal Protection of the Laws* by Tussman & tenBroek, which describes constitutional equal-protection categories and relations with Venn diagrams, is a well-known and generally accepted example of the formal approach to legal rationality.<sup>23</sup> Understanding the Tussman &

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<sup>23</sup> Joseph Tussman & Jacobus tenBroek, *The Equal Protection of the Laws*, 37 CALIF. L.

tenBroek model advances this article in two ways. First, it demonstrates a precedent for the abstract formal description of legal rationality in terms of logical relations; Tussman & tenBroek employed this formal approach to judicial reasoning. Second, the Tussman & tenBroek model makes the more general model of legal rationality easier to understand.

Tussman & tenBroek begin by distinguishing between “general” legislation, which applies without qualification to all persons, and “special” legislation, which applies to a limited class of persons. When legislation concerns general matters of economic or social welfare, the law need only rationally relate to a legitimate governmental purpose. However, when legislation classifies persons for differing benefits or burdens, it must comply with the Fourteenth Amendment, which commands that no person shall be denied equal protection of the laws.

Constitutional jurisprudence has changed a great deal since Justice Holmes said in *Buck v. Bell* that a claim based upon equal protection of the laws “is the usual last resort of constitutional arguments.”<sup>24</sup> When, subsequent to *Buck*, the United States Supreme Court eschewed substantive due process<sup>25</sup> as the test by which to evaluate the constitutionality of statutes,<sup>26</sup> the Court had to find some other means for evaluating legislative enactments. Equal-protection analysis was a natural choice, because the construction of legal classifications and relations based upon the recognition of similarities and differences is the essence of legal rationality. Equal-protection arguments are paradigmatic examples of legal rationality. They rely on the ability of judges to recognize similarities and differences in the classification of individuals for treatment by statutes.<sup>27</sup>

Equal protection guarantees that similarly situated people will be dealt with in a similar manner by government and that people of different

REV. 341 (1949). Exposition of the Tussman & tenBroek model follows JOHN NOWAK & RONALD ROTUNDA, *CONSTITUTIONAL LAW* Ch. 14, at 569-73 (4th ed. 1991).

<sup>24</sup> *Buck v. Bell*, 274 U.S. 200, 208 (1927).

<sup>25</sup> Substantive due process differs from the more familiar procedural due process, which refers to whether persons have been given fair notice and the opportunity to be heard before the government takes an action that will affect their interests. With the rise of natural rights philosophy, some jurists suggested that the concept of due process should also have substantive content. By this they meant that if a legislature passed any law that restricted vested rights or violated natural law, it restricted the freedom of some individuals in violation of the U.S. Constitution. Ultimately, the concept of substantive due process fell into disrepute because it was believed that appointed judges should not substitute their views for the will of the people as expressed by their democratically elected representatives.

<sup>26</sup> *West Coast Hotel Co. v. Parrish*, 300 U.S. 379 (1937); NOWAK & ROTUNDA, *supra* note 23, §§ 11.3-11.4 (4th ed. 1991).

<sup>27</sup> See NOWAK & ROTUNDA, *supra* note 23, at 568-907 (a popular constitutional law textbook attesting to the importance of equal protection in contemporary constitutional jurisprudence by the space allotted to it: it devotes over three hundred pages to equal protection).

circumstances will not be treated as if they were the same. The equal-protection principle does not prohibit government from classifying persons or drawing lines in the creation or application of laws in order to advance society's legitimate interests; it guarantees that those classifications will not be based upon impermissible discriminatory criteria or used arbitrarily to burden a group of individuals. In reviewing any classification, a court must determine whether persons classified by law for similar treatment are "similarly situated" and whether persons classified by law for different treatment are "dissimilar."<sup>28</sup> This question relates to the bases upon which the government can distinguish between individuals in society.

Courts interpreting the crucial phrase "similarly situated" must avoid two errors. First, courts must avoid defining "similarly situated" as merely belonging to a particular class, when, as shown below, "similarly situated" refers to a relationship between classes. To define a class is simply to designate a quality, characteristic, trait or relation that any individual in the class must possess. "Similarly situated" cannot mean simply similar in the possession of the classifying trait; otherwise, any classification would be reasonable by this test, since all members of any class are similarly situated in this respect. For example, a law that imposes burdens on all those who are "red-haired makers of margarine" would be legitimate in the trivial sense in which the law applies equally to all who have the classifying traits.

Second, courts must avoid the notion that a classification including individuals who themselves belong to different "natural" classes is somehow artificial and therefore illegitimate. Similarly situated individuals can be different in some absolute sense such as gender. Although men and women are different, the promotion of legitimate governmental ends can rarely be based upon that difference; an individual's sex cannot be used to determine whether that individual may be allowed to practice law, is allowed to be an executor of an estate,<sup>29</sup> or is old enough to drink alcoholic beverages.<sup>30</sup> Thus, the equal-protection "issue is not whether, in defining a class, the legislature has carved the universe at a natural joint."<sup>31</sup> In other words, a classification cannot be deemed unreasonable by asking whether the classification either corresponds to some "natural" grouping or separates those who naturally belong together.

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<sup>28</sup> Whether an individual properly falls within a specific classification concerns procedural due process.

<sup>29</sup> See *Reed v. Reed*, 404 U.S. 71 (1971).

<sup>30</sup> See *Craig v. Boren*, 429 U.S. 190 (1976).

<sup>31</sup> *Tussman & tenBroek*, note 23 at 346.

In order to determine whether a law that classifies different groups for different benefits or burdens is legitimate, that is, is based upon constitutionally permissible criteria, a court must look to the purpose of the legislation. The purpose of a law is legitimate if it either eliminates a public mischief or achieves some positive public good. This focus on the purpose of legislation is consistent with the notion that a rational process is purposeful.

Once a court has determined that the governmental purpose is legitimate, the court must analyze how the government has actually classified persons to achieve that purpose. Such an analysis involves determining the relation between the legitimate purpose and the actual classification. For example, in time of war, Congress can legitimately pass a law to meet the dangers of sabotage. But when the actual legislation identifies saboteurs by ethnic ancestry, as in *Hirabayashi v. United States*,<sup>32</sup> a court must analyze whether the classification violates equal protection.

Tussman & tenBroek use Venn diagrams to illustrate the five possible relations between a general classification created by a legitimate governmental purpose (e.g., saboteurs) and the law's actual classification of individuals (e.g., those of a certain ethnic ancestry). These relations are reproduced as Figure 1. Let L stand for a classification based on a legitimate governmental purpose, and A stand for the actual government classification that is defined in law.

- (1)  : All L's are A's and all A's are L's
- (2)  : No L's are A's
- (3)  : All A's are L's but some L's are not A's
- (4)  : All L's are A's but some A's are not L's
- (5)  : Some L's are A's; some L's are not A's; and some A's are not L's

Figure 1

The reasonableness of any actual government classification, A, defined in law depends entirely upon its relation to the general classification based on a legitimate governmental purpose, L. The first two rela-

<sup>32</sup> See *Hirabayashi v. United States*, 320 U.S. 81 (1943).

tions represent the ideal limits of reasonableness and unreasonableness, respectively. In the first relationship (1) the law is perfectly reasonable: the general classification based on a legitimate governmental purpose includes every member of the actual class defined in the law. The converse is also true. In the second relationship (2) the law is perfectly unreasonable: the general classification based on a legitimate governmental purpose does not include any member of the actual class defined in the law.

The third relationship (3) represents under-inclusiveness: the general classification based on a legitimate governmental purpose includes everyone in the actual class defined in law, but the actual class excludes some people who belong to the general classification. In other words, the law overlooks some individuals who are included in the legitimate government purpose. Although this relationship is not perfectly reasonable, the Supreme Court has upheld under-inclusive legislation to allow the legislature to attack a general problem in a piecemeal fashion. Narrowing the purpose of the law could avoid the charge of under-inclusiveness; however, such an approach runs the risk of being found unconstitutional on grounds that the law employs suspect classifications such as race or ethnicity, forbidden traits, or involves unreasonable and arbitrary discrimination.

The fourth relationship (4) represents over-inclusiveness: the actual class defined in law includes individuals who are outside the classification based on a legitimate governmental purpose. Because over-inclusive classifications reach the innocent bystander, the hapless victim of circumstance or association, the *prima facie* case against over-inclusive classifications is stronger than the case against under-inclusiveness. Everyone in an under-inclusive classification at least has the characteristic at which the law aims. Nonetheless, over-inclusive classifications have been sustained in emergency situations, such as war-time.<sup>33</sup>

The fifth relationship (5) represents a law that is both under-inclusive and over-inclusive. For example, in *Hirabayashi* the World War II classification of "American citizens of Japanese ancestry" for the purpose of meeting the dangers of sabotage can be challenged both on grounds that it is under-inclusive, since American citizens of German or Italian ancestry were equally under the strain of divided loyalties, and is over-inclusive, since the government did not suppose that all American citizens of Japanese ancestry were disloyal. Sustaining this classification required the finding of sufficient emergency to justify imposing a burden

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<sup>33</sup> See *Korematsu v. United States*, 323 U.S. 214 (1944).

upon a larger class than was believed to be within the legitimate purpose of the statute and to justify the failure to extend the law to a wider class of potential saboteurs.

The Venn diagrams used by Tussman & tenBroek can be represented symbolically in terms of binary relations. Translating the Venn diagrams into binary relations is important, because it demonstrates the essential bridge between their model and the general model of legal rationality, which uses these binary relations and is presented below. The translation of the five Venn diagrams shows that the Tussman & tenBroek model is merely a specific example of the more general model of legal rationality. (1) Both  $L \supset A$  and  $A \supset L$ , where the binary relation  $L \supset A$  is read “L contains A”. (2) L and A are disjoint, so the relation  $\supset$  is not defined. (3)  $L \supset A$ . (4)  $A \supset L$ . (5) L and A intersect, so the relation  $\supset$  is not defined.

Tussman & tenBroek’s diagrams can also depict the five possible relations between any two cases through the principle of precedent. Diagrams (1), (3), and (4) depict the three possible ways that two cases can be related to each other as *binding* precedents. In diagram (1), the two cases are like in all material respects; they are mutual precedents. In diagram (3), case L is a binding precedent that includes case A. In diagram (4), case A is a binding precedent that includes case L. In Diagrams (2) and (5), the cases L and A are distinguishable; that is, unrelated by binding precedent.<sup>34</sup> Thus, Tussman & tenBroek’s specific model of equal protection applies a formal approach to judicial reasoning. The general theory of legal rationality is merely a generalization from their well-known and accepted model.

#### IV. THE MODEL OF LEGAL RATIONALITY

##### A. THE LEGAL AXIOMS

This section defines what it means to “think like a lawyer.” Paralleling economic rationality, legal rationality has two principles that define what this means. The first axiom specifies that judges maximize their goals. The second axiom states that for any two cases, judges can determine whether they are like or distinguishable. These will be defined

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<sup>34</sup> In Diagram (5), if there are two or more cases that are completely included or contained in the intersection of A and L,  $A \cap L$  (which is read “the intersection of A and L”), they are alike with respect to A and L; therefore, the principle of precedent requires that they must be decided alike. That is,  $(A \cap L) \supset$  all cases that should be decided alike with respect to the legal category or rule of law (A and L). See the discussion of *Bush v. Gore* in Section IV.C.

symbolically in terms of binary relations that have two properties: transitivity and incompleteness. As with economic rationality, a key criterion of legal rationality is consistency, which is the transitivity of a rule of law from one case to the next through precedent. However, unlike economic rationality, legal rationality is incomplete because not all cases are related to each other by precedent.

A “case” is a short story of an incident in which the state acted or may act to settle a particular dispute. Treating a case as a short story of an incident emphasizes that every case and its particular facts are unique. Since concrete facts are unique, particular facts in one case have no precedential value for particular facts in another case. In order to have precedential value, facts must be considered as representative instances of abstract categories. Karl Llewellyn said: “Each concrete fact of the case arranges itself, I say, as the *representative* of a much wider abstract *category* of facts, and it is not in itself but as a member of the category that you attribute significance to it.”<sup>35</sup> For example, a Toyota automobile in one case has no precedential significance for a Mack truck in another case. However, if the court considers the Toyota as a particularized instance of the abstract fact category, “vehicle,” the case can be precedent for the case involving the Mack truck because the legal category of “vehicle” contains the concrete facts of both cases.

In addition to representing abstract fact categories, cases also stand for collections of legal categories that consist of generalized facts (such as “vehicle”), mixed abstract facts and law (such as negligence and due process), or abstract legal concepts (such as order and liberty). Llewellyn said: “*The court can decide the particular dispute only according to a general rule which covers a whole class of like disputes.*”<sup>36</sup> Each case stands for a general rule that covers or contains a whole class of cases in addition to the one before the court. Take for example the rule of law in negligence, the elements of which are (1) that the defendant owed a *duty of care* to the plaintiff, (2) that the defendant committed a *breach* of this duty, and (3) that this breach was the *actual* and *proximate cause* of (4) the *legal injury* experienced by the plaintiff. The plaintiff’s lawyer has the burden of proving that the defendant and her or his actions are contained in each of the italicized legal categories in the four elements. The rule of negligence is a collection of legal categories. Both economic rationality and legal rationality are defined by fundamental abstract categories and collections of those categories: economic “goods” are to “abstract legal categories” as economic “bundles” are to “cases”

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<sup>35</sup> LLEWELLYN, *supra* note 1 at 48 (italics in original).

<sup>36</sup> *Id.* at 41.

and “rules of case law.”<sup>37</sup>

In addition, both economic rationality and legal rationality require purposeful activity. Economics assumes that self-interested individuals will maximize utility or satisfaction. Similarly judges—who are required to be impartial or disinterested, rather than self-interested—are assumed to maximize social utility or social welfare. Individual utility or satisfaction, which is a subjective concept, can be given concrete by revealed preferences or choices that individuals make among bundles of competing goods or ends. Similarly, the goal of judges to maximize social utility or social welfare, which is also a subjective concept, can be given concrete by their decisions that reveal judicial preferences among the sometimes competing goals of efficiency, equity, liberty, order, majority rule, and so on.

As discussed above, Llewellyn said that courts can decide particular disputes only according to a general rule of law that covers a whole class of like disputes.<sup>38</sup> The rule of law in a case may be stated on a continuum from narrow to broad formulations depending upon the level of generality of the relevant legal categories. Legal categories or rules of law that are so narrow as to be limited to a single case (for example, applying only to a pale magenta Buick with a serial number 732507 instead of a “vehicle”)<sup>39</sup> provide no future guidance to lawyers or society. Judges, other things being equal, can be assumed to prefer more-general rules of law to less-general rules of law.

Two principles define legal rationality, or what it means to think like a lawyer. The first is that judges prefer more-general (inclusive) rules of law to narrow rules is Axiom L1; it can be stated symbolically as a binary relation: If case  $x \supset$  case  $y$ , then case  $x \succ$  case  $y$ , which reads as, “if case  $x$  is a binding precedent that includes case  $y$ , then the rule in case  $x$  is preferred to the rule in case  $y$ .”<sup>40</sup> Just as economic rationality assumes that budget constraints prevent individuals from acquiring an unlimited amount of goods, one important constraint judges confront that limits the scope of legal categories despite their preference for inclusiveness is *stare decisis*, which is discussed below.

The second principle, that for any two cases, a judge can determine whether the cases are like in all relevant (material) legal categories or are

<sup>37</sup> In mathematics, fundamental categories are called “elements” and collections of categories are called “sets.”

<sup>38</sup> LLEWELLYN, *supra* note 1, at 41.

<sup>39</sup> *Id.* at 48.

<sup>40</sup> Although symbols for Axiom L1 and Axiom L2 do not appear to go together because they use different symbols, all that Axiom L1 says is that maximizing judges can rank order legal categories that are inclusive.

distinguishable, is Axiom L2. The symbolic representation for Axiom L2 is the binary relation  $\text{case } x \supset \text{case } y \text{ case } x$ . For any two cases  $x$  and  $y$ , if  $\text{case } x \supset \text{case } y$  (which is read, “case  $x$  is a precedent that includes case  $y$ ”),  $\text{case } y \supset \text{case } x$ , or both, then the cases are like; if the binary relation  $\supset$  is not defined over case  $x$  and case  $y$ , then they are distinguishable.

Axiom L2 says that the only way that the binary relation  $\supset$  can be satisfied is if case  $x$  is a *binding* precedent on case  $y$ , case  $y$  is a *binding* precedent on case  $x$ , or both. Any two cases for which the binary relation  $\supset$  is not defined are distinguishable, that is, unrelated by binding precedent.

The binary relation  $x \supset y$  has four mathematical properties.<sup>41</sup> Two of these properties, incompleteness and transitivity, are important. The incompleteness property means that not every two cases are related to each other by legal precedent. The incompleteness property figures prominently below in the discussion of whether the principle of precedent is a strong or weak constraint on judicial decisions.

The transitivity property is important because it provides the consistency criterion of legal rationality. It says that whenever  $\text{case } x \supset \text{case } y$  and  $\text{case } y \supset \text{case } z$ , then  $\text{case } x \supset \text{case } z$ . In order to show how the transitivity property functions as legal rationality’s consistency criterion in the real world, actual judicial decisions must be discussed.

Edward Levi’s discussion of nineteenth-century product-liability cases contains a classic description of the legal rationality’s transitivity property.<sup>42</sup> In those nineteenth-century cases, courts were primarily concerned with the question whether a seller ought to incur legal liability for a product that caused injury to a person who was not the buyer of the product, that is, when there was no contractual relationship, or “privity,” between the injured party and the seller. Nineteenth-century product-liability cases chronicle the gradual erosion of the legal rule that privity of contract between the seller and the injured party was a legal prerequisite for a lawsuit.

During the first half of the nineteenth century, courts searched for a rule of law that would justify an expansion of product liability beyond privity and yet limit liability within manageable bounds. A categorical distinction began to crystallize between products that are imminently dangerous and products that are not imminently dangerous. Persons in-

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<sup>41</sup> The binary relation  $x \supset y$ , which is defined on sets, is reflexive, transitive, antisymmetric, and incomplete. A binary relation having these four properties is called a Partial Order Relation. HIRSCHFELDER & HIRSCHFELDER, *supra* note 4, at 89.

<sup>42</sup> LEVI, *supra* note 1, at 8-27.

jured by imminently dangerous products had standing to sue sellers without privity of contract, whereas persons injured by products not imminently dangerous had no standing to sue sellers without privity of contract. The second half of the nineteenth century saw the gradual expansion of the “imminently dangerous” category. Three of those cases will be used as illustrations of the transitivity property of Axiom L2.

In each case, the court included the product in the “imminently dangerous” category, implicitly expanding the category. For example, in *Thomas v. Winchester* (1852),<sup>43</sup> a woman was seriously injured after she took poison mislabeled as medicine by a druggist and sold to her husband. The court upheld the verdict for the plaintiff. In order to prevent “an infinity of actions,” the court could have narrowly limited the legal category of the imminently dangerous articles to those articles whose *function is to destroy*, like poison and guns. In *Devlin v. Smith* (1882),<sup>44</sup> a man was killed when a scaffold on which he was working collapsed. The court ruled for the plaintiff. In order to broaden the definition of imminently dangerous articles to include a scaffold but still not have open-ended liability for all articles, the court could have defined the legal category of imminently dangerous articles to include those that are *dangerous in ordinary use*. In *Statler v. George A. Ray Manufacturing Co.* (1909),<sup>45</sup> a man was killed when a coffee urn in a restaurant exploded. Again, the court ruled for the plaintiff. In order to include a coffee urn in the legal category of imminently dangerous articles, the court could have further expanded the legal definition to include articles *capable of being dangerous*.

In implicitly expanding a legal category, the courts may not even have been aware that they were changing the law. It took a Judge Cardozo to see what was really happening.<sup>46</sup> However, if they had been conscious that they were changing the law, they would have said they were changing the definition of “imminently dangerous” in a manner similar to that stated above. These cases exemplify the transitivity property of legal rationality.

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<sup>43</sup> *Thomas v. Winchester*, 6 N.Y. 397 (1852).

<sup>44</sup> *Devlin v. Smith*, 89 N.Y. 470 (1882).

<sup>45</sup> *Statler v. George A. Ray Mfg. Co.*, 88 N.E. 1063 (N.Y. 1909).

<sup>46</sup> *MacPherson v. Buick Motor Co.*, 111 N.E. 1050 (N.Y. 1916).

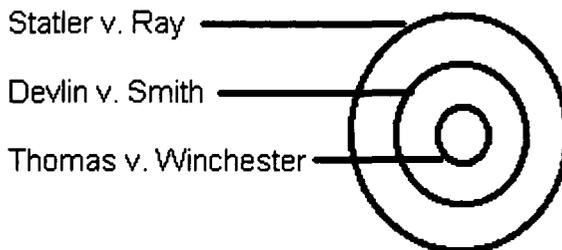


Figure 2

In terms of the transitivity property of legal rationality, *Statler* is a precedent that covers *Devlin*, and *Devlin* is a precedent that covers *Thomas*, therefore *Statler* must cover *Thomas* ( $Statler \supset Devlin \supset Thomas$ ); however, the reverse order is not transitive. If *Thomas* was the controlling precedent when *Slater* was decided, *Slater* would have to be decided contrary to *Thomas* because *Slater* is not included in *Thomas*. In other words, the transitivity principle in law works like a set of Russian nesting dolls.<sup>47</sup> The Venn diagram in Figure 2 depicts the transitivity property of legal rationality.

## B. STARE DECISIS CONSTRAINS OVER-INCLUSIVE RULES

A court may state a rule of law either narrowly or broadly; subsequent courts may further narrow or broaden the rule. In the result-oriented approach to precedents, a later court can always reexamine a case and invoke the canon that no judge has the power to decide what is not before her or him. A judge's categorization of the facts does not bind judges in subsequent cases; a judge's view of the facts is mere *dictum*.<sup>48</sup> The later court can recategorize the facts or alter legal categories to broaden or narrow the picture of what was actually before the earlier court, and the later court can hold that the legal categories in the prior case should be understood as thus expanded or restricted.<sup>49</sup> A judge in a

<sup>47</sup> A set of Russian nesting dolls (matryoshka) consists of several identical dolls, each successively smaller than the last. The smallest doll fits inside the next larger doll, which in turn fits inside the next larger doll, and so on until all the dolls are nested inside the largest doll. The smaller dolls can fit inside the largest doll. However, the converse is not true; a larger doll cannot fit into a smaller doll.

<sup>48</sup> Abbreviated form of *obiter dictum*, "a remark by the way," that is, an observation or remark made by a judge in an opinion that is not essential to the court's determination and is not legally binding.

<sup>49</sup> MELVIN EISENBERG, *THE NATURE OF THE COMMON LAW* 52 (1988); HARRY JONES, JOHN

present case may also find irrelevant the existence or absence of facts that prior judges thought important. This is an elastic approach to precedents. However, the idea that precedents are malleable does not alter the conclusion that the principle of precedents constrains a judge's freedom to determine the level of generality of legal categories or rules of case law.

Consider the effect of precedent on a judge's decision in a new case when he or she believes existing precedents are over-inclusive. An over-inclusive rule of law includes cases that a court would prefer to distinguish but cannot due to the principle of stare decisis. Judges often realize that a rule of law is over-inclusive when they must decide a new case, say case x, that falls within the rule of law as currently formulated in case y, but that they believe should be decided differently from case y. In order to provide a rationale for the decision based upon a general rule of law, a judge must reformulate the rule of law in case y more narrowly to exclude case x from case y. Thus, in order to retain the freedom to distinguish cases, courts are constrained from adopting over-inclusive rules of law.

Conversely, Levi's discussion of nineteenth-century "imminently dangerous" product-liability cases is an example of how judges lose freedom to distinguish future cases when a rule of law is over-inclusive. In these cases, judges expanded precedents by arguing exclusively from language found in past opinions wholly without reference to the facts of the case that called the language forth. This way of using the authority of precedents is called the literal view.<sup>50</sup> Through the use of the literal view, the concept of imminently dangerous products remained roughly the same, but its contents expanded.

When *Statler v. Ray*, the coffee-urn case, expanded the meaning of "imminently dangerous" from articles dangerous in ordinary use to articles capable of being dangerous, it opened the door to the expansion that swallowed up the "imminently dangerous" rule. The fear that expanding rules of law will so broaden legal categories that future cases cannot be distinguished constrains judges from expanding a rule too far, as happened in the nineteenth-century product-liability cases, thereby opening the "flood gates" to lawsuits and resulting in an infinity of actions.

Only seven years after *Statler*, in the famous case *MacPherson v. Buick Motor Co.*,<sup>51</sup> Judge Cardozo overruled the half-century-old distinction between products that are imminently dangerous and those that

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KERNOCHAN, & ARTHUR MURPHY, *LEGAL METHOD: CASES AND TEXT MATERIALS* 117 (1980).

<sup>50</sup> LEWELLYN, *supra* note 1, at 72-74.

<sup>51</sup> *MacPherson v. Buick Motor Co.*, 111 N.E. 1050 (N.Y. 1916).

are not, making it possible for any person injured by a new product to sue the manufacturer in negligence regardless of privity. Judge Cardozo may have thought that this particular distinction had outlived its utility so that courts no longer needed to retain the freedom to distinguish future cases. In general, to the extent that courts wish to retain the freedom to distinguish future cases, they are constrained by stare decisis from employing over-inclusive rules of law.

### C. NESTED RULES OF LAW CONSTRAIN UNDER-INCLUSIVE RULES

Are the many rules of law in cases disparate and isolated, or are they bound together by fundamental principles such as due process and equity into a coherent whole? The answer to this question determines whether the principle of precedent is a weak or a strong constraint on under-inclusive decisions by judges. Judges often realize that a rule of law is under-inclusive when they must decide a new case, say case x, that does not fall within the rule of law as currently formulated in case y, but that they believe should be decided consistently with case y. In order to provide a rationale for the decision based upon a general rule of law, a judge must reformulate the rule of law in case y more broadly to include both case x and case y.

Ronald Dworkin defines a legal system bound together by fundamental principles as having the virtue of “integrity,” which is superior to mere consistency:

The plainest examples [of integrity] come from adjudication, and I choose one that illustrates only a partial victory for integrity so far. For some time British judges declared that although members of other professions were liable for damage caused by their carelessness, barristers were immune from liability. Consistency, narrowly understood, would have required continuing that exception, but integrity condemns the special treatment of barristers unless it can be justified in principle, which seems unlikely. The House of Lords has now curtailed the exemption: to that extent it has preferred integrity to narrow consistency.<sup>52</sup> Integrity will not be satisfied, however, until the exemption is entirely erased.<sup>53</sup>

Having one rule for negligent barristers and a different rule for other professionals who are negligent exemplifies disparate, isolated, under-inclusive legal rules. However, if narrow local rules appear to be nested

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<sup>52</sup> Saif Ali v. Sydney Mitchell & Co. (1978) 3 W.L.R. 849 (Eng.) (footnote renumbered).

<sup>53</sup> RONALD DWORIN, LAW'S EMPIRE 219-20 (1986).

within broader, inclusive legal rules, the broadest of which have the status of fundamental principles and standards, legal rationality begins to look more like a coherent whole. The process Dworkin describes may reflect what Lord Mansfield had in mind when he spoke of “the law working itself pure.”<sup>54</sup> Dworkin conceives of these two rules of law as being nested in a broader legal category, which he calls integrity, but which could be called horizontal equity<sup>55</sup> or due process.

Having different negligence rules and standards for barristers than for other professionals illustrates judicial attempts to treat law as consisting of isolated, narrow under-inclusive rules, rather than being nested in broader fundamental principles. These attempts suggest arbitrariness, pandering to special interests, or politicized decisions, and they raise the specter of illegitimacy. Illegitimate does not mean illegal or unconstitutional; one of the meanings the dictionary gives for “illegitimate” is “incorrectly deduced.”<sup>56</sup>

Under-inclusive rules of law, that is, isolating a case within a narrow discrete rule of law to avoid explaining why the case is not like other cases that are nested within the same fundamental principles, weakens the principle of precedent, which is the law’s principal constraint on arbitrary decisions. The minimalist approach, if taken to an extreme, treats each case as unique and isolated within its own local rule of case law. Such an approach, which can “distinguish a case to death” by expressly “confining the case to its particular facts,” completely eviscerates the principle of precedent, that like cases should be decided alike, and renders judicial decisions illegitimate arbitrary exercises of power.

Consider the following example of an under-inclusive rule of law that is disparate and isolated, as opposed to being nested within fundamental principles that make law a coherent whole. In *Griswold v. Connecticut*,<sup>57</sup> the Supreme Court struck down a law prohibiting the use of contraceptives by married persons on the ground that it infringed a fundamental right to privacy. However, in *Bowers v. Hardwick*<sup>58</sup> the Court upheld a Georgia state sodomy statute that made consensual homosexual activity between adults in private a crime, on the ground that sexual activity is not a fundamental right. This case seemed to conflict with *Griswold*. It is hard to conceive of a rule of law that can distinguish the right

<sup>54</sup> Lon Fuller, *Forms and Limits of Adjudication*, 92 HARV. L. REV. 353, 377 (1978).

<sup>55</sup> Horizontal equity is the judicial analogue of equal protection of the laws that applies to legislative enactments.

<sup>56</sup> THE AMERICAN HERITAGE DICTIONARY (1976).

<sup>57</sup> 381 U.S. 479 (1965).

<sup>58</sup> *Bowers v. Hardwick*, 478 U.S. 186 (1986), *overruled by* *Lawrence v. Texas*, 539 U.S. 558 (2003).

to privacy of married couples from the right to privacy of homosexual couples without being based upon suspect, unreasonable, and under-inclusive classifications. Subsequently, the U.S. Supreme Court, in *Lawrence v. Texas*,<sup>59</sup> overruled *Bowers*. The Supreme Court of Georgia also held that the statute, as applied, violated the fundamental right of privacy under the state constitution;<sup>60</sup>

In the controversial case *Bush v. Gore*,<sup>61</sup> which decided the 2000 presidential election, the 5-4 majority overtly rejected the principle of precedent. The legitimacy of the decision has been seriously questioned.<sup>62</sup> The Supreme Court's five conservative Justices intervened in Florida's electoral process twice and held that a planned manual recount violated the right to equal protection even though in many past cases involving manual recounts they had not raised the equal-protection issue.<sup>63</sup> The majority said that the equal-protection right was unique to this case and that it would not be bound in future cases by any principles stated in *Bush*.<sup>64</sup>

If the Court had decided not to intervene in *Bush*, that decision would have been consistent with its "New Federalism" precedents, which is the term for the conservative majority's views on state sovereignty versus national power.<sup>65</sup> Within the ambit of this concept, state sovereignty usually trumps attempted national intervention either by federal statutes or by federal courts exercising equal-protection jurisdiction. The Venn diagram of Figure 3a depicts the relations among *Bush* (B), the New Federalism, and equal protection without intervention by the Court. Figure 3b depicts how the actual decision in *Bush* would affect the balance between New Federalism and equal protection assuming that cases in which federalism was an issue were decided consistently with *Bush*.

If *Bush* were a legitimate decision, much of the consistency would require a sharp curtailment of New Federalism jurisprudence because it is would require a greatly reduced area devoted solely to the New Federalism, as depicted by the change from Figure 3a to Figure 3b. In other

<sup>59</sup> *Lawrence v. Texas*, 539 U.S. 558 (2003).

<sup>60</sup> *Powell v. State*, 510 S.E.2d 18 (Ga. 1998).

<sup>61</sup> *Bush v. Gore*, 531 U.S. 98 (2000) (per curiam).

<sup>62</sup> See, e.g., David Cole, *Symposium: Assessing the Rehnquist Court's Parting Words on Criminal Justice: The Liberal Legacy of Bush v. Gore*, 94 GEO. L.J. 1427, 1427-31 (2006).

<sup>63</sup> See *Bush v. Gore*, 531 U.S. at 103 ("[T]he use of standardless manual recounts violates the Equal Protection Clause.").

<sup>64</sup> See *id.* at 109 ("Our consideration is limited to the present circumstances, for the problem of equal protection generally presents many complexities."); David Cole, *Symposium: Assessing the Rehnquist Court's Parting Words on Criminal Justice: The Liberal Legacy of Bush v. Gore*, 94 GEO. L.J. 1427, 1429 (2006).

<sup>65</sup> Mark Killenbeck, *The New Federalism in Perspective*, 57 ARK. L. REV. 1 (2004).

words, *Bush* makes the New Federalism an over-inclusive category. Correspondingly, consistency would require greater intervention by the Court in state matters on grounds of equal protection, as depicted by the increase in size of the intersection of the New Federalism and equal protection from Figure 3a to Figure 3b.<sup>66</sup> In other words, *Bush* makes the intersection of the New Federalism and equal protection an under-inclusive category.

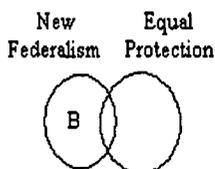


Figure 3a

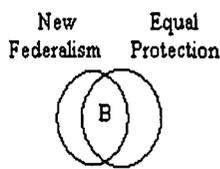


Figure 3b

The principle of precedent in strong form mandates that courts consider whether a case is like or distinguishable from every other case within every local rule within which the case is nested, even if these broader rules intersect rather than nest themselves. Before promulgating a rule of law in a case, an appellate court should look for conflicts between the proposed rule of law and the rules of law of all cases in all local rules that encompass the case (with the aid of a Westlaw or LEXIS search). If the court finds inconsistencies, then either the proposed rule of law is over- or under-inclusive or one of the conflicting cases has been decided incorrectly.

#### D. THE CASE-SELECTION HYPOTHESIS AND OPTIMAL RULES

Economics and law each have a theory that concludes that common-law adjudication tends toward optimal rules of case law (as defined below). Both theories posit the case-selection hypothesis, which states that common-law cases involving rules of law that are less than ideal are more likely to be “selected” for litigation. The theories conclude that common-law adjudication is a rational process that consistently progresses toward a goal. In economic rationality the goal is efficiency. In

<sup>66</sup> The intersection of the New Federalism and equal protection is described by the relation (New Federalism  $\cap$  Equal Protection). This relationship, which is defined as an intersection, was discussed *supra* in note 41 with respect to Venn Diagram (5) of the Tussman & tenBroek model. In Diagram (5) the intersection of legal categories A and L was described as  $A \cap L$ .

legal rationality the goal is to optimize a rule to be neither over-inclusive nor under-inclusive.

Law and economics scholars have constructed the theory that judge-made law tends toward economic efficiency over time even if judges do not consciously strive for this goal.<sup>67</sup> The theory concludes that judge-made law becomes more efficient through the process of selective litigation. This theory has two key assumptions: first, inefficient rules of case law or statutes are more likely to be “selected” for challenge than efficient laws. The theory strongly presumes that efficient laws generate more economic benefits (in terms of Gross Domestic Product) than inefficient laws. If the allocation of a legal entitlement is inefficient, those who would benefit from a change to an efficient law will have more to gain than those who benefit from the inefficient law.<sup>68</sup> Thus, the former will file more lawsuits to change the inefficient law and spend more on such suits than those who benefit from the inefficient status quo. Conversely, if the allocation of a legal entitlement is efficient, those who would benefit from a change to an inefficient law will have less to gain than those who benefit from an efficient law. Thus, the former will file fewer lawsuits to change an efficient law and spend less on such suits than those who benefit from defending the efficient status quo. In sum, people will spend more on litigation to overturn inefficient laws than to overturn efficient laws.

The second assumption of the theory is that judges are not hostile to efficiency. At worst they may be indifferent to whether the outcome of a decision is efficient. It follows as a conclusion from the two assumptions that even if judges decide cases randomly, say by flipping a coin, judge-made law will become more efficient as long as inefficient laws are litigated more than efficient laws. In other words, the economic version of the case-selection hypothesis is based upon probability.

A second theory that concludes that judge-made law progresses consistently toward a goal comes from legal theory. In the context of le-

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<sup>67</sup> Paul Rubin, *Why Is the Common Law Efficient?*, 6 J. LEGAL STUD. 51 (1977); see also George Priest, *The Common Law Process and the Selection of Efficient Rules*, 6 J. LEGAL STUD. 65 (1977); John Goodman, *An Economic Theory of the Evolution of the Common Law*, 7 J. LEGAL STUD. 393 (1978).

<sup>68</sup> In *Gibbons v. Ogden*, 22 U.S. 1 (9 Wheat. 1) (1824), the State of New York granted the exclusive right to steamboat navigation in New York waters to a partnership that transferred this monopoly to Ogden. When Gibbons began a competing service between New York and New Jersey, Ogden sued Gibbons, who defended on grounds that the state-granted monopoly violated the “commerce clause” of the U.S. Constitution. Chief Justice John Marshall, speaking for the Supreme Court, did not invoke the commerce clause but held that the monopoly was invalid because it conflicted with a federal statute. If such state-sponsored monopolies were valid, interstate commerce would be burdened and economic activity would be sharply reduced. This case is an example of an inefficient law that was challenged; overturning it increased efficiency.

gal rationality, the process of selective litigation causes judge-made law to move toward legal rules of law of optimum generality: they are neither over-inclusive (*stare decisis* constrains judges from over-inclusive rules so as to preserve their freedom in future cases, as discussed in Section IV.B) nor under-inclusive (if narrow rules of case law are nested within broader rules, judges are constrained from using arbitrary, under-inclusive rules, as discussed in Section IV.C). The legal theory has two key assumptions. First, “hard” cases are more likely to be litigated than “easy” cases. Easy cases fall clearly within an uncontroversial legal category or rule of law, usually are not litigated or are disposed of at trial, and often do not reach the highest appellate courts. “Hard” cases are “interstitial”; that is, they fall in the “cracks” between rules of law, or involve arguably over-inclusive or under-inclusive categories or rules. Hard cases usually reach the highest appellate courts for decision.

Legal theory also assumes that judges decide cases according to precedent, which requires them to decide like cases alike. Through selective litigation, hard cases rise to the top of the judicial pyramid, resulting in appellate decisions that provide guidance to lower courts, the legal profession, and citizens through the principle of precedent. Hard cases challenge existing formulations of legal categories. Judges must fine-tune the categories by broadening them or narrowing them to resolve hard cases. Over time, these repeatedly challenged legal categories approach an optimal level of generality.<sup>69</sup> Moreover, as Levi stressed, the level of generality may change over time.<sup>70</sup>

With respect to certain constitutional categories like free speech and the right to bear arms, some argue that there is no optimum level of generality that can provide a clear division between cases that should be decided one way from cases that should be decided the other way. For example, some who object to gun-control laws maintain there is no logical stopping point between any restrictions on guns and a total prohibition of guns. However, the essence of legal rationality is the ability to recognize similarity and difference and to optimize legal categories to separate cases that should be decided one way from those that should be

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<sup>69</sup> However, there are some legal fields, such as business law, that require consistency and uniformity and cannot tolerate the slow process of reaching an ideal rule of law through selective litigation in multiple jurisdictions. These legal fields are ripe for legal codification by legislative enactment such as the Uniform Commercial Code for business law. In other fields of law, such as torts, we can conclude from the fact that it has not been codified that the common-law process of selective case adjudication produces acceptable results.

<sup>70</sup> LEVI, *supra* note 1, at 8-27. Judges and lawyers often construct hypothetical cases in order to determine whether a rule of law is sufficiently general/robust to encompass the two cases as “like” or is sensitive to small (marginal) changes in abstract facts such that the two cases can be distinguished. This is law’s version of *sensitivity analysis*.

decided the other way. Thus, this type of “slippery slope” argument is usually the last refuge of extremists.<sup>71</sup>

#### E. CONSISTENCY IN DECISIONS BY APPELLATE PANELS OF JUDGES

Whether individuals employ economic rationality or legal rationality, the transitivity property provides consistency in both rational decision processes. However, Kenneth Arrow showed that individual consistency (transitivity) is not enough to guarantee that collective decisions by a group of individuals or a panel of judges, who make decisions by majority rule, will also be consistent (transitive). An “aggregation” problem can lead to inconsistent results.

Given certain conditions,<sup>72</sup> Kenneth Arrow proved that if individuals have economically rational preferences that are transitive (they obey Axioms E1-E2) but are otherwise unrestricted, groups of three or more persons may not be able to arrive at collectively transitive decisions by majority rule when there are three or more alternatives from which to choose and these alternatives are considered pairwise as in the example below. Arrow’s Impossibility Theorem showed that unstable, pairwise cycling among the choices will occur. The following hypothetical example illustrates the Theorem: Huey, Dewey, and Louie wish to accompany each other to one of three entertainments: an art gallery, a baseball game, or a concert. The preferences of three persons are transitive but

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<sup>71</sup> On its face, the nineteenth-century expansion of the concept of “imminently dangerous” appears to be an instance of a successful “slippery slope” argument: there seemed to be no logical stopping point from products like poisons and guns, to products like scaffolds, to ordinary products like coffee urns. But the expansion of the concept was accomplished by sleight of hand: the meaning of “imminently dangerous” had to be broadened continually until it included products like coffee urns, which are clearly not within any reasonable definition of the concept. If courts had retained a stable definition, *e.g.*, products dangerous in ordinary use, the “slippery slope” argument would fail (the discussion of sensitivity analysis in the preceding footnote is also relevant here). So too, in discussions of gun control, the “slippery slope” argument is that banning assault rifles will lead to banning all guns. If the right to own guns is justified on grounds of self-protection or hunting, it takes a gross distortion of those legitimate purposes to include assault rifles, whose purpose is neither self-defense nor hunting, but rather to inflict indiscriminate carnage on an indefinite number of people. Here too, the success of a “slippery slope” argument depends upon distortion of concepts or purposes. Legal rationality is about the recognition of subtle similarities and subtle differences, and drawing dividing lines between cases that are subtly different. “Slippery slope” arguments, which conflate differences, are only possible if legal precision is ignored.

<sup>72</sup> 1) “Unanimity” according to the Pareto improvement criterion; 2) “Nondictatorship,” whereby no single individual may dictate society’s choices; 3) “Range,” whereby individuals may rank alternatives in any order they choose (unrestricted domain); 4) “Independence of Irrelevant Alternatives,” whereby the social choice between any two alternatives must depend only on the orderings of individuals over these two alternatives, and not on their orderings over other alternatives; and 5) “Transitivity” of individual preferences. KENNETH ARROW, SOCIAL CHOICE AND INDIVIDUAL VALUES ch. III (conditions), ch. V (theorem) (2d ed. 1963); DAVID BARNES & LYNN STOUT, CASES AND MATERIALS ON LAW AND ECONOMICS 451-52 (1992).

have “unrestricted domains;” that is, there are no restrictions on the order in which individuals may rank alternatives.

For Huey: art  $\succ$  baseball  $\succ$  concert;  
 for Dewey: baseball  $\succ$  concert  $\succ$  art;  
 for Louie: concert  $\succ$  art  $\succ$  baseball.

If Huey, Dewey, and Louie attempt to choose an entertainment by a series of pairwise votes, unstable cycling will result. If they must choose between art or baseball, a majority (Huey and Louie) will prefer art; if they must choose between baseball and a concert, a majority (Huey and Dewey) will prefer baseball; and if they must choose between a concert and art, a majority (Dewey and Louie) will prefer a concert.<sup>73</sup> Even though the preferences of each person are individually transitive, they are not collectively transitive. This “aggregation” problem occurs when the domain of preferences remains unrestricted.

Practically speaking, Arrow’s Impossibility Theorem means that even if every judge on an appellate panel is individually rational, a group decision made by majority rule, where judges have widely divergent views, may be unstable over time (precedents may be overturned) due to changes in personnel, how alternative choices are framed, or who controls the agenda. However, when appellate judges have relatively homogenous preferences, unstable precedents are less likely to occur. For example, when considering commercial disputes, most judges tend to have values that are consistent with efficient markets, and a series of commercial appellate decisions will likely be consistent. On the other hand, controversial social issues, such as abortion and gun control, about which preferences are more likely to be heterogeneous and extreme, will likely cause unstable cycling and generate inconsistent decisions. Due to recent changes in personnel on the U.S. Supreme Court, such cycling may be occurring, resulting in irrational group decisions.<sup>74</sup>

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<sup>73</sup> Barnes & Stout, *supra* note 72 at 451.

<sup>74</sup> *Gonzales v. Carhart*, 550 U.S. 124, 191 (2007) (Ginsberg, J., dissenting) (“Though today’s opinion does not go so far as to discard *Roe* or *Casey*, the Court, differently composed than it was when we last considered a restrictive abortion regulation, is hardly faithful to our earlier invocations of ‘the rule of law’ and the ‘principles of *stare decisis*.’”).

## V. WHEN ARE ECONOMIC RATIONALITY AND LEGAL RATIONALITY ISOMORPHIC?

This section answers the second and third questions posed by this article:<sup>75</sup> What is the relation between economic rationality and legal rationality in judicial decisions? And when economics and law conflict, should economics trump law?

Five examples illustrate the relationship between economic rationality and legal rationality. One example is concerned with judicial decisions in entrapment cases; two examples discuss the potential conflict between efficiency and distributional equity in the market structures of perfect competition and bilateral monopoly; and two examples are concerned with the conflict between fundamental rights and security.

These five examples support the tentative conclusion that in cases in which judges are willing to balance interests through marginal trade-offs, economic rationality dominates. Economic rationality and legal rationality will often be isomorphic because judges will tend to interpret legal concepts consistently with economic concepts. In such cases, a correspondence rule maps each rationality into the other so as to preserve properties and relations in both. For example, in the law of torts, when judges use the Judge Hand test in negligence cases, all cases that satisfy the binary relation  $(B < PL) \supset$  ("negligence") also satisfy the Judge Hand test and belong in the legal category of negligence, and the converse is also true. Similarly, in all cases that satisfy the binary relation  $(B \geq PL) \supset$  ("due care"), the actions do not constitute negligence, and the converse is also true.

However, when judges employ legal rationality as the dominant rationality, as in cases involving fundamental rights, which are discussed below, mapping their decision from legal rationality to economic rationality is usually not possible. The two rationalities will usually be neither isomorphic nor consistent.

### A. ENTRAPMENT CASES: ECONOMICS AND LAW ARE NEARLY ISOMORPHIC

Sometimes judges appear to reason in terms of legal rationality, which determines whether a particular case is included or excluded within a particular concept (e.g., the nineteenth-century product-liability cases), when actually they implicitly balance interests using economic rationality. Six U.S. Supreme Court cases and a number of appellate

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<sup>75</sup> The first question is, what does thinking like a lawyer (or a judge) mean and how does it differ from thinking like an economist?

cases involving entrapment<sup>76</sup> seem to exemplify the hidden use of economic rationality. In these cases, the courts purported to use the “objective (or subjective) predisposition test” to determine whether a defendant had been entrapped. The predisposition test is a legal categories test. However, most of the cases were decided consistently with a balancing of two competing interests: the government’s need for entrapment based on the seriousness of the crime, and the nature and extent of government involvement in the entrapment. In extreme cases, little government need for entrapment along with repeated and prolonged government involvement led to acquittal as a matter of law. Similarly, great government need for entrapment along with simple solicitation led to conviction as a matter of law. In cases where reasonable persons could differ as to the balancing of interests, the courts asked juries to decide. Courts may have been using the interest-balancing test surreptitiously.<sup>77</sup> Most of the entrapment cases could have been decided the same way under either a predisposition test or a balancing-of-competing-interests test.

However, one appellate entrapment case<sup>78</sup> was a clear exception. This case showed that although entrapment law and economic rationality may be consistent with each other, they are not quite isomorphic because judicial decisions based on economic efficiency can come into conflict with the legal rationality goal of distributional equity. Economic rationality has one overarching goal: efficiency. Legal rationality has several broad goals in addition to efficiency, such as due process and equity (both horizontal and distributional). To meet the requirements of due process or distributional equity, a decision may have to be economically inefficient and thus conflict with economic rationality.

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<sup>76</sup> John Cirace, *An Interest Balancing Test for Entrapment*, 18 PACE L. REV. 51 (1997).

<sup>77</sup> *Jacobson v. United States*, 503 U.S. 540, 560 (1992) (O’Connor, J., dissenting) (“The crux of the Court’s concern in this case is that the Government went too far and abused the process of detection and enforcement by luring an innocent person to violate the law.”) (internal quotation marks omitted).

<sup>78</sup> In *Carbajal-Portillo v. U.S.*, 396 F.2d 944 (9th Cir. 1968), one defendant traveled 1,000 miles to the U.S. border to bring heroin into the country. When his contact, who was a narcotics agent, asked him to take the heroin across the border, he refused, sensing a trap. He returned to Mexico and met a local resident who agreed to take the heroin across the border. After crossing the border, both defendants were arrested. Using the “objective predisposition test,” the court said that first defendant was entrapped as a matter of law because his reluctance had to be overcome; the agent affirmatively persuaded him to commit the crime. As to the local resident, he was willingly disposed to break the law. However, under a balancing-of-interests test, the government’s need for entrapment to stem the flow of illegal drugs is substantial and the extent and nature of government involvement is well within acceptable bounds, so both convictions should have been sustained.

## B. ECONOMICS AND LAW ARE OFTEN ISOMORPHIC IN CASES INVOLVING MARKETS

In perfectly competitive markets, questions of efficiency and distributional equity can be separated. Markets fulfill efficiency conditions, and government can achieve distributional equity without interfering with the markets through transfers from taxes. When government interferes with perfectly competitive markets to achieve distributional equity, markets become inefficient. Similarly, if a court's goal is distributional equity, legal rationality and economic rationality will be neither consistent nor isomorphic. On the other hand, if a court adopts the goal of efficiency as its guide in cases involving competitive markets, law and economics will be isomorphic because judges will tend to interpret legal concepts consistently with economic concepts.

However, in the context of bilateral monopoly,<sup>79</sup> efficiency and distributional equity are interrelated and not easily separable. The bargaining version of the Coase Theorem, which is the foundation theorem of law and economics, is a good example of a bilateral monopoly. The bargaining version of the Coase Theorem is usually stated as follows: if property rights are clearly specified and transactions costs are zero, then bargaining between those who have property rights specified in their favor and those who do not will result in an efficient allocation of resources.

In the famous article *The Problem of Social Cost*,<sup>80</sup> Coase compared a property-right regime to a liability-rule regime, as defined by Judge Calabresi and Melemend's well-known distinction between property rights and liability rules.<sup>81</sup> The property-right regime had no liabil-

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<sup>79</sup> Monopoly is a market in which there is only one seller; monopsony is a market with only one buyer. A bilateral monopoly is a market in which there is only one buyer and one seller. An example would be negotiation in a coal mining town between the only coal mine company and the only labor union. Many lawsuits can be analyzed as bilateral monopolies because the plaintiff and defendant must deal with each other and no others, much like the coal mine example. The ubiquity of bilateral monopoly is emphasized in RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* (5th ed. 1998). Bilateral monopoly is an economic market structure that can be used to analyze many one-on-one lawsuits.

<sup>80</sup> Ronald Coase, *The Problem of Social Cost*, 3 J.L. & Econ. 1 (1960).

<sup>81</sup> See Guido Calabresi & Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1089-93, 1106-11 (1972). If one's legal entitlement to something, say an automobile, is protected by a "property right," another party who wants to transfer the legal entitlement to herself must pay a price that is acceptable to the person who currently owns the legal entitlement to the property. If one's legal entitlement to something is protected only by a "liability rule," another party may destroy this entitlement and compensate the other party by paying a price that is determined by a court. For example, if an automobile is destroyed in a collision due to the other party's negligence, a court will determine compensation. A legal entitlement protected by a property right is worth significantly more than a legal entitlement protected by a mere liability rule. A property right gives a person much more bargaining power than a liability rule.

ity for crop damage and the parties could bargain freely without court intervention. The liability-rule regime provided judicially determined monetary damages for crop damages. Under the liability-rule regime, courts could constrain the amount of compensation a party could demand. The property-right regime did not limit a party's right to bargain for entitlement.

Coase's theorem can be illustrated by his now-famous crops-cattle example. Assume that one steer brings in a profit of \$0.50 to a cattleman and that a trespassing steer causes \$1.00 worth of crop damage to the farmer. Under a liability rule, the cattleman will not keep the steer because he would sustain a \$0.50 loss after paying \$1 in damages.

Under a no-liability/property-right legal regime in which the cattleman does not have to pay for crop damage, he can allow his cattle to freely trespass on the farmer's property unless the farmer pays the cattleman enough to warrant disposal of the steer: a minimum of \$0.50. This will cost the farmer less than the \$1.00 crop damage she will suffer if the cattleman keeps the steer. The difference between the cost of crop damage (\$1.00) and the cost of losing a profitable steer (\$0.50) is the cooperative surplus, and is the range within which the parties can bargain to obtain an efficient result. Whether the price is closer to \$0.50 or closer to \$1.00 depends on how hard each of the parties bargains. Under both legal regimes, the efficient or "invariant" result, no steer, occurs. However, the distribution of income is quite different. Under the liability for damages rule, the cattleman earns \$0 profit and the farmer earns \$1 profit because her crops are not trampled. Under the no-liability for damages regime, the two parties bargain to reach an agreed-upon result, distributing the profit between them: the cattleman profits \$0.50-\$1.00 and the farmer's profit of \$1.00 is reduced by that amount.

The extortion and bilateral monopoly<sup>82</sup> inherent in the bargaining version of Coase's Theorem as illustrated above become much more severe when one contrasts two property-right regimes. Suppose the farmer in Coase's crops-cattle example has an entitlement to have crops free from damage by trespassing cattle. That entitlement is protected by a property right. Violation of the property right is the tort of "trespass," which is enforceable by injunction, as opposed to monetary damages for crop destruction under the liability rule. The "invariance" conclusion that the result (no steer) will be the same regardless of the property rule cannot be sustained.

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*Id.*

<sup>82</sup> Bilateral monopoly involves disputes over the distribution of the cooperative surplus—how the \$0.50 is to be divided—which could prevent the parties from achieving the efficient result through bargaining.

For example, assume one steer brings in a profit of \$1.50 to the cattleman, and that the trespassing steer causes \$1.00 worth of crop damage to the farmer. If the cattleman pays the farmer damages under a liability rule, he will still profit \$0.50 from the trespassing steer, which results in a net social gain. However, under the property-right regime, the farmer can get an injunction prohibiting the steer from trespassing on her land. In response, the cattleman has three options: build a fence, bargain to remove the injunction, or do without the profitable steer. If the cost of building the fence is \$4.00, the farmer could demand up to \$4.00 from the cattleman as the price of not enforcing the injunction. Under these circumstances, the costs of building the fence or bargaining to remove the injunction are greater than the value of the steer, so the cattleman would do without the steer and any profit. The property-right rule would have an inefficient result, because the cattleman would forgo the steer, losing \$1.50 in profit to rectify only \$1.00 in crop damage, resulting in a net social loss of \$0.50.

The flaw in the bargaining version of the Coase Theorem is that it assumes cooperative bargaining, which is contrary to economic rationality's fundamental assumption that individuals are self-interested. As in the above example, bargaining may break down between self-interested individuals over their inability to agree upon the division of the cooperative surplus.<sup>83</sup> In the context of bilateral monopoly, if a self-interested party has a property right specified in its favor, it has a great deal of bargaining (monopoly) power, and bargaining will likely result in inefficient and distributionally inequitable solutions. Judicial intervention or the threat of it in such cases, such as possible alteration of property rights, shift to a liability rule, or equitable relief, will likely enhance both efficiency and distributional equity.<sup>84</sup> Thus, in the context of bilateral monopoly, economic rationality and legal rationality are likely to be consistent and isomorphic.<sup>85</sup>

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<sup>83</sup> Robert Cooter, *The Cost of Coase*, 11 J. LEGAL STUD. 1, 17, 23 (1982).

<sup>84</sup> In the famous case of *Boomer v. Atlantic Cement Co.*, 26 N.Y.2d 219 (1970), plaintiff homeowners asked for an injunction against injury to their property from dirt, smoke and vibration emanating from a nearby cement plant. The court said that total damage to plaintiffs' property was relatively small (\$185,000) in comparison to the value of defendant's factory (investment in excess of \$45,000,000) and to the consequences of the injunction. In asking for an injunction, the plaintiffs asked the court to protect their entitlement to clean air by a property right; that is, plaintiffs wanted the right to demand that the cement company cease operating unless it paid a price satisfactory to them. The court departed from its long settled doctrine of granting an injunction where a nuisance has been found and substantial damage shown, because it did not want to give the plaintiffs enormous bargaining power over defendants. It denied the injunction (property right) and substituted a damage remedy (liability rule). In many cases involving bilateral monopoly, a court can fashion a damage remedy that both gives the defendant an efficient incentive to minimize the nuisance and is distributionally equitable to the plaintiff.

<sup>85</sup> In competitive markets, no one has any bargaining power because everyone has alternative

### C. ECONOMICS AND LAW CONFLICT IN CASES INVOLVING FUNDAMENTAL RIGHTS

Law and economics are usually neither isomorphic nor consistent in cases involving the conflict between personal liberty and public safety. One example concerns the interpretation of the exclusionary rule for evidence seized in violation of the Fourth Amendment. A conflict arises between judges who use economic rationality to balance interests through marginal trade-offs and judges who use legal rationality, which involves a determination of whether the rule of law in one case is a binding precedent that includes the facts of another case.

In *Weeks v. United States* (1914),<sup>86</sup> the U.S. Supreme Court held that evidence seized in violation of the Fourth Amendment prohibition against unreasonable searches and seizures must be excluded in a federal trial. The Court reasoned that to admit such evidence would put a judicial stamp of approval on unconstitutional conduct. This exclusionary rule was extended to state trials in *Mapp v. Ohio* (1961).<sup>87</sup> However, in *United States v. Leon* (1984),<sup>88</sup> the Court, 6-3, held that the exclusionary rule should be modified to allow the use of evidence obtained by officers acting in reasonable reliance on a search warrant issued by a magistrate, although the warrant was ultimately found to be unsupported by probable cause. The majority reasoned that the exclusionary rule is “a judicially created remedy designed to safeguard Fourth Amendment rights generally through its deterrent effect,” the applicability of which “must be resolved by *weighing the costs and benefits* of preventing the use” of illegally seized evidence.<sup>89</sup> The dissenters questioned whether the exclusionary rule is merely a “judicially created remedy” for Fourth Amendment violations, subject to being narrowed “through guesswork about deterrence” rather than, as indicated in *Weeks*, “a right grounded in that Amendment to prevent the government from subsequently making use of any evidence so obtained.”<sup>90</sup>

The majority in *Leon* engaged in economic rationality. They were willing to consider the marginal trade-offs of protecting Fourth Amend-

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persons with whom to deal. Judicial intervention in such markets for reasons of distributional equity will always result in inefficiency. However, in bilateral monopoly situations, where one side has a great deal of bargaining power because the legal rule or regime greatly favors one party, judicial intervention as in *Boomer*, discussed in the previous footnote, can enhance both efficiency and distributional equity.

<sup>86</sup> *Weeks v. United States*, 232 U.S. 383, 394 (1914).

<sup>87</sup> *Mapp v. Ohio*, 367 U.S. 643 (1961).

<sup>88</sup> *United States v. Leon*, 468 U.S. 897 (1984).

<sup>89</sup> *Id.* at 906-07 (emphasis added).

<sup>90</sup> *Id.* at 943 (Brennan, J., dissenting); see WAYNE LAFAVE & JEROLD ISRAEL, *CRIMINAL PROCEDURE* 105-11 (2d ed. 1992).

ment rights and the probability of convicting a guilty defendant. To move from *Weeks-Mapp* to *Leon*, the majority must have believed that society's gain through the increased probability of convicting a guilty defendant was as least as great as the resulting loss of protection against unreasonable search and seizure. Otherwise the majority would not have modified the rule. Since, for the majority, the gain from the rule of law in *Leon* outweighs the potential loss from not adhering to the rule of law in *Weeks-Mapp*, the rule of law in *Leon* is at least weakly preferred to the rule of law in *Weeks-Mapp*, i.e.,  $Leon \succ Weeks-Mapp$ .

On the other hand, the dissenters employed legal rationality and were not willing to engage in marginal trade-offs. For them, *Weeks-Mapp* stands for a rule of law: evidence seized in violation of the Fourth Amendment prohibition against unreasonable searches and seizures must be excluded in a federal trial. In *Leon*, the warrant allowing the seizure was without probable cause; therefore, the seizure violated the Fourth Amendment and must be excluded. In other words, for the dissenters, *Weeks-Mapp* is a binding precedent that includes the facts of *Leon*, i.e.,  $Weeks-Mapp \supset Leon$ .

An alternative interpretation<sup>91</sup> of the dissenters' view in *Leon* is that the dissenters may have believed that *Weeks-Mapp* established a minimum level of Fourth Amendment protection against unreasonable search and seizure. Since *Leon* reduces Fourth Amendment protection below that level, the decision is impermissible. This interpretation of the dissenter's view is known as a Rawlsian lexical constraint on trade-offs.<sup>92</sup>

The measures for protection of national security that the U.S. government has taken in response to the terrorist attacks of September 11, 2001, make the constitutional changes in *Leon* seem insignificant. In a recent book, Judge Posner supports the government's "marginal adjustments"<sup>93</sup> that must be made by "practical-minded judges" to constitutional rights that "impinge" on the measures taken for protection of public safety in a national emergency. He characterized these adjustments as "sui generis," neither war nor crime. These "marginal adjustments" include: the length of indefinite detention of suspected terrorists determined by cost-benefit analysis, coercive interrogation, authorization for public officers to disregard in extreme cases the prohibition against torture, an extremely narrow definition of torture, warrantless surveillance,

<sup>91</sup> John Cirace, *Law and Economics: An Interdisciplinary Approach* ch. 4 (2008) (unpublished materials on file with author).

<sup>92</sup> JOHN RAWLS, *A THEORY OF JUSTICE* 42-43 (1971). Serial or "lexical" ordering of principles or interest is an ordering or ranking that requires the first principle in the ordering to be satisfied before moving on to the second principle, and so on. *Id.*

<sup>93</sup> POSNER, *supra* note 7 at 1.

advocacy of an Official Secrets Act, and an end to the “‘prior restraints’ taboo with respect to publications.”<sup>94</sup> Although critics<sup>95</sup> have called them sweeping changes, Posner asserts that these adjustments are justified,

by balancing the anticipated consequences of alternative outcomes and picking the one that creates the greatest preponderance of good over bad effects . . . . Unfortunately, the “weighing” is usually metaphorical. The consequences judges consider are imponderable, and the weights assigned to them are therefore inescapably subjective . . . .

[Judges who resist this weighing] are in thrall to precedents that were either unsound when created or have become obsolete due to changed political, social, economic, or technological circumstances. . . .

To weigh the unweighable is at once a contradiction and an inescapable duty<sup>96</sup>

Whether or not Posner is correct, the purpose of the Bill of Rights is to ensure that civil liberties will not be compromised during *sui generis* national emergencies. That the weighing is “metaphorical” gives one little confidence that such “subjective” and speculative weighing can distinguish a *sui generis* emergency from one that is like prior emergencies.

The logic of legal rationality, which relies on the recognition of similarities and differences between past and present cases, may be more accurate than the logic of economic rationality based on a metaphorical weighing. Legal rationality and economic rationality involve different methods, have different goals, and stem from two different logical systems. In cases involving fundamental rights, legal and economic rationalities are usually untranslatable rather than consistent and isomorphic. When law and economics conflict over fundamental rights, there is no *a priori* reason to think that speculative economics should trump the law. Such conflicts have to be resolved by asking which abstract logical model, economics or law, more accurately explains experience in the real world. This is a matter of judgment over which reasonable persons can and do differ.

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<sup>94</sup> *Id.* at 64, 80, 86, 87, 95-103, 108-10.

<sup>95</sup> See, e.g., David Cole, *How to Skip the Constitution*, 53 THE N.Y. REVIEW OF BOOKS No. 18 (Nov. 16, 2008); Michiko Kakutani, *A Jurist's Argument for Bending the Constitution*, N.Y. TIMES (Sept. 19, 2006).

<sup>96</sup> Posner, *supra* note 7. at 24, 28, 66.

## VI. CONCLUSION

The paper asks the question, how does thinking like a lawyer (or a judge) differ from thinking like an economist? The article answers that question by giving a formal description of both economic rationality and legal rationality in terms of two axioms and their symbolic interpretation as binary relations. It shows that economic and legal reasoning involve different logical operations.

In the model of legal rationality, the role of precedent is crucial in determining whether there are constraints on judges' decisions. If legal rationality's rules of case law are discrete and unrelated to each other, precedent is weak and fails to effectively constrain judicial decisions. When legal rationality's rules of case law are nested (completely included) within broader rules of law such as due process, equity, or equal protection, precedent is strong and provides adequate constraint against arbitrary decisions by judges.

Legal rationality and economic rationality are separate and co-equal rational decision processes. Economic and legal rationality have two usual relationships. When judges balance competing interests through marginal trade-offs, economic rationality dominates. Under these circumstances economic rationality and legal rationality will have an isomorphic relationship, or close to it, because economic concepts can be mapped onto relevant legal concepts, and judges will tend to interpret the legal concepts in a way that preserves the properties and results in both disciplines. However, if judges employ legal rationality as the dominant rationality, legal rationality and economic rationality are rarely isomorphic or consistent, because legal concepts cannot be mapped onto economic concepts.

When thinking like an economist and thinking like a lawyer conflict, as they often do in cases involving fundamental rights, economists often assert that economic rationality should trump legal rationality; however there is no *a priori* reason why this should be. The two rationalities result in irreconcilably opposing views. Such conflicts should not be resolved by blindly forcing one rationality upon the analysis. Instead, judges should consider which abstract logical model, economics or law, more accurately explains experience in the real world.