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Focal Point Theory of Expressive Law

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A FOCAL POINT THEORY OF EXPRESSIVE LAW

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1649

INTRODUCTION

IN the vision of law that dominates economics-influenced legal theory, law imposes sanctions to solve problems of cooperation. On this view, the *problem* to be solved is the absence of cooperation and the *solution* law provides is the imposition of sanctions. Both parts of this story are compelling. The need for cooperation is pervasive; individuals often act in ways that benefit themselves but prevent a larger group from achieving its best outcome. Sanctions are powerful; by imposing liability or punishment on individuals, the state changes the payoffs so that cooperation rather than defection is the dominant strategy. Given the focus on sanctions, it is inevitable that a concern for deterrence dominates the economic analysis of legal rules. Except for some attention to the incapacitation function of certain criminal sanctions, economists overwhelmingly assume that law matters solely because state-imposed legal sanctions generate deterrence. To be sure, the ultimate effects of the sanctions are complex and much of law and economics addresses their secondary or tertiary consequences. But the analysis almost always assumes the first step in the causal chain by which law affects individual behavior is that the formal sanctions law imposes raise or lower the costs of a behavior.

Some legal theorists challenge this dominant view by emphasizing features of law other than its sanctions. These theorists claim that, in addition to its sanction function, law has an "expressive" function.[1] The thesis is that law influences behavior independent of

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[1] See, e.g., Dan M. Kahan, What Do Alternative Sanctions Mean?, 63 U. Chi. L. Rev. 591, 597 (1996); Lawrence Lessig, The Regulation of Social Meaning, 62 U. Chi. L. Rev. 943 (1995); Jason Mazzone, When Courts Speak: Social Capital and Law's Expressive Function, 49 Syracuse L. Rev. 1039 (1999); Richard H. Pildes, Why Rights Are Not Trumps: Social Meanings, Expressive Harms, and Constitutionalism, 27 J.

the sanctions it threatens to impose, that law works by what it says in addition to what it does.[2] Even this literature, however, mostly accepts the dominant view of the *problem* that law solves—that of cooperation. Without criticizing that approach, in this Article I pursue a different path. To explain one means by which law works expressively, I focus on a different problem of strategic interaction: not cooperation but *coordination*. Specifically, I claim that law provides a focal point around which individuals can coordinate their behavior. When individuals have a common interest in coordinating, as frequently occurs, a legal rule may guide behavior merely by influencing expectations about how others will behave.[3]

Legal Stud. 725, 725–26 (1998); Paul H. Robinson & John M. Darley, The Utility of Desert, 91 Nw. U. L. Rev. 453, 471–73 (1997); Cass R. Sunstein, On the Expressive Function of Law, 144 U. Pa. L. Rev. 2021, 2022 (1996); Janice Nadler, The Effects of Perceived Injustice on Deference to the Law (Feb. 23, 2000) (unpublished manuscript, on file with the Virginia Law Review Association). For a more formal, economic account, see Robert Cooter, Do Good Laws Make Good Citizens? An Economic Analysis of Internalized Norms, 86 Va. L. Rev. 1577, 1593–94 (2000) [hereinafter, Cooter, Good Laws]; Robert Cooter, Expressive Law and Economics, 27 J. Legal Stud. 585, 653 (1998) [hereinafter, Cooter, Expressive Law].

[2] By "expressive function of law" and (for short) "expressive law," I refer to the positive claim that law influences behavior independently of its sanctions. A separate literature addresses the different "expressivist" claim that law has a normative value based on what it expresses, independent of its consequences. See, e.g., Matthew D. Adler, Expressive Theories of Law: A Skeptical Overview, 148 U. Pa. L. Rev. 1363 (2000); Elizabeth S. Anderson & Richard H. Pildes, Expressive Theories of Law: A General Restatement, 148 U. Pa. L. Rev. 1503 (2000); Matthew D. Adler, Linguistic Meaning, Nonlinguistic 'Expression' and the Multiple Variants of Expressivism: A Reply to Professors Anderson and Pildes, 148 U. Pa. L. Rev. 1577 (2000).

[3] To my knowledge, only three theorists have explored or are exploring coordination as a basis for the expressive effect of law. Eric Posner once noted that "[l]egislatures can create focal points ... with which actors can coordinate their behavior." Eric A. Posner, Law, Economics, and Inefficient Norms, 144 U. Pa. L. Rev. 1697, 1719 (1996) [hereinafter, Posner, Inefficient Norms]. He did not elaborate the point and, in any event, he was not claiming that the effect arose independent of legal sanctions. (His one example was recording statutes for property, which appear to function because the state ultimately backs its property judgments by force.) However, Posner is now developing a constitutional theory under which the U.S. Supreme Court influences behavior expressively by first establishing a reputation for predicting behavioral change. See Eric A. Posner, The Evolution of Constitutions (Feb. 28, 2000) (unpublished manuscript, on file with the Virginia Law Review Association) [hereinafter, Posner, Evolution of Constitutions]. In this regard, he pursues the suggestion, first made by David Strauss, that a written constitution may serve as a focal point for coordinating behavior. See David A. Strauss, Common Law Constitutional Interpretation, 63 U. Chi. L. Rev. 877, 910–19 (1996). Finally, Robert Cooter briefly notes that state officials might use unenforced "pronouncements" to shift social behavior from one equilibrium to another, assuming the officials enjoy a reputation for predicting future behavior. See Cooter, Good Laws, supra note 1, at 27–28. None of these accounts duplicates my own, which emphasizes the features of law that are likely to make a particular outcome psychologically salient or "focal." In particular, my claim does not depend upon any governmental official developing a

The point is most clearly made in the situation of a pure coordination game, a simple example of which is the choice of whether to drive on the left or right side of the road. If no convention currently guides drivers on this decision and, consequently, they expect many accidents, the state might create a convention merely by announcing it. A legal proclamation—"Drive on the right"—even one that carries no threat of sanctions, may cause people to drive on the right just because the proclamation makes everyone *expect* that others will drive on the right. The central issue, of course, is why a sanctionless proclamation would cause people to change their expectations of what others will do. As I will show, when people are otherwise at a loss for how to coordinate, it takes surprisingly little to guide expectations and behavior. Once expectations are changed, the coordination problem is solved: A driver who expects others to drive on the right will almost always prefer to drive on the right as well. The state can thus change behavior by changing expectations; self-interest does the rest.

Generalizing this simple example requires two critical moves. First, I must demonstrate that the focal point theory applies outside of pure coordination games. Most of social life does not involve situations where the parties care only about coordinating and are utterly indifferent to *how* they coordinate. Yet even though pure coordination games are rare, a great many social situations involve an element of coordination, where the parties jointly wish to avoid certain outcomes. As it turns out, the law can still guide expectations in these situations, with the same result that the law affects behavior by what it expresses. Second, I must demonstrate that the focal point theory applies not only to simple "one-shot" games, but to iterated situations where individuals have a chance to coordinate without the guidance of law. One would not expect, for example, that drivers would fail to coordinate indefinitely, but that they would eventually stumble upon a convention of driving on a particular side of the road, even if the government never expressed anything about the matter. As it turns out, the existence of spontaneous order of this sort does not render expressive law superfluous. Independent of sanctions, law can both cause individuals to converge on a particular convention more quickly than

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reputation for accurately predicting future behavior, though that would certainly enhance the mechanism I describe. See infra text accompanying note 55.

they otherwise would and upset the conventions that have already emerged.

I make these claims in four parts. Part I will introduce the problem of coordination and the idea of a focal point. It will then show how law could provide a focal point in a pure coordination game. By making a particular means of coordinating salient or prominent, the law can increase the probability that individuals use that means. Part II will broaden the analysis to include not merely pure coordination games, but "mixed-motive" games that involve both coordination and conflict. This Part will demonstrate that by providing a focal point, adjudication and regulation can influence behavior in these common situations. Part III will then introduce a dynamic setting in which an equilibrium outcome evolves over time. In this context, law additionally changes behavior by labeling or clarifying certain features of the strategic environment. Part IV will illustrate the analysis with the examples of antismoking laws and landlord/tenant disputes.

In several ways, the analysis in this Article is highly preliminary. Some caveats are therefore in order. First, I do not claim that the expressive function of law is more important than the sanction function, only that we should not emphasize the latter to the point that we utterly ignore the former. Second, I do not claim that the focal point theory explains the *entire* expressive function of law. Others have illuminated the matter greatly,[4] and elsewhere I offer an entirely different explanation for how the law influences behavior independent of its sanction—that law signals information lawmakers hold about the costs and benefits of the behavior being regulated.[5] Given that most law and economics theorists now concentrate entirely on the sanctions that law imposes, it is too early to consider which of these expressive theories is the most important. Third, like all expressive law theories, the focal point model re-

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[4] See sources cited supra notes 1, 3.

[5] See Richard H. McAdams, An Attitudinal Theory of Law's Expressive Function, 79 Or. L. Rev. ___ (forthcoming 2000) (contending that legislation and judicial opinions may change behavior by signaling information about public approval or disapproval of the regulated behavior); Dhammika Dharmapala & Richard H. McAdams, The Condorcet Jury Theorem and the Expressive Function of Law: A Theory of Informative Law 2–5 (Apr. 2000) (unpublished manuscript, on file with the Virginia Law Review Association) (contending that legislation may change behavior by signaling information about the risk or effectiveness of the regulated behavior).

quires empirical testing. Below, I review the relevant experiments, but because they do not specifically address law, their support for the claims I make remains indirect and speculative. At this stage, my goal is to show that the focal effects are plausible and to define the model precisely enough to facilitate empirical testing. Fourth, the focal effects I discuss in this Article are not all *unique* to law. In some cases, as I will note below, private individuals and institutions create focal points and can therefore supply the same expressive force as the state can through law. Because my primary aim is just to establish the focal point power, thereby showing an effect of legal rules other than deterrence, I only sporadically address the issue whether government or private institutions have a comparative expressive advantage in any particular circumstance. Finally, although I rely on numerous game theory concepts, my analysis is mostly informal. No doubt some additional benefit can be provided by precisely modeling each claim, but I leave that for later research. My aim here is to interest others in exploring the implications of focal point theory for law.

I. COORDINATION GAMES AND FOCAL POINTS

This Part will explain how law can influence behavior by serving as a focal point in simple games of pure coordination. Section A will introduce the game theory concept of a coordination problem. Section B will describe the power of "focal points" to solve such problems. Section C will explain how legal rules can create focal points, thus solving coordination games without the threat of sanctions.

A. Coordination Problems

Much of social and legal theory focuses on problems of cooperation.[6] The central metaphor of this work is the prisoner's dilemma game.[7] In such games, *not* cooperating is the dominant strategy; each prisoner, for example, is better off confessing no matter what

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[6] See, e.g., Dennis Chong, Collective Action and the Civil Rights Movement (1991); Russell Hardin, Collective Action (1982); Mancur Olson, Jr., The Logic of Collective Action: Public Goods and the Theory of Groups (1965); Elinor Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action (1990).

[7] See, e.g., Robert Axelrod, The Evolution of Cooperation 3–24 (1984); Edna Ullmann-Margalit, The Emergence of Norms 18–73 (1977).

the other prisoner does. But another pervasive problem for social interaction is *coordination*.[8] In a coordination game, players have common interests, but this fact does not guarantee that the players will do the best they can for themselves. To illustrate the coordination problem, consider a variation of the prisoner's dilemma. In the standard scenario, the prosecutor separates two suspects and offers each a deal for confessing that makes it best to be the only one to confess and worst to be the only one not to confess. Imagine instead that a prosecutor separates two guilty prisoners and offers each of them this deal: "If you give *the same* alibi as the other suspect, I will believe you both and set you both free; but if you give no alibi or different alibis, you go to prison." The suspects now have perfectly common interests: They both want to give the same alibi. But if they haven't discussed their alibis in advance, they may go to jail. They may fail to coordinate.

The need for coordination is pervasive. Two rowers of a boat who share an interest in maximizing speed or efficiency will wish to coordinate the timing of their oar strokes.[9] Two hunters who share an interest in killing a prey that can be caught only by concerted action will wish to coordinate their pursuit.[10] Two people who seek to communicate will wish to coordinate on the meaning of the sounds or symbols they use; they need to speak "the same" language.[11] A group of people who want to buy and sell commodities need to coordinate on a system of measurement and a medium of exchange.[12]

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[8] See Russell W. Cooper, Coordination Games: Complementaries and Macroeconomics (1999); Ullmann-Margalit, supra note 7, at 74–133; Steven Hetcher, Creating Safe Social Norms in a Dangerous World, 73 S. Cal. L. Rev. 1, 42–55 (1999); Robert Sugden, Conventions, *in* The New Palgrave Dictionary of Economics and the Law 453–60 (Peter Newman ed., 1998); Colin Camerer, Behavioral Game Theory: Experiments on Strategic Interaction, at ch. 7 (unpublished manuscript, on file with the Virginia Law Review Association). For a summary of the experimental literature on coordination games, see Jack Ochs, Coordination Problems, *in* The Handbook of Experimental Economics 195 (John H. Kagel & Alvin E. Roth eds., 1995).

[9] See David Hume, A Treatise of Human Nature 315 (David Fate Norton & Mary J. Norton eds., Oxford Univ. Press 2000) (1739).

[10] See Jean-Jacques Rousseau, A Discourse on the Origin and Foundation of Inequality Among Men, *in* The Social Contract and the Discourses 87 (G.D.H. Cole trans., David Campell Publishers 1993) (1755). His example gives rise to a coordination game known as the "stag hunt." See Sugden, supra note 8, at 457–58.

[11] See Hume, supra note 9, at 315; David Lewis, Convention: A Philosophical Study (1969).

[12] See Hume, supra note 9, at 490.

A final example—and perhaps the central metaphor in the coordination literature—is the meeting-place problem, where two people have a common interest in meeting each other but lack the ability to communicate about where to meet.[13] For concreteness, suppose that two people shopping together in a department store are accidentally separated. The two lost individuals share an interest in finding each other, yet they have not agreed in advance on a meeting place and they cannot now communicate with each other. The matrix in Figure 1 (adapted from David Lewis[14]) describes such a game involving two players and, for simplicity, three possible meeting places. One player—R (Row-chooser)—can play strategies $R1$, $R2$, or $R3$, which consist of going to places $P1$, $P2$, or $P3$, representing (say) the mall entrance of the store on the first, second, and third floors, respectively. The other player—C (Column-chooser)—can play strategies $C1$, $C2$, and $C3$, which consist of going to the same three places, respectively. The players choose their strategies simultaneously, not being able to observe what the other is doing. Each receives more utility from meeting (1) than from not meeting (0).[15] Each player therefore has an interest (equal in this example) in coordinating his or her action with that of the other player.

	$C1$	$C2$	$C3$
$R1$	1,1	0,0	0,0
$R2$	0,0	1,1	0,0
$R3$	0,0	0,0	1,1

FIGURE 1

The problem with coordination is captured by the fact that this game has multiple equilibria and there is no simple way of choosing between them. Obviously, R wants to coordinate by playing $R1$ (going to $P1$) if C plays $C1$ (goes to $P1$), $R2$ if C plays $C2$, and $R3$ if C plays $C3$. C wants to play $C1$ if R plays $R1$, $C2$ if R plays $R2$, and $C3$ if R plays $R3$. Together, these observations identify three pure-strategy *Nash equilibria*, outcomes in which no one player can gain

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[13] See Thomas C. Schelling, The Strategy of Conflict 54–55 (1963).
[14] See Lewis, supra note 11, at 9.
[15] The first number in each cell represents the utility of Row-chooser; the second states the utility of Column-chooser.

by changing his or her strategy: *R1/C1*, *R2/C2*, and *R3/C3*.[16] There are also *mixed-strategy* Nash equilibria, such as where *R* and *C* each have a one-third probability of going to each of the three places.

Solving cooperation problems requires a change in payoffs. Solving coordination problems, however, just requires the right kind of *expectations*. In the example, each player needs to *expect* the other to go to the same place. For example, if *R* expects *C* to go to *P1* and, likewise, *C* expects *R* to go to *P1*, then the two players will co-ordinate. Once the expectations are aligned, there is no difficulty "solving" the game and achieving what is the best outcome for both players.

What will suffice to create these expectations? Below, I will argue that various forms of third-party communication can, as an empirical matter, create the necessary expectations and solve the game. From a rational perspective, however, something close to "common knowledge" is required, although it is difficult in a short space to say precisely what. To see the problem, consider what is necessary to make *R* rationally expect that *C* will go to *P1*. Given the meeting place incentives, it may seem that *R* will not rationally expect to meet *C* at *P1* unless *R* believes that *C* expects to meet *R* there. The same is true for *C*. Therefore, it appears we need *second-order* expectations: *R* expects *C* to expect *R* to go to *P1* and, likewise, *C* expects *R* to expect *C* to go to *P1*. But the same logic would require third-order expectations to make the second-order expectations rational. For *R*, that means *R* expects *C* to expect *R* to go to *P1* because *R* expects *C* to expect *R* to expect *C* to go to *P1*. And so on. David Lewis defines the infinite set of beliefs as *common knowledge*.[17] Common knowledge of a fact *x* means that everyone in the relevant population believes *x*, believes that everyone believes *x*, believes that everyone believes that everyone believes *x*, and so on, *ad infinitum*.[18]

Something less than this strict form of common knowledge, however, should suffice to solve the game. We can relax the defini-

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[16] For example, *R1* is the best response *R* can make to *C1* and that same strategy—*C1*—is the best response *C* can make to *R1*. Thus, given *R1/C1*, neither player would want to switch strategies unilaterally. The same is true for *R2/C2* and *R3/C3*.

[17] See Lewis, supra note 11, at 52–60.

[18] See id.

tion at least to account for the fact that individuals cannot consciously reason through an infinite number of steps before solving a coordination problem. It should be sufficient that the individuals have the lower order expectation and some *reason to believe* that the higher order expectations exist, whether or not they actually believe they exist.[19] We may be able to relax the common knowledge requirement further, but in any event we need not fully resolve the matter to begin creating a focal point theory of expressive law.

B. Solving Coordination Games: Focal Points

What can produce the aligned expectations? One possibility is communication. The communication most frequently studied is that between the players in the game. When the parties can communicate, experiments show that their "cheap talk" facilitates coordination.[20] Suppose, however, the parties cannot communicate with each other, as is true when people are unexpectedly separated without having agreed in advance for such a contingency. One might think that individuals in this situation can solve the coordination problem only by chance. In our meeting place example, with three possible meeting places, that would mean the parties find each other only one-third of the time. The problem is severe when there is a very large number of places where the individuals could potentially meet. The odds of meeting seem vanishingly small.

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[19] One can have a reason to believe something but, because one hasn't thought about it, not actually have formed the belief. A standard example is arithmetic: One may have *reason to believe* that 48 times 24 equals 1152 before one actually believes it. One has a reason because one believes in a multiplication method that produces that result. But before one actually performs the calculation, one does not have an actual subjective belief. Thus, some external signal might give R and C reason to believe all the higher-order expectations, but R and C only reason to the first-order (or first few orders of) expectation. So we could define common knowledge by substituting "has reason to believe" for "believes" in every case it is used in the prior paragraph.

[20] In game theory, talk or communication is "cheap" when it is "costless, nonbinding, and nonverifiable." Douglas G. Baird, et al., Game Theory and the Law 303 (1994). Exactly how "cheap talk" facilitates coordination is a matter of some dispute. See Vincent Crawford, A Survey of Experiments on Communication via Cheap Talk, 78 J. Econ. Theory 286 (1998). But note that communication in the pure coordination game is not plagued by the incentive to lie that exists in cooperation problems like the prisoner's dilemma. If R and C want to meet and are indifferent to where they meet, neither has a reason to misrepresent his intentions.

One of the fundamental insights of Thomas Schelling's classic *The Strategy of Conflict*[21] is that, in exactly these sorts of situations, people manage to coordinate much better than chance alone would indicate. They do so by what he terms the "tacit coordination" that arises when parties attempt to imagine what the other is thinking about how to solve the problem.[22]

> It is likely that each will think of some obvious place to meet, so obvious that each will be sure that the other is sure that it is "obvious" to both of them. One does not simply predict where the other will go, since the other will go where he predicts the first to go, which is wherever the first predicts the second to predict the first to go, and so [on] ad infinitum. . . . What is necessary is to coordinate predictions, to read the same message in the common situation, to identify the one course of action that their expectations of each other can converge on. They must "mutually recognize" some unique signal that coordinates their expectations of each other.[23]

Specifically, Schelling proposes that, when the problem is selecting one means of coordinating among many, certain solutions stand out from the others as the sort that will attract the attention of both. He called these special solutions *focal points*:

> Most situations . . . provide some clue for coordinating behavior, some focal point for each person's expectation of what the other expects him to expect to be expected to do. Finding the key, or rather finding *a* key—any key that is mutually recognized as the key becomes *the* key—may depend on imagination more than on logic; it may depend on analogy, precedent, accidental arrangement, symmetry, aesthetic or geometric configuration, casuistic reasoning, and who the parties are and what they know about each other. Whimsy may send [two parties separated in a department store] to the "lost and found"; or logic may lead each to reflect and to expect the other to reflect on where they would have agreed to meet if they had had a prior agreement to cover the contingency. It is not being asserted that they will always find an obvious answer to the question; but the chances of

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[21] Schelling, supra note 13.
[22] Id. at 54.
[23] Id.

their doing so are ever so much greater than the bare logic of abstract random probabilities would ever suggest.[24]

Because focal points do not depend entirely on *a priori* reasoning, Schelling contends that "[t]his corner of game theory"—coordination—"is *inherently* dependent on empirical evidence."[25] Following his own advice, Schelling provides some (relatively informal) experimental data to support his claim that people coordinate more successfully in these situations than chance would indicate. For example, he asked people where and at what time of day they would meet someone in New York City, absent prior arrangement. Given the extremely high number of possible equilibria, random selection would produce a very low probability of coordination. Yet over half selected the same place—Grand Central Station—and almost all selected the same time—noon.[26] Similarly, Schelling asked people to imagine they were paratroopers who needed to meet another paratrooper knowing only that each landed somewhere in an area represented in a map given to each. When there was a unique feature on the map—a single bridge, crossroads, or house—the subjects generally coordinated by selecting that spot.[27]

Focal points matter to all coordination games, not just the meeting-place problem. For example, Schelling asked subjects to select "heads" or "tails" with the goal of matching one's partner's selection, a problem in which a random selection will match 50% of the time. Yet 86% selected "heads." When asked to name the same positive number as one's partner—where the potential equilibria

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[24] Id. at 57. For reasons discussed below, Schelling believed that focal points were of fundamental importance, not just to coordination games, but to larger issues of game theory. See infra notes 62–63 and accompanying text. Philosopher David Lewis uses the focal point idea in his analysis of conventions. His term is *salience*, by which he refers to the psychological prominence of certain coordination solutions. See Lewis, supra note 11, at 35–36.

[25] Schelling, supra note 13, at 98. Schelling states:

> [A] normative theory of games, a theory of strategy, depending on intellectual coordination, has a component that is inherently empirical; it depends on how people can coordinate their expectations. It depends therefore on skill and on context. The rational player must address himself to the empirical question of how, in the particular context of his own game, two rational players might achieve tacit coordination of choices, if he is to find in the game a basis for sharing an *a priori* expectation of the outcome with his partner.

Id. at 285.

[26] See id. at 55 n.1, 56.

[27] See id. at 54–55, 58.

are infinite and random matching would produce almost no coordination—40% of the subjects selected the same number: 1. Schelling posed a similarly daunting question by asking the subjects to name an amount of money with the (imagined) prospect of winning that amount if it matched the partner's selection. Yet 29% coordinated at the same number, though interestingly, a much larger one than in the prior game: 1,000,000. Not surprisingly, more formal experiments have confirmed the basic point that people are able to coordinate by identifying certain solutions as ones that others will recognize as being particularly prominent.[28]

The experiments confirm what is familiar: Absent communication, individuals often coordinate at points that, in some sense, "stick out" from the others. Sometimes there is a logic to deciding what solution has this unique property. But often the uniqueness obviously depends on the experiences and contingent associations of the individuals involved. In the prior examples, "heads" is not logically prior to "tails" and Grand Central Station is not logically prior to the Empire State Building (or any other place in New York). But people are often able to predict, if they know enough about the other people and their experiences, what those others will perceive as prominent or salient. The people in Schelling's original experiment, for example, were all living in New Haven, and therefore imagined that Grand Central Station was the most prominent place in New York common to the entire group.[29] We can now see why Schelling said that success at coordinating depends on contextual factors, on the "symbolic or connotative characteristics that transcend the mathematical structure of the

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[28] See Michael Bacharach & Michele Bernasconi, The Variable Frame Theory of Focal Points: An Experimental Study, 19 Games & Econ. Behav. 1, 37–39 (1997); Judith Mehta et al., An Experimental Investigation of Focal Points in Coordination and Bargaining: Some Preliminary Results, *in* Decision Making Under Risk and Uncertainty: New Models and Empirical Findings 211, 216 (John Geweke ed., 1992) [hereinafter Mehta et al., Experimental Investigation]; Judith Mehta, et al., Focal Points in Pure Coordination Games: An Experimental Investigation, 36 Theory and Decision 163 (1994); Judith Mehta et al., The Nature of Salience: An Experimental Investigation of Pure Coordination Games, 84 Am. Econ. Rev. 658, 672 (1994) [hereinafter Mehta et al., The Nature of Salience].

[29] Similarly, heads is prior to tails in experience, if only the experience that people usually say "heads or tails" rather than "tails or heads." Schelling gives another example: "Ordinary folk lost on a plane circular area may naturally go to the center to meet each other; but only one versed in mathematics would 'naturally' expect to meet his partner at the center of gravity of an irregularly shaped area." Schelling, supra note 13, at 58.

game"[30] and are often excluded from the theorist's description of the game.[31]

One of the recent experiments illuminates the reasoning process involved.[32] Researchers asked the subjects for a series of responses, including the name of a flower.[33] They told 88 subjects that they should answer however they wished and that their payoff would not depend on the answers; another 90 were told that their payoff for the experiment would rise if they matched the selection of an anonymous partner who was given the same goal. The most common answer to both groups was "rose," but the number giving that answer increased from 35.2% in the first group to 66.7% in the second group.[34] These results show that conscious reasoning is involved in identifying a focal point. The first percentage shows that the subjects' experiences and associations made "rose" more likely to "pop" into their head than any other flower, but still less likely than not. The second percentage shows that, whatever pops into one's head, people can reason about what answers others are likely to give.[35] Many subjects who think of a different flower nonetheless realize that most others will think of a rose, and because most others will recognize "rose" as the most likely response, there is a reason to switch to that answer rather than to expect others to switch to something else. Reasoning about the focal point substantially increases coordination.

There is a difficult issue lurking here: Even after one takes account of contextual factors, can rationality fully explain why some solutions "stick out" from others? Or, alternatively, are some points prominent or salient only because of certain irrational fea-

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[30] Id. at 96.

[31] Dixit and Skeath note that the messiness and uncertainty of focal points still bother many game theorists "who would prefer the outcome to depend only on an abstract specification of a game." Avinash Dixit & Susan Skeath, Games of Strategy 213 (1999). They disagree: "We think that historical and cultural contexts are just as important to a game as its purely mathematical description, and if such context helps in selecting a unique outcome from multiple Nash equilibria, that is all to the better." Id.

[32] See Mehta et al., The Nature of Salience, supra note 28.

[33] See id. at 662–63.

[34] See id. at 667.

[35] Although both groups outperformed random selection, in 19 of 20 questions asked, including the "flower" question, the group attempting to coordinate matched each others' answers significantly more often than the group not consciously attempting to coordinate. See id. at 667–69.

tures of human psychology? Schelling thought that success at coordinating may depend "more on imagination than on logic, more on poetry or humour than on mathematics."[36] On the other hand, some theorists have attempted to reduce focal points to pure rationality, thereby allowing a formal model of the focal point influence on equilibrium selection.[37] For my purposes, it is not necessary to resolve this issue. Even if what makes a solution focal is not fully rational, it is sufficient for my claim that we can predict and manipulate what individuals will recognize as focal. Experimental studies and real world observation provide great insight into focal points, and tend to support my claim that law, like other third-party communication, makes certain solutions focal. In the end, it is an empirical claim.[38]

C. A First Pass at an Expressive Theory: Using Law to Create Focal Points in Pure Coordination Games

Strangely, there has been no significant effort to apply the focal point idea systematically to law. My claim is that law is one means of creating a focal point, and therefore, one means of achieving coordination. Even without threatening sanctions, the state can focus attention on one of several equilibrium solutions to a coordination game by commanding or merely recommending that individuals coordinate around that solution. Any third-party expression may facilitate coordination in this manner, but law has several features that make it particularly suitable for this purpose.

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[36] Schelling, supra note 13, at 97. See also Sanjeev Goyal & Maarten Janssen, Can We Rationally Learn to Coordinate?, 40 Theory & Decision 29 (1996) (arguing that rationality and common knowledge are not sufficient to explain how individuals manage to coordinate behavior in repeated games); Robert Sugden, The Role of Inductive Reasoning in the Evolution of Conventions, 17 Law & Phil. 377 (1998) (same).

[37] See Bacharach & Bernasconi, supra note 28, at 1–2; Andrew M. Colman, Salience and Focusing in Pure Coordination Games, 4 J. Econ. Methodology 61, 61 (1997); Robert Sugden, A Theory of Focal Points, 105 Econ. J. 533, 534–35, 550 (1995). Of course, I read Sugden, supra note 36, to show that he does not believe his prior paper succeeds in fully explaining the perception of a focal point via rationality.

[38] One may wonder whether I am giving a "rational choice" account of the expressive function. I believe I am because, as the "rose" experiments show, individuals are rationally exploiting features of their environment, even if the perceptions of those features are not themselves determined solely by rationality.

1. Creating a Focal Point by Third-Party Communication

Third-party communication is a potential means of creating a focal point for coordination. Consider again the meeting-place problem where R and C are accidentally separated in a department store. Schelling notes that one way of providing a focal point would be a conspicuous sign stating, "The management suggests that all persons who become separated meet each other at the information booth in the center of the ground floor."[39] It is easy to imagine this sign would solve the coordination problem even though R and C have not agreed in advance to follow the suggestions of any signs they see. Indeed, a third-party communication might work even though it is not intended by the speaker as a means of coordinating. Suppose R and C are separated, not in a department store, but in a town. Suppose each also knows that the other reads the town's daily paper each morning and, on the day in which the meeting problem occurs, each observes a front page story about place number two—$P2$ (and no story about $P1$ or $P3$). We can easily imagine that this fact would cause R and C to go to $P2$, if not with certainty, then at least with more than the random probability of one-third.

Third-party communication can work because R and C each have common knowledge (in at least the weak sense I described above) that they have received one and only one message from a third party that refers to one and only one of the potential solutions. In the absence of some other factor that highlights a different solution, the third-party message provides a focal point that will tend to induce coordination on the solution it mentions. Note also that there is no additional requirement about the third party. R and C need not believe the newspaper possesses any particular good qualities, including "moral authority," nor believe in the truth or "legitimacy" of the newspaper's story on $P2$. As Schelling notes, "Beggars cannot be choosers about the source of their signal, or about its attractiveness compared with others that they can only wish were as conspicuous."[40]

Two recent experiments confirm Schelling's intuition. In one, experimenters themselves provided the message, suggesting that

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[39] Schelling, supra note 13, at 66.
[40] Id.

the players coordinate at a particular equilibrium.[41] In a two-person pure coordination game with three possible equilibria (and no pay-off-dominant solution), the experimenters' message raised the level of coordination from 40% to 98%.[42] In a second experiment, experimenters allowed one of the parties in a four-person pure coordination game to signal separately to each other player a choice that he might then make in the game.[43] When this randomly selected "leader" had the same incentives as the other players, his "cheap talk" signal raised coordination levels from 17.8% to 78.9%.[44]

In these experiments, the players each could take one of three actions. There is a potential problem in extending these studies to coordination games with only two Nash equilibria.[45] Suppose a meeting-place problem in which *P1* and *P2* are the only options. If the newspaper mentions *P2* on the front page, that would seem to make *P2* focal; it is the only meeting place that is mentioned. But it also arguably makes *P1* focal because it is the only meeting place that is *not* mentioned. This problem does not arise when there is more than one meeting place not mentioned, because, in that case, the newspaper story can only make the mentioned meeting place salient. But, in the case of two Nash equilibria, it is not clear why rationality should dictate choosing the one mentioned place over the one place not mentioned.

As previously stated, however, I am not concerned with using rationality alone to explain what is focal. Perhaps there is a psychological explanation for why mentioned items are more salient than those not mentioned. What matters is the empirical claim that *mentioning* an item makes that item more than what is omitted, even if there are only two items.[46] A simple example

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[41] See John B. Van Huyck et al., Credible Assignments in Coordination Games, 4 Games & Econ. Behav. 606 (1992).

[42] See id. at 614–15.

[43] See Rick K. Wilson & Carl M. Rhodes, Leadership and Credibility in *N*-Person Coordination Games, 41 J. Conflict Resol. 767, 778 (1997).

[44] See id. at 785.

[45] There is no problem in extending the example to games with more than three equilibria—in this example, meeting places. Indeed, the more possible meeting places there are, the more significance *R* and *C* are likely to attach to the fact that a third-party mentions only one of them. Of course, with fewer than two equilibria, the coordination problem disappears.

[46] Frequently, there will be a rational explanation: Individuals may find something salient because it seems abnormal, given their judgment about what constitutes the

demonstrates the point nicely. Suppose R sits in a room and is asked to choose between the colors red and blue with the goal of selecting the same color C chooses in another room at the same time. Immediately before R and C are to make their selections, each is told that they are each allowed to watch on a monitor a single event that the other will see as well. The event is a person spinning a pointer in which the arrow will land with a 50% probability on a space colored blue and a 50% probability on a space colored red. The arrow winds up pointing at blue. What will the players do? As a logical matter, the selection of blue stands out no more than the nonselection of red. Nonetheless, most people's intuition (which is strong evidence of what most people would do) is to select blue. Whether from something in the structure of human psychology or a rationally explicable meta-convention,[47] most people view something "pointed to" by words or symbols, such as an arrow, as being more primary than something not pointed to. For my purposes, it is sufficient that this is a fact, regardless of its cause.

2. Legal Rules as Focal Points

In expressive law theories, there is a strong temptation to focus immediately on some kind of moral theory to explain how the law creates compliance. But the moral authority or legitimacy of law is not necessary to create a focal point. If the above analysis is correct, then legal expression can, *like other third-party communication*, provide a focal point for coordinating individual action. Because the "mentioned" solution tends to be the most salient, when the legal rule is sufficiently publicized, it provides salience to one kind of behavior. Law can thereby work expressively even if people do not believe they have a moral obligation to obey it.

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normal case. For example, if the parties believe that the newspaper rarely publishes photographs of local places on the front page, then what stands out as nonstandard is the photographed place. But if the newspaper almost always mentions *P1* and *P2* on the front page, then it would be salient that one these places is not mentioned. Even if R and C are unaware of any baseline of newspaper behavior because both are new to the town, they may rely on a broader baseline to regard a place being mentioned as more unusual than its being omitted. So, absent information to the contrary, the fact that something is mentioned is more salient than its not being mentioned.

[47] People might develop an affinity for solving coordination games by adopting "meta-conventions" such as, when there is no other basis for selecting a strategy, to pick the one most recently "mentioned" or "pointed to," explicitly or implicitly.

To illustrate, consider a coordination game involving traffic rules. The obvious example is the decision regarding what side of the road to drive on, left or right. To avoid head-on collisions, each driver prefers to drive on the left if the others drive on the left and to drive on the right if the others drive on the right. This presents a pure coordination problem if we assume the drivers have no preference for a side of the road other than this preference to drive on the same side as others (of course, "same" here means that individuals driving *towards* one another are on opposite sides).

Figure 2 illustrates the two-person version of the game. *D1* and *D2* can each play strategies *R* or *L*, driving on the right or left, respectively. Each driver receives more expected utility from driving on the same side of the road and avoiding the risk of head-on collisions (0) than from driving on different sides (-20).[48] The two Nash equilibria are *R/R* and *L/L* (where both drivers choose *R* or both choose *L*); at each point, each driver would lose from a unilateral change in strategy. The coordination problem is perhaps trivial if the drivers communicate and agree. But assume they cannot communicate (as will be likely when the game involves many drivers). Nothing in the context of the situation makes one solution salient. Quite possibly the drivers will fail to coordinate, at least in the first instance.

	R	*L*
R	0, 0	-20,-20
L	-20,-20	0, 0

FIGURE 2

In this context, a third-party message can provide a focal point that facilitates coordination. Suppose the state issues a proclamation that says, "Drivers stay on the left." The state publicizes the proclamation in some manner such as mass media ads, posted signs, or "town criers" who yell the proclamation from hilltops. Assume that this state never enforces "proclamations" and that it is

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[48] The interests would still be common even if they were not equal as they are in this example. Thus, there would still be a pure coordination game if *D2* had a sturdier car than *D1*, so that *R/L* or *L/R* produced a payoff for *D2* of only -5 instead of -20. But for simplicity, I generally use equal payoffs.

well known they are only precatory. Therefore, no one believes that the state will punish their driving on the right or reward their driving on the left. Nonetheless, governmental expression may immediately solve the coordination problem and create a convention of driving on the left. If there is no other basis for preferring left or right, the message makes one strategy stand out from the other. Each individual selects the salient strategy because they expect the other to do the same and each has an interest in doing what the other does. Because there are only two strategies, this claim assumes that a mentioned option will be more salient than an unmentioned one, and for the reasons stated above, this is probably true. Once the proclamation makes driving on the left focal, self-interest causes individuals to drive on the left.

3. The Comparative Advantage of Legal Expression: Publicity, Uniqueness, and the Reputation of Government Officials

So far, the analysis shows only that law can work like any other form of third-party expression to create a focal point. I will not provide a general theory of when state expression, as opposed to some other third-party expression, is necessary. But there are three reasons to suppose that legal expression can *sometimes* facilitate coordination when other third-party communication cannot. The publicity frequently accorded law means it is more likely to create the expectations necessary for coordination. Further, various features of law create a uniqueness to legal expression that frequently causes its message to "stand out" against the background of public discourse. Finally, because the publicity and uniqueness of law gives government officials the ability to create a focal point and influence behavior, these officials may develop a reputation for correctly "predicting" future behavior. The claim is not that law is invariably better than private expression at facilitating coordination, but only that it often is.

The first advantage to legal expression is *publicity*. A third-party communication can create a focal point only if there is common knowledge (or something close to it) about the message. Many communications will fail this requirement. Of course, nothing guarantees that law will be sufficiently publicized to create this

common knowledge. The public often remains ignorant or misinformed of the content of a law.[49] But law is often well-publicized and more likely to produce the necessary common knowledge than anything else. Laws achieve notoriety in several ways. Sometimes the state advertises its laws.[50] Indeed, if publicity solves a coordination problem, we may think of it as a public good that will, absent government provision, be undersupplied. Second, private media publicize law. In a democracy, the struggle over new legislation and its ultimate resolution is often newsworthy. Finally, the fact that law is sometimes enforced by sanctions gives individuals a greater reason to learn of it than of other third-party messages. Law almost always has a formal sanction and usually has a positive expected sanction. This fact creates an incentive for individuals to discover what the expected sanction is.[51]

The second possible advantage of law, in some situations, is *uniqueness*. Anything that makes law stand out against other competing messages, by that reason alone makes it qualitatively more "emphatic" than conflicting messages. This view is similar to the claim that Robert Cooter makes when he discusses the internalized duty to obey law[52] and the claim that Paul Robinson and John Darley make when they discuss the "moral credibility" of law.[53] Although I agree that these factors are important, I want to suggest that law can speak more emphatically even if it has no more legitimacy or moral authority than competing messages.

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[49] See, e.g., Robert C. Ellickson, Order Without Law: How Neighbors Settle Disputes 48–51, 70–71 (1991); Pauline T. Kim, Norms, Learning, and Law: Exploring the Influences on Workers' Legal Knowledge, 1999 U. Ill. L. Rev. 447, 447–49 (1999); Martha Williams & Jay Hall, Knowledge of the Law in Texas: Socioeconomic and Ethnic Differences, 7 L. & Soc'y Rev. 99, 99–100 (1972).

[50] The classic cases are highway signs that announce "Keep Right," "Speed Limit 55," "No Littering," and so on. Government also publicizes legal rules in public service announcements and on official forms, and by compelling private parties to provide publicity (such as requiring sellers of alcohol or tobacco to post minimum ages for purchase).

[51] Of course, I want to separate the effects law produces by its sanctions from other effects of law. But it is not necessary to enforce a *particular* law to generate an interest in learning of its content. It is difficult to discover which laws are unenforced without first finding out what the law is. Because people don't know about sanctions until they look, they tend to pay some attention to the content of legal expression, particularly criminal law, independent of actual sanctions.

[52] See Cooter, Good Laws, supra note 1, at 39–46.

[53] See Robinson & Darley, supra note 1, at 477–88.

To illustrate, suppose the coordination problem is the need for a standard unit of measurement. Everyone would prefer to use the standard that everyone else uses. Suppose that, like the meeting-place problem, the alternatives have been narrowed to three: the X system, the Y system, and the Z system. Finally, suppose that there are a large number of messages favoring each system, and, though everyone knows there are a large number of messages, there is no common knowledge about the exact number of messages. Given imperfect information and bounded rationality, no one is sure which system is endorsed most frequently, or whether others know which system is endorsed most frequently. In this situation, the mere publicity of a legal proclamation stating "Use the X system" is *not* sufficient to make that system the focal point. Because there is already (a) common knowledge that each system is endorsed by a large number of messages and (b) uncertainty about what the exact number of endorsements of each system is, the addition of one more message will probably have no effect. The result seems to be that the individuals will randomly select among the three systems.

Here is where the characteristics of the message, particularly those associated with the messenger, could matter. Anything that makes a speaker unique may make its message "stick out" from the rest; other things equal, the unique message creates the focal point. With law, there is a temptation to focus immediately on moral differences between legal and nonlegal expression. If law has unique "legitimacy" or "moral credibility," then that characteristic will certainly matter to the focal point theory. But the characteristics do *not* matter because people will believe that the measuring system offered by a "legitimate" speaker was *better* than a measuring system offered by an "illegitimate" speaker. Everyone may realize that any measurement system is as good as any other, as long as everyone uses the same one. Instead, the characteristics associated with legitimacy matter, on this account, only to the extent they distinguish one message from the rest. If many religious leaders conflict in endorsing systems X, Y, and Z, and only one state proclamation endorses system Z, the law may create a focal point of Z

even though it is perceived to be no more morally authoritative than the religious leaders.[54]

More generally, law may be perceived as unique for reasons related, but only loosely, to the state's moral authority. For example, most individuals perceive a "public/private" distinction in the actions of governmental and nongovernmental agents. That distinction may be based upon the state retaining some minimum of perceived legitimacy. But as long as that exists, and if the state speaks with one "voice," then a legal expression may be unique even though it is not perceived as legitimate, merely because it is the only "public" message relevant to a particular problem. As another example, sanctions not only give law the publicity advantage discussed above, they may make law unique compared to messages that do not carry sanctions. In this case, the merely formal threat of sanctions, even if it is perceived as carrying an expected cost of zero, may distinguish legal expression. Thus, law is perceived as being "different" from other private, nonbinding speech; the peculiarity of law gives it a special ability to create focal points.

The final advantage law may enjoy in creating focal points is that the government officials who articulate legal rules—mostly judges and legislators—may develop a reputation for correctly predicting behavioral change. This is the point made separately by Cooter and Eric Posner.[55] If an individual can predict future behavior, then his statement that everyone is moving toward a particular equilibrium gives everyone an incentive to play the strategy associated with that equilibrium (which is the best response to what others do at that outcome). The ability of public officials to make such predictions would appear, however, to be highly uncertain. Indeed, Posner's theory concerns the U.S. Supreme Court, but Justices seem to be particularly ill-trained to make predictions of social change.

The publicity and uniqueness of law, however, may explain how judges and legislators develop such a reputation. Because the law is publicized and unique, it creates focal points. Those who articulate law and its pronouncements therefore *appear* to predict behavioral

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[54] Conversely, if several local governments conflict in endorsing systems X, Y, and Z, and only one religious leader endorses system Z, that leader's message may create a focal point of Z.

[55] See Cooter, Good Laws, supra note 1, at 23; Posner, Inefficient Norms, supra note 3.

change but are actually *causing* such change. At time period one, certain legal decisionmakers enjoy no reputation for predicting behavior but the publicity and uniqueness of their announcements nonetheless create a focal point and affect behavior expressively. At time period two, people realize that behavior tends to follow what these legal decisionmakers proclaim. Now, in addition to wielding the power to create focal points via public and unique proclamations, they enjoy a *reputation* for doing so, which enhances their expressive powers. The reputation gives people a greater reason to seek out the expressions of judges and legislators, which itself makes their expressions more visible and more likely to be perceived as unique.

II. EXPANDING THE FOCAL POINT MODEL:
LEGAL RULES IN GAMES OF CONFLICT

That law can have this kind of expressive effect is crucial. Yet the insight that the state can succeed in designating one side of the road for driving without imposing sanctions is not novel or particularly important. The question is whether the analysis suggests a larger role for the focal-point function of law. Pure coordination games, like the side-of-the-road decision, are rare. If the government's focal-point role is limited to such cases, it is of minor practical significance.

To the contrary, however, the law's effect on coordination of behavior has much broader application. Focal points continue to matter even when the interaction is not purely one of coordination; they matter to any game in which the players have *some* common interest, even if they also have conflicting interests. This Part will first review some of these "mixed-motive" games. Second, I will show that, because focal points can affect play in these mixed-motive games, the law's ability to create focal points matters to a broad set of social interactions.

A. Focal Points in Mixed-Motive and Bargaining Games

Schelling begins his analysis of focal points in pure coordination games but his main concern is to demonstrate their effect in other games, including those involving conflict. Consider two common

examples: the "Battle of the Sexes" game and the "Hawk-Dove" game.

Figure 3 represents the two-person "Battle of the Sexes" game.[56] As a concrete example, imagine that the strategies are two different locations where lost players can meet, each player prefers meeting to not meeting, but each prefers meeting at a different place. (Or this could be the side-of-the-road problem where the different drivers each prefer driving on a different side of the road, but each has a stronger preference for coordinating on the same side.) Given the payoffs shown, there are two pure-strategy Nash equilibria, *R1/C1* and *R2/C2*. At these points, neither player can improve her situation by a unilateral change in strategy. There is conflict because *R* prefers the *R1/C1* outcome but *C* prefers the *R2/C2* outcome. The parties nonetheless have a common interest in avoiding the *R1/C2* and *R2/C1* outcomes, where each is worse off than in either Nash equilibrium.

	C1	*C2*
R1	2,1	0,0
R2	0,0	1,2

FIGURE 3

Focal points continue to matter. To explain why, consider first that nothing favors a particular pure Nash equilibrium. We might therefore expect the players to use a "mixed" strategy of playing each pure strategy—*R1* or *R2*, *C1* or *C2*—with some probability. In the mixed-strategy Nash equilibrium, *R* plays *R1* with a probability of 2/3 and *R2* with a probability 1/3; *C* plays *C1* with a probability of 1/3 and *C2* with a probability of 2/3.[57] The expected payoff for

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[56] The game gets its name from the first, rather antiquated, scenario used to illustrate the payoff structure: a husband and wife who each prefer spending the evening attending the same event, but the husband prefers boxing to the opera, while the wife prefers the opera to boxing. For a brief discussion of the sexist imagery in many game theory descriptions, see Jennifer Gerarda Brown & Ian Ayres, Economic Rationales for Mediation, 80 Va. L. Rev. 323, 373 n.124 (1994).

[57] The pair of strategies *R* and *C* employ are in equilibrium only if neither would have a reason to change unilaterally. If *R* plays *R1* and *R2* with the respective probabilities of 2/3 and 1/3, then *C* has the same expected return from playing *C1* (2/3 chance of coordinating times payoff of 1) or *C2* (1/3 chance of coordinating times payoff of 2) or any mixed strategy of *C1* and *C2*. Similarly, if *C* plays *C1* and *C2* with the respective probabilities of 1/3 and 2/3, then *R* has the same expected return from playing *R1*, *R2*, or any mix of *R1* and *R2*. Thus, when both *R* and *C* play their

each player is 2/3.[58] Yet if the players can meet at one location with certainty, each does better, gaining a payoff of at least 1. Interestingly, in this case, if the parties communicated, we cannot be certain they would reach an agreement because each would try to convince the other they were committed to going to their favored place. But imagine there is no communication. Both players can benefit if some event makes focal or salient one of the two pure-strategy Nash equilibria.

Imagine that on the day this problem arises, the daily newspaper (that each knows each reads) mentions *P2* (the place represented by *R2/C2*) and not *P1* on its front page. As before, based on a psychological fact or a meta-convention about coordinating at "mentioned" points, this causes the players to each believe the other will go to *P2*. Now it is in both player's interests to go to *P2*. Even *R* is better off with a payoff of 1 at *P2* than 0 at *P1*. This result also follows on the weaker condition that the third-party communication makes *R* and *C* each believe the other is now *more likely* to go to *P2* than to *P1*. Thus, even within a game with conflicting interests, there may be some common interests in coordinating and a focal point may facilitate this coordination to the benefit of both parties.

A second mixed-motive game—one that will serve as the basis for much subsequent analysis—is alternatively called "Chicken" or "Hawk-Dove." Here, the level of conflict between the parties is greater than the Battle of the Sexes game. Figure 4 provides an illustration. Each player chooses whether to play an aggressive "Hawk" strategy or a submissive "Dove" strategy. The most desirable outcome comes from playing Hawk against Dove (here providing a utility of 2), followed by playing Dove against Dove (1), playing Dove against Hawk (0), and playing Hawk against Hawk (-2).[59]

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strategies with the specified probabilities of 2/3 and 1/3 and 1/3 and 2/3, neither has a reason to change strategies.

[58] *R*'s expected return is the sum of four products, each product being the probability of an outcome times the payoff he gets for that outcome. The probability of an outcome is the probability *R* and *C* will play the necessary strategies. Thus, *R*'s expected return is (a) 2/3 times 1/3 times 2, plus (b) 2/3 times 2/3 times 0, plus (c) 1/3 times 2/3 times 1, plus (d) 1/3 times 1/3 times 0. The sum is 2/3. The same is true for *C*.

[59] Calling the game "Chicken" refers to the original illustration of a supposedly real game between (presumably male) teenagers, where they would drive their cars toward each other and the one that did not swerve "won" the game. If only one swerved, he lost "face" but if neither swerved, the outcome for each was disastrous.

	Dove	Hawk
Dove	1,1	0, 2
Hawk	2,0	-2,-2

FIGURE 4

The game is a general way of modeling any situation where an individual chooses between an aggressive or submissive strategy that has the above ranking of outcomes. Robert Sugden uses the game to model disputes over a valuable resource—firewood—between two players in a "state of nature" who are equally able to fight.[60] If Hawk is played against Dove, the Hawk gets the firewood without a fight. If Dove is played against Dove, they divide the firewood equally (or randomly allocate it among themselves). If Hawk is played against Hawk, there is a fight, the winner gets the firewood, but the expected value of the fight for both players is negative; each player is equally—50%—likely to win but fighting costs more than 50% of the value of the firewood.

In this game, the divergence of interests is sharp. Each prefers to play Hawk to the other's Dove. But the parties still share an interest in avoiding a Hawk/Hawk outcome. Here too, focal points matter. The game has two pure-strategy Nash equilibria: Hawk/Dove and Dove/Hawk.[61] If nothing makes one equilibrium "stick out," game theory provides scant basis for predicting which equilibrium will be played. The players might select a mixed strategy, selecting each pure strategy with some probability, where the two probabilities sum to one. But if something in the context of the situation makes one of these equilibria salient, both players would have a reason to play the strategy that produces that equilibrium. Though neither player wants to play Dove to the other's Hawk, a player prefers playing Dove if he expects the other to play Hawk. Thus, anything that makes the other's Hawk strategy focal gives one a reason to play Dove. I will illustrate this point more fully below.

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[60] See Robert Sugden, The Economics of Rights, Co-operation, and Welfare 58–62 (1986). The following discussion of the Hawk-Dove game is based on Sugden's analysis. Sugden also uses two other mixed-motive games—"War of Attrition" and "Division"—to discuss the convention of property. See id. at 62–78.

[61] Given either of these outcomes, neither player would gain by unilaterally changing strategies.

Schelling used the term "tacit" agreement to refer to the coordination outcome in games without communication.[62] The final step in the case for the importance of focal points is that they remain important even when communication and bargaining are possible. Indeed, Schelling's interest in tacit focal point solutions to pure coordination games was based on the belief that they were a useful benchmark for understanding bargaining games.[63] The reason is that whenever parties bargain, each side considers the other's offer against the background of what will happen if no agreement is struck. In many games, the tacit solution describes what will happen without an agreement. For example, in the above Battle of the Sexes game, each player might insist in bargaining on his preferred meeting place. But what if at the beginning of the bargaining, both sides recognize that one equilibrium—one meeting place—is focal? That fact may give the proponent of that site a decisive advantage in bargaining. He knows that refusing to bargain will achieve his end. The other player can, of course, insist that he will not go to the focal point meeting place, just as the first player will insist that he will. In the end, however, what makes one threat more credible is whatever makes the solution it insists upon the focal one. Experimental evidence supports this claim.[64]

B. A Second Pass at an Expressive Theory: Using Law to Create Focal Points in Mixed-Motive Games

As with pure coordination games, third-party communication can create a focal point in mixed-motive games. Schelling gives a number of examples where third-party communication, intended for this purpose, produces coordination:

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[62] See Schelling, supra note 13, at 69.
[63] See id. at 53–54.
[64] See Ken Binmore, et al., Focal Points and Bargaining, 22 Int'l J. Game Theory 381, 384 (1993) (finding that even when the players knew that initial bargaining was against a computer, the interactions created a focal point for later bargaining with other subjects); Mehta et al., Experimental Investigation, supra note 28, at 214–16 (finding that a random distribution of "aces" dealt to the players and said to collectively represent ten pounds, though irrelevant to standard analysis, significantly affected bargaining distribution); Alvin E. Roth, Toward a Focal-Point Theory of Bargaining, in Game-Theoretic Models of Bargaining 259 (Alvin E. Roth ed., 1985); Alvin E. Roth & J. Keith Murnighan, The Role of Information in Bargaining: An Experimental Study, 50 Econometrica 1123, 1140–41 (1982).

> The bystander who jumps into an intersection and begins to di-
> rect traffic at an impromptu traffic jam is conceded the power
> to discriminate among cars by being able to offer a sufficient in-
> crease in efficiency to benefit even the cars most discriminated
> against; his directions have only the power of suggestion, but
> coordination requires the common acceptance of some source
> of suggestion. Similarly, the participants of a square dance may
> all be thoroughly dissatisfied with the particular dances being
> called, but as long as the caller has the microphone, nobody can
> dance anything else. The white line down the center of the road
> is a mediator, and very likely it can err substantially toward one
> side or the other before the disadvantaged side finds advantage
> in denying its authority.[65]

In each of these situations, one player prefers to coordinate at
some equilibrium other than the one the third party selects. That is
the conflict that makes the game mixed motive. But the desire to
avoid a costly coordination failure is sufficient to make that player
play the salient strategy, which is the one named by the third party.

We can see this same process at work in one of Schelling's ex-
periments. In the scenario he describes to the subjects, one subject
A has lost $16 in cash and another subject *B* has found it.[66] They
are told (i) that if they cannot agree to a division of the money, it
will be forfeited to "the house" and each will receive $0, and (ii)
that after some fruitless bargaining, the house orders that each pri-
vately write down the amount they insist upon, as their final
opportunity to coordinate on a division.[67] There are multiple
equilibria of two amounts adding to $16 and each player prefers
outcomes in which he gets more to outcomes in which he gets less.
The twist is that the players are also told (iii) that immediately be-
fore writing down a number, a "well known and respected
mediator" proposes to each player some "fair" division: $11 for *A*
and $5 for *B*.[68] All of Schelling's subjects accepted the mediator's
proposal.[69] Apparently, because nothing else made one solution sa-

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[65] Schelling, supra note 13, at 144.
[66] See id. at 62–63.
[67] See id.
[68] Id.
[69] See id. at 63 n.4. See also id. at 68 ("[M]ediators often display a power to
precipitate agreement and a power to determine the terms of agreement; their
proposals often seem to be accepted less by reason of their inherent fairness or
reasonableness than by a kind of resignation by both participants.").

lient, the mediator's communication was sufficient. More recent experimental evidence further supports this finding.[70]

My claim is that law works to solve coordination problems in the same way that these third parties work. The law can direct behavior much like a bystander directs traffic. In particular, the state has a focal power to *adjudicate* disputes between pairs of individuals and to *regulate* behavior among all individuals. In each case, the law works by changing expectations in a manner that is independent of the threat to impose sanctions.

1. The Expressive Power of Adjudication

Begin with the "bystander" example. The traffic problem the bystander solves is a Chicken game in almost the classic sense: Two cars edge into an intersection and each would prefer the other to stop (especially if they expect a long line of traffic to follow). *What exactly does the bystander do to solve this situation?* Physically, let's say he holds up one palm towards one car to indicate "hold" and uses his other hand to "wave on" the other car. Why does this work? Not because the drivers fear that the bystander will impose some sanctions on them for failing to accede to his signals. Nor do the drivers need to perceive that the bystander has some "moral authority" that makes his decisions "legitimate." Both factors may cause people to obey a police officer who directs traffic.[71] But we expect that most drivers will accede to a mere bystander even though he was not selected by any "fair" process, nor is he known to use a "fair" means of selecting who goes first. His actions work

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[70] See Vau Huyck et al., supra note 41, at 616–17. The experiment described there used a two-party game with three equilibria in which the payoffs were 7,3; 5,5; and 3,7. The subjects were assigned the role of the "row" or "column" player and played the game six times against randomly selected subjects. When the experimenter/arbiter selected one of the unequal equilibria (the same announced in advance for all six repetitions), a significant number of players switched from the equal equilibria to the selected one. More than half, however, ignored the arbiter's selection and stuck with the equal equilibria. But when the arbiter alternated the selection of unequal equilibria for the six games—letting row and column players each take three turns at receiving the higher amount—all the players eventually settled on playing the arbiter's selection. See id. at 620–21.

[71] More generally, a shared morality can, like any shared beliefs, create a focal point. If it is common knowledge that people tend to believe a certain outcome is normatively just, then we may predict that the player who "deserves," on this theory, to play Hawk will play Hawk. Even a player who does not share this morality will play Dove when he believes the other player will rely on the morality in deciding how to act.

because they make one equilibrium focal—the one in which the "waved on" driver plays Hawk and the "held" driver plays Dove. Because the driver told to "hold" believes that the other driver is more likely to play Hawk, he is more likely to play Dove. Because the driver "waved on" believes that the other driver is more likely to play Dove, he is more likely to play Hawk.

Now consider adjudication. The conventional hypothesis is that a judge's power to resolve a case depends on sanctions, specifically, the sanctions that enforce a legal judgment. The traffic example and the mediator experiment reveal, however, the expressive power of adjudication. Just like the bystander and the mediator, the judge can affect the outcome by affecting the expectations of the parties. The change in expectations occurs merely because the judge's communication makes one equilibrium solution salient and focal.

This possibility is significant because legal disputes often take the form of a Hawk-Dove game. To see this, assume that two parties have a dispute—over incompatible claims to property, a breach of promise, child custody, or compensation for accidental injury, for example—and each can either "give in" to the other's demands (Dove) or stand ready to "fight" (Hawk). Their interaction takes the Hawk-Dove form and the parties rank the resulting outcomes as follows: (1) play Hawk against Dove (getting one's way in the dispute); (2) play Dove against Dove (compromising); (3) play Dove against Hawk (letting the other party get his way); and (4) play Hawk against Hawk (fighting). Figure 4 may then be taken to represent many disputes.

Let me be clear what "fighting" means in these circumstances. First, as in Sugden's Firewood game, the Hawk-Hawk outcome may mean a physical brawl, a fight in the most basic sense. Even with criminal sanctions for assault, there is still a significant amount of violent "self-help" in situations like this,[72] a point sometimes overlooked by legal theorists. But there is another meaning of a "fight." We can expand the applicability of the Hawk-Dove game

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[72] See, e.g., James M. Acheson, The Lobster Gangs of Maine 74 (1988); Ellickson, supra note 49, at 58–59, 213–19; Interpersonal Violent Behaviors: Social and Cultural Aspects (R. Barry Ruback & Neil A. Weiner eds., 1995); Richard E. Nisbett & Dov Cohen, Culture of Honor: The Psychology of Violence in the South (1996); Donald Black, Crime as Social Control, 48 Am. Soc. Rev. 34 (1983).

by recognizing, that, where violence is actually deterred, the Hawk strategy consists of the willingness to engage in one or more heated verbal confrontations that, like fighting, are costly to both parties. Verbal confrontation is costly because it takes time and participants find that "causing a scene" is embarrassing and emotionally taxing.[73] If "causing a scene" is substituted for (or along with) fighting, then many social situations are Hawk-Dove games.

In such a game, a judge's pronouncement works like the bystander's actions in the traffic jam. Even if the judge has no power to impose sanctions, he changes the expectations each player holds about the likelihood the other player will impose the private "sanction" of fighting. By finding for Party A, the judge is, in essence, "waving on" that party to play Hawk and telling Party B to play Dove. And like the mediator experiment, each party expects that the other is most likely to play the strategy "mentioned" and advocated by the third party. If A believes that B will play Hawk, it is in A's interest to play Dove; if B believes that A will play Dove, it is in B's interest to play Hawk. By changing expectations, the judge's statement of the outcome becomes a self-fulfilling prophecy.[74] At the least, we would be wrong to assume that, if there is no sanction attached to ignoring the judge's order, then there is no effect to her decision.

My claim, then, is that judges possess the power of a mediator. Game theorists have discussed mediation, but as far as I can tell, have largely ignored Schelling's claim that the mediator derives power from his ability to make certain solutions focal. Roger Myerson, for example, demonstrates the very interesting point that a mediator who uses some randomizing element for choosing recommendations can create new and more efficient equilibria to a

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[73] Confrontations involve dropping the normal rules of civil interaction that shield individuals from emotional harm. Being shouted at and insulted and responding in kind causes unpleasant physiological reactions (heightened blood pressure, for example) and ruins one's peace of mind for some time thereafter. Part of the reason is the "flight or fight" reaction to a threat of violence. If one cares about avoiding disapproval, another cost is that bystanders may view those involved in the scene to be intemperate, rude, and childish.

[74] Cf. Schelling, supra note 13, at 68 ("'Fact-finding' reports may also tend to draw expectations to a focus, by providing a suggestion to fill the vacuum of indeterminacy that otherwise exists; it is not the facts themselves, but the creation of a specific suggestion, that seems to exercise the influence.").

game.[75] Jennifer Brown and Ian Ayres use this theory to explain (in part) the function of real world mediators.[76] Their example is the Battle of the Sexes game set out in Figure 5, which we may interpret as a meeting-place problem in which there is strong conflict over where to meet.

	C1	C2
R1	5,1	0,0
R2	0,0	1,5

FIGURE 5

Without a mediator, Brown and Ayres show that the players in a particular game will adopt a mixed strategy in which they gain the benefits of meeting only 28% of the time, for an expected payoff of 0.83.[77] But suppose a mediator recommends meeting at one place or the other based on a flip of a coin. If each side follows the mediator's recommendation, the two players meet 100% of the time and each gains an expected payoff of 3.[78] The problem, however, assumes that the players cannot make a binding commitment to each other, so the key question is *why would the players follow the mediator's recommendation?* Obviously, no one expects the mediator to impose sanctions, nor does the discussion assume that the parties have internalized a moral duty to obey the mediator. Myerson only says that "Neither player could ever expect to gain by disobeying the mediator's recommendations, *if the other player is expected to obey them.*"[79] But why would this expectation exist? My claim is that the expectation exists simply because the mediator makes one solution focal.

This analysis is not limited to games where randomizing creates new equilibria: In any one-shot game with multiple equilibria, a third-party signal of one equilibrium can make that outcome focal. Given the above analysis, we can usually model legal disputes as this type of game—specifically, as a Hawk-Dove game. The mechanism of choosing the third party to give the signal, or having a third

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[75] See Roger B. Myerson, Game Theory: Analysis of Conflict 249–58 (1991).
[76] See Brown & Ayres, supra note 56, at 373–77.
[77] See id. at 374.
[78] See id. at 375.
[79] Roger B. Myerson, Multistage Games with Communication, 54 Econometrica 323, 327 (1986) (emphasis added).

party who routinely gives such signals, makes the effect clearer by ensuring common knowledge about what the signal is. In sum, adjudicative rulings generally have an expressive power.

Strangely enough, the clearest example of this analysis comes from medieval Iceland. For several hundred years, Iceland had functioning courts with no formal or informal enforcement powers.[80] During this time, courts issued rulings to resolve disputes, and proclaimed appropriate penalties, but there was no executive arm—police or sheriffs—to execute these judgments. Nonetheless, there was private enforcement of court decrees, carried out by the kin of the judicial winner. In his review of William Miller's book on the subject, Richard Posner summarized Miller's explanation for effectiveness of private enforcement:

> Legal judgments were not self-executing, and if the convicted defendant thumbed his nose at a judgment the plaintiff would have to rally his kin to enforce the judgment by force, much as if he had decided to retaliate directly against the defendant for whatever wrong had touched off their dispute. But, as Miller explains, a legal judgment might have enough *suasive force* to make it easier for the plaintiff to rally his allies and also easier for the defendant's potential allies to beg off, thus tending to isolate the defendant and so vindicating the plaintiff's decision to go to law rather than to fight.[81]

The critical question is, what explains the "suasive force" of the unenforced legal judgment?

The full explanation is undoubtedly complex, but the focal point theory provides a simple and important insight. Each party expects the one declared by the court as being "in the right" to play the Hawk strategy—enforcing the remedy with violence, if necessary. Expecting that result, each party will tend to play Hawk if named as the winner of the dispute and Dove otherwise. This focal effect is independent of the moral authority of the court or the persuasiveness of its reasons for deciding. Even if each party (and his kin)

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[80] See William Ian Miller, Bloodtaking and Peacemaking: Feud, Law, and Society in Saga Iceland 5 (1990); Richard A. Posner, Medieval Iceland and Modern Legal Scholarship, 90 Mich. L. Rev. 1495, 1496–97 (1992) (reviewing Miller's book); David Friedman, Private Creation and Enforcement of Law: A Historical Case, 8 J. Legal Stud. 399, 404–05 (1979).

[81] Posner, supra note 80, at 1506 (emphasis added).

believes unalterably in the rightness of his cause, and cannot be
persuaded otherwise, he may still respond to the change in expec-
tations. As noted above, this result would occur even if the third
party were a private individual who, like the bystander, interjected
his opinion without being asked by either party to do so. But we
can imagine several reasons why a court's or arbitrator's statement
is more powerful. In the case of arbitrators, the parties have to-
gether selected a third party to make one solution focal. In the case
of litigation, what we mean by a "court" is a body that makes pro-
nouncements about disputes that nearly everyone gives attention
to (even though only one party may have chosen to litigate).[82]

To explain adjudication more fully, we must make the analysis
dynamic and consider the evolution of strategy over time. I do that
below. For now, note that whenever there is common knowledge
that both sides to a dispute are paying special attention to a third
party, that party's announced resolution tends to make focal the
strategies associated with that resolution. These conditions fre-
quently describe the decisions of a judge, who thereby wields the
expressive power of adjudication.

2. The Expressive Power of Regulation

Adjudication is limited to the parties to the dispute and occurs
only after there is a dispute. Legislative and executive rules apply
to a much broader group. These rules also influence behavior, in-
dependent of sanctions, by influencing expectations in mixed-
motive games. When transaction costs prevent bargaining, regula-
tion can shape the expectations of what behavioral strategy others
will select. Where there is bargaining, regulation can shape expec-
tations of what part of the surplus must be given to others to secure
their agreement.

a. Expressive Effects When Transaction Costs Prevent Bargaining

To see how regulatory law works expressively, return to Schel-
ling's example of the "white line down the center of the road."[83]
This is a humble but powerful illustration of the coordinating

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[82] Below I address a question raised by this analysis: Why not use randomized
methods of adjudication to resolve disputes? See infra Section III.B.1.
[83] Schelling, supra note 13, at 144.

power of government action, as well as the limits of that power. At any given moment, drivers wish to avoid using the same part of the road as oncoming traffic, which at curves or the crests of hills would cause an accident. At the same time, drivers presumably prefer to have the option of driving on more of the road, defining "their" side of the road as being larger than half the width of the road. Yet there is no possibility of bargaining in advance with all other drivers about how to share the road. The parties therefore play a game of Chicken with simultaneous moves (in that there isn't always time to veer over and avoid a collision).

In this situation, the painted line in the road is an overwhelming focal point that tends to fix expectations of how far over oncoming traffic will drive. A given driver has a significant reason to "obey" the line even if the state provides no enforcement of it. Of course, there is a limit to this focal point, as Schelling notes. If the state draws the line too far over—as where a car cannot even fit into the smaller lane—drivers will ignore the line. In addition, this is not a power limited to government. Anyone who owned a road could create the focal point by painting the line. But when employed by the government, the line, and the corresponding legal rule forbidding drivers from crossing the line, generate compliance independent of the state's threat to impose sanctions.

A more interesting example is smoking regulation, which I develop in greater detail below. For now, imagine that Figure 4 represents two individuals who contest the use of a resource, here the air in a particular place and time. Specifically, R wishes to smoke a cigarette and C wishes to breathe air unsullied by tobacco smoke. When the conflict arises only once between the individuals (they are strangers), transactions costs will usually deter bargaining. The reason is that the time to conduct the transaction is likely to be very large compared to the time it takes to smoke a cigarette.[84]

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[84] If the smoker refrains from smoking during the negotiation, the nonsmoker may get what he wants for free. But if the smoker smokes during negotiation, he gets what he wants for free. There is a second transaction cost. One who offers to pay others encounters a strategic problem. An offer to pay a nonsmoker, for example, will attract other nonsmokers who would not otherwise have come close enough to be bothered by the smoke, but who will now demand payment to permit smoking. A converse problem arises for those who offer to pay others not to smoke. These transaction costs make bargaining over smoking very unlikely.

We can then model the smoking conflict as a Hawk-Dove game much like Sugden's Firewood game. Imagine that playing Hawk consists of a willingness to engage in either a physical fight or a heated verbal confrontation for one's preferred outcome and that Dove/Dove means some kind of compromise solution (like flipping a coin to determine whether R can smoke). If this describes the situation correctly,[85] then both parties have an interest in avoiding the Hawk/Hawk outcome, although each would prefer to get their way. Anything that makes one equilibrium focal will help the parties to coordinate in avoiding a "scene." If nothing else makes a solution focal, a law against smoking in the particular place would likely have this effect. Because the mentioned solution is focal, the law creates the expectation that C will play Hawk, risking a scene by insisting on R not smoking. That expectation causes R to play Dove and not smoke.

The focal point analysis may be reinterpreted by saying that law can shape behavior by exploiting "second-party" sanctions. When two parties are involved in an interaction, each may control the behavior of the other by credibly threatening to impose sanctions, that is, to act in some way the other finds costly. The focal point theory says that the state can influence the way these second party sanctions are used—whether, for example, smokers or nonsmokers will "cause a scene" to enforce their preferences. This theory contrasts with or supplements a social contract theory of the state. A social contractarian might say that the proper role of the state is to stop all Hawk/Hawk interactions, which it does by monopolizing the means of violence. But suppose the state permits, either inevitably or intentionally, some low-level violence to remain undeterred. Or suppose the state permits, as one would expect, nonviolent social confrontations or "scenes" to remain undeterred. The state can then influence behavior, not only by threatening sanctions (backed

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[85] More complex games are more realistic. In Hawk-Dove, for example, the smoker and nonsmoker incur costs in the stage of the game that is a fight or scene. This implies the parties incur no costs at the earlier stages, for example, when the nonsmoker simply requests that the smoker refrain or desist. The War of Attrition models each stage of the scene as incurring additional costs, as each tries to "wait out" the other and get his way. See Sugden, supra note 60, at 62–66, 73–78. An even more realistic game might have the costs each incurs rising as the standoff continues. I do not believe, however, that these more complex games are necessary to reveal the expressive claim being made.

ultimately by the threat of state violence), but by changing expectations about the sanctions individuals will use against each other.

b. Expressive Effects on Bargaining

The analysis so far assumes that transaction costs prevent the parties from bargaining to resolve their conflict. When bargaining does occur, legal rules can also expressively influence the outcome. Specifically, legal rules can indirectly affect how the parties divide any contractual surplus. To illustrate this expressive effect, I consider a rule that really has no sanction: a contractual default rule. Although the standard economic view is that the allocation of property entitlements will affect the distribution of wealth, it is also standard to assume that contractual default rules will not affect the distribution of the surplus between the contracting parties.[86] Yet a number of experimental studies have found, to the contrary, that individuals favored by the default rule tend to gain a greater share of the surplus.[87] Focal points may explain why.

Initially, note that a variety of experiments show that nonlegal focal points affect how parties divide the surplus. Recall Schelling's mediation experiment. The mediator proposes a split of $16: $11 to *A* (who lost the money) and $5 to *B* (who found it). With no subsequent bargaining, and where both players knew they each would take nothing if their aggregate demand exceeded $16, all the subjects accepted the proposed split. These results imply, first, that behavior the law merely "proposes" can create a focal effect. In other words, we should expect that "default" rules, as well as mandatory rules, will influence behavior expressively. The second interesting point is that there is no reason to suppose the focal effect disappears with subsequent bargaining. To the contrary, the psychological literature on "anchoring" suggests that the first pro-

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[86] See Harold Demsetz, When Does the Rule of Liability Matter?, 1 J. Legal Stud. 13, 16–18 (1972); John J. Donohue, III, Diverting the Coasean River: Incentive Schemes to Reduce Unemployment Spells, 99 Yale L.J. 549, 550 (1989); Stewart Schwab, A Coasean Experiment on Contract Presumptions, 17 J. Legal Stud. 237, 239–41 (1988).

[87] See, e.g., Russell Korobkin, Inertia and Preference in Contract Negotiation: The Psychological Power of Default Rules and Form Terms, 51 Vand. L. Rev. 1583, 1626–27 (1998); Russell Korobkin, The Status Quo Bias and Contract Default Rules, 83 Cornell L. Rev. 608, 675–76 (1998); Schwab, supra note 86, at 254–56.

posed split strongly affects bargaining.[88] If the parties bargain further, we can easily imagine that player *A* will assert that $11 is the least he will accept but it is really too little and that player *B* will assert that $5 is the least he will accept and it is really not enough. If, after another period of bargaining, the parties fail to reach agreement, we can imagine each returning to the same reasoning that led them in the actual experiment to accept the proposed division: *A* reasons that *B* will demand at least $5 and *B* reasons that *A* will demand at least $11. There is nothing to support this result but the fact that the third-party proposal made that division salient, which created the self-fulfilling expectations.[89]

Studies like this suggest that legal rules could affect bargaining by proposing "fair" solutions.[90] Suppose *A* is offering to act as *B*'s agent and the two bargain over how to divide the surplus created by their relationship. Part III will consider how the prior existence of a convention might limit the power of a legal rule. But if there were no existing convention, a default rule proclaiming that contractual parties of *A*'s type—a sports agent or car salesperson— should take 20% of the profit "unless otherwise agreed" could have a significant effect on the outcome of bargaining.

Most real world default rules do not take this form. Rather than proposing how to divide the surplus, they typically provide specific provisions for carrying out the contract unless otherwise agreed. Examples are Uniform Commercial Code terms specifying the default place for the delivery of goods and a default set of warranties.[91] But the focal point analysis suggests a way of explaining how these default rules, according to various experiments, still

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[88] See Gregory B. Northcraft & Margaret A. Neale, Experts, Amateurs, and Real Estate: An Anchoring-and-Adjustment Perspective on Property Pricing Decisions, 39 Organizational Behav. & Hum. Decision Processes 84, 85 (1987).

[89] Schelling imagines that bargaining to divide a fixed gain or loss often takes the form of trying to employ "focal points" that favor one's side. See Schelling, supra note 13, at 68–69. In other words, *B* might plausibly use the focal point of a 50-50 split to demand $8 or, perhaps if the parties were personal injury lawyers, *B* might demand a 1/3 share, or $5.33. But it is harder to imagine *B* making a successful demand for $7 or $10 (successful because *A* either agreed or in the end game demanded only the remaining amount). There are no obvious cultural or historical references that make this kind of division focal, and thus *B* will find it hard to persuade *A* that his insistence on this split is credible.

[90] See sources cited supra note 64.

[91] See U.C.C. § 2-308 (2000) (regarding unspecified delivery term); U.C.C. §§ 2-314, 2-315 (2000) (regarding implied warranties).

affect distribution. The rules create a *focal baseline* of contractual duties and entitlements. The parties then bargain with this baseline in mind. Each player expects others to consider the baseline. The result is that a player insists upon receiving some compensation— an extra bit of the surplus—for "giving up" a default entitlement or for "taking on" a burden the default rule places on the other party.

This may not seem very sensible because the player favored by the default rule has no real entitlement unless the other contracting party agrees and the other party is free to withhold agreement. But there is no powerful logic constraining the division of the surplus. Instead, those who study negotiations point out how individuals attempt to seize upon or create focal effects in their favor.[92] Each party expects this behavior, so it is more credible to threaten to refuse an offer that falls short of some focal point than to threaten to refuse an offer that equals or exceeds the focal point. The fact that one party "gives up" a default entitlement may thus make credible its insistence on an extra share of the surplus.[93] If so, then default rules affect the division of the surplus.

3. The Continued Need for Sanctions

Throughout this Article, I claim that law can influence behavior expressively, independent of sanctions. But it should be clear that the expressive power of law does not imply that sanctions are unnecessary. Most obviously, not all social interactions involve coordination. Where the problem is cooperation, sanctions may be necessary to change the payoffs so that individuals do not play a dominant strategy that produces an inefficient outcome. Even when coordination is involved, the payoffs in certain games make it exceedingly difficult to coordinate or to coordinate at the most efficient equilibrium. When certain noncoordination outcomes impose great costs on those who attempted but failed to coordinate, the focal effect may fail to reassure people sufficiently to

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[92] See J. Keith Murnighan, Bargaining Games 39–40 (1992); supra note 89.

[93] See Russell Korobkin, A Positive Theory of Legal Negotiation, 88 Geo. L.J. 1789, 1821–25 (2000) (explaining the norm of reciprocity under which parties exchange concessions).

move them away from their "safe" strategy.[94] Sanctions may then be necessary.

Most importantly, the analysis in this Article is exceedingly simplified by having individuals with identical payoffs. Obviously, payoffs actually vary between individuals in almost any real case. This difference particularly matters because, in a given social context, the payoffs may create a coordination problem for some drivers but not others. Even in deciding on which side of the road to drive, for example, many drivers are *on rare occasion* willing to violate the convention for a short distance because there is some great gain and apparently a small risk. (Think of people taking risks to get a good parking spot.) Because the risk is partly externalized—that is, because an accident will harm others besides the drivers—they will take excessive risks unless the state provides sanctions for violating the convention. In other situations, a few individuals may *in every case* be willing to violate a convention. Take Sugden's Firewood game. For an extraordinarily fierce and skilled fighter, the expected payoffs from fighting over property might be positive. For that person, the game is not Hawk-Dove because fighting is the dominant strategy. If society wants to stop this individual from playing Hawk when occupying the role of a challenger (because of the external costs of fighting and/or its objectionable distributive consequences), it will have to impose sanctions.

In sum, the expressive effect matters because it predicts some compliance independent of sanctions, not because it predicts an efficient level of compliance without sanctions. I will not repeat this point below, but it applies with equal force to the evolutionary analysis in the next Part.

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[94] An example is airplane traffic. Flyers have a great interest in coordinating their flight paths to avoid an accident. Absent a centralized authority, one might imagine that the most efficient way of coordinating involves some regularized communications. But because a crash is catastrophic, everyone might assume that they could not rely on all others to coordinate voluntarily through the requisite communications, even if the government proclaimed to everyone what the requisite communication pattern was. As a result, flyers might adopt the "safe" but inefficient strategy of taking extraordinary and expensive precautions (including not flying at all). By imposing sanctions on those who fail to coordinate, however, the government might reach a more efficient outcome.

III. MAKING THE MODEL DYNAMIC: EXPRESSIVE LAW AND THE EVOLUTION OF EQUILIBRIA

A crucial aspect of many real world games is that the strategic situation is repeated. People do not decide only once on which side of the road to drive. Repetition raises the possibility that even if players fail to coordinate the first time the situation arises, they will eventually settle into a coordination equilibrium. For example, drivers might initially fail to coordinate by all driving on the left or the right side of the road. But over time, their behavior might settle into an equilibrium of one or the other. In repeated games with multiple equilibria, the equilibrium that emerges is often called a *convention*.[95] A considerable amount of recent game theory is devoted to explaining the evolutionary process by which conventions emerge.[96] The evolution in these newer models typically does not occur through increased sexual reproduction of players who enjoy greater success in the recurrent game. Rather, evolution occurs by players, often imperfectly rational, *learning* from experience in the game and, for future interactions, switching to strategies that provide greater expected utility. To date, law and economics has not incorporated much of this theory.[97] Because law is concerned with situations that occur repeatedly, an expressive theory of law should

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[95] Much of the law and economics literature on "norms" addresses what some philosophers and game theorists call a "convention." Both involve behavioral regularities. Conventions are sustained because the regularity represents an equilibrium such that no individual can benefit by unilaterally changing his strategy. Norms may also be conventions but are necessarily sustained in part by the additional fact that individuals tend to approve conformity to the regularity and/or disapprove of nonconformity. See Richard H. McAdams, Conventions and Norms (Philosophical Aspects), *in* International Encyclopedia of Social and Behavioral Sciences (forthcoming 2001). Below, I refine this definition of convention to include only a "pure-strategy" equilibrium.

[96] See, e.g., Ken Binmore, 1 Game Theory and the Social Contract: Playing Fair (1994); Drew Fudenberg & David K. Levine, The Theory of Learning in Games (1998); Larry Samuelson, Evolutionary Games and Equilibrium Selection (1997); H. Peyton Young, Individual Strategy and Social Structure: An Evolutionary Theory of Institutions (1998).

[97] For exceptions, see Eric A. Posner, Law and Social Norms 45–46, 177–79 (2000); Jody S. Kraus, Legal Design and the Evolution of Commercial Norms, 26 J. Legal Stud. 337 (1997); Randal C. Picker, Simple Games in a Complex World: A Generative Approach to the Adoption of Norms, 64 U. Chi. L. Rev. 1225, 1246–47 (1997); Paul G. Mahoney & Chris Sanchirico, Competing Norms and Social Evolution: Is the Fittest Norm Efficient? (May 1, 2000) (unpublished manuscript, on file with the Virginia Law Review Association) available on the Social Science Research Network, http://www.ssrn.com, as Legal Studies Working Paper No. 00-15; Posner, Evolution of Constitutions, supra note 3.

explain any expressive function as part of this dynamic process. Yet evolutionary processes may circumscribe the significance of the focal point theory. First, conventions can arise without law. Second, once an equilibrium arises, the convention the equilibrium represents is likely to be focal. If so, it isn't clear that law could make any other equilibrium more focal. If everyone is currently driving on the right side of the road, an unenforced government proclamation to "drive on the left" would probably not change the convention.

Nonetheless, though the power of existing equilibria constrains the expressive power of law, it does not eliminate it. Indeed, the evolutionary analysis reveals another means by which law can have an expressive effect. Evolutionary game theory shows that law can influence behavior by its *labeling* power. Labeling the players' roles creates the possibility of strategies based on those roles. Creating new strategies creates new potential equilibria. Law may therefore be able to change behavior merely by describing it.

In this Part, I will continue using the Hawk-Dove game to demonstrate, first, how adaptive learning might explain the evolution of a coordinated equilibrium and, second, how the labeling of strategies can influence this evolution. I will then discuss how law can be used to "label" the strategies for the players so as to influence the evolutionary process. As a result, both adjudication and regulation retain their expressive power in iterated situations.

A. Recurrent Games, Labeling, and the Evolution of Equilibria

Figure 4 illustrated a symmetric Hawk-Dove game,[98] and the above analysis assumed the players interacted only once. Sugden contrasts this game with one that is recurrent.[99] Suppose that in each iteration of the game, two players are selected at random from a large pool and play against each other once. In the anonymous version of the game (with no opportunity for establishing a

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[98] See supra text accompanying notes 59–60.
[99] See Sugden, supra note 60, at 78–80. I realize that Sugden's analysis is 15 years old and no longer represents the "state of the art" in evolutionary game theory. For recent developments, see the sources cited supra note 97. Nonetheless, Sugden's highly accessible analysis is sufficient for my purpose, which is merely to illustrate informally how legal expression affects behavior independent of legal sanctions.

reputation),[100] the expected value of playing a particular strategy depends on the probability p that a random player plays Dove. With the Figure 4 payoffs, a player is better off playing Dove if $p <$ 2/3 and better off playing Hawk if $p >$ 2/3. For example, if p = 1/2, then the expected value of playing Dove is 0.5(1) + 0.5(0) = .5, while the expected value of playing Hawk is 0.5(2) + 0.5(-2) = 0.

Sugden's evolutionary analysis predicts the equilibrium in this game. The evolution occurs by players learning from experience in the game and switching to strategies that provide greater expected utility. With adaptive learning, players will tend to switch to Dove (either as a pure strategy or with a greater probability in a mixed strategy) when $p <$ 2/3 and tend to switch to Hawk when $p >$ 2/3. The population will reach equilibrium only when p = 2/3.[101] This "mixed" equilibrium could result from 2/3 of the population playing Dove as a pure strategy and the rest playing Hawk as a pure strategy, or from everyone playing Dove 2/3 of the time and Hawk 1/3 of the time, or from various other distributions of mixed strategies. Whatever the combination that emerges, the theory predicts that 2/3 of the strategies selected in equilibrium will be Dove.

Note also that this mixed Nash equilibrium has a special kind of stability: Any position close to the equilibrium is carried by adaptive learning back to the equilibrium. Suppose some random event causes p to rise above or fall below 2/3. The random event might be the introduction of new players to the game who do not immediately grasp the best way to play. Or it might be any other kind of random perturbation to the system. The same adaptive learning that initially led individuals to adopt strategies where p = 2/3, will cause the same equilibrium to reemerge. If p rises above 2/3, then the expected payoffs from Dove will be lower than the expected

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[100] All of the iterated games I analyze assume that the two players are selected at random from a large pool and are therefore strangers to each other. If the game is played repeatedly against known individuals, it would obviously introduce a reputational element that would complicate the analysis. But even there, the focal point might affect the bargaining between the players in the same way that default rules affect the division of the surplus. See supra Section II.A.

[101] The expected return from playing Dove is equal to the probability that the other will play Dove—p—times the return from Dove/Dove—1—plus the probability that the other will play Hawk—$(1-p)$—times the return from Dove/Hawk—0. Similarly, the expected return from playing Hawk is $p(2) + (1-p)(-2)$. Equilibrium occurs where there is no reason for anyone to switch strategies because the expected returns from playing Hawk equal the expected return from playing Dove, that is, where $p(1) + (1-p)(0) = p(2) + (1-p)(-2)$. This equation reduces to p = 2/3.

payoffs from Hawk and some players will switch from the former strategy to the latter. If p falls below 2/3, the expected payoffs from Hawk will be lower than the expected payoffs from Dove and some players will switch to the latter. The incentive to change strategies disappears only when p returns to 2/3. Thus, this equilibrium is particularly stable; it "attracts" nearby states.

Now I should explain what I meant when I called this a *symmetric* version of the Hawk-Dove game. Not only are the payoffs symmetric, there is nothing else in the *labeling* associated with the game that distinguishes the two players. In the normal form representation of the game, it does not matter which player is the row player and which is the column player. As a result, there are only three possible strategies for either player:

(1) *play Hawk;*
(2) *play Dove; and*
(3) *play Hawk with probability* h *and Dove with probability*
    (1 – h), where 0 < h < 1.[102]

A remarkable insight of game theory, exploited to great effect by Robert Sugden,[103] is the importance of labeling the parties in a manner known to each. Anything that breaks the symmetry of the game in this manner increases the number of possible strategies. The existence of new strategies can produce substantial changes in the evolutionary outcome. Thus, labeling can change behavior.

Suppose, for example, that the players notice some asymmetry in the game, if only a trivial one, that distinguishes the roles of the players. It could be anything—for example, that one player is always older. *Any recognized asymmetry in the player's roles means that the players can choose to play a strategy depending on which role they occupy.* Thus, in addition to the above three strategies, each player can now choose two more: "play Hawk when younger and Dove when older," and "play Dove when younger and Hawk when older." Sugden's particular example is more interesting. He uses an asymmetric version of the Hawk-Dove game to show how the convention of property might have emerged in a state of na-

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[102] Technically, this third option represents an infinite number of strategies, because h can take any value between 0 and 1. But the idea is that one has three basic choices—play one pure strategy, play the other pure strategy, or play a mix of the two.

[103] See Sugden, supra note 60, at 12–13.

ture.[104] He imagines that the players recognize the asymmetry of who is the current "possessor" of a resource. Only one player is the possessor and both are aware of this labeling asymmetry. Suppose we call the nonpossessor the "challenger." The matrix in Figure 6 represents this asymmetric version of the Hawk-Dove game, although the payoffs are the same as in the symmetric version.

"Challenger"

		Dove	*Hawk*
"Possessor"	*Dove*	1,1	0, 2
	Hawk	2,0	-2,-2

FIGURE 6

That the players notice this difference in how they label themselves may seem insignificant, but the asymmetry creates two pure strategies that did not exist in the symmetric version of the game. In addition to the three strategies noted above, each player can select:

(4) *play Hawk when possessor and Dove when challenger;* and

(5) *play Dove when possessor and Hawk when challenger.*

Most importantly, these two new strategies create two new pure-strategy Nash equilibria in the game: where all play Strategy 4 or all play Strategy 5. At these points, no individual can gain from unilaterally switching strategies. For example, if everyone else plays Strategy 4—Hawk when the possessor and Dove when the challenger—then any one will be worse off by ever playing Dove when the possessor (giving up the payoff of 2 for a payoff of 1) and by ever playing Hawk when the challenger (giving up the payoff of 0 for a payoff of -2). The same is true for strategy 5.

I previously stated that a *convention* is a Nash equilibrium that emerges from a strategic situation with multiple equilibria. Now I will more precisely define convention as the prevailing *pure-strategy* equilibrium, and the expectations that support it, where more than one equilibrium is possible. If everyone in the Firewood game follows Strategy 4 or Strategy 5, we can say there is a convention, respectively, of possessors defending their property or of challengers taking property. In addition to these two possible con-

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[104] See id.

ventions, the mixed equilibrium of Figure 5, where $p = 2/3$, also remains an equilibrium. I do not call this a convention, however, because one observes no strong regularity of behavior, but rather a mix of behaviors.

Note that, when the two pure-strategy equilibria become possible, the mixed equilibrium is *no longer stable*. Once the players notice the possessor/challenger asymmetry, the mixed equilibrium does not "attract" nearby states; instead, random perturbations will cause behavior to move away from it. Suppose, for example, that the probability that a *challenger* plays Dove rises, by accident, above 2/3. With fewer *challengers* playing Hawk, the value of *possessors* playing Hawk will rise. If players learn, they will tend to switch to playing Hawk when they are the possessor. As more possessors play Hawk, the value of playing Dove when one is the challenger will rise. If players continue to learn, the disequilibrium will be resolved only with a pure-strategy equilibrium in which everyone plays Strategy 4. With this convention, all possessors play Hawk all the time (the probability of playing Dove is 0) and all challengers play Dove all the time (the probability is 1). But if the initial perturbation caused p for a challenger (that is, the probability that a challenger will play Dove) to fall below 2/3, the same process of adaptive learning would lead to a pure-strategy equilibrium in which everyone plays Strategy 5.[105] The analysis also reveals that the two new pure-strategy equilibria *are* stable. As long as p, for a challenger, remains above 2/3, it will tend to rise to 1. As long as p, for a challenger, remains below 2/3, it will tend to fall to 0. Thus, the two pure-strategy equilibria—conventions—"attract" nearby states and are therefore more likely to emerge in the long run than the unstable mixed equilibrium.

A mere label can thus produce significant behavioral change. If the players do not notice this labeling distinction between possessor and challenger, we expect a stable mixed equilibrium where 2/3

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[105] Sugden claims that certain factors make the first equilibrium, where everyone follows Strategy 4, more likely and that this convention—that possessors retain their possessions—illustrates Hume's idea that property rights are conventional. See Sugden, supra note 60, at 90–103; See also Jack Hirshleifer, Economic Behaviour in Adversity 223–34 (1987) (discussing evolution of possession-based property conventions); Peter Vanderschraaf, The Informal Game Theory in Hume's Account of Convention, 14 Econ. & Phil. 215 (1998) (discussing Hume's account of property as an evolved convention).

of decisions are to play Dove. The result is that 1/9 of interactions result in a Hawk/Hawk fight.[106] But when mutual recognition of the labels breaks the symmetry, evolutionary processes will most likely produce a stable pure-strategy equilibrium—a convention—in which everyone plays Hawk when in one role and Dove when in the other.[107] Whichever convention emerges, there are no Hawk/Hawk fights.[108]

B. A Final Pass at an Expressive Theory: Using Law to Create Focal Points in an Evolutionary Setting

1. The Expressive Power of Adjudication in Iterated Situations

I previously modeled disputes as a one-shot Hawk-Dove game. In such games, an adjudicator has the expressive power to make one outcome focal and thereby to influence the parties' expectations and behavior. Now imagine that there is a recurring Hawk-Dove situation that has the potential to create disputes between individuals. Quite possibly, the parties will exploit some natural asymmetries to create conventions that avoid fights in many situations. Sugden's analysis, for example, suggests that individuals might avoid conflicts over property once they recognize the asymmetry of possession and everyone plays a pure-strategy based on that asymmetry. But there will remain some situations in which

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[106] The probability of a fight is equal to the probability of player 1 selecting Hawk—1/3—times the probability of player 2 selecting Hawk—1/3.

[107] The difference can also be measured by the change in expected utility. Without the label, each player's expected utility is 2/3 (calculated by multiplying the probability of each combination of strategies by the player's outcome for that combination, and summing the products). With the label, a player's utility depends on the proportion of time he is a possessor or challenger. If the players occupied each role half the time, each player's expected utility would be 1 (half the time they gain 0; half the time they gain 2). Total utility is necessarily higher with the label because there are no costly fights, but a particular player's utility would decline with the label if he were the challenger (playing Dove) more than 2/3 of the time. Thus, the convention could be bad for some individuals; if the initial distribution were unfair on some normative theory, the convention would only lock in this unfairness. But the point here is only to show that labeling has an effect, not that the effect is inevitably desirable.

[108] This analysis obviously simplifies a complex phenomenon. Individuals do not always follow the convention because (a) individuals vary continuously and some have idiosyncratic payoffs that produce no incentive to ever follow the convention; and (b) situations vary continuously and some create an incentive for certain individuals to violate the convention. See supra text accompanying note 94.

disputes arise; this is where adjudication can have an expressive effect.

One reason for disputes is that the asymmetry the convention exploits leaves unresolved certain ambiguous cases. In these situations where the parties may otherwise fight, adjudication retains the power to influence the behavior of the parties. The ambiguity problem can be illustrated by returning to Sugden's possession asymmetry. The power of possession arises from the fact that both parties readily observe that one and only one party currently possesses the property. But any law student knows there are situations in which "possession" is hard to define. Who "possesses" a domestic animal if no one is physically holding it? Perhaps the convention will arise that one "possesses" an animal if one has placed permanent and distinctive physical markings on it. But what if no technology exists for making such a mark? Or what if it is uncertain whose mark is on the animal? Or what if the marked animal wanders away from the possessor's living area for an extended period of time? In the latter case, it seems unlikely that everyone would play Dove regarding apparently "lost" property. And what property is lost is also far from obvious.[109]

These types of uncertainties produce several new possibilities that greatly complicate the analysis. I will focus on one possible outcome: that everyone *attempts* to play a pure possession-based strategy, following a convention as best as they can given imperfect information. This might make sense if, for example, the players have different perceptions about whether possession is clear or not. That is, just as there is no clear asymmetry between possession and nonpossession, there is no clear asymmetry between the clear cases and the unclear ones. Such players might all play Hawk when it *appeared* to them that they were the possessor and play Dove otherwise.[110] Because of mistakes, sometimes two players will both believe they are the possessor, and the result is a fight.

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[109] Eric Posner makes this point with a different example. See Posner, Inefficient Norms, supra note 3, at 1716 (noting that the decentralized property conventions would not be efficient because of the ambiguity of "possession" when the property consists of "large areas of land or chattels that are best used by third parties").

[110] We could also imagine the players playing probabilistic strategies like "play Hawk when the probability that one is the possessor is greater than p and play Dove when the probability that one is the possessor is less than p." This would lead to a convention and no fighting if everyone always agreed on the probabilities, but by

Now introduce adjudication.[111] Suppose that the state offers the services of a judge, who, upon request by both parties, will effectively "proclaim" that one side should play Hawk and the other should play Dove. Adjudication thus complicates the game, creating a prior stage at which one decides whether or not to propose adjudication. There are serious strategic problems that may block the use of adjudication. I will not fully analyze these problems. I want only to show (i) that the strategic concerns are more likely to infect the use of randomized adjudication than "fact-based" adjudication, and (ii) when sought, adjudication will have an effect independent of the sanctions the adjudicator threatens.

Previously, I used the focal point theory to explain the sanctionless adjudication that occurred in medieval Iceland. Because that discussion considered only randomized adjudication, however, it did not explain why the Icelanders or anyone else would bother with the expense of a more elaborate, fact-based adjudication. In this iterated situation and given the payoffs from Figure 4, if the parties seek randomizing adjudication only when a mistake caused a dispute, then their obeying the adjudicator would make them better off.[112] But if flipping a coin works, the disputants would not even need the services of a third party; they could select a randomizing event themselves.

The problem, however, is that randomizing creates an enormous incentive for individuals to seek adjudication when neither side ac-

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hypothesis, that is not the case. So even if the parties somehow settled upon the same value for p (among an infinite number of values), we would still wind up with fights when each judged the probability that he was the possessor to be greater than p. So there would be a residuum of cases in which fighting occurs.

[111] Eric Posner notes a different legal solution. When the problem is defining who owns land or personal property used by third parties, a recording system resolves the ambiguity. See Posner, Inefficient Norms, supra note 3, at 1716. Adjudication is useful, however, for resolving remaining ambiguities.

[112] Adjudication thus creates a new asymmetry, the result of which is two new strategies: (6) *play Hawk when one wins the adjudication and Dove when one loses the adjudication*; and (7) *play Dove when one wins the adjudication and Hawk when one loses the adjudication*. As a result there are at least two new equilibria, where everyone plays Strategy 6—a convention of following the arbitrator—and where everyone plays Strategy 7—a convention of defying the arbitrator. Where the mixed equilibrium exists, the expected payoff from any strategy is 2/3. One does better in one of the new equilibria based on Strategy 6 or Strategy 7. In either case, with a coin flip, each party takes turns playing Hawk against Dove and Dove against Hawk, avoiding the negative result of a Hawk/Hawk fight. The expected payoff is 1. Thus, if the costs of adjudication are not too high, then everyone would prefer to adjudicate the unclear cases.

tually makes a mistake. Even when R knows that C is the posses-
sor, the prospect of randomized adjudication gives R an incentive
to assert that he possesses the property, *pretending* he has made a
mistake, so that he can gain a fifty percent chance of acquiring it.
An individual who believes he is the possessor will not be able to
distinguish between those who actually believe they are also pos-
sessors (and absent adjudication will play Hawk) and individuals
who are bluffing (and absent adjudication will play Dove). The
outcome of such games is complex, but it is likely that individuals
will believe that most of those who demand adjudication are bluff-
ing, and therefore decide to reject adjudication in every case or a
large percentage of them.

Fact-based adjudication will ameliorate (though not eliminate)
the strategic problem. Suppose that the adjudicator investigates the
facts and provides an informed opinion of which party did "pos-
sess" the property (or of any other fact relevant to playing the
pure-strategy equilibrium). As with randomized adjudication, the
fact-based variety would make focal one particular solution, allow-
ing the parties to avoid a Hawk-Hawk fight and improve their
expected payoff.[113] Unlike the random process, however, *the prob-
ability of winning varies positively with the strength of one's case.*
When there is only one party who actually believes he is the pos-
sessor, the fact-based adjudicator is more likely to rule in his favor.
As a result, the returns for engaging in strategic behavior decline.
If the fact-finding were perfect, an individual who believes he is not
the possessor would expect zero returns from asserting otherwise.
Of course, given the hypothesis that possession is ambiguous, the
fact-finding will not be perfect. But if the loser must bear any cost
for fact-based adjudication (even if the winner also bears costs),
then imperfect fact-finding may be accurate enough to deter most
of the false assertions of possession that would occur with random-
ized adjudication. Though not completely deterred, we may get a
mixed equilibrium in which parties often adjudicate but sometimes
don't. Various mechanisms defining the adjudication process may

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[113] In addition to the focal point effect, fact-based adjudication also works
expressively by providing the players with information to update their prior beliefs. If
the judge were thought to be sufficiently reliable in ascertaining the facts, then the
signal would always cause the "losing" player to believe he was not the possessor.
Given his strategy, the losing player will then play Dove. See Dharmapala &
McAdams, supra note 5.

constrain the strategic problem and increase the use of adjudica-tion.[114]

So the intuitive answer is right after all: Flipping a coin is (usu-ally) no way to settle these disputes. Fact-based adjudication may be. When the facts matter, parties could conceivably conduct the investigation themselves, but they are more likely to seek the ser-vices of a third party. First, certain individuals may specialize in clarifying adjudication and may therefore be better at it than either of the parties. Second, the parties may believe that each will inter-pret information in a self-serving manner,[115] so that it would be difficult to agree on what the facts are or at least would require more investigation than what a third party requires.

To whatever extent the parties use third party, fact-based adju-dication, it can influence behavior by creating a focal point. Without adjudication, the parties attempt to follow the possession-based convention but a "fuzziness" in possession causes mistakes and produces fights. Adjudicative findings of fact clarify the ambi-guity and remove the fuzziness in the asymmetry on which the pure-strategies are based. The legal process thus "perfects" the convention.[116] In sum, law works expressively by shaping behavior independent of its sanctions. Although there may be reasons to add

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[114] One important real-world feature is that, contrary to the assumption in the text, a single party can "force" another party into adjudication. But for this structure, it may be that no party would ask for adjudication because to do so would signal doubt about one's status as a "possessor," which in turn would give the other party an incentive to play Hawk without adjudication. In addition to providing adjudication at the request of *one* party, the state also announces a regulatory rule that any party using self-help—playing Hawk—prior to the judge's resolution may forfeit the entitlement. This regulation may fail to work expressively, but even if sanctions are necessary to induce individuals use the judicial option, the textual point is that the ultimate judicial resolution may be self-enforcing merely because everyone expects the winner to play Hawk.

[115] See, e.g., Linda Babcock et al., Biased Judgments of Fairness in Bargaining, 85 Am. Econ. Rev. 1337 (1995); Marc J. Knez & Colin F. Camerer, Outside Options and Social Comparison in Three-Player Ultimatum Game Experiments, 10 Games & Econ. Behav. 65 (1995); Russell B. Korobkin & Thomas S. Ulen, Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics, 88 Cal. L. Rev. 1051, 1060–66 (2000); George Loewenstein et al., Self-Serving Assessments of Fairness and Pretrial Bargaining, 22 J. Legal Stud. 135 (1993).

[116] New conventions may also be possible if adjudication is available to clarify what would otherwise be prohibitively ambiguous boundaries.

sanctions,[117] we should not be surprised that sanctionless, fact-based adjudication worked in medieval Iceland to resolve disputes.

2. The Expressive Power of Regulation in Iterated Situations

Now consider the expressive power of regulation from the perspective of evolutionary game theory. In the one-shot game, legal regulation influences behavior by making focal one of several possible equilibria. In the iterated situation, the possibility of an existing equilibrium greatly complicates the situation. A set of strategies constitutes an equilibrium because no one player can improve his situation by changing strategies unilaterally. The power of the law to change an equilibrium, without first using sanctions to change the payoffs, may seem limited.

Nonetheless, legal regulation can expressively influence behavior even in iterated situations. At the most basic level, law might work because there is no existing equilibrium or because some other force has disrupted the existing equilibrium.[118] Prior to the regulation, we may have disequilibrium or an unstable mixed equilibrium that will eventually tip into a stable pure-strategy equilibrium. By proclaiming one of the possible pure-strategy equilibria, the law could simply influence which one is selected or at least speed up the process that would have otherwise been achieved.[119]

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[117] If the players bear all the costs of their fighting, they will purchase an efficient level of fact-based adjudication. But if there are serious negative externalities to their fighting, they will purchase an inefficiently low amount. One way to encourage more adjudication is for the government to subsidize it. If so, it would then make sense for government to subsidize an institution—the courts—to provide this function at less than the actual costs. It might also then make sense to require adjudication in some instances, that is, to forbid self-help. Whether these normative points are correct or not, where parties could otherwise engage in mutually destructive self-help, the judicial adjudication of disputes can be expected to have an effect independent of the sanctions the court uses to enforce its decisions.

[118] For example, more recent evolutionary game theory emphasizes the potential of persistent "mutations" to upset Nash equilibria. The idea is that random mutations will, with some small but nonzero probability, occur in clusters. See, e.g., Dean Foster & Peyton Young, Stochastic Evolutionary Game Dynamics, 38 Theoretical Population Biology 219 (1990).

[119] I argue that the abundance of asymmetries in any situation creates an abundance of possible strategies, more than the few typically explored in formal evolutionary models. See Section III.B.2.b. Consequently, in any real world situation, there are likely to be many more individuals who first begin pursuing inferior strategies, and therefore more time is necessary for them to figure out which one is best. The amount of time spent in disequilibrium may then be significant. Picker's simulation of

But law can do more than simply speed up an evolutionary proc-
ess already under way. By providing a focal point, legal rules have
the potential to displace an existing equilibrium. The new law can
change behavior in three ways. First, with any equilibrium, the le-
gal focal point may *compete* with the equilibrium, causing
individuals to doubt whether past play will in fact predict future
play. Second, with a mixed equilibrium, the law may *label* a feature
of the environment, causing individuals to play pure strategies
based on the asymmetry created by the label. If so, the law replaces
the mixed equilibria with a convention. Third, with any equilib-
rium, the law can *clarify* an asymmetry, causing people to play pure
strategies based on the clarified asymmetry. If so, the law either
replaces a mixed equilibrium with a convention or replaces one
convention with another. Thus, in iterated situations, regulatory
law has a competing, a labeling, and a clarifying function.

a. Competing: Using Regulation to Create a Competing Focal Point

The first point requires that we fully understand the power of an
existing equilibrium. I contend that the equilibrium predicts future
behavior only because, in equilibrium, past play provides a focal
point for future coordination. Whether the law can offset this focal
point is then an empirical question.

We must begin with this question: Why does a Nash equilibrium
tend to persist? More precisely, when there are multiple equilibria,
and the players have somehow reached one of them, what reason-
ing process leads each individual to play the same strategy in the
next round that he played in the last round? Recall that at a Nash
equilibrium, an individual cannot do better by *unilaterally* changing
strategies. Suppose the issue is smoking and the current equilib-
rium is that smokers play Hawk and nonsmokers play Dove—a
prosmoking convention. Given the equilibrium, if other smokers
continue to play Hawk, then a single nonsmoker will be worse off
switching to Hawk. If other nonsmokers continue to play Dove,
then any one smoker would be worse off switching to Dove.

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repeated coordination games might seem to suggest otherwise. See Picker, supra note
97, at 1282–87. But he imagines that agents choose between one of only two possible
strategies. Given hundreds or thousands of possible equilibria, it could take a long
time to settle on a single equilibrium through adaptive learning.

In general, everyone in the game can reason this way: If all other players do in round $t + 1$ what they did in round t, then I am best off doing what I did in round t. But this is not sufficient. Even if each individual is best off doing what he did before *on the condition that* everyone else does what they did before, how does each individual know the others will do what they did before? One is tempted to say that each other player will also reason that he is better off sticking with his prior strategy if everyone else does the same. But this is circular. I need to decide what others will do— specifically, that everyone else will do the same—before I decide what is the best thing for me to do, but what others will do depends on (among other things) what *I* will decide to do.[120]

My contention is that the stability of an existing Nash equilibrium depends entirely on the fact that past equilibrium behavior is *focal*. If there is more than one Nash equilibrium, then once the players achieve one of the equilibria, it is now a unique point. It is the only equilibrium they have ever jointly achieved, or it is at least the only equilibrium recently achieved and recent precedent may, other things equal, be more easily remembered than older precedent. Although the players could decide to act differently in the next round, they know they would have trouble coordinating at any equilibrium other than the one just achieved. For example, imagine that several people once "accidentally" solved a meeting-place problem by randomly going to *P3*, and subsequently, they find themselves in a very similar meeting-place problem. Their shared history makes *P3* focal. Even if each player prefers another meeting place to *P3* (but the preferred alternative is different for each player), *P3* still stands out. The point is much stronger when applied to a long-lasting equilibrium: One cannot be certain others will stick to their prior strategy, but there is no compelling reason for them to make any move other than what the current equilibrium requires.

The important implication is that, if the last round's equilibrium outcome is stable only to the extent it is focal, then anything that creates another focal point has the potential to upset the equilibrium. For example, a convention may dictate that the driver on the right at an intersection has priority, but if both drivers see a by-

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[120] See Dixit & Skeath, supra note 31, at 217.

stander directing the driver on the right to stop and "waving on" the driver on the left, it is an empirical question how they will behave. Similarly, in a setting where the convention is to tolerate smoking, the posting of "no smoking" signs may cause smokers and nonsmokers to wonder whether nonsmokers generally will continue to play the Dove and whether smokers will continue to play Hawk. That everyone wonders about the validity of past precedent is enough to rob the precedent of its inevitability. The result is uncertain, but when law provides a competing focal point, it could cause a jump from one equilibrium to another, not because of the fear of legal sanctions, but because of a fear of negative payoffs from playing one's prior strategy when everyone else switches to a new strategy.

b. Labeling: Using Regulation to Focus Attention on an Asymmetry and Supplant an Existing Mixed Equilibrium

In the Firewood game used to introduce the evolutionary analysis, the players somehow jointly "notice" an asymmetry between the possessor and nonpossessor of the property. They label their roles themselves. The recognition destabilizes the mixed equilibrium; after that, random perturbations are likely to produce a convention based on the asymmetry.

Now consider how a third party might *label* the environment so as to cause the players to notice an asymmetry. The third party may then destabilize the mixed equilibrium and produce significant behavioral change. For this purpose, consider Sugden's "Crossroads game."[121] Imagine a remote place where there is no law governing who has priority at an intersection of two roads. When two cars approach the intersection on different roads, we have a Hawk-Dove game: Each prefers to maintain speed while the other slows down and yields, but each strongly prefers avoiding a collision that occurs if both drivers maintain speed. In the symmetric version of the game, the payoffs are like those in Figure 4.[122] We predict that evolutionary processes produce an mixed equilibria in which Yield (the Dove strategy) is played 2/3 of the time and colli-

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[121] See Sugden, supra note 60, at 34–52. Sugden discusses the decentralized evolution of conventions to solve this game, but not the use of law (or other intentional labeling devices) as I discuss in the text.

[122] See supra text accompanying notes 59–60.

sions occur 1/9 of the time (when both drivers play Maintain Speed, the Hawk strategy).

In this context, anything that breaks the symmetry—by creating common knowledge of a particular asymmetry—is likely to produce, over time, an equilibrium with no Hawk/Hawk collisions. One obvious means of breaking the symmetry would be to erect signs on both sides of every intersection along one of the roads. The signs would say "Stop" or "Yield." One might think the success of these signs is due entirely to the content of their message. But the *labeling* of the road creates an independent focal effect. To illustrate, suppose the signs are illegible. Or suppose that someone erects not signs but large green poles along one road on both sides of the intersection. Assume also that the drivers can always tell as they approach an intersection whether their road is the one with green poles.

By labeling the environment, the green poles create an asymmetry in the players: One is a driver on the green-poled road, the other is not. If the game is played only once, the asymmetry is probably irrelevant. Though the green poles make one road "stand out," it could be entirely unclear to the players whether the poles suggest that the drivers on that road have priority or that the drivers on that road should yield.[123] But if the game is recurrent, the asymmetry matters. It gives rise to two new strategies:[124]

(4) *yield when on a road with green poles and maintain speed otherwise*; and

(5) *maintain speed when on a road with green poles and yield otherwise*.

Once these strategies exist, the existing equilibrium is no longer stable. If, by accident, the probability of a driver playing Hawk

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[123] The green poles may make one road more salient than the other. This would solve a problem, like the meeting-place problem, where coordination requires two parties selecting the same road. But here, coordination requires different actions by the parties. Highlighting one road leaves open the question of which action (Yield or Maintain Speed) should occur on that road. One might reason that markers indicate who should alter the status quo, which means yield; conversely, markers might indicate the "privileged" road to which drivers on other roads should yield. But if the drivers share the right expectations, the poles might help coordination even in a single instance of the game. My point in the text is that they do not have to, and assuming they don't, there is still a labeling effect that occurs when the game is repeated.

[124] These are in addition to the original three strategies: (1) *Maintain speed*; (2) *Yield*; and (3) *Maintain speed with probability* h *and Yield with probability (1 − h)*, *where 0 < h < 1*.

when on the green-poled road rises above 1/3, then the payoff from playing Dove when one is not on the green-poled road also rises. Conversely, if some random event causes the probability of a driver playing Dove when on the green-poled road to rise above 2/3, the payoff from playing Hawk when one is not on the green-poled road also rises. Regardless of whether these green poles initially "mean" anything to any drivers, it is likely that evolutionary processes would produce an equilibrium where everyone plays Strategy 4 or Strategy 5. Green poles break the symmetry and produce a new equilibrium in which there are no collisions.

The relevance of this analysis to the present discussion is that *law* provides one means of labeling the players or other elements in a strategic situation and thereby creating common knowledge of asymmetries. In the Crossroads game, the state can serve as the third party that erects the physical objects—green poles or yield signs—that break the symmetry. More likely, the state erects signs that say "Stop" or "Yield," and enacts a law requiring compliance with such signs. The result is to create a focal point influencing the choice between Strategy 4 and Strategy 5. But the key here is that expressive law changes the equilibrium only because labeling first creates two new possible equilibria. At that point, the existing equilibrium is unstable and the focal power of law helps to determine which stable equilibrium is selected, guiding the processes of adaptive learning in the direction of a particular convention.

At this point, I should acknowledge that asymmetries abound in the real world. Because there are few genuinely symmetric situations, the labeling potential of law might seem to be trivial. Notwithstanding natural asymmetries, however, the analysis here is quite general. Individuals often play the game *as if* it were symmetric because, when asymmetries are sufficiently abundant, an individual ignores all of them.

The Crossroads game, for example, offers *too many* asymmetries. A few factors creating asymmetries are the size, make, model, color, and age of the two cars; the size, direction, and names of the two streets; the weather, date, day, and time. Switching to a more successful strategy means that one must first *identify* the alternative strategies. Possible strategies include not just playing Hawk when on the right, but playing Hawk when on the larger street, when on the alphabetically prior street, when in the larger car, or when driv-

ing a Ford. There are also permutations of simple strategies, like "Play Hawk when one is on the right in a blue car on an odd numbered or rainy day or when traveling north, and Dove otherwise, except always play Dove when the other car is yellow." More troubling yet are time-sensitive strategies: "Play Hawk when on the right and Dove when on the left before July 1, 2002 and thereafter play Dove when on the right and Hawk when on the left." As a purely logical matter, the number of strategies is infinite.[125]

For the sake of argument, suppose that the number of asymmetries (and therefore strategies) is not infinite, but merely very large. What will players do when they know there are a very large number of asymmetries in the recurrent situation?[126] Let's assume that individuals must incur a cost of time and effort to collect the data on any particular asymmetry. Drivers passing through an intersection must give scarce attention to the presence of asymmetries. Drivers without perfect memory or computational skills must expend effort trying to detect the play patterns associated with asymmetries.

These costs have a dramatic effect. Now an individual may rationally decide not to allocate *any* time or effort to studying *any* of the asymmetries. The problem is that no one can know in advance which asymmetry will turn out to matter. That is, given that the instability of the current mixed equilibrium arises from random perturbations, no one can predict *which* asymmetry a future convention will exploit. The investment in data collection for asymmetries that turn out not to matter is wasted. Because there are so many asymmetries, the cost of investigating all the strategies based on them can easily exceed the benefits.[127] The alternative cost

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[125] Sugden uses this observation (based on what philosophers call the problem of induction) to question whether rationality alone can explain strategy selection during disequilibrium. See Sugden, supra note 36.

[126] If individuals were perfectly rational and the costs of collecting data on all the asymmetries were zero, then a convention would certainly emerge. Eventually, random perturbations would cause a deviation from the mixed equilibrium along some asymmetry; all the players would immediately notice the greater benefits of playing a strategy based on that asymmetry.

[127] The benefits of collecting data on all possible strategies is at most the discounted value of the difference in continuing to play the current strategy and switching to the better strategy one would learn by investigating all the possibilities. But this overstates the benefit if one can expect to free ride off the investigations of others. A player may know that, even without investigating the asymmetries, he will notice once everyone else begins to follow a pure-strategy equilibrium—a convention. In other

of investigating just one strategy is less, but so is the expected benefit, because the one strategy investigated will probably be unrelated to the convention that emerges. To clarify, assume that c is the cost of investigating one asymmetry and there are n asymmetries. Assume that b is the expected benefit derived from playing a new strategy based on some asymmetry.[128] The individual rationally chooses not to investigate all the asymmetries if the value of nc exceeds the discounted value of b. If, as discounted, $nc > b$, then $c > b/n$, so that it will not pay for an individual to investigate any single, randomly selected, asymmetry. If the players rationally choose to ignore asymmetries, they will not notice that the payoffs from a strategy based on some asymmetry exceed their existing payoffs. A mixed equilibrium is therefore stable in the face of asymmetries when the cost of investigating strategies based on the asymmetries exceeds the expected benefits.

Viewing the situation globally, the players face a "second-order" coordination problem. The players have a common interest in reaching a pure-strategy equilibrium that avoids all the costly Hawk/Hawk outcomes. They can be said to have a common interest in finding some asymmetry that will facilitate such a pure-strategy equilibrium or convention. In the Crossroads game, all drivers would like to share the "right" to proceed through intersections according to some asymmetry in the situation that everyone can recognize. The problem is that no one wants to incur the costs of investigating all the salient asymmetries and, though everyone is willing to incur the costs of investigating just one asymmetry, *assuming it is the same asymmetry everyone else investigates*, no one knows what asymmetry others will investigate. The coordination problem being described arises at a higher level than that described in the one-shot version of the game. The first-order coordination problem arises from each player not knowing what behavior to expect from the other in a single iteration of the game. The second-order coordination problem arises from not knowing on which

words, he won't detect the initially small gains from adopting a strategy that exploits some asymmetry unless he expends resources "investigating" the asymmetry. But he will inevitably notice that everyone else switches to playing the same pure strategy. Thus, his loss from not investigating asymmetries is limited to the time before he notices everyone else has switched to the same pure strategy.

[128] For reasons stated supra note 127, this benefit may be limited by the time it takes to notice everyone else has switched to the same pure-strategy equilibrium.

asymmetry to focus for purposes of creating a convention to solve the first-order problem. As a result, no asymmetry is *focal*, so no one investigates anything, and no convention emerges.

As law solved the first-order coordination problem, it solves this second-order problem by focusing attention on a particular asymmetry. *Law works by making focal the asymmetry the law embodies.* Once an asymmetry is salient, law then works as with one-shot games to make a particular solution focal. Thus, what I have termed as the law's *labeling function* is merely the focal-point function as applied to the second-order coordination problem. The law solves the second-order problem by highlighting one asymmetry and then solves the first-order problem by highlighting one part of that asymmetry. In both respects, law works as a focal point.

Thus, when a publicized law says, "At Crossroads, yield to the right," it first focuses attention on the left/right asymmetry, making that asymmetry the focal solution to the second-order coordination problem. Because this asymmetry now "sticks out" from all the others, one can expect others to use it to create a convention.[129] By saying "yield to the right," the legal rule advances a particular "side" of the asymmetry. This effect addresses the first-order coordination problem: Given that everyone is focusing on the left/right asymmetry, should everyone yield to the left or to the right? The legal rule focuses attention on one solution and will likely produce the expressed convention—here, yielding to cars on the right. But law has this latter effect only because it first destabilized the existing equilibrium by focusing attention on a particular asymmetry.[130]

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[129] If everyone else is paying attention to this asymmetry, the individual's expected benefits from collecting data on it now rise dramatically and may easily exceed the costs. Given perturbations, adaptive learning will produce a pure-strategy convention.

[130] Some may object to my analysis that the left/right asymmetry is naturally unique in certain ways, so that, in this particular example, law is not strictly necessary to create a convention based on the asymmetry. As an empirical matter, I believe this is false (because not all societies have the left/right convention). In any event, I used the Crossroads game just for continuity. Another traffic problem may better illustrate why natural asymmetries are often not salient. In the "Passing game," two drivers head toward each other in different lanes of a two-lane road. Each driver wishes to pass a slower vehicle in her lane, but because passing opportunities are scarce (visibility often being limited), only one driver can pass safely. Although there are abundant natural asymmetries—as those based on the size, model, and color of the cars involved, the weather, date, day, and time, and the direction each is traveling—there is no left/right asymmetry. None of the natural asymmetries is likely to be focal. But the state can create a salient asymmetry by drawing two yellow lines down the middle of the road in what it considers to be safe passing zones. On one side, the line

In sum, labeling theory gives a rational-choice explanation for how law might change behavior just by describing it. By creating or publicizing asymmetries, law can create additional strategies and, as a result, new possible equilibria. Evolutionary processes could then drive behavior to one of these new equilibria, perhaps aided by the focal power of law.

c. Clarifying: Using Regulation to Clarify an Asymmetry and Supplant an Existing Mixed- or Pure-Strategy Equilibrium

The final point is that regulation can "clarify" an asymmetry. The players may fail to base strategies on an asymmetry only because it remains somewhat "fuzzy." If law clarifies the asymmetry, the players may then choose to play strategies based on it. The result might be to displace the current state—either a mixed equilibrium or pure-strategy equilibrium based on a different asymmetry. Most importantly, the new convention could be more efficient than the old.

I will illustrate the point assuming there already is a convention in place. For this purpose, I will introduce some efficiency considerations to the Crossroads game. Suppose that it minimizes total travel time if drivers on smaller roads yield to drivers on larger roads.[131] If all intersections involved an obviously larger and smaller road, we can imagine a convention spontaneously arising in which everyone follows the strategy, "Maintain speed when on the larger road and yield when on the smaller road." But, of course, sometimes two roads of equal size intersect. If it were sufficiently easy to ascertain at an intersection if one is on a larger, smaller, or equal sized road, a convention might spontaneously arise in which everyone followed the strategy, "Maintain speed when on the larger road at unequal intersections or when on the right at equal inter-

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is broken; on the other side, the line is solid. The state need not even announce which kind of line—solid or broken—indicates passing priority. Just the fact that everyone knows that everyone notices this asymmetry creates two new strategies worth investigating: (1) *pass with the broken line and yield with the solid line; and* (2) *pass with the solid line and yield with the broken line.* Of course the state probably would announce a rule favoring one of these strategies and that would probably make that particular strategy focal.

[131] Assume that more cars travel on the bigger road. On average, then, a car that slows down on a big road causes more trailing cars to slow down than a car traveling on a small road.

sections; yield when on the smaller road at unequal intersections or when on the left at equal intersections."

But suppose, realistically, that road size varies continuously. At many intersections, the differences in road size are sufficiently small that the drivers make lots of mistakes about whether they are in fact on a larger, smaller, or equal sized road. Thus, road size presents an asymmetry but it is a "fuzzy" asymmetry. As a result, those who attempt to play strategies involving the size of the road find themselves involved in collisions caused by driver mistakes about comparative road size. Adjudication can sometimes solve this sort of problem by clarifying the facts in a particular case. But adjudication is impractical when the whole point is to allow one driver to drive through the intersection without even slowing down. Thus, we may imagine that the equilibrium that emerges is one that avoids relying on the fuzzy asymmetry. Suppose what emerges is a convention relying only on the very clear left/right asymmetry: "Always yield to the car on the right." This avoids collisions from Hawk/Hawk interactions and from mistakes, though it does not minimize travel time.

Now introduce the state. Suppose that after the "yield to the car on the right" convention emerges, the government physically marks intersections where different sized roads meet. Specifically, the state places green poles on one road of an intersection if, and only if, the intersecting roads are of significantly different size. It does not matter if they are placed on the larger or smaller road as long as they are placed consistently on one or the other and are visible to drivers approaching the intersection on either road. Now we have removed the problem of misidentifying the kind of intersection. By labeling the intersections into two types—those involving equal sized roads and those involving unequal sized roads—the state has turned a fuzzy asymmetry into clear one. This fact alone can guide the drivers to a new equilibrium, one that culminates in a convention that produces one equilibrium behavior at green-poled intersections and another at other intersections. Specifically, labeling enables conventions in which drivers yield (1) at green-poled intersections (of unequal sized roads) depending on the size of the road they are on and (2) at other intersections, according to whether they are on the left or right. The law's focal final effect will likely guide behavior to the prescribed convention.

If the law proclaims, "At green poles, yield to the car on the bigger road and at other intersections yield to the car on the right," it can produce a convention more efficient than was otherwise possible. This convention avoids collisions—from Hawk/Hawk interactions and mistakes—*and* minimizes travel time. As with all the effects discussed here, the law produces this result without the threat of sanctions.

Legal rules are often accompanied by signs that proclaim the rule. The conventional understanding of these signs is merely that they publicize the law: *This* is where the right to park your car ends, *here* is where you may not smoke, and so on. But the analysis here shows that these physical markings have a more direct effect, one not dependent on legal sanctions. The state can influence how two private parties interact merely by labeling the physical space in which they interact. Private landowners undoubtedly have the same power, so that law is not always necessary to produce this effect. Nonetheless, a comprehensive positive theory of legal compliance should include this expressive dimension.

The law's ability to influence behavior by labeling is not, however, limited to the labeling of physical spaces. The law also directly labels individuals. Think of the huge variety of legal categories that the law places on persons: state actor, private citizen, spouse, parent, minor, owner, fiduciary, employee, merchant, franchisee, landlord, felon, and so on. In each of these cases, the law may "clarify" an ambiguous asymmetry. Intended or not, the effect of a clarification is to change the payoffs from strategies that attempt to exploit the asymmetry. The fact that law gives a specific meaning to a term like "parent" or "spouse," for example, undoubtedly affects private interactions not subject to any legal sanction. They make it more likely that we will observe pure-strategy equilibria—conventions—arising in private settings of employment, insurance, or medical decisionmaking, that involve these defined relationships. Because the state selects one of many ways of defining the term, and also provides adjudication to clarify particular cases, individuals can rely on the clarified concept in selecting their strategies. As in the above examples, clarification may attract more people to use the strategy and/or decrease the number of "mistakes" among those who already use the strategy.

In some cases, the state probably intends its legal definitions to have this expressive effect on interactions between individuals. Racial definitions in the Jim Crow South are an example. Prior to the statutory definitions, there were already race-based conventions and norms.[132] To some degree, the conventions exploited asymmetries in physical appearance. But physical appearances differ continuously among individuals, particularly given that many have parents of mixed races.[133] A vivid illustration of the resulting ambiguity is the fact that some people regarded as "Negro" were nonetheless able to "pass" as white.[134] In this context, clarifying the racial category by statutory definitions facilitated conventions based on race. Today, there is still debate over whether the government's definitions of racial categories, for purposes of affirmative action or the census, have the same effect, intended or not.[135]

As with the physical marking of space, private individuals or institutions might be able to clarify the concepts that label individuals. But in some cases the state retains the advantages of publicity and uniqueness. That is, the media may carry further the state's definitions and the state's message may stand out against a background of competing private messages. In any event, whether or not the state has any comparative advantage in clarifying asymmetries useful to solving coordination problems, its legal rules will sometimes have this expressive effect.

IV. APPLICATIONS: EXPLOITING THE LAW'S FOCAL EFFECT TO REGULATE SMOKING AND LANDLORD-TENANT DISPUTES

This final Part provides two extended examples of the focal point theory, specifically the expressive effect of regulation of public smoking and landlord/tenant disputes. These are potentially the

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[132] See, e.g., C. Vann Woodward, The Strange Career of Jim Crow (3d ed. 1974); Richard H. McAdams, Cooperation and Conflict: The Economics of Group Status Production and Race Discrimination, 108 Harv. L. Rev. 1003, 1036–42 (1995); Robert J. Cottrol, The Historical Definition of Race Law, 21 L. & Soc'y Rev. 865 (1988).

[133] See, e.g., F. James Davis, Who is Black?: One Nation's Definition (1991); Cheryl I. Harris, Whiteness as Property, 106 Harv. L. Rev. 1707, 1737–41 (1993).

[134] See, e.g., Gunnar Myrdal, An American Dilemma: The Negro Problem and Modern Democracy 683–84 (1944); Harris, supra note 133, at 1710–13. There were also people who self-identified as white but failed the prevailing legal definitions. See Harris, id. at 1739.

[135] See, e.g., Alex M. Johnson, Jr., Destabilizing Racial Classifications Based on Insights Gleaned from Trademark Law, 84 Cal. L. Rev. 887, 924–25 (1996).

most difficult situations for expressive law because the players already recognize an asymmetry and have already achieved a stable equilibrium. Nonetheless, I use them to illustrate some of the claims stated above.

A. The Expressive Effect of a Public Smoking Ban

I previously modeled conflict over smoking as a one-shot Hawk-Dove game.[136] Each player wants to "get his way"—by smoking or preventing the other from smoking—but each also wants to avoid an embarrassing "scene" that occurs when both players insist on getting their way (the Hawk/Hawk outcome). Obviously, this problem is recurrent, so we should consider it in light of the evolutionary analysis.

1. An Existing Convention Favoring Smokers

As before, we initially assume there is no government regulation of smoking. The first thing to note is this asymmetry: Conflict over smoking arises because one player wants to smoke and the other wants the first not to smoke, at least not at that moment. Doubtlessly, this asymmetry is too obvious not to be noticed. Thus, Figure 7 models the game as an asymmetric one between a smoker and a nonsmoker. The players therefore observe that the possible strategies include "Yield when one is the smoker and insist when one is the nonsmoker," and "Insist when one is the smoker and yield when one is the nonsmoker." Assume also that all individuals decide to "investigate" this asymmetry, meaning they pay attention to how payoffs vary according to it.[137] Although there remains a mixed equilibrium in which the probability of a randomly selected smoker or nonsmoker playing Dove is 2/3, this equilibrium is unstable. The only stable equilibria are ones where smokers always yield and where nonsmokers always yield.

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[136] See supra notes 84–85 and accompanying text.
[137] Because the smoker/nonsmoker asymmetry is so obvious, each individual expects that everyone else will pay attention to it. Because everyone expects some convention to arise out of this asymmetry, it is worthwhile for each individual to "investigate" the asymmetry. See supra text accompanying notes 122–128.

"Nonsmoker"

	Yield	Insist
Yield	1,1	0, 2
Insist	2,0	-2,-2

"Smoker"

FIGURE 7

One might think that there is an important distinction between this case and the original example involving "possessors" of property and their "challengers." The difference is that we may imagine that everyone possesses some property so that everyone finds that they are sometimes in the role of possessor and sometimes in the role of challenger. Most nonsmokers, however, never expect to be in the position of smoker; many smokers never expect to be in the position of nonsmoker. But in a game between randomly selected strangers, this difference will not change the outcome. Suppose you are a nonsmoker in the original mixed equilibrium and you are playing the particular mixed strategy of Dove with a 2/3 probability and Hawk with a 1/3 probability. Suppose you then detect that the probability that a random smoker will play Dove falls below 2/3. That means that when you next encounter a smoker, you will increase your expected payoff by playing Dove *more* than 2/3 of the time.[138] You may not want the behavior to tip into a new prosmoking convention. But you can't cause it or stop it by your decision alone, so you maximize your payoffs by increasing your probability of Dove.[139] As the equilibrium changes, you eventually play Dove all the time.[140]

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[138] When the probability that a random smoker will play Dove is 2/3, then your expected return from playing Hawk is 2/3 ((2/3)(2) + 1/3(-2)) and from playing Dove is 2/3 ((2/3)(1) + 1/3(0)). So you have no reason to alter your existing strategy. But when the probability that a random smoker will play Dove falls from 0.67 to 0.6, your expected return from playing Hawk is 0.4 ((0.6)(2) + (0.4)(-2)) and from playing Dove is 0.6 ((0.6)(1) + (0.4)(0)). So you are better off switching to Dove in every case.

[139] Here we see that there is a *cooperation* problem among nonsmokers who want to resist evolution toward a prosmoking convention. If nonsmokers could cooperate in playing Hawk for some time period, they could block the new convention and instead produce an antismoking convention (assuming smokers do not also solve their collective action problem). The gains to each nonsmoker might exceed the costs of always playing Hawk during the mixed equilibrium. But the dominant strategy is to free ride, to gain the benefits of other nonsmokers playing Hawk without bearing any of the costs.

[140] The example illustrates how evolutionary game theory could explain the creation of oppressive conventions or norms of partiality that allow some class of individuals to benefit over time at the expense of others. See Russell Hardin, One for All: The

Real world conventions are usually more complex. This complexity arises because individuals notice additional asymmetries that create further possible strategies. For example, they may notice obvious differences in the *place* where smoking/nonsmoking occurs: indoors vs. outdoors, the smoker's property vs. the non-smoker's property, a restaurant vs. a hospital. Or they may notice less obvious differences in *circumstances*: when one player is intoxicated, recovering from grief, or suffering a respiratory ailment. A smoker might decide to play Hawk outdoors and Dove indoors. A nonsmoker might play Hawk unless the smoker is intoxicated or grief-stricken. The willingness to play such strategies may be affected by the fact that the payoffs may differ slightly in each situation (but in every case still presenting a Hawk-Dove game). The result may be a complex convention. Instead of a uniform outcome where either smokers or nonsmokers always yield, we get an equilibrium in which smokers always play Hawk in certain situations and Dove in others, and nonsmokers do the opposite.

Let us call a combination of time, place, and/or circumstance in which a convention arises a "context." The overall smoking convention may be complex, but let us assume that, *within a given context*, the only stable equilibria are ones in which smokers always yield or nonsmokers always yield. In other words, each context has a separate convention and each convention takes the form either that smokers smoke as they please (without objection) or that smokers ask permission, which nonsmokers refuse as they please (without objection).

Now consider the specific context of passenger waiting areas in airport terminals. When individuals enter the waiting area, their first "move" is to decide where to sit (based on factors like proximity to the gate). Once they select a seat, smokers and nonsmokers pair up and play a Hawk-Dove game to determine whether that area will be used for smoking. Suppose that the current airport convention is for smokers to play Hawk and nonsmokers to play Dove. Will it then matter if the state desig-

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Logic of Group Conflict (1995); Ullmann-Margalit, supra note 7, at 134–97. As note 139 indicates, the convention creates a cooperation problem for the oppressed because, acting collectively, they might be able to displace the convention, but each individual is best off free riding on the efforts of others. Dennis Chong uses this framework to analyze the American civil rights movement of the 1950s and 60s. See Chong, supra note 6.

nates certain areas of airport terminals as "nonsmoking" and pro-
hibits smoking in these areas? The law does create a new
asymmetry between smoking and nonsmoking areas. It does there-
fore create the new strategies of playing Hawk in one location and
Dove in the other, and a focal point of nonsmokers playing Hawk
only in no-smoking sections. But there is a potential problem. The
day before the state bans smoking in designated areas, 100% of
smokers played Hawk in these (and all other) areas. The day after
the ban, unless the law threatens sanctions, why would anyone ex-
pect anything different from smokers? If smokers will play Hawk
100% of the time, even in nonsmoking areas, then it does not pay
for nonsmokers to challenge them. Indeed, given the payoffs of
Figure 7, as long as more than 1/3 of smokers play Hawk in a given
context, it pays for nonsmokers to play Dove more than 2/3 of the
time. Adaptive learning would then push behavior back to the con-
vention where smokers always play Hawk and nonsmokers always
play Dove.

2. Exploiting the Focal Effect to Upset the Pro-Smoking Equilibrium

Notwithstanding the existing convention, antismoking laws may
generate compliance without the threat of legal sanctions. The
starting point is to realize that rationality alone does not require
that individuals follow the existing convention, which is to say, the
pattern of play of the recent past. As discussed above, a prior equi-
librium—all smokers play Hawk—merely provides a focal point for
future play.[141] But law now provides a competing focal point. Once
the law says "no smoking in designated areas," there is one equilib-
rium that is focal because of past precedent and another
equilibrium that is focal because of the publicity and uniqueness of
legal expression. Which equilibrium will emerge—which is *more*
focal—is entirely an empirical question.

By itself, this merely says that the outcome is difficult to predict.
But that is itself highly significant. Ignoring the focal point effect,
we would predict *a priori* that a sanctionless law would have no ef-
fect. But given the focal point effect, it becomes an empirical
question. Moreover, there is an additional reason to believe that

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[141] See supra text accompanying note 120.

the law will upset the equilibrium. The physical markings of no-smoking zones are likely to cause behavioral changes. This labeling effect gives additional power to the "competing focal point" the law provides.

a. The Labeling of Public Spaces Changes Public Behavior

Note how the state's labeling of seating space as "no-smoking" alters the game. As stated above, when players enter the airport terminal, their first move is to decide where to sit. After that, if there is conflict between people sitting near each other, the individuals involved play a Hawk-Dove game. Before the state designates separate smoking and no-smoking sections, this prior move involves identifying the most attractive available seat or randomly selecting between equally attractive available seats.

The state's labeling of seating sections alters the behavior of the players at this first stage. Nonsmokers will now flock to the non-smoking area. For the nonsmokers, the situation is a meeting-place problem. They all prefer to sit near other nonsmokers, but being strangers, they don't know where to meet each other. The legal labeling has solved this problem by effectively saying, "Nonsmokers meet here." Smokers, however, are indifferent as to where they sit because we assume (because the equilibrium is stable) that, wherever they sit, they expect to play Hawk to any nonsmoker's Dove. Nonetheless, there will still be a higher proportion of nonsmokers in the nonsmoking section because they will seek out that section while smokers select seats randomly. Moreover, if the nonsmoking section consists (initially) of only a few relatively undesirable seats, then there will be greater separation, possibly even complete segregation. Smokers will avoid these seats because they are undesirable; those who bother with such seats will be nonsmokers seeking to avoid smokers. For example, suppose there are 50 passengers, 10 of whom smoke, and 100 seats, the least desirable 25 of which (because they are farthest from the gate) are designated "no-smoking." It is easy to imagine that no smoker chooses to enter the no-smoking area merely because there are better seats available. Quite possibly then, the mere labeling of seats produces

what appears to be substantial or complete compliance with the new law.[142]

At this point, labeling has produced significant behavioral change. Even if smokers ignore the no-smoking rule, smokers still tend to congregate in the smoking section simply because non-smokers avoid such seats. Thus, even absent the threat of legal sanctions, the rule generates some compliance, possibly even full compliance. Nonetheless, the compliance is fragile. Nothing has changed the basic equilibrium—that smokers play Hawk—so if the game is unavoidable, the outcome remains the same. If there is a shortage of seats, for example, then most smokers will not hesitate to sit in the nonsmoking section and smoke. Nonsmokers will not "enforce" the rule against smoking in no-smoking sections.

b. Combining Behavioral Change and Competing Focal Power

Now consider how this behavioral change—the separation of smokers and nonsmokers—combines with the focal competition effect first discussed. When behavior changes, there is a stronger reason for doubting the focal power of the prior equilibrium. The

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[142] If one complicates the game a bit, to make it more realistic, the tendency to separate smokers and nonsmokers becomes even more pronounced. Because payoffs vary continuously among players, it is likely there will be at least a few for whom the game being played is *not* Hawk-Dove. I previously derived the payoffs for Hawk/Hawk by imagining that a player who "fights" wins half the time but that half the payoff from winning (the expected gains from fighting) was exceeded by the costs of fighting. But if the players are heterogeneous, there will be some for whom half the payoffs from winning will exceed the costs of fighting (or, more generally, for whom the probability of winning times the benefits of getting one's way is greater than the expected cost of engaging in a fight). For these individuals, Hawk is the *dominant* strategy and they will play it regardless of what they expect the other to do. Thus, some smokers and nonsmokers will always play Hawk because their costs from fighting are unusually low or their benefits from, respectively, smoking or avoiding smoke are so high. Let us call such players "cranks," though the term does not mean the players like to fight, but merely that their payoffs make it rational to fight.

In the existing equilibrium, the existence of *smoking* cranks does not affect the play of ordinary nonsmokers (that is, the noncranks) because they always defer to any smoker. But the existence of *nonsmoking* cranks alters the analysis. Nonsmoking cranks will, like all nonsmokers, congregate in the nonsmoking area. (Though such cranks play Hawk when confronted with a smoker, they still prefer to avoid exposure to cigarette smoke without having to incur the costs of a fight.) Smokers, whether cranks or not, will in turn prefer to avoid the costs of encountering a nonsmoking crank. Knowing that most nonsmoking cranks are in the no-smoking section, all smokers now have a reason to avoid that section. The difference in expected costs may be small because the number of cranks is low. But even a small reason will contribute to added separation of smokers and nonsmokers.

law does not merely highlight the alternative equilibrium by its formal message—"don't smoke here." The law also creates a situation where very little smoking occurs in the new no-smoking section. Thus, we now have formally "new" spaces—smoking and no-smoking—and fairly effective segregation—most of the people in the no-smoking section are nonsmokers. When players observe the new message and the new segregation of behavior, they have a significant reason to wonder whether past precedent predicts future play—that is, to wonder whether the convention that governed the airport before formal and effective segregation is the best predictor of what will now occur with formal and effective segregation.

The players may also consider the relevance of other prevailing smoking conventions. Suppose that in this society, nonsmokers play Hawk in certain other contexts—say in hospitals and movie theaters. Previously, a nonsmoking convention that governed some "other context" did not seem at all predictive of behavior in the airport context. But now these places may seem to have much in common with the designated no-smoking section of the airport. These contexts may now seem more relevant for predicting airport behavior than is the prior airport convention.

In short, after the law produces some apparent behavioral compliance, players may no longer see this "game" as the *same* one to which the prior convention applied. The precedent of the "old" game—that smokers play Hawk in airports—still exerts influence; it offers a focal point. But the law *and* the observed behavior in airports (and possibly other contexts) create a focal point for nonsmokers to play Hawk in no-smoking sections. The latter focal point may be strong enough to change expectations about the strategies smokers and nonsmokers will play, which would change what strategies are played. If nonsmokers play Hawk in these sections in sufficient numbers, they will establish a new pure-strategy equilibrium, a convention against smoking. Then the compliance with the law will no longer be fragile; even without legal sanctions, it is enforced by second-party sanctions.[143]

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[143] It is worth noting here that other factors can interact with the described expressive effect. If the law is initially enforced by sanctions, for example, that fact could itself suffice to create an expectation that smokers will play Dove in the no-smoking section. At that point, the nonsmokers will begin to play Hawk, the new

Finally, note how the state can act incrementally. The above analysis assumed that the no-smoking section initially consists of only a few relatively undesirable seats. The fewer and less desirable the seats, the greater the probability that all the people sitting in the seats are nonsmokers who selfishly comply with the law. The greater the apparent level of compliance, the starker the contrast from previously observed behavior. Once this contrast disrupts the prior equilibrium in the manner described, the state can enlarge the no-smoking section and include more desirable seats. The expectations are linked to what seats are designated no-smoking. So everyone will continue to expect nonsmokers to play Hawk in all parts of the no-smoking section, even as that section increases in size.

In perhaps the penultimate stage, the no-smoking section is the whole airport terminal except for a small section of relatively undesirable seats that now constitute the "smoking" section. The final stage is to ban smoking entirely. Nonsmokers will continue to play Hawk unless, as claimed above, this shift in the game is so radical that it creates doubt about how well past play predicts future play. But unlike the law that first created no-smoking sections, here the precedent of existing convention and the law point in *the same direction*. At first, the law worked toward creating an expectation that nonsmokers will play Hawk in a given area, an expectation at odds with past practice. Now the existing equilibrium is that nonsmokers play Hawk in the no-smoking area. When the law declares the *whole airport* terminal nonsmoking, both the law (no smoking in designated areas) and the past practice (no smoking in designated areas) work in favor of nonsmokers playing Hawk throughout the airport. Of course, past practice also favored smokers playing Hawk in smoking areas, but now they cannot *find* any such place. The law works at this final stage by *creating* a meeting-

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convention emerges, and the law is self-enforcing. Or the focal effect may interact with other expressive effects. For example, elsewhere I argue that people are motivated to avoid even the silent disapproval of others. See McAdams, supra note 5. A smoker might consider the silent disapproval of surrounding nonsmokers to be a cost. The simple fact that nonsmokers are concentrated in the no-smoking section means a smoker faces higher costs from smoking there. Again, if this cost is sufficient to cause smokers to switch to a Dove strategy in the no-smoking section, then the nonsmokers will begin to play Hawk. Once that occurs, the new nonsmoking convention will emerge. The law will then be enforced not merely by concern for avoiding silent disapproval, but also by the desire to avoid a costly scene.

place problem for smokers; they can no longer find a concentration of smokers where they expect smokers to play Hawk. Hence, they play Dove. Again, the law produces significant behavioral change without threatening sanctions.

B. *The Expressive Effect of a Landlord Liability Law*

Thus far, I have explored the focal power of law through thought experiments that abstract away from legal sanctions. In my final example (added after Professor Wax completed her Comment[144]), however, I isolate the expressive power of law in a different way. I examine the situation where legal sanctions exist, but are imperfect. In many real-world cases, liability fails to make compliance a dominant strategy. Instead, legal sanctions may only succeed in creating a Hawk-Dove game, or in changing the Hawk/Hawk payoffs in an existing Hawk-Dove game. Where this is true, the focal power of law may provide the critical last step to produce compliance. In other words, where the law is imperfect, its expressive function is a complement to its sanction function; together, they may produce a behavioral change that neither can accomplish alone.

Real world legal sanctions produce only imperfect deterrence. Consider private liability rules. Because legal enforcement is costly, an individual will sometimes decide not to bring a lawsuit he is legally entitled to win because the expected litigation costs are not worth the expected gains. The gains depend on the court system correctly identifying his claim as meritorious, but the inherent fallibility of judicial fact-finding means that every deserving plaintiff (like every deserving defendant) runs some risk of failure. The litigation costs potentially include not only (1) attorney fees, (2) court costs, and (3) the opportunity costs of one's time, but (4) the risk of extra-legal retaliation by the defendant, and (5) possible damage to one's reputation among third parties. The law attempts to protect plaintiffs from retaliation, but again, the fallibility of fact-finding means that defendants will sometimes escape liability for such actions. The reputational problem is that third parties may regard someone who initiates a lawsuit as a "troublemaker"—one

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[144] See Amy Wax, Expressive Law and Oppressive Norms: A Comment on Richard McAdams's "A Focal Point Theory of Expressive Law," 86 Va. L. Rev. 1731 (2000).

situated to gain unusually high benefits from litigation or to incur unusually low costs.

These imperfections are familiar. We know that law sometimes fails to make the enforcement of legal rights a dominant strategy. What I wish to show is that we can plausibly model such imperfections by using a Hawk-Dove game. For certain classes of legal wrongs, the potential plaintiff's expected value for litigating even a meritorious claim is negative. The expected value for the potential defendant is also negative. As a result, litigation is just another form of "fighting" which tends to make both parties worse off. Both parties prefer an outcome where they insist on getting their way and the other party defers, so they can win the conflict without incurring the costs of a Hawk-Hawk outcome. In this situation, there are two equilibria: (1) one in which potential plaintiffs play Hawk by enforcing their rights in court, while potential defendants play Dove; and (2) one in which potential defendants play Hawk while potential plaintiffs play Dove and the legal rights remain unenforced. Given these possibilities, anything that makes one equilibrium focal will help to create the expectations that bring about that equilibrium. Law may work by making focal the equilibrium in which potential plaintiffs assert their rights.

The context of landlord-tenant disputes provides a useful illustration. Specifically, consider a new local ordinance or judicial decision creating liability for landlords for "unreasonable" entry upon the tenant's rental property. I will identify the law's separate expressive and sanction effects by comparing the payoffs *before* and *after* the law creates the new liability. Figure 8 provides the hypothetical payoffs prior to legal liability.

"Landlord"

"Tenant"		Defer	Insist
	Defer	1,1	-2, 4
	Insist	4,-2	-5,-1

FIGURE 8

Column player is a Landlord who gains utility from being able to have access to the rented property at all hours of the day. Row player is a Tenant who loses utility from the risk of Landlord's entry, particularly at certain hours. I address below the significance of

the parties' lease contract for their behavior. For now, note that each individual can play one of two strategies. As in a Hawk-Dove game, there is an aggressive strategy and a passive strategy. However, because the game is not formally Hawk-Dove (for reasons explained below), I will call the strategies "Insist" and "Defer."[145] Landlord plays Insist by demanding the ability to enter the property at any hour; Tenant plays Insist by demanding privacy from such entry. Either can instead play a passive Defer strategy that allows the other to do as he or she wishes.

If both play Defer, they reach a compromise in which each receives only part of what he or she wants; the payoff for each is 1. Compared to this baseline, each player gains by playing Insist against the other's Defer (4) and loses by playing Defer against Insist (-2). If both play the aggressive strategy, they "fight," as before, by having either a physical altercation or a heated verbal confrontation. (We might also include in "fighting" various forms of "self-help" property destruction.) It is possible that the negative payoffs from this confrontation will be equal for both sides, but I have here included unequal payoffs. The payoffs in the lower right cell of Figure 8 might reflect that Landlord is more likely than Tenant to "win" a fight or that Landlord will suffer less from the fight whether he or she wins or loses. Given these payoffs, Landlord is better off playing Insist no matter what Tenant does. The outcome is a convention that Landlords enter their rented premises whenever they wish. Because Landlord has a dominant strategy, the game is technically not Hawk-Dove.

Now consider the fact that the two parties have a contract. This complication need not alter the payoff matrix of Figure 8, but requires that we reinterpret it. When the contract allocates the Landlord a right of access, the Landlord's Insist strategy now consists of demanding his contract rights, while the Defer strategy consists of waiving those rights. In the same situation, the Tenant's Insist strategy consists of demanding a contract waiver while Defer means yielding to the Landlord's contractual rights.[146] Finally, the Insist/Insist outcome now is (or includes) a lawsuit. Thus, *legal li-*

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[145] Here I borrow Eric Posner's "Insist/Defer" terminology. See Posner, Evolution of Constitutions, supra note 3.

[146] When the contract denies access to the Landlord, the opposite interpretations apply.

ability merely creates another form of fighting: Instead of physical violence, property destruction, or verbal confrontation, the parties can litigate. Litigation is costly for all the reasons noted above; in particular it risks retaliation and loss of reputation (litigious tenants and landlords being considered "troublemakers" others wish to avoid). Thus, it remains plausible that the expected outcome for each party is negative. We can imagine circumstances where the expected payoff from litigation is the same (-5, -1) as that from nonlegal forms of fighting. If so, the Landlord's dominant strategy is still Insist; the only equilibrium is Defer/Insist. Regardless of what the contract says, landlords enter their rented·premises whenever they wish.

Now assume that a legislature or court decides it ought to deter landlords from entering rental property at "unreasonable" times. To accomplish this end, the state imposes significant civil sanctions for landlords who enter rented property at times other than those specified. (For simplicity, assume also that the tenant cannot waive his right to be free from these unreasonable entries.) As a result, we get the payoff matrix in Figure 9. Nothing has changed from the first three cells of Figure 8 because there is no invocation of law if either or both parties defer. But the fourth cell changes because the new legal sanctions affect the expected outcome for Insist/Insist. If the new sanctions had the intended effect, they would create a situation in which tenants all had a dominant strategy of Insist and landlords therefore always avoided "unreasonable" entry (for example, by reversing the payoffs from -5, -1 to -1, -5). In keeping with the theme of this example, however, I assume that the new legal sanctions are imperfect. A tenant who initiates a meritorious suit still incurs various costs and, because of legal error, runs the risk of losing. We can therefore plausibly imagine that even for a deserving Tenant the *expected* value of litigating is still negative (and still worse than any other outcome). The new legal sanctions do, however, improve matters for Tenant, raising his expected Insist/Insist outcome from -5 to -3. At the same time, legal liability causes Landlord's expected Insist/Insist outcome to fall from -1 to -3.

"Landlord"

		Defer	Insist
	Defer	1,1	-2, 4
"Tenant"	Insist	4,-2	-3,-3

FIGURE 9

On this view, real-world law has failed to do what perfect law would do, which is to make Defer a dominant strategy for Landlord, thereby eliminating unreasonable entry. Instead, *the sanctions have merely created a Hawk-Dove game.* There are now two possible equilibria—Insist/Defer and Defer/Insist. In the former equilibrium, law "succeeds"; in the latter, the law has essentially no effect. I present this matrix because I think it captures well the situation often created by imperfect law. Sometimes plaintiffs litigate vigorously at the outset of a new law, creating the expectation that they will do so in the future, causing potential defendants to play the passive strategy the law intends. But sometimes defendants litigate vigorously at the outset, creating the expectation that they will do so in the future, causing potential plaintiffs to play the passive strategy and accept the harm the law intends to deter.

In this setting, however, law's focal power can influence the outcome. The stability of the existing convention depends on all the players expecting each other to continue playing the game as before. But the sanctions the law imposes, while inadequate to create a dominant strategy of legal compliance, may call into question whether the individuals are playing the *same* game as before. Even ignoring any expressive effect, the sanctions may unsettle existing expectations enough to cause disequilibrium, requiring an additional period of learning and adjustment to return to equilibrium. *At that point, either equilibrium could emerge.* The final outcome might be the same as the prior convention—unfettered Landlord access—but it could be a new limited-entry convention. It is precisely in this situation of uncertainty that anything making one outcome focal will create expectations that lead to that outcome. By highlighting the outcome the law intends, and by telling potential plaintiffs and defendants that the payoffs are changed for the purpose of changing the equilibrium, the law makes focal the outcome in which potential plaintiffs play Insist to potential defendants' Defer. Like a person standing in the road "waving on" one line of traffic

and "holding off" another, courts and legislatures may expressively tip the outcome toward the plaintiff-dominant equilibrium by publicly "pointing to" that outcome. When sanctions are imperfect, this focal effect could determine whether the law changes the equilibrium or has no effect at all.[147]

As with all the claims in this Article, this one is empirical. To define the claim precisely, it may help to describe a thought experiment, which is also an outline for an empirical test of the theory. Suppose we randomly select pairs of players and assign them the permanent "role" of Row Player—*R*—or Column Player—*C*. For the first experimental stage, we have them play the game represented in Fignre 8.[148] According to the theory, the pairs will quickly settle into a *C*-dominant equilibrium (because *C*s always play Insist). For the second experimental stage, we have all the pairs of players switch to playing the game represented in Figure 9. But we randomly divide these pairs into two groups. For Group 1, the experimenters tell the players nothing, or perhaps say that "random events" have changed the payoffs of the game. Group 1 is intended to model the effect of the legal sanctions isolated from any expressive effect. For Group 2, however, we *tell* the players something intended to model the law's expressive effect. This might be done in several ways, none of which can perfectly capture law, but all of which are suggestive of what law does independent of its sanctions. The experimenters (or an *R*-player) might announce to the players that the change "represents a chance for *R*s to play Insist," or that they "expect the new payoffs to change the game's outcome." Another possibility would be to have the ex-

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[147] The same point would apply even if the initial payoffs *do* create a Hawk-Dove game. Assume that the original payoffs are those stated in Figure 9 *except* that for cell four they are -5, -3. Now the Landlord no longer has a dominant strategy and both Insist/Defer and Defer/Insist are possible equilibria. Assume, however, that the convention that emerges is the one where Landlords always play Insist to the Tenant's Defer (which is actually more likely given the greater fight costs to Tenants). At this point, imperfect sauctions can have the same effect as is described in the text. They fail to make legal compliance the necessary outcome (as where the new payoffs for Insist/Insist are -4, -4), but they may succeed in unsettling the existing equilibrium. With disequilibrium, the focal effect of law can influence the outcome. In general, the focal point may matter whether imperfect sanctions create a new Hawk-Dove game or merely change the payoffs in an existing Hawk-Dove game.

[148] The players interact a number of times and receive monetary units represented by the payoff numbers in the matrix (but their specific decisions remain anonymous even from the experimenter).

perimenters (or an *R*-player) make a more normative statement like "we are changing the game because we didn't think the last one was fair to *R*s." Many variations are possible depending on how far one wants to go toward creating a realistic context for the players. Whatever the exact details, the focal point theory makes a definite prediction: that in stage two we will observe an *R*-dominant equilibrium emerge in Group 2 significantly more often than we observe it in Group 1. A publicized third-party statement, like law, that calls attention to the equilibrium in which *R*s play Insist, is more likely to produce that equilibrium.

CONCLUSION

Much economics-influenced legal theory views law as a solution to the problem of cooperation. The result is that law and economics concerns itself almost exclusively with the sanctions necessary to solve a cooperation problem. This Article has focused on a different problem of strategic interaction, one that has received too little attention given how common it is—the problem of coordination. Sanctions can solve coordination problems, but so can clear, well-publicized, third-party statements, including the legal pronouncements of judges and legislatures. Independent of its sanctions, law can make focal one means of coordinating and thereby induce individuals to select that means. Other third-party pronouncements can have the same expressive effect, but law often has the advantage of publicity and uniqueness. These features may allow even ill-informed government officials to develop a reputation for predicting future behavior, which in turn further enhances the law's coordinating power.

Focal points matter not merely to pure coordination games, but to any game with multiple equilibria, including situations where individual interests conflict to a substantial degree. My primary example is the Hawk-Dove game, which plausibly characterizes many real-world situations in which parties make conflicting claims but have a common interest in avoiding a "fight," broadly understood to include verbal as well as physical confrontations (and sometimes to include litigation with an expected negative return). In these situations, law can expressively change the expectations about which individual will play the aggressive strategy, and thereby influence the individuals' actual behavior. Law can work

on a single pair of individuals by adjudication or on multiple pairs through regulation.

Focal points also matter to repeated situations because they influence what convention will emerge over time. Even though conventions emerge easily without law, and such conventions by definition enjoy a certain stability, the focal effect matters for several reasons. Before any equilibrium arises, or during a new period of disequilibrium, the law's focal power may influence what convention emerges. Even after a convention emerges, the focal power of law may change it. By publicizing or clarifying an asymmetry in the situation, law enables new possible strategies that can lead to new conventions. More fundamentally, because the stability of a convention is contingent on the focal power of past precedent, it remains an empirical question whether any particular convention can resist the competing focal point provided by a new law. I have attempted to illustrate these points with examples of traffic regulation, a ban on public smoking, and liability for landlords. In each case, there is a plausible focal effect independent of the legal sanctions imposed.

My goal in this Article has been to identify the relevance of focal point analysis to law and begin exploring its potential. Far from providing an exhaustive treatment, my analysis is preliminary and incomplete: I consider only a few mixed-motive games, particularly Hawk-Dove; I mostly ignore the complications created when individuals have different payoffs or the sort of iterated conditions that encourage individuals to develop reputations for behaving a certain way; I do not consider the more recent and complex concepts of evolutionary equilibria. The analysis I do provide, however, demonstrates something of the enormous potential for understanding expressive law through the idea of focal points. We may even understand the role of government differently— not merely to coerce, but to guide. I do not claim that this expressive effect is more important than the law's sanction effect, nor even that the focal point effect is the most important component of the law's expressive effect. I claim only that this area of game theory provides an interesting and useful insight into the power of law to influence behavior by what it says rather than by what it does. Where the problem is coordinating expectations, expressive law provides a possible solution.

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