

The Information Costs of Exclusion

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The appropriate scope of the right to exclude is among the most contentious topics in property theory: while some defend direct state regulations that override owners' right to exclude unwanted uses from their property, others defend greater deference to owners' authority, implemented by stringent enforcement of the right to exclude. In recent years, scholars who favor exclusion have developed novel arguments to support it by focusing on the information costs of property. Because everyone must respect property rights, those rights must be simple enough for everyone to understand their content. And the right to exclude, which requires everyone to keep off property unless the owner allows them on, is simple enough to be understood easily by those who must respect it. Thus, these theorists conclude, the information costs of property favor respecting the right to exclude.

This Article defends an alternative analysis of how the information costs of property bear on the proper scope of exclusion. Legal rules generate two kinds of information costs: the costs of learning rules and the costs of applying them. While simpler rules may be easier to learn, they need not be easier to apply. Instead, a rule is easy to apply if individuals can easily determine whether a particular action would violate it, which requires the rule to define violations in terms of facts that are easy for individuals to ascertain. Once the costs of applying the right to exclude are considered, I claim, the law sometimes reduces information costs not by respecting exclusion but rather by restricting it.

The right to exclude prohibits nonowners from crossing property boundaries without the owner's consent. Thus, it defines violations primarily in terms of two facts—whether an action crosses a boundary and whether the owner has consented. While it can thus be applied cheaply if these facts are easy to ascertain, it will be

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costly to apply if not. When individuals would struggle to determine whether an action would cross a parcel boundary, direct regulation of permissible uses may reduce information costs even though it overrides exclusion—as has occurred with activities ranging from airplane overflights to oil and gas production and urban land development. Similarly, because owners’ mental states are often difficult to identify, rules conditioning property access on owner consent can impose substantial information costs, which can be reduced by mandating access to property open to the public at large, regardless of owner consent. Information costs do not uniformly support greater exclusion, then, as exclusion’s defenders have argued; rather, those costs sometimes favor restricting it.

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INTRODUCTION

A central dispute within property theory concerns the proper scope of owners’ authority over their property. Some scholars defend government regulations that directly specify permissible activities—regulations that may sometimes override owners’ prerogatives to determine how their things shall be used.¹ Others, by

¹ See generally, e.g., HANOCH DAGAN, *PROPERTY: VALUES AND INSTITUTIONS* (2011); ERIC T. FREYFOGLE, *THE LAND WE SHARE: PRIVATE PROPERTY AND THE COMMON GOOD* (2003); JEDEDIAH PURDY, *THE MEANING OF PROPERTY: FREEDOM, COMMUNITY, AND THE LEGAL IMAGINATION* (2011); Gregory S. Alexander, Eduardo M. Peñalver, Joseph William Singer & Laura S. Underkuffler, *A Statement of Progressive Property*, 94 CORNELL L. REV. 743 (2009); Gregory S. Alexander, *The Social-Obligation Norm in American Property Law*, 94 CORNELL L. REV. 745 (2009) [hereinafter Alexander, *Social-Obligation Norm*]; Hanoch Dagan, *Property’s Structural Pluralism: On Autonomy, the Rule of Law, and the Role of Blackstonian Ownership*, 3 BRIGHAM-KANNER PROP. RTS. CONF. J. 27 (2014); Ben Depoorter, *Fair Trespass*, 111 COLUM. L. REV. 1090 (2011); Eduardo M. Peñalver, *Land Virtues*, 94 CORNELL L. REV. 821 (2009); Eduardo M. Peñalver, *Property as Entrance*, 91 VA. L. REV. 1889 (2005) [hereinafter Peñalver, *Property as Entrance*]; Margaret Jane Radin,

contrast, emphasize the importance of the right to exclude nonowners from property, which defers to owners' authority by enforcing their decisions concerning who may use their things.² The most prominent defenses of exclusion developed in recent years, most notably those presented in the joint and individual writings of Professors Thomas Merrill and Henry Smith, have focused primarily on the information costs of property.³ No matter which substantive ends property law pursues, Merrill and Smith argue, the individuals bound by property's rules must bear the costs of learning them.⁴ Because simple, standardized rules may be learned more cheaply, the simple and uniform right to exclude—which defers to owners' authority—imposes lower information costs than more complex rules that displace owners'

Property and Personhood, 34 STAN. L. REV. 957 (1982); Ezra Rosser, *The Ambition and Transformative Potential of Progressive Property*, 101 CALIF. L. REV. 107 (2013); Joseph William Singer, *Democratic Estates: Property Law in a Free and Democratic Society*, 94 CORNELL L. REV. 1009 (2009) [hereinafter Singer, *Democratic Estates*]; Joseph William Singer, *The Reliance Interest in Property*, 40 STAN. L. REV. 611 (1988).

² See generally, e.g., J.E. PENNER, *THE IDEA OF PROPERTY IN LAW* (2000) [hereinafter PENNER, *IDEA OF PROPERTY*]; Larissa Katz, *Exclusion and Exclusivity in Property Law*, 58 U. TORONTO L.J. 275 (2008); Adam Mossoff, *What Is Property? Putting the Pieces Back Together*, 45 ARIZ. L. REV. 371 (2003); J.E. Penner, *The "Bundle of Rights" Picture of Property*, 43 UCLA L. REV. 711 (1996); James Y. Stern, *The Essential Structure of Property Law*, 115 MICH. L. REV. 1167 (2017).

³ See, e.g., Katz, *supra* note 2, at 280 ("Most prominently, Thomas Merrill and Henry Smith have developed a cost-based account for the exclusion strategy."); Rosser, *supra* note 1, at 109–10 (presenting "the informational value of rules" as the primary argument advanced by "the conservative camp," which is "[l]ed by professors Thomas Merrill and Henry Smith"); Katrina M. Wyman, *The New Essentialism in Property*, 9 J. LEGAL ANALYSIS 183, 210 (2017) (noting the prominence of Merrill and Smith's information-cost argument); Taisu Zhang, *Beyond Information Costs: Preference Formation and the Architecture of Property Law*, 12 J. LEGAL ANALYSIS 1, 8 (2020) (describing "information cost theories" as "the focal point for recent academic debate on property law"). Though for convenience I will refer to those who emphasize the importance of the right to exclude as exclusion theorists, I do not mean to imply that they do not recognize the limits of exclusion. See, e.g., Thomas W. Merrill & Henry E. Smith, *The Architecture of Property*, in RESEARCH HANDBOOK ON PRIVATE LAW THEORY 134, 142 (Hanoch Dagan & Benjamin C. Zipursky eds., 2021) [hereinafter Merrill & Smith, *Architecture of Property*] ("Nor does the importance of the right to exclude mean that the right to exclude is absolute or unqualified.").

⁴ See, e.g., Merrill & Smith, *Architecture of Property*, *supra* note 3, at 142:

Property norms operate millions of times a day in all corners of society without the intervention of learned scholars, lawyers, or judges. The point about the potential for disagreement over the proper application of the goals or ends of a system of property is fully applicable to any proposal to have courts adjudicate property disputes by referring to these goals or ends.

authority by directly regulating the activities nonowners may perform on or with property.⁵

In this Article, I develop a novel account of the information costs of exclusion in property law. While exclusion theorists take information costs to favor exclusion, I will argue that oftentimes the opposite is true: abrogating owners' right to exclude and directly regulating permissible activities may lower information costs rather than increasing them. To comply with legal rules, individuals must possess two kinds of information: (1) knowledge of what the rules are and (2) knowledge of how those rules apply to their own conduct. But while the simplicity of the right to exclude may reduce the former costs, which have been the primary focus of exclusion theorists' analysis, exclusion often increases the latter costs. Under the right to exclude, individuals must keep off property unless the owner permits them to enter. Though this rule is easy to learn, it defines when conduct is permissible in terms of two facts—the location of conduct and the consent of the owner—that in some contexts are difficult to ascertain. When they are, the right to exclude will be costly to apply, despite its simplicity, because of the costs of learning the facts individuals must know in order to apply it. Supplanting exclusion with direct regulation may therefore reduce information costs if those regulations make the permissibility of actions depend on facts that are less costly for individuals to ascertain.

Part I analyzes the information costs of property. I first distinguish two kinds of information costs created by legal rules governing conduct: the costs of learning those rules and the costs of applying them to determine whether a particular action is permitted. Exclusion theorists, who focus on the former, argue that simple rules produce low information costs because they are easy to learn. I will argue, by contrast, that the costs of learning rules are less important than the costs of applying them: because a rule need be learned only once but must be applied to every action it governs, a difficult-to-apply rule increases the marginal costs that individuals face whenever they act. Rules best reduce application costs not through their simplicity but rather by defining the permissibility of conduct to depend on facts that are easy to ascertain. The cheapest source of information about one's own conduct, in turn, is one's own intentions: when we act intentionally, we

⁵ *E.g., id.* ("The right to exclude translates into control over resources, and does so with a simple, easily communicated message.").

normally know with no further inquiry that our actions will have the features we intend them to have. Rules under which the permissibility of conduct depends on its intentionally chosen features may therefore reduce the information costs individuals face by capitalizing on information they already possess. But individuals ordinarily intend different features of their conduct when engaged in different activities. Thus, directly regulating different activities through different rules may reduce total information costs, despite the increased complexity of such rules and the attendant increased costs of learning them.

After Part I introduces this theoretical explanation of how exclusion can sometimes increase information costs, Parts II and III apply it, each focusing on one of the two facts—whether an action crosses a property boundary and whether the owner consented—that determine whether the right to exclude has been breached. Part II considers boundary crossings. According to exclusion theorists, prohibitions on boundary crossings reduce information costs because of their simplicity.⁶ I will instead propose an alternative analysis grounded in application costs. On my view, rules regulating activities by their spatial location often impose low information costs because individuals often choose the spatial locations of their activities intentionally and, therefore, can easily apply rules that regulate conduct based on its location. But some activities do not involve intentionally choosing to cross a spatial boundary. Information costs can decline if property displaces the right to exclude in those circumstances and instead regulates those activities through features that their participants typically do intentionally choose, thereby exploiting information—inaccessible to most—that those bound by the rule already possess. Because it can shape the rules regulating an activity based on information participants in that activity possess, direct regulation can sometimes impose lower information costs than the right to exclude.

Having considered the costs of boundary crossings in Part II, I consider owner consent in Part III. Doctrinal disputes over the right to exclude have most often arisen concerning public access to private property, and in those contexts exclusion theorists have generally argued that information costs rise when property law limits owners' right to exclude specific individuals from property that is otherwise accessible to the public. Certainly, a rule

⁶ See, e.g., Katz, *supra* note 2, at 282–83 (“The information that a person needs to avoid trespass is simple and impersonal, insofar as it is communicated by the boundaries of the object itself.”).

forbidding entrance absent owner consent is simple and easy to learn. But I will argue that it is often costly to apply. Because it defines prohibited conduct in terms of owner consent—the mental state of another individual—nonowners cannot apply it without knowing what the owner has consented to. And like many facts about the mental states of others, facts about the owner's consent will frequently be costly for strangers to ascertain. Such costs may be trivial when property is used chiefly by its owner because strangers will rarely have cause to access the property and thus will rarely bear the costs of investigating the owner's mind. But if property is generally open to the public, requiring owner consent for entrance will impose often-substantial costs on the public at large. Thus, the law reduces information costs by mandating universal access to property that is generally accessible to the public, thereby disallowing owners from imposing individualized, potentially idiosyncratic restrictions on entrance. Since under that rule individuals may access property if it is generally used by the public, they may determine whether a particular action would be permitted so long as they know whether the public may generally access the property they seek to enter—information they ordinarily will already possess. Doctrines that restrict the right to exclude by mandating public access therefore decrease information costs despite the complexity they add to the law.

In analyzing the information costs of rules that define prohibited conduct in terms of boundary crossings and owner consent, I rely on examples of how property law limits information costs by restricting the right to exclude. As those examples will show, the theoretical account I develop of the information costs of exclusion entails practical consequences for the design of property entitlements. The low information costs of applying prohibitions on boundary crossings explain why such prohibitions play a central role in defining rights to land. Those information costs also help to explain why property law has sometimes overridden such prohibitions in regulating activities on land, including airplane overflights, oil and gas production, and urban land development, whose participants ordinarily lack information about whether their conduct will involve crossing parcel boundaries. In such contexts, property law has reduced information costs by redefining owners' entitlements in terms of facts typically known by nonowners participating in those activities, such as the altitude of flights, the location of wells, and the height and function of buildings. For example, since property developers already know

the intended size and use of the buildings they develop, zoning rules based on building size and function may be applied at no additional cost, while the law of nuisance cannot be applied without additional information about how various possible land uses might cause invasions across parcel boundaries. These examples of how to define property entitlements without relying on parcel boundaries reveal when and why property law can successfully respond to information costs by modulating its reliance on exclusion, not solely by enforcing the right to exclude.

The practical significance of application costs is even more apparent concerning prohibitions on entering publicly accessible property absent owner consent, which are often fiercely contested by both property theorists and policymakers. Some such rules are no longer controversial—say, the prohibition on racial discrimination in public accommodations—but others remain contentious. Perhaps most prominently, in a line of cases the New Jersey Supreme Court has held that owners of property generally accessible to the public cannot bar particular individuals from engaging in specific activities on that property.⁷ Exclusion theorists typically reject rules like New Jersey's, arguing that information costs weigh decisively against mandating access to private property and in favor of enforcing the right to exclude. Only in rare cases, such as discrimination in public accommodations, do they concede that some limits on exclusion are justified despite any resulting increase in information costs. By contrast, I will argue that mandating public access to publicly accessible private property can allow individuals to avoid the costs of ascertaining the scope of owner consent, which they would face when applying the right to exclude to govern their own conduct. In particular, this argument will generate a novel defense, grounded in information costs, for the New Jersey decisions—an argument, I will suggest, that in fact better tracks the reasoning that the court itself employed in justifying its holdings. And that argument suggests that information costs can cut both ways in contentious debates over public access to private property, rather than always favoring exclusion.

⁷ *E.g.*, *N.J. Coal. Against War in the Middle E. v. J.M.B. Realty Corp.*, 650 A.2d 757, 775 (N.J. 1994) (holding that shopping malls cannot exclude individuals engaged in leafletting on social issues); *Uston v. Resorts Int'l Hotel, Inc.*, 445 A.2d 370, 375 (N.J. 1982) (holding that casinos cannot exclude gamblers engaged in card counting); *State v. Schmid*, 423 A.2d 615, 632–33 (N.J. 1980) (holding that a private university cannot exclude individuals from distributing political literature on its publicly accessible campus).

I. THE INFORMATION COSTS OF PROPERTY

Defenders of property owners' prerogatives claim that information costs weigh against direct government regulation of individual conduct. Complex legal rules, they argue, increase information costs for the individuals who must obey them, since complexity increases the difficulty of learning what obligations those rules impose. Consequently, property law should not itself regulate what activities individuals may perform at all. Instead, enforcing the right to exclude allows property owners themselves to determine permissible activities on their property, so that nonowners face only the simple, standardized obligation to keep off the property of others unless the owner consents to entry.

In this Part, I will propose an alternative account of the information costs of property. I begin by analyzing the notion of information costs, which prior scholarship has often taken for granted, despite its importance. In particular, I will argue, legal rules create information costs in two ways, not only in one: to comply with a rule, individuals must both learn the rules that govern their conduct and apply those rules to determine whether particular actions are forbidden. Exclusion theorists have focused primarily on the former sort of cost, which they argue simple legal rules reduce. The costs of applying the rules, however, depend instead on what facts determine whether actions are permitted or forbidden: the costs of rule application decline if the permissibility of actions depends on facts about those actions that individuals can easily identify. Because individuals know the contents of their own intentions, I will argue, rules may often be applied at low cost if they prohibit actions based on features that are intentionally chosen by individuals who perform them. A traffic rule against passing other vehicles, for example, is easy to apply. Because drivers ordinarily pass other cars intentionally, they ordinarily know whether a particular driving maneuver would involve passing the car ahead and thus need acquire no further information to determine whether that action would breach the rule.

Thus, the information costs of property do not depend only on the simplicity of property's rules; the law instead faces a trade-off between the costs of rule learning and the costs of rule application. And because the total information costs produced by an increase in the difficulty of applying a rule can dramatically exceed the total costs of an increase in the difficulty of learning it, the law often should reduce the costs of rule application even at the

expense of increasing the costs of rule learning. To do so, property must ensure not that its rules are simple and standardized but rather that whether an action violates another's property rights depends on features of the action that it was intended to have by the individual who performs it. And because individuals intentionally choose different features of their actions when engaged in different activities, property law's regulation of different activities through different rules may in certain cases reduce information costs, despite the increased complexity that results.

A. Exclusion and Information Costs

According to Merrill and Smith, information costs are important to property because of the in rem nature of property rights.⁸ Property rights are "good against the world": while contractual obligations bind only the parties to the contract, everyone must respect an owner's rights over property.⁹ Consequently, like other rights in rem, property rights impose obligations on a large and indefinite set of individuals across society.¹⁰ Precisely because

⁸ Thomas W. Merrill & Henry E. Smith, *Making Coasean Property More Coasean*, 54 J.L. ECON. S77, S90 (2011) [hereinafter Merrill & Smith, *Coasean Property*] (highlighting "the enormous information cost constraints associated with any system of in rem rights"); Merrill & Smith, *Architecture of Property*, *supra* note 3, at 141 ("Any system for organizing rights to assets that imposes duties on 'all the world' presents a potentially enormous informational problem."); Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357, 386–87 (2001) [hereinafter Merrill & Smith, *Property in Law and Economics*] (describing "the information-cost burden on third parties that is created by any system of in rem rights"); Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1706 (2012) [hereinafter Smith, *Law of Things*] ("The special in rem character of property forms the basis of an information-cost explanation of the *numerus clausus* and standardization in property.").

⁹ Merrill & Smith, *Coasean Property*, *supra* note 8, at S81 ("In personam rights, such as rights created by contract or by judgment, attach to specific individuals and are paired with duties in other specific individuals. . . . In rem rights, in contrast, are rights that create duties of noninterference in all other persons, not just in specifically identified others."); Merrill & Smith, *Architecture of Property*, *supra* note 3, at 140 (describing "a core feature of the rights and obligations associated with property, namely that they apply to 'all the world' without regard to whether anyone has personally agreed to be bound").

¹⁰ Merrill & Smith, *Architecture of Property*, *supra* note 3, at 146 ("The classic in rem right is broadcast to all the world (or everyone in society)."); Thomas W. Merrill & Henry E. Smith, *The Morality of Property*, 48 WM. & MARY L. REV. 1849, 1852 (2007) [hereinafter Merrill & Smith, *Morality of Property*] (describing in rem rights as a "coordination device among unconnected and anonymous actors"); Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 802 (2001) [hereinafter Merrill & Smith, *Property/Contract Interface*] (noting that "in rem rights impinge upon a very large and open-ended class of third persons"); Smith, *Law of Things*, *supra* note 8, at 1706 ("In rem rights are directed at a wide and indefinite audience of duty holders and other affected parties.").

rights in rem impose obligations against all the world, they create an informational problem: if everyone in society must comply with the rules of property law, then everyone must be informed of their obligations under those rules.¹¹ The costs of communicating that information, in turn, depend on what rules property implements, since the content of some duties may be easier or harder to communicate than others.¹² In particular, if the duties imposed on nonowners were to vary widely across different circumstances, property would create enormous information costs, since individuals would face the challenging task of learning the complex,

¹¹ Merrill & Smith, *Coasean Property*, *supra* note 8, at S90 (“If everyday property—rights to land and chattels—entails rights to exclude all the world from some thing, this sets up a potentially severe information cost problem for potential violators of these rights.”); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1853 (“This generalized duty, in turn, creates an enormous information cost and collective action problem. The rights must be defined in such a way that their attributes can be easily understood by a huge number of persons of diverse experience and intellectual skills.”); Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 783–86 (describing how in rem rights impose duties on a numerous and indefinite class of duty holders); Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 387 (“To avoid violating property rights, a large and indefinite class of duty holders must know what constraints on their behavior such rights impose.”); Henry E. Smith, *Mind the Gap: The Indirect Relation Between Ends and Means in American Property Law*, 94 CORNELL L. REV. 959, 971 (2009) [hereinafter Smith, *Mind the Gap*] (“[P]roperty requires coordination between large numbers of anonymous and far-flung people.”); Smith, *Law of Things*, *supra* note 8, at 1709 (discussing how the in rem character of property creates a “need for far-flung and sometimes socially distant persons to respect property rights”).

¹² Merrill and Smith primarily discuss two kinds of information costs. In addition to the information costs that face potential tortfeasors—third parties who might breach duties imposed (in trespass, nuisance, and so forth) on the world at large with regard to others’ property—property imposes information costs on potential contractual counterparties who might purchase property from its owners. See Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 VA. L. REV. 965, 984 (2004) [hereinafter Smith, *Law of Nuisance*] (“This third-party information-cost advantage is relevant to private transactors who want to determine the rights they can acquire through transactions, but it is also valuable for those who simply need to respect rights in order to avoid liability for violating them.”); Zhang, *supra* note 3, at 9 n.7 (drawing a similar distinction). This latter kind of cost, Merrill and Smith argue, explains the *numerus clausus* principle, which limits the number of property forms the law recognizes. See Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 27 (2000) [hereinafter Merrill & Smith, *Optimal Standardization*] (“This external cost on other market participants forms the basis of our explanation of the *numerus clausus*.”). This Article will address only the information costs that property rights impose on potential tortfeasors; I do not discuss the information costs imposed on potential purchasers of property. (It is not clear to me whether Merrill and Smith think the costs faced by potential purchasers justify exclusion in addition to justifying the *numerus clausus* principle, or if, on their view, exclusion is justified only by the costs affecting potential tortfeasors.) My central claim is that direct regulation may sometimes reduce the information costs facing potential tortfeasors. Whether a different category of information costs favors exclusion is beyond the scope of this argument.

heterogeneous duties that govern their behavior differently on different occasions.¹³ By contrast, information costs would be lower under simple, standardized rules, which are considerably easier to learn.¹⁴

The right to exclude, exclusion theorists claim, produces simple, standardized rules in property: it imposes “standardized packages of negative duties of abstention that apply automatically to all persons in the society when they encounter resources that are marked in the conventional manner as being ‘owned.’”¹⁵ Because the right to exclude requires nonowners simply to keep off of others’ property, they know easily how they must interact with the objects they encounter in the world.¹⁶ In perhaps their

¹³ Merrill & Smith, *Coasean Property*, *supra* note 8, at S90 (“If every property right was described by a customizable list of permitted uses . . . and if these rights had to be understood and respected by all the world, the resulting information costs would be staggering.”); Merrill & Smith, *Architecture of Property*, *supra* note 3, at 141 (“If everyone had to carry around a list of things they own, and communicate such a list to everyone they encounter, the informational burden would quickly become insurmountable.”); Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 793–94 (providing a quantitative illustration of the information costs that would be created by nonstandardized in rem rights); Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 387 (“If in rem rights were freely customizable . . . then the information-cost burden would quickly become intolerable. Each dutyholder would either incur great costs in informing herself, or would be forced to violate property rights wholesale, defeating the benefits of security, investment, and planning that these rights were meant to secure.”).

¹⁴ Merrill & Smith, *Coasean Property*, *supra* note 8, at S98–99 (“Simple baselines matter, and they matter because of information costs.”); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1856 (endorsing “general, simple, and robust rules for core property situations . . . in which claims are being broadcast to the world at large”); Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 395 (“For a device that must coordinate the actions of a large and anonymous group of people, keeping things simple is a prime consideration.”); Smith, *Law of Things*, *supra* note 8, at 1709 (“The need for far-flung and sometimes socially distant persons to respect property rights calls for simplification and standardization.”); Henry E. Smith, *The Persistence of System in Property Law*, 163 U. PA. L. REV. 2055, 2070 (2015) [hereinafter Smith, *Persistence of System*] (“The wider and more impersonal an audience that a claim has to reach, the more standardized it needs to be so that it does not impose information-cost burdens in excess of information benefits.”); Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 795:

In order to keep these costs low, it is simply not possible to make these duties very complex or detailed. In rem rights can only work if they are highly standardized and rely on relatively crude proxies to identify the resources that are subject to such rights. This standardization, in turn, greatly limits the degree to which exclusion rules can be used to dictate more fine-tuned and individualized uses of resources.

¹⁵ Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 794.

¹⁶ PENNER, *IDEA OF PROPERTY*, *supra* note 2, at 27 (“[O]ur duty is not to trespass on the private property of others. . . . It is a simple, single duty, and very easy to comply with.”); Merrill & Smith, *Architecture of Property*, *supra* note 3, at 142 (“The right to exclude is implemented by communicating a very simple message to the world: Keep off,

canonical example of how exclusion reduces information costs, exclusion theorists invite us to imagine a stranger walking past a row of unfamiliar parked cars. If each car's owner had a unique set of rights, and thus all passersby were subject to different duties regarding each car, it would be enormously complicated to figure out just what conduct was permissible. The right to exclude solves this problem at one stroke: strangers need only know the simple rule to keep off cars they do not own.¹⁷ Thus, property owners' right to exclude informs nonowners at low cost how they must behave towards the objects they encounter.

don't take."); Merrill & Smith, *Coasean Property*, *supra* note 8, at S95 (describing property as "a system in which rights were understood as having a standardized form and as imposing duties of respect on all persons"); *id.* at S90 ("[T]he messages about everyday property must be very simple—messages such as 'keep off' or 'don't touch'—couched in concepts readily comprehensible to remote people with little special legal or asset-specific information."); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1857 ("[I]f the core of property is the simple right of an owner to exclude the world from the resource . . . telling what compliance is—and, more importantly, is not—will be easy."); Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 389 ("The right to exclude allows the owner to control, plan, and invest, and permits this to happen with a minimum of information costs to others. . . . [W]hen [people] approach a piece of property they do not own[,] . . . they know that . . . the bright-line rules of trespass apply."); Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742, 1763 (2007) [hereinafter Smith, *Intellectual Property*] ("To reiterate, in property, officials need not know much about the individual uses that owners plan and undertake, and duty-holders likewise need not know much about the owner and her uses of the asset—they mostly need to know how to keep off the owner's property."); Henry E. Smith, *On the Economy of Concepts in Property*, 160 U. PA. L. REV. 2097, 2116 (2012) [hereinafter Smith, *Economy of Concepts*] ("[T]o the nonowner, property is like a black box, a module where the type of use is simply irrelevant to the duty of abstention."); Smith, *Law of Things*, *supra* note 8, at 1718 ("The most basic aspects of property—'don't trespass,' 'don't steal'—are the ones most likely to be parsed by distant and impersonal audiences. . . . An exclusion strategy defines a thing and uses rough proxies to announce generally a rule of 'keep off.'"); Henry E. Smith, *The Thing About Exclusion*, 3 BRIGHAM-KANNER PROP. RTS. CONF. J. 95, 109 (2014) [hereinafter Smith, *The Thing About Exclusion*] ("Exclusion strategies are closest to this: keep out of and keep off the thing, unless you have my permission.").

¹⁷ See, e.g., PENNER, IDEA OF PROPERTY, *supra* note 2, at 75–76; Merrill & Smith, *Morality of Property*, *supra* note 10, at 1853–54; Henry E. Smith, *Community and Custom in Property*, 10 THEORETICAL INQ. L. 5, 17 (2009); Henry E. Smith, *Complexity and the Cathedral: Making Law and Economics More Calabresian*, 48 EUR. J. LAW. & ECON. 43, 52 (2019) [hereinafter Smith, *Complexity and the Cathedral*]; Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445, 447 (2008) [hereinafter Smith, *Governing Water*]; Smith, *Mind the Gap*, *supra* note 11, at 968; Smith, *Economy of Concepts*, *supra* note 16, at 2115–16; Smith, *Law of Things*, *supra* note 8, at 1703, 1706; Henry E. Smith, *Standardization in Property Law*, in RESEARCH HANDBOOK ON THE ECONOMICS OF PROPERTY LAW 148, 159 (Kenneth Ayotte & Henry E. Smith eds., 2011); Henry E. Smith, *The Language of Property: Form, Context, and Audience*, 55 STAN. L. REV. 1105, 1117 (2003); Smith, *Persistence of System*, *supra* note 14, at 2065; Smith, *The Thing About Exclusion*, *supra* note 16, at 97.

Conversely, information costs increase when property interferes with owners' right to exclude.¹⁸ Exclusion theorists recognize that the law often directly specifies permissible and forbidden uses of property rather than delegating those choices to owners.¹⁹ These direct regulations can impose more finely grained rules governing individuals' behavior in different contexts.²⁰ Just as the right to exclude limits information costs due to the simplicity of the duties it imposes, however, the greater complexity of direct regulation produces a corresponding increase in information

¹⁸ In Merrill and Smith's terminology, these deviations from exclusion are called governance. Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 797 ("Persons who have standardized in rem exclusion rights can supplement these rights with a variety of voluntary governance structures."); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1894 ("In these noncore areas of property, prudential considerations supplement, or even sometimes override, the core exclusionary aspects of property that rest on ordinary morality."); Henry E. Smith, *Exclusion Versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453, S486 (2002) [hereinafter Smith, *Exclusion Versus Governance*] ("Between the poles of exclusion and governance lies a range of different methods of delineating property rights."); Smith, *Mind the Gap*, *supra* note 11, at 964 ("Where problems are important enough and cannot be solved better in a different way, we start to use more tailored solutions—governance . . ."); Smith, *Law of Things*, *supra* note 8, at 1710 ("[G]overnance strategies . . . take exclusion as a platform and modify its features when it is important to do so.")

¹⁹ Merrill & Smith, *Architecture of Property*, *supra* note 3, at 143 ("[G]overnance refers to strategies for delineating rights that make more direct reference to uses (or narrower sets of uses)." (emphasis in original)); Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 797 ("Governance rules differ from exclusion rules in that they assign particular use rights and duties to particular persons."); Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 396 (describing how governance strategies are preferred "where it is more important to designate permitted and prohibited uses with high precision"); Smith, *Exclusion Versus Governance*, *supra* note 18, at S455 ("[C]ompared to basic trespass and property law, all these governance rules require the specification of proper activities."); Smith, *Law of Things*, *supra* note 8, at 1718 ("[A] governance strategy focuses in on given uses and prescribes proper behavior with respect to the resource.")

²⁰ See Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 396 ("[G]overnance allows for more specialization and greater precision in reducing spillovers. . . . At the limit, actors would have to consult a list of use rights every time they encountered a resource in the world."); Smith, *Exclusion Versus Governance*, *supra* note 18, at S455 n.5 ("'Governance' here just refers to a high degree of delineation of rights to resources in terms of use."); Smith, *Law of Things*, *supra* note 8, at 1703 ("These governance strategies focus more closely on narrower classes of use and sometimes make more specific reference to their purposes, and so they are more contextual." (emphasis in original)); *id.* at 1718 ("Governance rules are more tailored and context-specific."); Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 797:

[G]overnance rules . . . allow society to control resources in non-standard ways that entail greater precision or complexity in delineating use rights than is possible using exclusion. Allowing in rem property rights to be supplemented by in personam contract rights, in particular, introduces an enormously larger set of options for the use and control of resources than would be possible using exclusion alone.

costs, since learning complex rules is more difficult than learning simple ones.²¹ Because direct regulation of individual conduct automatically incurs information costs avoided by the right to exclude, exclusion theorists defend the right to exclude over direct regulations that override it.²² Of course, they concede that the law sometimes should directly regulate conduct: information costs are only one relevant consideration, and sometimes the reasons that favor modifying the right to exclude will outweigh the reasons

²¹ Merrill & Smith, *Coasean Property*, *supra* note 8, at S95 (“There is an inevitable trade-off between the reduction of information costs through standardization of rights and the need for flexibility in offering a variety of options in terms of how entitlements are delineated and defined.”); Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 798 (“As the number of individuals whose actions could potentially impact the resource increases, it will be more costly to specify individual behavior according to a governance strategy: The information costs of specifying which individuals have the right to do what will simply become too great.”); Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 396 (“But greater detail of rights requires more costly communication, including more costly processing by dutyholders.”); Smith, *Law of Nuisance*, *supra* note 12, at 975 (2004) (referring to “the information costs associated with governance regimes”); *id.* at 981 (“[R]ules prescribing proper use start out expensive.”); Smith, *Exclusion Versus Governance*, *supra* note 18, at S455 (“[Governance] rules . . . pick out uses and users in more detail, imposing a more intense informational burden . . . on duty holders.”); Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1756 (2004) [hereinafter Smith, *Property and Property Rules*] (“[G]overnance captures the benefits of precision but at a higher cost.”); Smith, *Law of Things*, *supra* note 8, at 1717 (“If trespass and conversion send a simple message of ‘keep off’ and ‘don’t take’ (without permission), other aspects of property like nuisance . . . involve more information about the value of uses, their harm, and the nature of the surrounding area.”).

²² Merrill & Smith, *Coasean Property*, *supra* note 8, at S95 (“[B]ecause of transaction costs, we delegate to owners a range of sovereign authority over their property, with a presumptive right to repel invasions.”); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1891 (“[E]xclusion retains its presumptive moral and legal force.”); Smith, *Mind the Gap*, *supra* note 11, at 968 (“[T]he core of an owner’s property right . . . is best regarded not as absolute but as carrying heavy presumptive force. How much presumptive force that should be is a worthy topic for debate, but zero presumption is unrealistic and would be a practical nightmare.”); Smith, *Economy of Concepts*, *supra* note 16, at 2115 (“The basic (rebuttable) presumption in property law is delegation to the owner through the right to exclude, which serves to economize on information costs.”); Smith, *Law of Things*, *supra* note 8, at 1705 (“Exclusion is at the core of this architecture because it is a default, a convenient starting point.”); Henry E. Smith, *Property Is Not Just a Bundle of Rights*, 8 ECON J. WATCH 279, 284 (2011) [hereinafter Smith, *Bundle of Rights*] (“I am arguing for a special ‘first cut’ role for exclusionary strategies in the delineation of property . . .” (emphasis omitted)); Henry E. Smith, *The Elements of Possession*, in LAW AND ECONOMICS OF POSSESSION 65, 92 (Yun-Chien Chang ed., 2015) [hereinafter Smith, *Elements of Possession*] (“[T]he basic regime—possession, exclusion, and the things of property—does have some presumptive force.”); Wyman, *supra* note 3, at 198 (“The starting point for new essentialists is that owners enjoy a broad realm of authority over their things.”).

information costs provide for respecting it.²³ But information costs create a presumption in favor of exclusion.

Both the insistence that exclusion is central to property and the use of information-cost arguments to justify its importance have substantially influenced recent scholarly debates in property theory.²⁴ Those who reject the increasingly prominent view that exclusion is and should be central to property “often identify information cost theories as their primary adversary.”²⁵ Thus, this Article is hardly the first to mount a response to exclusion theorists’ analysis of the normative implications for property of information costs. But the critique I aim to develop differs in its focus and in its approach from the bulk of existing such responses, thereby identifying a novel basis for disputing at least some of the normative claims that exclusion theorists have drawn from their analysis of the information costs of property.

Exclusion theorists are distinctive in the importance they accord to information costs, which many other property scholars do not see as being central to property’s structure.²⁶ But exclusion theorists do not insist that information costs constitute the sole normatively significant consideration that shapes property law.²⁷

²³ Merrill & Smith, *Architecture of Property*, *supra* note 3, at 144 (“Different resources will call for varying treatment in terms of exclusion and governance.”); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1894 (“In these noncore areas of property, prudential considerations supplement, or even sometimes override, the core exclusionary aspects of property.”); Smith, *Mind the Gap*, *supra* note 11, at 964–65 (“Where problems are important enough and cannot be solved better in a different way, we start to use more tailored solutions—governance—that make more direct reference to the ends that we collectively want to see served.”); Smith, *Law of Things*, *supra* note 8, at 1710 (“[G]overnance strategies . . . take exclusion as a platform and modify its features when it is important to do so.”); Smith, *Bundle of Rights*, *supra* note 22, at 285 (“This does not make the right to exclude absolute.”); Smith, *Persistence of System*, *supra* note 14, at 2074 (“Part of the attraction of the modular architecture based on exclusion and governance is its very flexibility where it is needed. Thus, the basic trespassory regime can retain its exclusionary aspects while accommodating exceptions for public policy and antidiscrimination.”); Smith, *The Thing About Exclusion*, *supra* note 16, at 103 (“The balance between exclusion and governance can be struck differently in different systems.”).

²⁴ See, e.g., HANOCH DAGAN, PROPERTY: VALUES AND INSTITUTIONS 38–40 (2011) [hereinafter DAGAN, PROPERTY: VALUES AND INSTITUTIONS] (“Exclusion is in vogue in property discourse.”); Zhang, *supra* note 3, at 8 (describing the “numerous articles [devoted] to parsing the content, scale, and consequences of property-related information costs”).

²⁵ Zhang, *supra* note 3, at 8.

²⁶ E.g., Smith, *Mind the Gap*, *supra* note 11, at 967 (suggesting that other property theorists typically “elide the costs of setting up the mechanism . . . one way rather than another way,” particularly by “overlooking information costs”).

²⁷ E.g., Merrill & Smith, *Architecture of Property*, *supra* note 3, at 137 (“[I]t is a mistake to accuse us of treating property as being solely about information costs.”).

Rather, as I have noted, they concede that property does and should also pursue other aims, and they recognize that those aims can sometimes justify a legal rule that increases information costs.²⁸ One approach to rejecting exclusion theorists' normative conclusions, then, is obvious: if property pursues other goals besides reducing information costs, then any particular exclusionary doctrine can always be critiqued on the grounds that the information costs it reduces are outweighed by the benefits that rejecting it would achieve along other dimensions.²⁹ Many scholars have responded to exclusion theorists in essentially this manner.³⁰ Such critiques differ among themselves in citing different aims to justify restrictions on exclusion, including autonomy,³¹ individual personhood,³² social obligation,³³ democracy,³⁴ community,³⁵ and more.³⁶ But they all employ a similar general approach in defending limitations on owners' right to exclude. Their arguments do not engage with the information-cost considerations central to the arguments that exclusion theorists have

²⁸ *E.g., id.* (“[I]nformational requirements should be optimized in an overall design that pairs *benefits and costs*.” (emphasis in original)); Wyman, *supra* note 3, at 201 (noting that exclusion theorists “routinely recognize that there are limits on owner authority”).

²⁹ Professor Katrina Wyman’s detailed analysis of the exclusion theorists’ account of property ultimately concludes that their normative recommendations are considerably more malleable than their rhetoric would suggest. *See* Wyman, *supra* note 3, at 212 (“[T]here is no stable core right to exclude under Merrill and Smith’s approach, and [] the scope of owner authority is continually at risk.”). As she argued, because they recognize multiple legitimate and competing goals for property law to pursue without identifying some reasonably determinate procedure for balancing those goals in particular instances, their arguments cannot on their own adjudicate whether any particular restriction on exclusion is permissible. *See, e.g., id.* (“Their approach actually leaves owner authority highly vulnerable to curtailment, because the approach makes the persistence of that authority contingent on the benefits of that authority exceeding the costs of limiting it.”).

³⁰ For a summary of critiques of this type, see *id.* at 203–05.

³¹ *E.g.,* HANOCH DAGAN, A LIBERAL THEORY OF PROPERTY 1–4, 41–78 (2021) [hereinafter DAGAN, LIBERAL THEORY].

³² *E.g.,* Radin, *supra* note 1, at 978–91.

³³ *E.g.,* Alexander, *Social-Obligation Norm*, *supra* note 1, at 760–818.

³⁴ *E.g.,* Singer, *Democratic Estates*, *supra* note 1, at 1046–61.

³⁵ *E.g.,* Peñalver, *Property as Entrance*, *supra* note 1, at 1938–62.

³⁶ *E.g.,* DAGAN, LIBERAL THEORY, *supra* note 31, at 22 (defending a “structurally pluralistic account of property” according to which property law is “sufficiently heterogeneous” to “facilitate[] the coexistence of a diverse set of social institutions crucial for our autonomy”); DAGAN, PROPERTY: VALUES AND INSTITUTIONS, *supra* note 24, at 42:

Each such property institution entails a specific composition of entitlements that constitute the contents of an owner’s rights vis-à-vis others, or a certain type of others, with respect to a given resource. The particular configuration of these entitlements is, or at least should be, determined by its character, namely, by the unique balance of property values characterizing the institution at issue.

themselves developed; rather, those arguments claim chiefly that despite those costs additional considerations nonetheless require exclusion to be restricted.

This Article will attempt a different approach. I do not mean to deny the general point that information costs must be weighed against other values in the design of property institutions, or to dispute the details of any specific argument for why such values might justify a particular restriction on exclusion. But because those arguments are largely external to exclusion theorists' information-cost framework, they are largely consistent with exclusion theorists' approach to analyzing property law. That is, because exclusion theorists themselves agree that information costs must be balanced against other goals that property institutions pursue, disputes over how to balance those values in evaluating particular doctrines do not challenge any theoretical commitment at the core of their approach. Specifically, such critiques do not challenge the central mechanism exclusion theorists cite to justify their normative views—the reduction in information costs purportedly achieved by respecting rather than restricting the right to exclude.³⁷ By contrast, this Article takes that mechanism as its primary target. I argue that the interplay between exclusion and information costs is more complex than exclusion theorists have recognized, and that the normative implications of information costs are thus more equivocal than they have argued. Rather than simply showing that the considerations exclusion theorists advance in favor of exclusion may be countered by others that weigh against it—a proposition that exclusion theorists do not themselves deny—I aim to show that the very basis exclusion theorists employ to justify exclusion in fact sometimes justifies restricting it. If successful, then, this Article will to some extent undermine exclusion theorists' own arguments for exclusion rather than merely developing additional, competing arguments against it.

Furthermore, while some other articles have engaged with the details of exclusion theorists' analysis of information costs, they have focused on a different aspect of that analysis than I do.

³⁷ To be fair, some scholars, including those who advance critiques of this type, do express some skepticism about exclusion theorists' analysis of information costs. But that skepticism is typically mentioned only briefly and in passing; it is not accompanied by any competing analysis of the information costs of exclusion, and it is not offered as the primary basis for rejecting the normative conclusions that exclusion theorists draw. See, e.g., GREGORY ALEXANDER & EDUARDO M. PEÑALVER, AN INTRODUCTION TO PROPERTY THEORY 137–38 (2012); DAGAN, PROPERTY: VALUES AND INSTITUTIONS, *supra* note 24, at 43; Peñalver, *Property as Entrance*, *supra* note 1, at 1905; Zhang, *supra* note 3, at 11 n.10.

As I have noted,³⁸ my arguments in this Article analyze only one of the types of information costs that exclusion theorists consider: while I focus on the information costs faced by potential tortfeasors, who must understand the rights of asset owners in order to avoid breaching them, exclusion theorists also analyze the information costs faced by potential acquirers of property, who must understand the owner's rights in order to decide whether and at what price to bid on property.³⁹ Exclusion theorists employ these separate types of information costs to justify different normative claims. The information costs faced by potential acquirers feature primarily in exclusion theorists' explanations for standardization in property, such as the doctrine of the *numerus clausus*, which limits the number of standardized forms that a property interest may take.⁴⁰ By contrast, exclusion theorists identify the information costs faced by potential tortfeasors as the primary justification for property's reliance on exclusion, because, as explained above, exclusion governs individual conduct according to a simple rule easily understood by the world at large.⁴¹

Exclusion theorists' account of property incorporates their analysis of both types of information costs. But of the scholarly responses that engage in detail with that analysis, most have

³⁸ See *supra* note 12.

³⁹ See, e.g., Smith, *Law of Nuisance*, *supra* note 12, at 984 ("This third-party information-cost advantage is relevant to private transactors who want to determine the rights they can acquire through transactions, but it is also valuable for those who simply need to respect rights in order to avoid liability for violating them."); Zhang, *supra* note 3, at 9 n.7 (explaining that exclusion theorists analyze both the "information costs related to potential trespass" and the "information costs that are specifically related to potential transactions"). I note that these two types of information costs have not been very clearly distinguished in the literature: exclusion theorists do not themselves call attention to how the differences between these two contexts produce differences in the corresponding analyses of information costs in each, and relatively little scholarly commentary has identified the distinction. See Zhang, *supra* note 3, at 9 n.7 (articulating the distinction clearly but citing no predecessors in the literature that had already done so).

⁴⁰ E.g., Merrill & Smith, *Optimal Standardization*, *supra* note 12, at 27 ("This external cost on other market participants forms the basis of our explanation of the *numerus clausus*."); Zhang, *supra* note 3, at 9 ("Optimal standardization' via limiting the number of allowable forms and uses, on the other hand, limits the information costs outsiders must incur should they wish to bargain for certain rights, including ownership, over someone else's property[.]" (citations omitted)).

⁴¹ E.g., Merrill & Smith, *Morality of Property*, *supra* note 10, at 1889–90 (citing Smith, *Property and Property Rules*, *supra* note 21, at 1753–74):

The more that property rights must be respected by a large, heterogeneous, and unconnected group of dutyholders, the more we should expect the remedy to be a simple one. Exclusion by its nature protects a wide variety of uses, and the signal for violation is a simple on/off signal easily perceived by all.

tended to focus on the argument that property must be standardized to reduce the costs borne by potential acquirers, not on the argument that property must be exclusionary to reduce the costs borne by potential tortfeasors.⁴² By contrast, this Article will critique exclusion theorists' argument that the information costs faced by potential tortfeasors—"true' third parties"⁴³—justify respecting owners' right to exclude. I do not address how property law should approach the information costs facing potential acquirers of property. Understanding the standardization of property rights is obviously of theoretical interest. But normative disagreements arise less frequently concerning whether property ought to be standardized, and thus exclusion theorists' analysis of the information costs faced by potential acquirers of property tends not to bear directly on practical disputes that arise over property doctrines. Perhaps as a result, as Merrill and Smith themselves have noted, "the principle that property rights must track a limited number of standard forms has received very little examination in Anglo-American legal literature."⁴⁴ By contrast, the question of whether to defer to an owner's right to exclude lies at the heart of a great many practical disputes within property law, which typically present a conflict between an owner and a nonowner concerning the use of a particular thing. Thus, normative disputes over the appropriate scope of property ownership frequently concern exclusion. Nonetheless, writings on exclusion have not interrogated the mechanism through which it purportedly increases the information costs created by property law, nor have any suggested a mechanism through which reliance on the right to exclude might actually increase those costs.⁴⁵ In this Article, I aim to do so.

⁴² *E.g.*, Abraham Bell & Gideon Parchomovsky, *Of Property and Information*, 116 COLUM. L. REV. 237, 268 (2016) (analyzing how the information costs of property titles affect transfers of property ownership); Henry Hansmann & Rainer Kraakman, *Property, Contract, and Verification: The Numerus Clausus Problem and the Divisibility of Rights*, 31 J. LEGAL STUD. S373, S374 (2002) (rejecting Merrill and Smith's explanation of the *numerus clausus* doctrine); Stern, *supra* note 2, at 1207–11 (criticizing Merrill and Smith's information-cost analysis for devoting undue attention to trespass rather than to titling). Professor Taisu Zhang's discussion of information costs is an exception in discussing both standardization and exclusion in property. *See generally* Zhang, *supra* note 3. But to a substantial extent, Zhang's arguments reinforce exclusion theorists' conclusions as to exclusion while undermining only their conclusions as to standardization. *Id.* at 4–5.

⁴³ Zhang, *supra* note 3, at 9 n.7.

⁴⁴ Merrill & Smith, *Optimal Standardization*, *supra* note 12, at 4.

⁴⁵ As mentioned, some have briefly expressed skepticism, in passing, toward exclusion theorists' claim that exclusion reduces the information costs that property rights

B. Two Kinds of Information Costs

The notion of information costs is central to exclusion theorists' arguments. Nonetheless, their characterizations of that notion have typically been general and imprecise: they describe information costs simply as the costs of acquiring the information needed to comply with the law, without analyzing in detail what sort of information that is.⁴⁶ In this Section, I will attempt a more detailed analysis of information costs. In particular, I will argue, two distinct kinds of information are required to comply with the property rights of others. Simple, standardized property rights reduce only one—the less important one, at that. Consequently, simplicity and standardization are not on their own sufficient to limit the information costs of property. Instead, the information costs of property rights depend centrally on the facts that determine whether conduct is permissible.

Property law obliges nonowners not to violate owners' rights. Information costs arise because individuals who seek to comply with this obligation must identify which actions would violate those rights. What information must they acquire in order to do so? The first sort is obvious. Property law promulgates a body of rules specifying what conduct violates the rights of property owners. To avoid violating those rights, then, one must know what these rules are—what kind of conduct the law identifies as a violation. In addition, though, a second, less obvious kind of information is required to comply with a rule: one must know whether any given action meets the rule's definition of forbidden conduct. A rule that forbids some set of actions must describe them, specifying that in certain circumstances certain things may not be done. But knowing the content of the rule, on its own, may not be enough to enable an individual to comply with it, for she may not know which actions satisfy the description the rule uses to characterize the actions it forbids. Traffic law, for example, forbids drivers from driving through red lights. But to comply with that rule, one must also know how to apply it to one's own actions—

impose on third parties. *See supra* note 37. This Article aims to develop that passing skepticism into a sustained analysis and critique.

⁴⁶ *E.g.*, Merrill & Smith, *Coasean Property*, *supra* note 8, at S90 (discussing the “costs of communicating information about in rem rights and duties”); Merrill & Smith, *Optimal Standardization*, *supra* note 12, at 26 (“In order to avoid violating another's property rights, [individuals] must ascertain what those rights are.”); Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 780 (describing “the information costs that parties must incur in order to identify rights and avoid violating them”).

that is, whether to accelerate on a particular occasion would be to drive through a red light. And that requires knowledge of a fact about one's own circumstances—namely, of whether the traffic light ahead is red.

Thus, in order to comply with a rule, one must know both what the rule says and how it applies to one's own situation; one must know both what type of action the rule forbids and whether an action one might perform is an action of that type.⁴⁷ These two kinds of information are each necessary for rule compliance: individuals require both legal information about the content of the rules and factual information about their own conduct and circumstances, which determines how the rule applies to the actions they might choose to perform. An individual might violate another's property rights because either sort of information is missing.⁴⁸ Consequently, there are two kinds of information costs that property law imposes on nonowners who must avoid infringing the property rights of others: the cost of learning property's rules and the cost of learning the facts necessary to apply those rules to particular actions.⁴⁹

⁴⁷ In Aristotelian terms, one might say that a practical syllogism has two premises, not just one, and both are jointly necessary to produce action. See, e.g., MARTHA CRAVEN NUSSBAUM, *ARISTOTLE'S DE MOTU ANIMALIUM* 40 (1978) ("[T]he conclusion which results from the two premises is the action. For example, whenever someone thinks that every man should take walks, and that he is a man, at once he takes a walk."). The syllogism's major premise corresponds to knowledge of the rule of conduct governing one's behavior, and the minor premise corresponds to the facts about one's circumstances and conduct that determine how the rule applies. As Aristotle noted, the minor premise is often sufficiently obvious to be overlooked, as, in my view, exclusion theorists have overlooked it here. *Id.* ("But as sometimes happens when we ask dialectical questions, so here reason does not stop and consider at all the second of the two premises, the obvious one. For example, if taking walks is good for a man, it does not waste time considering that he is a man.")

⁴⁸ There is an obvious parallel here to the criminal law, which has long distinguished between mistakes of law and of fact. See generally, e.g., Kenneth W. Simons, *Mistake of Fact or Mistake of Criminal Law? Explaining and Defending the Distinction*, 3 *CRIM. L. & PHIL.* 213 (2009).

⁴⁹ This description of applying a single rule to a single set of facts is of course a simplification. Instead, reasoning often involves an iterated process through which a more general rule is repeatedly applied to yield more specific rules, until finally the last such rule is applied to choose an action to perform. The rule to pay one's utility bills might be applied to the fact one's telephone bill is \$50 per month, yielding a rule to pay \$50 to the telephone company by the 1st of each month, then that rule might be applied to the fact that today's date is the 29th, yielding the action of writing and mailing a check. (Sometimes, the intermediate steps might involve facts true only in a specific instance, such as the fact that this month's telephone bill is \$50, yielding an intermediate "rule" that applies only on a single occasion, such as the rule to pay \$50 by the 1st of this month.) Reasoning in multiple steps can complicate the distinction between costs of learning and of application, since individuals learn one rule by applying a previous one. Nonetheless, the distinction remains clear when applied to an individual legal rule, since the costs of applying that

As I have noted, exclusion theorists do not distinguish between these two kinds of information costs. Thus, they do not explicitly identify which of the two, in their view, exclusion helps to reduce. Nonetheless, I think it is most plausible to read their arguments as focusing on the costs of learning legal rules.⁵⁰ First, when exclusion theorists do explicitly describe information costs, they typically describe the costs of learning rules, not of applying them. Merrill and Smith cited Professor Jeremy Waldron, for example, as having explained “in a particularly trenchant fashion” why individuals would struggle to comply with the law if it did not employ exclusion as an “organizing idea”:

Everyone would need to become a legal expert to determine at any point what he could or could not do in relation to the resources that he comes across. He would have to acquire a detailed knowledge of the rules for each resource and of his rights, powers, liberties, and duties in relation to it. There would be no other way of ensuring, in ordinary life, that one abided by the rules except to find out what they were and learn them by heart.⁵¹

particular rule remain distinct from the costs of learning it, even if either is equivalent to the costs of learning or applying a different rule. Comparisons are therefore possible between the learning and application costs of individual legal rules, such as a comparison between the application costs of the right to exclude and of a proposed alternative that directly regulates individual conduct.

⁵⁰ I suspect that Merrill and Smith may focus on the costs of learning rules rather than the costs of applying them because of how they approached the topic of information costs in their scholarly work. As I have noted, *see supra* note 12 and text accompanying notes 38–41, property law imposes information costs on at least two kinds of individuals—potential tortfeasors and potential acquirers of property. Only the former, who risk violating property’s rules through their conduct, face the costs of applying those rules, however. Potential acquirers, who aim to buy property in advantageous transactions, care about the rights of property owners primarily because the value of property depends on what rights its owner possesses. To know how much you should pay, you must know what you are getting. But though purchasers must know the content of legal rules to know what their rights as owners would be, they will only rarely find themselves in circumstances in which they themselves risk violating the rules that specify how nonowners must interact with the property they own. Consequently, they may never bear the costs of applying property’s rules. The information costs facing potential purchasers, then, are primarily the costs of learning legal rules rather than the costs of applying them. Merrill and Smith’s earliest work on the information costs of property rights primarily addresses the information costs faced by potential purchasers, which they employ to explain property’s *numerus clausus* principle. *See* Merrill & Smith, *Optimal Standardization*, *supra* note 12, at 32–34. It is possible, then, that they focus on the category of costs most relevant to potential purchasers because that category was most relevant to their earliest studies of the information costs of property.

⁵¹ Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 795 (quoting JEREMY WALDRON, *THE RIGHT TO PRIVATE PROPERTY* 42–43 (1988)).

This passage concerns the costs of learning legal rules, not the costs of learning the facts that determine how those rules apply. Waldron explicitly mentioned “detailed knowledge of the rules for each resource,” whereas he said nothing about knowledge of any particular facts.⁵² Similarly, Merrill and Smith found an early precursor of their analysis in *Keppell v. Bailey*,⁵³ a case in which the Court of Chancery refused to enforce a covenant against subsequent purchasers of land because, were such covenants enforceable, “it would hardly be possible to know what rights the acquisition of any parcel conferred, or what obligations it imposed.”⁵⁴ The court’s explanation similarly concerns the costs of learning what rights the law confers; it does not address the costs of learning the facts about one’s own conduct that determine whether it violates those rights.⁵⁵

Furthermore, Merrill and Smith’s own examples of how property imposes information costs concern the costs of rule learning. Their quantitative illustration of how information costs might explode in the absence of in rem rights—if, say, all duties were created through bilateral contracting—takes information costs to increase linearly with the number of rights holders, rising by an equal amount for every person to whom duties are owed.⁵⁶ This is a reasonable analysis of the costs of learning rules—the costs of reading each contract formed with each separate counterparty are likely to be similar. But the costs of learning facts need not increase linearly, too—for example, many facts relevant to different duties could be learned simultaneously, and sometimes the very same fact might determine the application of multiple different rules. Similarly, Merrill and Smith argued that the existence of a “Monday-only watch,” a timeshare-like interest granting possession of a watch only on Mondays, would require individuals interested in purchasing a particular watch to identify whether that watch is separately owned on Mondays or not.⁵⁷ But they did not cite the costs of identifying the day of the week before putting

⁵² *Id.*

⁵³ (1834) 39 Eng. Rep. 1042; 2 My. & K. 517.

⁵⁴ *Id.* at 1049; 2 My. & K. at 536 (Lord Brougham LC).

⁵⁵ Indeed, given that the covenants in question required the owners of an ironworks to buy limestone from a particular quarry and to ship it on a particular railroad, *see id.* at 1044; 2 My. & K. at 521–23, it would have been quite implausible for Lord Brougham to claim that the costs of factual investigation would be high. The managers of the ironworks surely knew from whom they purchased their limestone and whom they hired to ship it.

⁵⁶ Merrill & Smith, *Property/Contract Interface*, *supra* note 10, at 793–94.

⁵⁷ Merrill & Smith, *Optimal Standardization*, *supra* note 12, at 27, 31.

on one's watch in the morning. That is, they cited the cost of learning what legal rule governs the watch, not of learning the facts needed to apply that rule to one's own actions.

Exclusion theorists' normative analysis of the information costs of property is plausible as an analysis of the cost of learning rules. It is fairly obvious how increasing the complexity of legal rules would increase the cost of learning them and why simpler rules may be learned at lower cost. And because more finely grained regulations do increase the complexity of legal rules, the costs of learning them would increase were property to supplement trespass law's basic requirement to keep off with direct regulations of particular activities.

The normative implications of the costs of applying rules to one's own conduct, however, are more complicated. At first glance, it might seem unclear how the difficulty of learning facts about one's own conduct or its circumstances might justify some legal rules over others. After all, to learn facts one must investigate the world, not the law, and it does not seem that changing the law could reduce the difficulty of discovering a particular fact about the world.⁵⁸ But changes in the definitions of property entitlements may reduce information costs indirectly: if it is difficult for individuals to learn a particular fact that determines the permissibility of their conduct, the law may reduce information costs not by making it cheaper to learn that fact but rather by redefining the rules so that whether they are violated no longer depends on whether that fact obtains. Requiring drivers to stop at an intersection if the light is red rather than if it is unsafe to proceed does not decrease the law's simplicity or standardization: "Drive safely!" is no more complex a rule than "red means stop," and it is equally easy to learn what each rule says. Nonetheless, individuals need considerably less information to follow the latter rule than the former because it can be applied more easily: it may be hard for a driver approaching an intersection to determine whether proceeding forward would constitute driving safely, but she may apply the rule to stop on red simply by looking at the light. Similarly, the rule that coins are worth the value stamped on their face is considerably cheaper to apply than the rule that they are worth the weight of the metals that comprise them, since

⁵⁸ Of course, there are some laws that directly regulate the gathering of information—laws regulating discovery in lawsuits, say, or trade secrets—and certainly changes in those laws might affect the cost of acquiring information about the world. But those laws are not relevant here.

looking at the objects one uses is easy—often automatic—but weighing them is comparatively difficult.⁵⁹ Though the law cannot directly change the cost of investigating a particular fact, it can lower the costs of applying legal rules to one's own conduct by defining the permissibility of actions to depend on facts that are cheap rather than costly to investigate.

While the information costs of learning rules may be limited by rules that are simple and standardized, the information costs of applying those rules depend not on the simplicity of the rules but rather on how they characterize the conduct they forbid. The more easily individuals bound by a rule may determine whether an action possesses whatever feature defines forbidden conduct, the lower the costs of applying that rule will be. To reduce these costs, then, property rights must be defined so that whether they are violated by another's conduct depends on facts that may be learned at low cost. Of course, which precise facts those are will vary. But there is an obvious kind of fact that individuals will generally face the lowest possible costs in learning: facts they already know. If, that is, individuals would know anyway, regardless of their obligations under property law, whether their conduct possesses the feature that distinguishes forbidden and permitted actions, then individuals will face no additional information costs in applying property's rules to their own conduct. The information costs of applying rules are lowest when those rules regulate conduct based on facts individuals already know.⁶⁰

What kinds of information do individuals ordinarily possess about their own conduct and circumstances? In general, whenever we act intentionally, we must mentally represent our circumstances and our available options in order to compare them, to choose between them, and to guide our subsequent behavior. As philosopher J.L. Austin put it, "As I go through life, doing, as we suppose, one thing after another, I in general always have an idea—some idea, my idea, or picture, or notion, or conception—of what I'm up to, what I'm engaged in, what I'm about, or in general 'what I'm doing.'"⁶¹ We realize this more vague or less vague

⁵⁹ See Lon L. Fuller, *Consideration and Form*, 41 COLUM. L. REV. 799, 801 (1941) (quoting II RUDOLF VON JHERING, *GEIST DES RÖMISCHEN RECHTS* 494 (8th ed. 1923)).

⁶⁰ In the context of criminal law, legal philosopher John Gardner has similarly argued that legal obligations are clearly communicated "by the adequate replication in the law of clear distinctions and significances which apply outside the law." John Gardner, *Rationality and the Rule of Law in Offences Against the Person*, 53 CAMBRIDGE L.J. 502, 513 (1994).

⁶¹ J.L. Austin, *Three Ways of Spilling Ink*, 75 PHIL. REV. 427, 437 (1966).

notion of what we are going to do in our actions: “I must be supposed to have *as it were* a plan, an operation—order or something of the kind on which I’m acting, which I am seeking to put into effect, carry out in action”⁶² This aspect of conduct renders it intentional: the mental representation of our future behavior that guides us in producing it is the intention on which we act.⁶³

These mental representations of our circumstances and future actions involve information about them. If we have an idea of what we are going to do, that idea must have some content—it must represent some (more or less specific) action that we intend to perform. We intend, for example, to cross the street, or to stop at the red light, or to go to work, and so on. Indeed, unless these representations contained some information about our future actions, they would be utterly useless. In order to choose between multiple potential actions, we must know something about what those actions are, and in order to guide our actions by our intentions, those intentions must somehow identify which action to perform. But if intentions involve a particular representation of our future behavior, then we already possess certain information about that behavior—namely, that it has the features represented in our intentions. If we intentionally act in a certain way, we ordinarily know at least that we are acting in that way. The driver who intentionally chooses to pass the car ahead, for example, does not figure out what he is doing from looking out the window;⁶⁴ he does not discover, after the fact, that he has passed it;⁶⁵ and he would not be surprised to learn that he had done so.⁶⁶ Instead, he knows that he is passing the car because he acted on the intention to do so. When we act on an intention, we ordinarily know that our action will have those features that we intend it to have.⁶⁷ Of course, people’s intentions differ between contexts, and

⁶² *Id.* (emphasis in original). Of course, Austin notes, what guides us need not be “necessarily or, usually, even faintly, so full blooded as a plan proper.” *Id.*

⁶³ *See id.* (“When we draw attention to this aspect of action, we use the words connected with intention.”).

⁶⁴ *See id.* (“I don’t ‘know what I’m doing’ as a result of looking to see or otherwise conducting observations”).

⁶⁵ *See Austin, supra* note 61, at 437 (“[O]nly in rare and perturbing cases do I *discover* what I’ve done or *come to realize* what I am or have been doing in this way.” (emphasis in original)).

⁶⁶ LUDWIG WITTGENSTEIN, *PHILOSOPHICAL INVESTIGATIONS* 171e (P.M.S. Hacker & Joachim Schulte eds., G.E.M. Anscombe et al. trans., rev. 4th ed. 2009) (“So one might say: voluntary movement is marked by the absence of surprise.”).

⁶⁷ *See id.* (“When people talk about the possibility of foreknowledge of the future, they always overlook the case of predicting one’s voluntary movements.”). Talk of

thus which particular facts they know will differ. But in general, intentions provide individuals with information about their behavior that they incur no information costs in acquiring, because they already possess it.

As I have argued, the information costs of applying rules will be lowest if the permissibility of actions depends on facts about those actions that individuals already know. Individuals bear no additional information costs in applying such rules, for they already possess the information required to apply them: once they know the rule, they may apply it directly without engaging in any further factual inquiry. If individuals' own intentions contain information about their future actions, then those intentions provide a valuable source of information that the law may exploit in shaping its rules to reduce the information costs they create. In particular, if a rule defines the actions it forbids in terms of a feature typically intended by the individuals who perform such actions, they will typically need no additional information to apply the rule to their conduct: they may comply with the rule simply by not acting on the intention to perform actions with that feature.⁶⁸ A driver considering whether to pass another car need perform no further factual inquiry to apply a rule that prohibits passing other vehicles; rather, simply by considering the potential action he already knows enough—namely, that acting would involve passing the car ahead—to know not to perform it. In general, then, property law will minimize the information costs of rule application if it defines property rights so that whether conduct violates them depends on features of that conduct that it is normally intended to have. Individuals may apply such rules to their own conduct using information they already possess simply by virtue of engaging in intentional behavior; they bear no additional costs in determining which actions the rule permits.

knowledge should not suggest infallibility, of course—we may be mistaken or an accident may occur.

⁶⁸ Even if a particular feature of actions is typically intended by the individuals who perform them, sometimes mistakes or accidents will occur. Thus, the law must decide whether to find liable only those who intentionally, say, run red lights, or whether to handle cases of mistake or accident through a negligence standard or even through strict liability. Obviously, these questions are extremely important. Nonetheless, they lie beyond the scope of this Article; I claim here only that, regardless of how the law handles mistakes and accidents, information costs will be reduced by a rule that defines prohibited conduct in terms of a feature typically intended by the agent. Information costs may, of course, be relevant to selecting the standard of liability as well.

Thus, in my view, property law often faces a trade-off between the information costs of learning rules and of applying them. Reducing the former costs may require that rules be simple and standardized; by contrast, reducing the latter requires that rules identify what conduct is prohibited in terms of its intentionally chosen features. Because individuals engaged in different activities intentionally choose different features of their actions, the costs of applying a particular rule defining when property rights are violated will depend on what kind of activity the rule governs. Thus, limiting the information costs of rule application may require property law to define violations differently for potential violators engaged in different activities. By introducing a new rule to govern a particular kind of activity, the law may reduce the rule-application costs faced by individuals participating in that activity while imposing the additional cost of learning the rule itself. A more complex set of rules may be harder to learn but easier to apply.⁶⁹

⁶⁹ As mentioned, *see supra* note 49, individuals often choose actions through an iterated process of repeatedly applying more general rules to yield successively more specific ones, then ultimately using the most specific rule to choose an action to perform. Legal rules that govern individual conduct can exert influence at different points in this process: rules articulated at a high level of generality will bear on specific actions only after they are further applied, while highly specific rules will directly identify what action to perform. To some extent, the specificity or generality of a particular rule will affect whether the costs it imposes are predominantly those of learning or of application. Because general rules apply more broadly, a scheme of general rules can be simpler and easier to learn. But because they apply more broadly, general rules are less tailored to different circumstances; more extensive reasoning is required to apply them, including more costly investigation of facts. By contrast, because specific rules must be tailored to the particular circumstances in which they apply, they are more complex and costly to learn, but that tailoring enables them to be applied with little further reasoning, reducing application costs. At one extreme, the costs of learning rules could be virtually eliminated by governing conduct solely through a universally applicable rule—say, “do the right thing”—but such a rule would be so general as to be useless, since it provides no guidance as to what the right thing is in various circumstances. At the other extreme, the costs of applying rules would be eliminated by enacting laws so exhaustive as to directly answer any conceivable question about what conduct would be required in particular circumstances, but learning such rules would obviously be impossible.

Exclusion theorists often frame their account of property in opposition to legal realism, a movement that “exhibit[ed] a preference for concepts that are shallow and close to the facts on the ground.” Smith, *Complexity and the Cathedral*, *supra* note 17, at 46. Such concepts often fail to manage complexity, exclusion theorists suggest, *id.*; at the extreme, the laws they yield would form an exhaustive list of specific permissions and requirements that no individual could realistically learn, *see* Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 366. Without denying that “the challenges of managing complexity often call for concepts that may seem more ‘metaphysical’ than the Realists and their successors would countenance,” Smith, *Complexity and the Cathedral*, *supra* note 17, at 46, I argue in this Article that rules framed in terms of such abstract or “metaphysical”

If reductions in one kind of cost must come at the expense of the other, which should the law prioritize? Though the answer may vary, in general, increases in the cost of learning rules have less impact on total information costs than increases in the cost of applying them. Learning rules is a start-up cost of a system of property rights: though individuals bound to respect those rights must first learn what the rules are, the costs of learning them are paid once, when they are learned, after which no further costs are normally incurred. (Perhaps some rules will be forgotten and must be relearned, but these costs will be occasional and nonsystematic.) By contrast, the cost of applying rules is a marginal cost: individuals must always follow the rules, and therefore every time they act, they must apply the rules to their own conduct. Thus, an individual must acquire the facts needed to apply a rule—and bear the costs of acquiring them—whenever she acts. Even if the costs on any individual occasion are low—but especially if they are not—they must be multiplied by the number of times an individual acts to determine the total costs imposed by a difficult-to-apply rule. Because the costs of applying a rule must be paid so frequently, a slight increase imposes enormous total information costs on society, whereas a slight increase in the difficulty of learning rules incurs that small increase much less frequently.

Suppose, then, that property law faces the choice of whether to introduce a new rule directly prohibiting a certain type of activity. For exclusion theorists, this change would be expected to increase information costs because it increases the complexity of property's rules. On my view, however, this analysis is incomplete. If the new rule is crafted properly—if, that is, it describes prohibited conduct in terms of features typically intended by those who perform it—it may reduce the costs individuals face in applying the rule to their own conduct. And these savings will likely exceed the additional costs of learning the rule: individuals must learn only a single new piece of information—namely, the content of the rule itself—whereas they no longer need to learn a new set of facts about their own conduct every time they perform an action that the rule governs. Of course, not every new rule will reduce information costs. A complicated, poorly crafted rule may be costly both to apply and to learn. Furthermore, because the

concepts—such as the concept of “exclusion” or of the legal “thing”—may lower learning costs while also imposing a different kind of information cost, which cannot be omitted from a complete analysis.

greater total costs of rule application arise from the frequency with which rules must be applied, a highly specific rule that applies in very few circumstances will produce smaller information-cost savings than a more general rule—perhaps so small that they are exceeded by the costs of learning the rule. But information costs do not uniformly favor simpler rules and more exclusion: in many cases, new rules that directly regulate particular activities will reduce, not increase, the information costs of property.

II. EXCLUSION AND BOUNDARIES

A property owner's right to exclude entitles him to prevent nonowners from crossing the boundaries of his property.⁷⁰ The rule reduces information costs, exclusion theorists argue, because it imposes on nonowners only the simple and standardized duty to keep off.⁷¹ Redefining violations to involve something other than incursions across parcel boundaries, then, presumptively increases information costs by increasing the complexity of nonowners' duties.⁷² In this Part, I will use my alternative account of the information costs of property to argue that the law does not always reduce the information costs that nonowners face by regulating property through a prohibition on crossing boundaries. Instead, sometimes those costs will decline when property supplements prohibitions on boundary crossing with additional rules that directly regulate particular activities. I will focus specifically on land parcel boundaries, an example frequently used by exclusion theorists.⁷³ I will begin by advancing a different analysis of the information costs of parcel boundaries. While exclusion theorists argue that rules prohibiting boundary crossings impose low information costs because of their simplicity, spatial boundaries

⁷⁰ Merrill & Smith, *Architecture of Property*, *supra* note 3, at 143 ("In exclusion, the proxy is not formulated directly in terms of use and typically involves crossing a boundary (trespass) or performing some clear action (taking)."); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1862 ("The right to exclude directs us to very simple signals of boundary crossing."); Smith, *Exclusion Versus Governance*, *supra* note 18, at S470 ("In some cases it is relatively cheap and effective to draw a boundary around the asset and enforce a right to prevent border crossings."); Smith, *Intellectual Property*, *supra* note 16, at 1752 ("[T]he right to exclude, based as it is on a simple on/off signal of violation by boundary crossing, is a very low-cost way to protect these interests."); Smith, *Elements of Possession*, *supra* note 22, at 82 ("[I]t is easier for others to know what is off limits even when the possessor is absent if they can rely on the boundaries of the thing to tell them the content of their duty.")

⁷¹ See *supra* note 14.

⁷² See *supra* note 21.

⁷³ E.g., Smith, *Exclusion Versus Governance*, *supra* note 18, at S469.

in fact constitute an enormously complex set of rules, because complying with the obligation to keep off others' parcels requires knowing not just the obligation to keep off but also the complex boundaries that one is prohibited from crossing. Consequently, it is implausible that spatial boundaries impose low information costs because of their simplicity. Rather, I will argue, prohibitions on crossing boundaries impose low information costs because they are easy to apply. Spatial boundaries distinguish permissible and impermissible conduct based on a feature—the location at which it occurs—that is typically intentionally chosen by the individual performing it. Consequently, though it may be costly to learn the spatial boundaries that define land parcels, once they are learned it is easy to know whether one's own actions would violate them.

While the costs of learning a rule do not change if it governs additional activities, the costs of applying it may differ for individuals engaged in different activities since such individuals ordinarily possess different information. If the low information costs of rules prohibiting boundary crossings depended on their simplicity, any new rule defining a new kind of property rights violation would increase information costs by adding complexity: to govern different activities with a single rule is simpler than governing them with different rules. But if spatial boundaries impose low costs because agents often intentionally choose their physical location, those boundaries will impose higher costs when used to regulate activities that do not involve intentionally entering onto parcels. Introducing different rules to govern such activities may reduce information costs for the individuals who participate in them. Focusing on simplicity alone, exclusion theorists argue that information costs preclude different rules for different activities; I argue that information costs may instead require it.

To illustrate how property can reduce information costs by using different rules to regulate different activities, I will discuss three activities that are not regulated based on crossing parcel boundaries: aviation, oil and gas production, and land use. Exclusion theorists have suggested that the direct regulations introduced to govern these activities increase information costs. By contrast, I will argue that each reduces information costs because it is easier to apply, given the activity it regulates, than a prohibition on boundary crossings would be. Because participants in each activity typically do not intentionally enter particular land parcels, they would require additional costly information about their own conduct in order to apply rules prohibiting boundary

crossings. In each case, the law instead developed a new regulatory scheme defining prohibited conduct in terms of features of conduct that participants typically do intentionally choose—rules that are consequently considerably cheaper to apply. Though each set of regulations increased the complexity of landowners' property rights, each reduced total information costs by reducing the costs of applying the rules.

A. The Information Costs of Boundaries

According to exclusion theorists, the right to exclude reduces information costs because it imposes on nonowners the simple, standardized duty to keep off others' property.⁷⁴ Individuals plausibly do incur little information cost in learning only the rule to keep off others' property. But this argument dramatically misconceives what nonowners must know in order to comply with the right to exclude. In particular, knowing only that one must keep off of something does not identify prohibited conduct unless one also knows exactly what to keep off of. Being told not to enter onto another's land, for example, is unhelpful without knowing what land does and does not belong to others. And the duty to keep off, on its own, says nothing about what land one must keep off of, since the same bare duty to keep off would exist regardless of what underlying pattern of landownership existed. Instead, the law employs a different set of legal rules to say who owns what: it specifies what land does and does not belong to others through its rules defining the boundaries of land parcels. Since landowners' right to exclude is specifically a right to exclude others from crossing the boundaries of owned land, nonowners must know what those boundaries are, in addition to knowing to keep off, in order to comply with their obligations.

Thus, in order to respect landowners' property rights, nonowners must know both that they must keep off and what the boundaries of others' land are. The former is a simple and standardized rule. But the law's methods of defining the boundaries of land parcels have rarely been simple or standardized at all.⁷⁵

⁷⁴ See *supra* note 16.

⁷⁵ This example brings out that obligations are not standardized simpliciter but rather are standardized only relative to a particular description: whether a rule imposes a standardized obligation depends not on the actual conduct the rule forbids but rather on how that conduct is described. Trespass to land could be described as prohibiting individuals from entering onto parcels owned by others; alternatively, it could be described as, first, prohibiting individuals from crossing this particular fence, second, prohibiting them

Instead, “[t]hroughout the world and through history, land demarcation has been dominated by indiscriminate or unsystematic systems such as metes and bounds [that] defin[e] land boundaries in terms of natural features of the land and even some human structures.”⁷⁶ In her study of land demarcation in colonial New Haven, for example, Professor Maureen Brady has documented the enormously idiosyncratic parcel boundaries that metes and bounds can produce.⁷⁷ Boundaries like those employed in the following Hartford deed from 1812 were hardly simple or standardized:

Commencing at a heap of stone about a stone’s throw from a certain small clump of alders, near a brook running down off from a rather high part of said ridge, thence by a straight line to a certain marked white birch tree about two or three times as far from a jog in the fence going around a ledge nearby, thence by another straight line in a different direction around said ledge and the Great Swamp so called . . . thence after turning around in another direction and by a sloping straight line to a certain heap of stone which is by pacing just eighteen rods and about $\frac{1}{2}$ rod more from the stump of the big hemlock tree where Philo Blake killed the bear, thence to the corner begun at by two straight lines of about equal length which are to be run in by some skilled and competent surveyor so as to include the area and acreage as hereinbefore set forth.⁷⁸

The information costs of learning boundaries such as these were surely enormous—far more costly than learning just to keep off. And learning such boundaries is essential to complying with

from climbing onto that particular stoop, third, prohibiting them from fording that particular stream, and so on for every parcel boundary within the jurisdiction. The former description is standardized while the latter is wildly heterogeneous, but the obligations described are the same. Nonetheless, at least with legal obligations (though plausibly not with moral ones), there is an obvious candidate to serve as the canonical description to be used in assessing the standardization of an obligation—namely, the description the law itself employs to articulate it. Thus, the right to exclude plausibly is standardized, as exclusion theorists claim, because the law of trespass itself articulates the duty imposed by that right using a standardized description prohibiting entrance onto land, not in terms of the heterogeneous locations onto which entrance is prohibited. See RESTATEMENT (SECOND) OF TORTS § 158 (AM. L. INST. 1965).

⁷⁶ Gary D. Libecap & Dean Lueck, *Land Demarcation Systems*, in RESEARCH HANDBOOK ON THE ECONOMICS OF PROPERTY LAW 257, 258 (Kenneth Ayotte & Henry E. Smith eds., 2011) [hereinafter Libecap & Lueck, *Land Demarcation Systems*] (citations omitted).

⁷⁷ Maureen E. Brady, *The Forgotten History of Metes and Bounds*, 128 YALE L.J. 872, 894–95 (2019).

⁷⁸ Harold S. Burt, *Local Archives*, 8 AM. ARCHIVIST 136, 140 (1945).

property's obligations: without knowing these boundaries, nonowners cannot know what the obligation to keep off actually entails.⁷⁹ Indeed, the magnitude of this challenge is reflected in the lengthy history, dating to Roman law, of the "mistaken improver" problem, which concerned the ownership of fixtures attached to land by a nonowner who mistakenly believed the land to be his,⁸⁰ and in the continued vitality of the doctrine of adverse possession, which arises in U.S. property law almost entirely in cases of boundary disputes between neighbors.⁸¹ And while measures like fencing or other markings may reduce the costs of learning boundary locations, the need for such measures is itself evidence that the simplicity of the right to exclude does not secure low information costs on its own.

On my view, by contrast, the information-cost advantages of the right to exclude arise from the low information costs of applying rules that prohibit crossing specific parcel boundaries.⁸²

⁷⁹ Of course, not all parcel boundaries were as complex as this one; the law has sometimes employed systems of land demarcation that defined less idiosyncratic parcels than metes and bounds does. See Libecap & Lueck, *Land Demarcation Systems*, *supra* note 76, at 259 (describing rectangular demarcation systems); Gary D. Libecap & Dean Lueck, *The Demarcation of Land and the Role of Coordinating Property Institutions*, 119 J. POL. ECON. 426, 433–59 (2011) [hereinafter Libecap & Lueck, *Demarcation of Land*] (comparing adjacent regions in central Ohio that employed either the metes and bounds system or a dramatically more standardized rectangular system).

⁸⁰ See generally Robert C. Casad, *The Mistaken Improver—A Comparative Study*, 19 HASTINGS L.J. 1039 (1968).

⁸¹ See Nadav Shoked, *Who Needs Adverse Possession?*, 89 FORDHAM L. REV. 2639, 2643–44, 2643 n.21 (2021).

⁸² Since individuals comply with the right to exclude by considering both the obligation to keep off others' land and the definitions of the parcels off which they must keep, this example illustrates how compliance with rules involves a process of reasoning in multiple steps. See *supra* note 49. Individuals first apply the rule not to cross parcel boundaries to the fact that a particular parcel is bounded (say) by a particular stream, yielding the rule not to cross that stream. Then, they employ that more specific rule to assess the permissibility of individual actions, such as taking a specific step forward, in deliberating over which to perform. My argument that prohibitions on crossing parcel boundaries are cheap to apply focuses more precisely on the latter step in this reasoning, in which individuals evaluate individual actions by applying rules specifying which locations they may not enter and which boundaries they may not cross. As noted, though, *see id.*, when multiple rules are applied sequentially in reasoning, difficulties arise in classifying particular information costs as those of learning or application, since more specific rules may be learned through the prior application of more general ones. The costs associated with identifying parcel boundaries, which I have argued show that the simplicity of the right to exclude does not ensure low information costs, *see supra* text accompanying notes 74–81, might be classified either as learning or application costs: individuals might be interpreted as identifying parcel boundaries either by *learning* the multitudinous rules forbidding entrance to particular locations, or by *applying* the single, simple rule prohibiting entrance onto others' parcels to yield that multitude of more specific rules. Regulating land access through parcel boundaries, then, reduces information costs not because it reduces all costs

According to that rule, the permissibility of nonowners' conduct depends on where it occurs: the law forbids entering onto or remaining on another's land.⁸³ To apply this rule, individuals must know the location of their conduct. But individuals typically know their own location independently of their attempts to respect property rights. Though we perform a wide variety of activities in the course of our daily lives—going to work, running errands, visiting friends, and so forth—we must normally be in the right place to do so. Therefore, people typically must know where they are, where they are going, and how they are getting there. And this information is easy to learn: we can generally just open our eyes and look around. Because people know where they are, applying a rule prohibiting boundary crossings imposes no additional information costs on nonowners, who ordinarily need only information that they already possess to determine whether they are crossing a boundary.

As Brady has noted, the very existence of the metes and bounds system presents a puzzle for scholars who take property law to aim at the reduction of information costs: given its idiosyncrasies, metes and bounds surely imposes greater information costs on those who must learn parcel boundaries than an alternative, more regular system would.⁸⁴ This puzzle, though, presumes that the only relevant information costs are the costs of learning the boundaries of land parcels. When the costs of applying rules that prohibit crossing those boundaries are considered as well, it is no longer clear that metes and bounds imposes greater information costs than alternatives.

Individuals generally identify their location relative to other objects. Obviously, though, since we do not know the locations of every other object in the world, we do not know our own location relative to every such object, either; instead, we know where we are relative to some objects but not to others. Because (sighted)

of rule application but rather because it reduces the costs of applying certain relatively specific rules—namely, those prohibiting entrance onto particular parcels. But the costs of applying the right to exclude itself—that is, the bare prohibition on boundary crossings—are in fact quite high, because that rule cannot be applied without considerable investigation into the locations of the boundaries that may not be crossed.

⁸³ *E.g.*, RESTATEMENT (SECOND) OF TORTS § 158 (AM. L. INST. 1965):

One is subject to liability to another for trespass . . . if he intentionally (a) enters land in the possession of the other, or causes a thing or a third person to do so, or (b) remains on the land, or (c) fails to remove from the land a thing which he is under a duty to remove.

⁸⁴ Brady, *supra* note 77, at 884–902.

people typically locate themselves visually, by looking, we ordinarily know where we are relative to visually prominent features of the landscape, whether natural or man-made—buildings, trees, streams, fences, and so forth. By contrast, the rectangular grids superimposed on land by more regular systems of legal demarcation are not visible on the land itself; we cannot ordinarily know by looking where we are relative to some line drawn across a map by the law. Consequently, the costs of applying a rule prohibiting boundary crossings will depend on how the boundaries are defined. If they are defined using prominent features of the landscape, the rule can be applied at no additional cost by those who must obey it. Because individuals must situate themselves with respect to the landscape in order to navigate it at all, they ordinarily will already know where they are in it, and thus they will need no additional information to determine which actions comply with rules that forbid entering certain areas of the landscape. By contrast, boundaries defined using an abstract grid will be more costly to apply: individuals do not ordinarily know where they are with respect to those abstract lines, and thus they will need further information about where those lines are located, relative to landscape features they can identify, to identify prohibited actions. Of course, that is not to deny that metes and bounds has disadvantages, nor to claim that rectangular demarcation systems are ultimately inferior.⁸⁵ But the historical prevalence of

⁸⁵ As I have noted, property rights impose information costs on two groups of people: potential tortfeasors and potential purchasers of property. *See supra* notes 38–41 and accompanying text. Of these two groups, members of only the former ordinarily regulate their conduct according to rules that prohibit violating others' property rights; purchasers must know what intrusions onto a parcel the owner may exclude in order to determine its value, but they will only rarely be at risk of themselves infringing on the owner's rights. *See supra* notes 38–41. Consequently, potential tortfeasors are likelier than potential purchasers to incur the costs of applying rules that prohibit crossing boundaries. The appropriate balance between the costs of learning parcel boundaries and of applying rules that prohibit crossing them might therefore depend on the relative importance of potential tortfeasors and potential purchasers: more regular boundaries make transacting in property easier but impose greater burdens on those who must use land without trespassing on others' parcels, while more complex boundaries may increase the costs of transacting in land while making it cheaper to use. Parcel boundaries articulated using metes and bounds, I have argued, are easier for individuals to respect in their own conduct, thereby benefiting potential tortfeasors; by contrast, the simpler parcel boundaries of rectangular demarcation would benefit potential purchasers. Scholars have observed that rectangular demarcation is better suited to, and more closely associated with, robust land markets. Brady, *supra* note 77, at 944; Libecap & Lueck, *Land Demarcation Systems*, *supra* note 76, at 278, 287–88, 290; Libecap & Lueck, *Demarcation of Land*, *supra* note 79, at 454–59. As land markets become more robust and land sales become more frequent, then, the information costs metes and bounds imposes on potential purchasers may come to outweigh

metes and bounds suggests that the costs of applying rules prohibiting individuals from entering onto particular locations, not the costs of learning those rules, has been the primary sort of information costs that the rules defining parcel boundaries have sought to reduce.⁸⁶

I have argued that easy-to-apply rules characterize prohibited conduct in terms of features intentionally chosen by individuals engaged in the activity those rules regulate. The prohibition on crossing boundaries, which distinguishes prohibited from permitted conduct based on its location, is cheap to apply for precisely this reason. People typically know their own location because they intentionally choose their own location when engaged in a particular activity—locomotion. Because we intentionally choose how to move across the surface of land, we typically know where we are relative to other objects on the surface. And it is precisely this activity—locomotion—that land boundaries regulate: to prohibit individuals from crossing boundaries on the surface of land is simply to set rules for how they may move across it. Prohibitions on boundary crossings are easy to apply because they employ the location of actions, which individuals moving across land normally choose intentionally, to identify prohibited ways of engaging in that activity.

Smith sometimes describes exclusion as a “use-neutral” strategy for defining property rights, one that is supplemented by more specific direct regulations governing specific activities.⁸⁷ On my account, by contrast, the low information costs of spatial boundaries are not neutral with respect to uses but rather are tied to one particular use: locomotion. Indeed, the connection between spatial boundaries and locomotion is manifest in the definition of trespass to land, the tort that imposes the duty to keep off:⁸⁸ “One is subject to liability to another for trespass . . . if he intentionally (a) enters land in the possession of the other, or . . . (b) remains on the land”⁸⁹ Entering onto and remaining on

the costs rectangular grids impose on potential tortfeasors, which may help explain when and why the law has shifted from one demarcation strategy to the other.

⁸⁶ Information costs need not be the only advantage of metes and bounds. For discussion of some others, see Brady, *supra* note 77, at 939–44; and Libecap & Lueck, *Land Demarcation Systems*, *supra* note 76, at 258–59.

⁸⁷ *E.g.*, Smith, *Economy of Concepts*, *supra* note 16, at 2123; Smith, *Law of Things*, *supra* note 8, at 1704–05.

⁸⁸ Smith described trespass as providing “property’s basic protection.” Smith, *Law of Nuisance*, *supra* note 12, at 976.

⁸⁹ RESTATEMENT (SECOND) OF TORTS § 158 (AM. L. INST. 1965).

land are just ways of moving (or not moving) across it; quite literally, trespass regulates permissible forms of locomotion.⁹⁰ Of course, locomotion is a near-ubiquitous activity, which explains both why spatial boundaries are so important and why it might seem as though they are not tied to any particular activity. But the connection between spatial boundaries and the activity they are designed to regulate is essential, in my view, to the low information costs they produce, since those low costs result from the information that individuals ordinarily possess when engaged in surface locomotion.

A use-neutral explanation for the low information costs imposed by spatial boundaries would justify using such boundaries broadly throughout property law: a use-neutral regulation remains use-neutral no matter how many activities it regulates. But spatial boundaries cannot effectively be employed as broadly as possible if their low costs depend on which activity they regulate. Because individuals engaged in different activities intentionally choose different aspects of their conduct, the application costs of a rule may differ for individuals engaged in different activities. Participants in activities that do not involve intentionally choosing the surface location of conduct would require additional information to apply a rule not to cross spatial boundaries. To be sure, because surface locomotion is a near-ubiquitous activity, it is unsurprising that spatial boundaries are widely used. But if the low information costs of prohibitions on boundary crossings are due primarily to their low application costs, different rules must regulate activities that do not involve intentionally choosing how to cross the surface of land.

B. Airplane Overflights

Under the common law's *ad coelum* rule, the owner of a parcel of land also owns the vertical column stretching above it.⁹¹ Any

⁹⁰ Though the tort of trespass does regulate locomotion, it does not regulate only locomotion: an individual is also liable for trespass if he intentionally "causes a thing or third person" to enter land in the possession of another, or if he "fails to remove from the land a thing which he is under a duty to remove." *Id.* These elements of trespass do not implement the rule to keep off others' land; rather, they prohibit activities like throwing or pushing a person or thing onto another's land, or failing to remove it. (It is worth noting that these forms of trespass are more recent interlopers; in its common law origins, an action for trespass would lie only for conduct taking place on the plaintiff's land. See F.H. Newark, *The Boundaries of Nuisance*, 65 L.Q. REV. 480, 481 (1949).)

⁹¹ See, e.g., *United States v. Causby*, 328 U.S. 256, 260 (1946) ("It is ancient doctrine that at common law ownership of the land extended to the periphery of the universe.").

incursion by nonowners into that space is a trespass that landowners may exclude.⁹² Since airplanes fly through the space above parcels that the rule grants to the landowner below, the development of aviation in the early twentieth century challenged *ad coelum*, as courts were reluctant to find that cruising airplanes continually trespassed on the land they flew over.⁹³ Eventually, Congress intervened, passing legislation declaring (in its present, amended form) that “[t]he United States Government has exclusive sovereignty of airspace of the United States”⁹⁴ and authorizing the Federal Aviation Administration (FAA) to regulate it.⁹⁵ Today, the FAA defines various classes of airspace and promulgates regulations that govern aviation within them.⁹⁶ These rules curtail landowners’ right to exclude airplane overflights under *ad coelum*: they cannot exclude aircraft from flying in federal airspace.⁹⁷

Federal ownership of airspace restricts owners’ right to exclude; instead of deferring to owners, the government directly regulates flight.⁹⁸ Exclusion theorists argue that information costs

The full Latin maxim is *cujus est solum, ejus est usque ad coelum et ad inferos*, or, roughly, “[w]hoever owns the soil owns everything up to the sky and down to the depths.” *Ad Coelum*, BLACK’S LAW DICTIONARY (11th ed. 2019).

⁹² *E.g.*, *Herrin v. Sutherland*, 241 P. 328, 331 (Mont. 1925) (“It must be held that when the defendant, although standing upon the land of another, fired a shotgun over plaintiff’s premises, dwelling and cattle, he interfered with ‘the quiet, undisturbed, peaceful enjoyment’ of the plaintiff, and thus committed a technical trespass at least.”).

⁹³ *See Causby*, 328 U.S. at 261 (“[E]very transcontinental flight would subject the operator to countless trespass suits.”).

⁹⁴ 49 U.S.C. § 40103(a)(1).

⁹⁵ *Id.* § 40103(b).

⁹⁶ *See, e.g.*, 14 C.F.R. § 71.33 (2023) (defining Class A airspace); *id.* pt. 91 (providing rules for aviation in regulated airspace). For an overview of the categories of regulated federal airspace, see FED. AVIATION ADMIN., U.S. DEP’T. OF TRANSP., PILOT’S HANDBOOK OF AERONAUTICAL KNOWLEDGE 15-1 to -7 (2023) [hereinafter FED. AVIATION ADMIN., PILOT’S HANDBOOK].

⁹⁷ For a history of the legal challenges and reforms sparked by the rise of aviation, see generally STUART BANNER, WHO OWNS THE SKY: THE STRUGGLE TO CONTROL AIRSPACE FROM THE WRIGHT BROTHERS ON (2008).

⁹⁸ *See* Merrill & Smith, *Coasean Property*, *supra* note 8, at S96 (“[T]he sovereignty afforded owners through the exclusion strategy is only a starting point. The presumption that owners can veto invasions sometimes gives way—for example, to the need for airplane overflights.”); Merrill & Smith, *Morality of Property*, *supra* note 10, at 1891–92 (“Not all of property is about exclusion of all others from a thing. Some of property law entails finely tailored regulations about use Uncontroversially, the right to exclude from land does not include the right to exclude high-altitude airplane flights.”); Smith, *Law of Nuisance*, *supra* note 12, at 1048 (“In a range of situations including airplane overflights . . . courts and other official institutions have at various times supplemented exclusion with governance.”); Smith, *Mind the Gap*, *supra* note 11, at 968:

increase when the right to exclude is abrogated in favor of direct regulation of particular activities, which imposes rules more complex than the simple duty to keep off.⁹⁹ When the costs of applying rules of conduct are considered in addition to the costs of learning them, though, it is quite implausible that restricting *ad coelum* in federal airspace increased the information costs of aviation.¹⁰⁰

The traditional, and I think the correct, question is whether a problem is too large and too hard to solve any other way such that the presumption in favor of property's core right to exclude has to give way to some kind of collective regulation, as is the case for airplane overflights.

In their influential casebook, which begins by contrasting the most and least exclusionary elements of property, Merrill and Smith select an airplane overflight case to exemplify the latter. See THOMAS W. MERRILL & HENRY E. SMITH, PROPERTY: PRINCIPLES AND POLICIES 10–17 (3d ed. 2017) [hereinafter MERRILL & SMITH, PROPERTY].

To be sure, in one sense the abrogation of *ad coelum* through federal ownership of airspace might appear consistent with the right to exclude. Landowners own only from the surface up to the lower limit of federal airspace. The right to exclude at higher altitudes, in turn, belongs to the new owner of that airspace—namely, the federal government—which does exclude those who refuse to abide by the regulations that govern it. Since each property owner may still exclude others from its property, it is unclear why a mere change in ownership, from a private landowner to the federal government, would abrogate exclusion. Certainly, transfers of ownership are not ordinarily inconsistent with the right to exclude. That a prominent example of abrogating the right to exclude can be interpreted as being consistent with that right suggests that exclusion theorists may have drawn an unstable conceptual opposition between exclusion and governance. But these conceptual concerns ultimately do not undermine the normative argument I advance in this Article. Whatever problems may exist with exclusion theorists' conceptual framing of exclusion and its alternatives, I focus on their normative claim that information costs require the law to avoid reforms that infringe on owners' autonomy by restricting their ability to prohibit certain activities. That is, whether or not the abrogation of *ad coelum* is properly understood as rejecting exclusion as a method of delineating property rights, it did reduce landowners' authority. And regardless of how such restrictions are conceptualized, exclusion theorists argue that they increase information costs, which is the central claim I reject. Of course, one might separately argue against exclusion theorists' normative claims on the grounds that the conceptual distinction upon which they rest is unstable. See generally Jonathan Sarnoff, Exclusion, Governance, and the Things of Property (July 2021) (unpublished manuscript) (on file with author).

⁹⁹ See *supra* notes 18–21.

¹⁰⁰ In fact, it is quite implausible that restricting *ad coelum* even reduced the complexity of the relevant legal rules. Once that restriction was implemented, pilots could comply with the obligation to keep off others' property simply by learning the rules specifying the altitudes at which various classes of airspace begin. See 14 C.F.R. §§ 71.31–71.71 (2023). Under the unrestricted rule, however, pilots would be required to learn the boundaries of the easements allowing flyovers that had been granted by landowners below. Given the idiosyncrasies of land boundaries, the latter task would likely be the more difficult one. Each rule employs some set of boundaries to regulate airspace, but the boundaries enacted by federal regulations are considerably simpler than the boundaries of land parcels, and therefore considerably easier to learn. Of course, even simple boundaries in airspace would increase total information costs were pilots compelled to learn both sets of boundaries, but since pilots typically fly over land that they do not visit on the ground, the

Were *ad coelum* unrestricted, airplanes could fly above only those parcels whose owners had granted easements.¹⁰¹ Such a system regulates permissible flight according to its location relative to boundaries on the surface. Information about a plane's surface location might be accessible with modern GPS technology, but during the development of aviation it would have been extremely costly to acquire. It is quite hard to visually identify one's exact location relative to the surface of the earth—whether, say, one is to the east or west of a particular fence or road—from thousands of feet in the air, especially at night or in clouds or fog, all while preoccupied with flying an airplane. The unrestricted *ad coelum* rule would impose substantial information costs by forcing pilots to constantly acquire information about their precise location relative to the surface, lest they trespass on land below. But under federal ownership, the permissibility of flight depends on its altitude: a pilot does not violate the rights of landowners so long as he reaches the minimum altitude of regulated airspace.¹⁰² And while precise location relative to the surface was difficult to determine prior to the development of GPS, altitude measurements were readily available—the invention of the altimeter, first used in 1929, “helped revolutionize aviation” and constituted “one of the milestones in the advance of piloted aircraft after the Wright Brothers’ flight in 1903.”¹⁰³ Because altitude is easy to determine while surface location is not, a rule regulating flight according to its altitude is much cheaper to apply than one regulating flight according to its surface location. By abrogating *ad coelum* above

abrogation of *ad coelum* allows them to simply ignore parcel boundaries, saving considerable rule-learning costs.

¹⁰¹ As many have remarked, acquiring those easements would itself be extremely costly, which constitutes a separate disadvantage of the unrestricted rule. *E.g.*, Thomas W. Merrill, *Trespass, Nuisance, and the Costs of Determining Property Rights*, 14 J. LEGAL STUD. 13, 36 (1985) [hereinafter Merrill, *Trespass*] (“Acquisition of the appropriate easements to permit an overflight, however, would obviously entail monumental transaction costs.”); Smith, *Law of Nuisance*, *supra* note 12, at 1026:

When high-altitude overflights conflicted with strict application of the *ad coelum* principle that ownership extended indefinitely upward from a parcel of land, courts were ready to define the property rights away from the owner in the face of the enormous transaction costs (and perhaps holdout potential) facing airlines if they had to negotiate with all those owning land lying under the flight path of their airplanes.

¹⁰² *E.g.*, FED. AVIATION ADMIN., U.S. DEPT OF TRANSP., ORDER JO 7400.11H, at E-1 (2020) (“Class E airspace extends upwards from either the surface or a designated altitude.”).

¹⁰³ Walter H. Waggoner, *Paul Kollsman*, 82, *Aviation Engineer*, N.Y. TIMES, Sept. 29, 1982, at D26.

a given altitude, then, the law reduced the information costs of aviation by restricting landowners' right to exclude.

Because participants in different activities intentionally choose different aspects of their actions, I have argued, the cost of applying a rule may depend on what activity it governs, and the law may reduce information costs by applying different rules to different activities. Restricting *ad coelum* reduces information costs for precisely this reason: aviation and surface locomotion are different activities whose participants intentionally choose different aspects of their conduct, and therefore the same rule imposes different information costs in regulating each. When crossing the surface of land, we generally choose a path along the surface to our destination, both because information about our surface location is readily available and because avoiding obstacles on the surface is important to reaching our destination. Regulating the permissibility of locomotion by its location on the surface exploits this fact, identifying what conduct is forbidden in the very same terms we employ in intentionally choosing it. Consequently, prohibitions on boundary crossings impose low application costs on surface travelers: because we plan how we will traverse the surface, we need gather no further information about our own actions to apply a rule prohibiting conduct based on its location relative to the surface.

By contrast, a rule that prohibits conduct based on some feature we do not ordinarily intentionally choose is costly to apply: we must first identify which of our actions possess that feature to determine which actions are prohibited. Relative to the surface, airplanes generally fly in a straight line from one point to another.¹⁰⁴ Thus, pilots fly by maintaining (and perhaps correcting) a heading rather than by trying to follow an exact curve along the surface.¹⁰⁵ To control the plane, they intentionally choose its speed, heading, and other factors that determine its line of

¹⁰⁴ For an entire trip, pilots choose between a direct route, consisting of a single straight line, or an indirect one, consisting of multiple connected line segments. See FED. AVIATION ADMIN., PILOT'S HANDBOOK, *supra* note 96, at 16-18. The FAA does restrict or prohibit access to the airspace above certain sensitive land parcels—Camp David, the National Mall in Washington, D.C., military operation areas, and the like. See *id.* at 15-3 to -4. Thus, sometimes pilots must alter a flight plan based on its path across the earth's surface. These rules strike me as genuine instances of the trade-off between information costs and other goals: flights are excluded because the additional costs of planning flights to avoid those parcels are justified by the benefits of the restriction. The information costs of avoiding a few sensitive locations, obviously, are considerably less than the costs of avoiding crossings of any parcel boundary.

¹⁰⁵ See *id.* at 16-13 to -17 (describing how to plot a heading).

flight.¹⁰⁶ Surface location is obviously important—the plane must reach its destination, after all—but pilots reach their desired surface location indirectly, by maintaining a heading that will take them there.¹⁰⁷ Consequently, pilots do not intentionally choose their exact path across the surface, and (at least before GPS) may not have known their exact surface location throughout the flight.¹⁰⁸ But precisely that information would be required to apply the rules prohibiting crossing various surface boundaries that would have governed aviation under *ad coelum*. Though a prohibition on crossing surface boundaries is cheap to apply for surface travelers, it is costly to apply for aviators, because aviators and surface travelers intentionally choose different aspects of their conduct. Pilots must intentionally choose their altitude, however, in order to ensure they are flying at an appropriate height for their trip.¹⁰⁹ Thus, they may apply altitude-based regulations using information they already possess: they know their altitude of flight because they intentionally choose it, and airspace regulations simply tell them which altitude to choose. Abrogating *ad coelum* reduces information costs because it regulates aviation according to a feature that participants intentionally choose. Pilots intentionally choose their altitude but only indirectly determine their exact surface location; consequently, they ordinarily know the former but not the latter (at least prior to GPS). As a result, it is easier to apply a rule regulating aviation by its altitude than one regulating it by its surface location.

As this argument indicates, the information costs created by a particular definition of property rights in a resource cannot be

¹⁰⁶ See *id.* at 16-13 (“The products derived from these variables, when adjusted by wind speed and velocity, are heading and [ground speed]. The predicted heading takes the aircraft along the intended path and the [ground speed] establishes the time to arrive at each checkpoint and the destination.”).

¹⁰⁷ See *id.* (“The heading and [ground speed], as calculated, is constantly monitored and corrected by pilotage as observed from checkpoints.”).

¹⁰⁸ Not all classes of regulated airspace are defined solely in terms of altitude; Class B, C, and D airspace areas are typically defined in terms of both their altitude and their location above the surface. See FED. AVIATION ADMIN., PILOT’S HANDBOOK, *supra* note 96, at 15-2. Thus, pilots must know their location relative to the surface in order to comply with the requirements of those classes of airspace. But this exception proves the rule. Those classes of airspace are generally located around airports. *Id.* And, of course, pilots must know their location relative to the surface in order to take off and land successfully. Thus, defining airspace near airports by its surface location does not increase information costs because during takeoff and landing pilots do intentionally choose their path relative to the surface—one that leads to or from an airport.

¹⁰⁹ See *id.* at 16-18 to -20 (describing how pilots should choose a cruising altitude for a flight).

evaluated independently of the uses to which that resource is put. Prohibitions on boundary crossings do regulate surface locomotion and other activities at low cost; had aviation not been invented, or were it prohibited, restricting *ad coelum* may have been unnecessary. But rules that regulate some activities at low cost may impose substantial information costs on individuals engaged in a different activity, such as aviation. Perhaps the development of aviation itself increased information costs: a more complex society, in which individuals engage in more activities, will no doubt have more rules that they must learn. But given aviation's existence, property law reduces total information costs by developing new rules regulating aviation that are cheap to apply, despite the complexity they add, rather than simply enforcing landowners' right to exclude overflights from their parcels.

C. Oil and Gas

Under *ad coelum*, owners' rights extend below the surface as well as into the sky.¹¹⁰ Landowners own solid minerals underground,¹¹¹ which typically remain in place until they are mined and removed.¹¹² However, fugacious resources, most notably oil and gas, are capable of moving within geological formations.¹¹³ Because extraction creates a low-pressure underground environment, oil and gas will often migrate across parcel boundaries towards production locations.¹¹⁴ As a result, a well located on one parcel may extract oil or gas originating from other parcels located above a single pool. Under *ad coelum*, oil and gas located under other parcels would belong to the owners of those parcels, and extracting it would thus constitute conversion. A doctrine called the rule of capture, however, abrogates *ad coelum* by

¹¹⁰ See, e.g., *Del Monte Mining & Milling Co. v. Last Chance Mining & Milling Co.*, 171 U.S. 55, 60 (1898) ("The general rule of the common law was that whoever had the fee of the soil owned all below the surface.").

¹¹¹ This is the common law rule; in many civil law countries, by contrast, title to subsurface minerals lies with the government. See Smith, *Law of Nuisance*, *supra* note 12, at 1028; MERRILL & SMITH, *PROPERTY*, *supra* note 98, at 87.

¹¹² JOHN S. LOWE, *OIL AND GAS LAW IN A NUTSHELL* 13 (7th ed. 2019).

¹¹³ *Id.* at 14 ("Oil and gas are fugacious; they may move from place to place within sedimentary rock.").

¹¹⁴ See *Elliff v. Texon Drilling Co.*, 210 S.W.2d 558, 561 (Tex. 1948):

[O]il and gas . . . are securely entrapped in a static condition in the original pool, and, ordinarily, so remain until disturbed by penetrations from the surface. It is further established, nevertheless, that these minerals will migrate across property lines towards any low pressure area created by production from the common pool.

assigning title to oil or gas to the owner of the well that produces it, regardless of where it originated.¹¹⁵ Consequently, a driller is not liable for producing oil and gas on her own land.¹¹⁶

By modifying *ad coelum*, the rule of capture restricts the right to exclude: a landowner cannot exclude others from taking oil and gas from his land by drilling on neighboring parcels.¹¹⁷ And since the rule directly regulates a particular activity, drilling, it increases the complexity of landowners' rights, thereby increasing the costs of learning them.¹¹⁸ Nonetheless, the rule of capture is considerably cheaper to apply to one's own conduct than *ad coelum*. Because oil and gas are fugacious and fungible, it is difficult to determine from which parcel a particular volume of oil or gas originated.¹¹⁹ Thus, without the rule of capture it would be extremely costly for drillers to determine when extracting oil or gas would violate the rights of other landowners, because they would struggle to identify whether the oil and gas produced by their wells belonged to them or to the owner of a neighboring parcel.¹²⁰ Under the rule of capture, however, the permissibility of extraction depends only on the location of the well, which is obviously much easier to identify: drilling on one's own land does not violate

¹¹⁵ *Id.* at 561–62:

This migratory character of oil and gas has given rise to the so-called rule or law of capture. That rule simply is that the owner of a tract of land acquires title to the oil or gas which he produces from wells on his land, though part of the oil or gas may have migrated from adjoining lands.

¹¹⁶ *Id.* at 562 (“He may thus appropriate the oil and gas that have flowed from adjacent lands without the consent of the owner of those lands, and without incurring liability to him for drainage.”).

¹¹⁷ LOWE, *supra* note 112, at 15 (“The rule of capture substantially departs from the principle of the *ad coelum* doctrine. The best way to understand it is to view it as judicial policy-making to encourage development of oil and gas resources.”).

¹¹⁸ Smith elsewhere recognized *ad coelum* as defining the scope of the right to exclude from land. See Smith, *Governing Water*, *supra* note 17, at 458 (“Exclusion-style informational variables (or proxies) are simple and crude, like boundaries and the *ad coelum* rule.”). Nonetheless, he also treated the rule of capture as a form of exclusion, even though it quite clearly curtails *ad coelum* and prevents landowners from excluding nonowners from taking property off their land. See Smith, *Law of Nuisance*, *supra* note 12, at 1027 (describing the rule of capture as “the exclusionary approach of the common law”). As I have noted, see *supra* note 98, the fact that both *ad coelum* and the rule of capture may plausibly be characterized as forms of exclusion raises doubts as to the stability of the distinction exclusion theorists draw between exclusion and other forms of regulation.

¹¹⁹ See LOWE, *supra* note 112, at 14 (“[I]t is difficult to determine whether a given [thousand cubic feet] of gas or barrel of oil produced has been drawn from under one tract of land or another.”).

¹²⁰ See *id.* (“Mineral owners would have been discouraged from drilling by the fear that they would be liable for drainage from their neighbors' properties.”).

any other landowner's rights. The rule of capture lowers information costs by restricting the right to exclude.

While exclusion theorists argue that low information costs depend on the simplicity of property's rules, the advantages of the rule of capture over *ad coelum* cannot be explained on that basis: a rule not to take oil or gas from under your neighbor's property is as simple and standardized as a rule permitting drilling only on one's own property. Instead, as with altitude-based aerospace regulation, the rule of capture is superior to *ad coelum* because it defines prohibited conduct through an aspect of drilling that is typically chosen intentionally. Because oil and gas are fugacious and fungible, drillers ordinarily cannot and need not choose exactly which volume of oil and gas they extract from a common pool that stretches beneath multiple parcels. Under *ad coelum*, however, the location of origin of extracted oil or gas determines whether producing it is permissible. Thus, the rule defines prohibited conduct in terms of a feature that individuals performing it do not intentionally choose, requiring them to acquire additional costly information to determine the permissibility of their actions. By contrast, oil and gas producers obviously must choose the location of their own wells in order to drill them. And since, under the rule of capture, well location determines ownership of oil and gas, drillers may apply that rule to their own conduct without any further information: they must simply extract oil and gas from wells on their own land. Because different activities involve different intentional choices, a single rule cannot describe prohibited conduct in terms that match the intentions of different individuals engaged in those different activities. *Ad coelum* may cheaply regulate the extraction of solid minerals,¹²¹ but it would impose substantial information costs on producers of oil and gas, whereas the rule of capture reduces the information costs of drilling despite increasing the law's complexity.

The rule of capture, however, can encourage aggressive and wasteful drilling: individual producers will drill quickly but inefficiently in order to claim as large a fraction of a production field

¹²¹ Of course, *ad coelum* might create substantial information costs even when resources are not fugacious in contexts where it is difficult to determine what location on the surface is directly above some location underground. See, e.g., *Edwards v. Sims*, 24 S.W.2d 619, 620–21 (Ky. 1929) (allowing a survey to be conducted in order to determine whether any part of a subterranean cave extended across a parcel boundary and therefore belonged to the neighboring landowner).

as possible.¹²² States have addressed this problem by adopting various measures directly regulating permissible extraction. For exclusion theorists, these direct regulations of drilling all increase information costs by increasing the rules' complexity.¹²³ By contrast, in my view whether these more complex rules increase total information costs depends on how they define prohibited conduct, which determines the cost of applying those rules.

The correlative rights doctrine holds landowners liable for causing unreasonable drainage on their neighbors' land through negligence or waste.¹²⁴ For example, courts have held producers liable for negligently permitting wells to blow out, thereby allowing gas to escape from a reservoir extending below neighboring parcels, even though the rule of capture would otherwise hold that gas originating on the plaintiff's parcel did not belong to the plaintiff when it was extracted through the defendant's well.¹²⁵ As Smith argued, correlative rights impose high information costs.¹²⁶ Those costs do not plausibly result from complexity, however, for the rule imposed by correlative rights is quite simple. "Don't waste your neighbors' gas" is a simple, uniform obligation applying to all producers; it is no more complex or non-standardized than "keep off your neighbors' land." Rather, the costs of the rule arise from the difficulty of applying it. It is easy to keep off your neighbors' land because people choose what land they are on; they can keep off their neighbors' land by choosing not to enter it. But

¹²² See *LOWE*, *supra* note 112, at 22 ("Because your neighbors will have the same legal rights and economic motivation as you, over a period of time you and your neighbors will drill more wells than are necessary to drain your land efficiently.").

¹²³ Smith classified each as governance. See Smith, *Law of Nuisance*, *supra* note 12, at 1030 ("[S]ome judicial governance rules of 'correlative rights' and 'fair share' against the grossest forms of waste can build on the exclusionary regime."); *id.* at 1032–33 (describing "rules of governance by administrative bodies" as including "well-spacing rules, regulations about rates of extraction, and detailed rules about drilling and extraction procedures, as well as legislative schemes for forced unitization."). Presumably, then, each regulation produces the increase in information costs generally attributable to governance. See *supra* note 21.

¹²⁴ *LOWE*, *supra* note 112, at 20 (defining the doctrine to hold that "an owner who exercises the right to capture oil and gas must exercise the right without negligence or waste").

¹²⁵ *E.g.*, *Elliff*, 210 S.W.2d at 563 ("[T]he negligent waste and destruction of petitioners' gas and distillate was neither a legitimate drainage of the minerals from beneath their lands nor a lawful or reasonable appropriation of them. Consequently, the petitioners did not lose their right, title and interest in them under the law of capture.").

¹²⁶ Smith, *Law of Nuisance*, *supra* note 12, at 1032 ("Where the cost to courts of supplying such governance rules is high, we get a very unambitious governance regime. Thus, when judicial doctrines aim at 'waste' in the context of oil and gas, it is, as expected on the information-cost theory, a narrow class of easily monitored waste.").

waste is rarely intentional; because producers do not choose to be negligent, they may not know which drilling practices are wasteful.¹²⁷ Thus, to determine their obligations under correlative rights, producers must bear the information costs of investigating which drilling practices are likely to produce waste. Of course, waste is socially undesirable; the benefits of reducing it may justify imposing liability for it, despite the costs of requiring producers to determine which practices are wasteful. But a rule describing forbidden conduct merely as wasteful or negligent will be costly for drillers to apply because the wastefulness or negligence of drilling is rarely chosen intentionally.

Other laws that aim to prevent waste do not simply prohibit waste described as such, as the correlative rights doctrine does; instead, they impose more complex regulations that specify in detail which forms of drilling are wasteful. Conservation laws, the most important component of modern oil and gas law, limit wasteful and excessive drilling chiefly by restricting how closely wells may be drilled to one another.¹²⁸ When landholdings are insufficiently large, these restrictions create a new problem: if the

¹²⁷ Inasmuch as the correlative rights doctrine employs a reasonableness standard to regulate permissible drilling, *see, e.g., Elliff*, 210 S.W.2d at 562–63, the costs of applying it plausibly arise at least in part from the vagueness of the rule. The uncertainty produced by vague rules, often described using the terminology of precise rules and imprecise standards, has been the subject of considerable analysis as applied both to property law, *see, e.g.,* Carol M. Rose, *Crystals and Mud in Property Law*, 40 STAN. L. REV. 577 (1988) [hereinafter Rose, *Crystals and Mud*], and to other legal fields, *see, e.g.,* Duncan M. Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685, 1687–1713 (1976); Kathleen M. Sullivan, *Foreword: The Justices of Rules and Standards*, 106 HARV. L. REV. 22, 95–122 (1992). Indeed, exclusion theorists have themselves suggested that the dichotomy of “[e]xclusion and governance [is] related to rules versus standards.” Smith, *Mind the Gap*, *supra* note 11, at 976. But while high application costs may sometimes result from the vagueness of normative concepts such as reasonableness, the distinction between rules and standards does not map neatly onto the distinction between rules that are cheap and costly to apply. Some rules that precisely define prohibited conduct may be costly to apply because it is challenging to ascertain the facts that determine whether conduct is prohibited: whether an airplane has crossed a parcel boundary or whether a volume of gas originated from a particular parcel are both precise facts that are costly to investigate. Furthermore, the application of vague normative concepts may be challenging not just because different individuals would apply them differently to the same precise facts—for example, disagreeing over whether a particular rate of drainage constitutes unreasonable waste—but also because of the difficulty of investigating the underlying facts—for example, disagreeing over what rate of unintended drainage is risked by a particular drilling practice. Conversely, standards that rely on vague, normative concepts like reasonableness may sometimes be easily applied, for a society’s shared values may yield agreement as to the analysis of particular circumstances, such as about whether a defendant’s behavior was reasonable. *E.g.,* Rose, *Crystals and Mud*, *supra*, at 609.

¹²⁸ *See e.g.,* BRUCE M. KRAMER & PATRICK H. MARTIN, *THE LAW OF POOLING AND UNITIZATION* § 5.02 (3d ed. 2023); *see also* LOWE, *supra* note 112, at 24–26.

minimum space required between wells exceeds the dimensions of a parcel, a landowner may be entirely unable to drill.¹²⁹ In such circumstances, the law permits forced pooling, which designates a single well operator for a particular area, prohibiting other landowners from drilling while granting them a share of proceeds in exchange for contributions to production costs.¹³⁰

Well-spacing requirements and forced pooling override owners' authority over the use of their land and instead regulate drilling directly. Nonetheless, though these measures are more complex than a simple prohibition on negligence and waste, they reduce information costs overall because the rules they impose are easy to apply. State conservation laws regulate the locations of wells.¹³¹ Unlike the correlative rights doctrine, which requires drillers to determine whether their conduct is wasteful or negligent, regulations that prohibit drilling in particular locations regulate conduct based on a feature that drillers intentionally choose, since one must choose the location of a well in order to drill it. Thus, drillers need acquire no new information in order to apply a well-spacing rule; they know where their wells are because they chose the location of their wells, and they can apply a well-spacing rule simply by choosing to drill where the rule permits. Drillers face some costs in learning the rules promulgated by a well-spacing order, but the costs of learning those rules are plausibly lower than the costs, imposed by the correlative rights doctrine, of determining which drilling practices are wasteful or negligent.

Forced pooling similarly increases the complexity of regulations governing oil and gas production: when individual interests are pooled, the pooling order regulates the financing, operation, and distributions of each well.¹³² But like well-spacing orders, pooling orders are easy to apply. The pooling order primarily regulates who may operate the well and how its costs and proceeds must be divided.¹³³ And any producer of oil or gas will be aware of whether they are operating a particular well, how it is being funded, and how the proceeds will be distributed: these are simply

¹²⁹ See KRAMER & MARTIN, *supra* note 128, § 6.01; LOWE, *supra* note 112, at 33–34.

¹³⁰ KRAMER & MARTIN, *supra* note 128, § 6.01; LOWE, *supra* note 112, at 34–35.

¹³¹ *E.g.*, 58 PA. STAT. ANN. § 407 (West 2023) (discussing well location restrictions); 225 ILL. COMP. STAT. 725/21.1(a) (West 2022) (same).

¹³² KRAMER & MARTIN, *supra* note 128, §§ 12.02, 13.02, 13.07.

¹³³ See, *e.g.*, 58 PA. STAT. ANN. § 408 (West 2023) (authorizing the “integration” of oil and gas interests into a single pool); TEX. NAT. RES. CODE ANN. § 102.017 (West 2023) (authorizing the promulgation of pooling orders).

ordinary business decisions intentionally managed by any business operator. Because drillers choose which wells to operate, how to fund those wells, and how to distribute the proceeds, they can apply rules governing those aspects of production without acquiring further information: they can simply choose to operate a well only if a pooling order allows them to, and to finance it and distribute the proceeds in the manner the pooling order requires. Because pooling orders prohibit conduct in terms of features that drillers intentionally choose, compliance with a pooling order requires no additional information about one's own conduct, and thus imposes no information costs.

The shift from the correlative rights doctrine to well-spacing regulations and forced pooling illustrates how the information costs of rule compliance may decrease when the law increases the complexity with which it defines property rights. Information costs, I have argued, are best constrained when the permissibility of conduct depends on its intentionally chosen features. Because individuals typically know their own intentions, they will know whether such features characterize their actions; therefore, they can easily determine whether their conduct complies with the rule. Oftentimes, though, there is a gap between the intentional choices made by participants in an activity and the normatively significant aspects of that activity. Individuals drilling for oil and gas choose the location of wells, the manner of production, and so forth; regulation, however, aims to reduce waste. And determining which drilling practices are wasteful, so that drillers may avoid them, will incur considerable information costs.

On an approach more deferential toward property owners, the law might task drillers themselves with conducting this investigation. Rules instructing drillers simply to avoid negligence and waste allow them to determine where and how to drill, providing no detailed instructions in advance but rather intervening after the fact if waste actually occurs. By declining to specify what conduct is prohibited as wasteful, the law reduces the complexity of the rules that drillers must learn. But this reduction in the cost of learning rules is more than offset by an increase in the cost of applying them: by allowing drillers to determine their own drilling practices but holding them liable for waste, the law effectively requires drillers themselves to bear the costs of determining what practices would be wasteful. By contrast, in enacting conservation laws the state itself identifies wasteful drilling practices, defined in terms of features, such as well locations, that

drillers intentionally choose. Then, it promulgates rules that directly prohibit those practices. Instead of investigating the wastefulness of drilling practices themselves, drillers can simply comply directly with the rules promulgated under conservation laws. Of course, rules specifying how to drill non-wastefully will be more complex than a mere directive to avoid waste. The intentionally chosen aspects of conduct are often quite technical, and wasteful and non-wasteful drilling may differ only slightly—for example, in the exact location of a well. Thus, the rules must give detailed specifications of prohibited conduct. But this increased complexity reduces information costs because it is harder for individuals to identify on their own when drilling is wasteful than to learn rules that identify wasteful drilling. Individuals face lower information costs if the state instead determines which drilling practices produce waste. Consequently, more complex and detailed regulations may impose lower total information costs on the individuals they bind.

D. Land Use

Traditionally, property law regulated land use through nuisance,¹³⁴ which prohibits activities that interfere with others' use and enjoyment of their land.¹³⁵ In the twentieth century, nuisance was supplemented by the development of zoning,¹³⁶ which instead directly specifies permissible and forbidden uses on particular parcels.¹³⁷ Because land use law regulates particular uses, exclusion theorists argue that it generally imposes higher information costs than trespass's simple requirement to keep off.¹³⁸ But they argue that different kinds of land use law impose different information costs. Because liability for nuisance sometimes requires an intrusion across parcel boundaries, they suggest, nuisance can impose low information costs much as other prohibitions on

¹³⁴ See DAVID L. CALLIES, ROBERT H. FREILICH & THOMAS E. ROBERTS, *CASES AND MATERIALS ON LAND USE 2* (6th ed. 2012).

¹³⁵ See RESTATEMENT (SECOND) OF TORTS § 822 (AM. L. INST. 1979); W. PAGE KEETON, DAN B. DOBBS, ROBERT E. KEETON & DAVID G. OWEN, *PROSSER AND KEETON ON THE LAW OF TORTS 619* (5th ed. 1984) (“The essence of a private nuisance is an interference with the use and enjoyment of land.”).

¹³⁶ CALLIES ET AL., *supra* note 134, at 4.

¹³⁷ *E.g.*, N.Y.C., N.Y., *ZONING RES. app. A* (2023).

¹³⁸ *E.g.*, Smith, *Law of Nuisance*, *supra* note 12, at 1046–47 (describing how land use law incurs higher information costs when it imposes rules governing proper use).

boundary crossings do.¹³⁹ By contrast, since zoning directly specifies how land may be used, it incurs the higher costs of direct regulation.¹⁴⁰ On my account of information costs, however, the costs of these different forms of land use law depend primarily on the costs of applying the rules they impose. Because nuisance regulates activities that do not involve intentionally crossing a boundary, it imposes high information costs in prohibiting intrusions onto others' land. And because zoning defines allowable uses in terms of their intentionally chosen aspects, such as the kind of use or the size of the building on the land, its rules are cheaper to apply, despite their added complexity.

Like trespass, nuisance prohibits certain invasions of land.¹⁴¹ Exclusion theorists take this similarity to indicate that nuisance imposes relatively low information costs, since it too constitutes a form of exclusion. By contrast, in my view exclusion alone is insufficient to secure low information costs. Trespass's prohibition on boundary crossings instead imposes low information costs because it is cheap to apply: individuals engaged in locomotion intentionally choose their own location, and therefore they need no additional information to determine whether their conduct violates a rule that prohibits entering a particular area.¹⁴² Prohibiting boundary crossings does not automatically lower information costs; instead, low costs depend on a congruence between the content of the rules and the intentions of those engaged in the activity they regulate. Thus, though nuisance likewise prohibits certain boundary crossings, its information costs may differ from those of trespass: the costs of applying a rule prohibiting certain interferences with others' use of their parcels will depend on whether individuals typically intend—and thus know—that their actions will cause the type of interference that is prohibited.

¹³⁹ *Id.* at 990–91 (“[A]t times nuisance law is highly exclusionary and resembles trespass . . . [T]here are information-cost specific reasons to favor exclusion in the law of nuisance.”).

¹⁴⁰ *See id.* at 973 (“Some of the uses may be prohibited under covenants or zoning, arrangements that suggest another mode for delineating rights. In contrast with exclusion, at the other end of the spectrum of delineation methods, resides a governance regime that focuses on proper use.” (emphasis omitted)); Smith, *Law of Things*, *supra* note 8, at 1718 (“Zoning too is more fine-grained than a basic exclusion regime. . . . [W]e allow greater information intensiveness as we move out from this core to the refinements.”).

¹⁴¹ *See* Merrill, *Trespass*, *supra* note 101, at 14–15.

¹⁴² *See supra* Part II.A.

Doctrinally, nuisance is complex.¹⁴³ The law has employed different approaches to classify interferences with others' land as nuisance or trespass, characterizing nuisance as indirect while trespass is direct, or as intangible while trespass is tangible.¹⁴⁴ Furthermore, it has required that the interference unreasonably produce a substantial harm in order to be actionable as a nuisance, while all intrusions, no matter how reasonable or harmless, constitute trespass.¹⁴⁵ Though trespass and nuisance both prohibit invasions of land, they prohibit different types of invasions and thus enact prohibitions articulated in terms of different features of conduct. Whether nuisance imposes low information costs depends on the costs of applying those prohibitions. Because identifying an intangible, indirect invasion of another's land is much more costly than identifying a direct, tangible invasion, and because determining whether the harm caused would be substantial and unreasonable is itself costly, the application costs of the rules against interference with the use of land imposed by nuisance are considerably higher than those of the rule to keep off imposed by trespass, even though both prohibit invasions of land.

First, the direct/indirect distinction concerns how closely a defendant's action is connected to the invasion it produces. While courts have adopted a wide variety of not-always-precise formulations to articulate the distinction, so that no canonical statement of it exists, broadly speaking an action that itself invades another's land is a trespass, whereas one that merely causes an invasion to occur in some way at some point in the future is a nuisance.¹⁴⁶ Obviously, though, it is considerably easier to identify

¹⁴³ Others have put the point less delicately. See, e.g., KEETON ET AL., *supra* note 135, at 616 ("There is perhaps no more impenetrable jungle in the entire law than that which surrounds the word 'nuisance.'"); William L. Prosser, *Nuisance Without Fault*, 20 TEX. L. REV. 399, 410 (1942) ("'Nuisance,' unhappily, has been a sort of legal garbage can.").

¹⁴⁴ For a summary of the law's approaches for distinguishing nuisance from trespass, see Merrill, *Trespass*, *supra* note 101, at 26–31; and Smith, *Law of Nuisance*, *supra* note 12, at 993–94.

¹⁴⁵ RESTATEMENT (SECOND) OF TORTS § 821F (AM. L. INST. 1979); Merrill, *Trespass*, *supra* note 101, at 16–18.

¹⁴⁶ E.g., *Reynolds v. Clerk* (1725) 88 Eng. Rep. 193 (KB) 196; 8 Mod. 275, 276 (Raymond CJ) ("[T]he right rule and distinction is, that where the act itself is unlawful and prejudicial, trespass must be brought; but if the act is lawful, and only by consequence a damage to the plaintiff, he must bring *case*." (emphasis in original)); Merrill, *Trespass*, *supra* note 101, at 27–28. This characterization of the distinction is certainly vague, and, without further precision, employing it to classify borderline cases would be difficult. But the precise location of the distinction between direct and indirect invasions is unimportant for my claim that it is easier to identify the more immediate consequences of an action than the more distant ones.

an action's immediate results, many of which are intentional, than to identify the infinitely many future effects it will cause, the vast majority of which are (and, given their number, must be) unintended. While individuals often know the immediate results of their conduct, then, it is much more difficult to determine whether an activity will in any way cause any interference with another's use of land in the future. The tangible/intangible distinction, in turn, concerns whether an intrusion is visible to the naked eye: intangible invasions do not involve visible particles or objects.¹⁴⁷ Vision, of course, is our easiest method of gaining information about the world. Thus, it is more difficult to identify intangible than tangible invasions of others' land: while one can simply look to see whether an activity visibly interferes with another parcel, a more costly investigation is required to determine whether, say, odors, noises, or vibrations generated on one's own land can reach another's. Finally, because nuisance requires that a plaintiff suffer substantial and unreasonable harm, whether an invasion is a nuisance depends on the kind of effect it has on the plaintiff. Thus, to identify a nuisance, individuals must be able to estimate how their neighbors would be affected by an invasion of their land. Acquiring this detailed information about other landowners' interests, though, is considerably more costly than determining merely whether an invasion will occur, which suffices on its own to identify a trespass. Consequently, individuals face high information costs in determining whether a particular land use will produce the kind of interference on neighboring land required for an actionable nuisance.¹⁴⁸

Nuisance creates high information costs, then, because it imposes rules that are costly to apply. Landowners rarely intend to interfere with others' use of land; because they use their own land primarily to advance their own interests, they ordinarily have no reason to care or to know how their activities will affect other landowners' ability to use their own land. Thus, they have no easy way of identifying which land uses are nuisances: it is extremely

¹⁴⁷ See Merrill, *Trespass*, *supra* note 101, at 28–29.

¹⁴⁸ As I have noted, *see supra* note 68, a further question arises as to whether the law should impose strict liability or should excuse individuals who cause nuisances accidentally or by mistake. Although the Second Restatement sought to assimilate nuisance to negligence by avoiding strict liability except for abnormally dangerous activities, *see* RESTATEMENT (SECOND) OF TORTS § 822 (AM. L. INST. 1979), courts have generally declined to follow the Restatement, *see* Jill M. Fraley, *Liability for Unintentional Nuisances: How the Restatement of Torts Almost Negligently Killed the Right to Exclude in Property Law*, 121 W. VA. L. REV. 419, 421, 435–45 (2018).

hard to determine which uses of land will cause, at some future point, in some manner, something invisible to cross a parcel boundary and substantially and unreasonably interfere with its owner's use of her land. It may be easy to apply a rule that prohibits crossing a parcel boundary oneself because individuals typically know their own location with no further inquiry, but individuals would typically incur substantial costs in determining whether land uses would cause the kind of interference that nuisance forbids. Though the rule to keep off may regulate locomotion at low cost, it cannot regulate land use at similarly low cost.

Of course, exclusion theorists do not deny that nuisance can impose high information costs.¹⁴⁹ But how those costs are diagnosed affects what remedy should be prescribed. If the information costs of nuisance result from the complexity of regulations specifying permitted and prohibited uses of land, then similar information costs would be expected from other methods of regulating land use that likewise focus on use rather than on exclusion.¹⁵⁰ But in fact nuisance enacts a legal rule that is not itself complex or detailed at all: it imposes only the simple, standardized obligation embodied in the maxim *sic utere tuo ut alienum non laedas*, or, roughly, use your own land without harming others'.¹⁵¹ Rather, as I have argued, nuisance imposes rules that are costly to apply not because the state has done too much complex, detailed regulation of specific uses but rather because it has done too little.

¹⁴⁹ Smith, *Law of Things*, *supra* note 8, at 1717 (“[A]spects of property like nuisance . . . involve more information about the value of uses, their harm, and the nature of the surrounding area.”).

¹⁵⁰ *E.g.*, *id.* at 1714 (grouping nuisance, covenants, and zoning as forms of governance, which incurs higher information costs than exclusion).

¹⁵¹ *Sic utere tuo ut alienum non laedas*, BLACK'S LAW DICTIONARY (11th ed. 2019). Of course, as with any obligation, *see supra* note 75, whether nuisance is standardized can be evaluated only relative to a particular description. A list of the specific land uses prohibited as nuisances on specific parcels may appear highly heterogeneous compared to the simple rule to keep off others' land. *See, e.g.*, Smith, *Law of Things*, *supra* note 8, at 1726 (describing “strategies that make more direct reference to uses and purposes, as in the law of nuisance”). But such comparisons mislead because they employ different sorts of descriptions for the two obligations. While the obligations imposed under nuisance can be articulated by referencing the specific uses permitted or prohibited on specific parcels, nuisance can also be articulated at the level of generality of a Latin maxim. Similarly, while trespass can be characterized as imposing only the simple duty to keep off others' land, a complete list of all the locations in the United States upon which members of the public may and may not enter would be enormously heterogeneous, making direct reference to countless specific locations where entrance is forbidden. To be sure, I do not mean to deny that differences exist between the heterogeneity of trespass and nuisance: while trespass is tied to one specific use of land, locomotion, *see supra* note 90, nuisance is not, instead regulating a wide variety of uses.

Learning the rule to use one's own land so as not to damage others' land is easy, but determining which specific uses of land would damage others' land is hard. Nuisance assigns that task to individual landowners. By delegating land use decisions to individuals, it requires landowners themselves to bear the costs of determining which uses cause unreasonable interferences. By contrast, direct land use regulation assigns those costs to the state, which itself identifies unreasonable uses and then prohibits them through rules that are cheap to apply. Rather than simply instructing landowners not to interfere with others' use of their land, a zoning ordinance defines what would constitute interference by directly specifying what buildings may be built and what activities may be performed on particular parcels.¹⁵² By restricting owners' authority over their property, land use regulation spares owners from the burden of acquiring the costly information required to determine when they would unreasonably harm users of neighboring parcels by exercising that authority.

While exclusion theorists suggest that the direct regulation of activities increases information costs, zoning instead reduces the information costs landowners face by imposing rules that may be applied at low cost. The added complexity of the rules only minimally increases the costs of learning them: it is easy to look up a parcel's zoning restrictions before developing it. And zoning rules are cheap to apply because the features that ordinarily determine whether a land use is permissible are ones that landowners intentionally choose. In developing a building, developers obviously must decide on its design—the shape of floor plates, the number of stories, the total height, and so on—and on the uses it will accommodate—single- or multi-family residential, commercial, or industrial. Under zoning, these features determine whether development is permissible. Thus, while landowners must acquire information they would not otherwise need about the effects of their activities on other parcels in order to apply the law of nuisance, they may determine whether their actions are permitted by the zoning ordinance without acquiring any additional factual information at all. Instead, they may comply with the rules simply by choosing to develop land uses that the zoning ordinance permits.

¹⁵² See N.Y.C., N.Y., ZONING RESOL. app. A (2023).

Indeed, although exclusion theorists present zoning and trespass as opposites,¹⁵³ in fact there is a close parallel in how each reduces application costs by increasing the complexity of the rules that govern land use. As I have argued, trespass encompasses both the simple duty to keep off and the complex boundaries defining the parcels to which that duty applies. On a simpler approach, rather than regulating entrance across specific boundaries, the law might instead impose only a simple prohibition on entering land in a manner that interferes unreasonably with another's use of it. This rule, essentially, would regulate land using nuisance alone: the sole duty would be a duty not to interfere unreasonably with others' use of land. The costs of learning this rule would be extremely low—much lower than the costs of learning the parcel boundaries that define obligations under the law of trespass. Nonetheless, it would obviously have enormous information costs: as with nuisance, a rule prohibiting interferences described only as such forces individuals to determine on their own what would constitute an unreasonable interference. Parcel boundaries and trespass reduce these costs by devising a more complex regulatory scheme for one particularly important interfering activity—namely, entering onto land. Whatever increase that complexity produces in the cost of learning rules is outweighed by the reduction produced in the cost of applying them, since it is ordinarily easier for individuals to identify whether they are entering a particular location than whether they are interfering with a particular use.¹⁵⁴ Individuals would thereby avoid the costs of determining when entering onto land would unreasonably interfere with its use. But other uses would continue to be regulated by the general prohibition on interference described as such—that is, nuisance—which imposes high information costs because it is difficult to apply.

Locomotion is not the only activity that could be governed by a more specific rule, though: any rule characterizing forbidden conduct in terms of its intentionally chosen features could be

¹⁵³ *E.g.*, Smith, *Law of Nuisance*, *supra* note 12, at 973.

¹⁵⁴ As I have noted, *see supra* note 82, regulating conduct via parcel boundaries requires individuals to apply two rules sequentially in evaluating the permissibility of their own conduct: first, they must apply the prohibition on crossing parcel boundaries to the definitions of particular parcels, yielding rules prohibiting entrance onto specific spatial locations; then, they must apply those rules to evaluate the permissibility of specific actions they might perform. The argument in the text focuses on the application of the latter rules, not of the former ones, in comparing the information costs of trespass with those of a bare prohibition on interfering with the use of land.

applied with lower information costs than nuisance's bare prohibition on unreasonable interference. Thus, the law might lower information costs further by enacting other rules, in addition to the prohibition on boundary crossings, that identify and prohibit other specific interfering uses of land. Such prohibitions could reduce application costs by defining those uses in terms of aspects of conduct that are typically chosen intentionally. Zoning is precisely such a regulation: just as trespass makes it easier for individuals to know where they may and may not go on land, zoning makes it easier for them to know how they may and may not build on land. In each case, a more detailed and complex rule reduces information costs because it is easier to apply. While historically, perhaps, the bulk of interferences with others' land involved entrance onto it, the modern rise in urbanization and density has unsurprisingly produced increasingly many land use conflicts that cannot be resolved merely by keeping off others' parcels. Additional detailed rules are required for individuals to cheaply understand their obligations in such contexts. Thus, whereas the law once defined parcels merely by drawing the horizontal boundaries that determine where its owner could go, under zoning, parcel definitions also specify how the owner may use that land. Both components of parcel definition, though, reduce information costs by introducing more complex, detailed rules governing land to supplement a simple prohibition on interference.

Of course, not all land use regulations reduce information costs. Developers will incur high costs in applying rules that define permissible development in terms of facts that are difficult to ascertain. Discretionary approval processes are one obvious example: New York City's Landmarks Law¹⁵⁵ provides that a certificate of appropriateness, which is required for development, must be based on "whether the proposed work would be appropriate for and consistent with the effectuation of the purposes of this chapter."¹⁵⁶ Needless to say, this rule does very little to inform landowners of what developments are allowed.¹⁵⁷ In addition, in some

¹⁵⁵ N.Y.C., N.Y., ADMIN. CODE §§ 25-301 to -322 (2024).

¹⁵⁶ *Id.* § 25-307(a).

¹⁵⁷ See, e.g., Amy Sohn, *How a \$180 Million Parking Lot Could Change N.Y.C.'s Historic Character*, N.Y. TIMES (May 6, 2021), <https://www.nytimes.com/2021/05/06/nyregion/south-street-seaport-parking-lot-development.html> (detailing a forty-year saga to redevelop a landmarked parking lot in lower Manhattan, culminating in the granting of a certificate of appropriateness); Ginia Bellafante, *In Affordable Housing v. Parking Lot, a Judge Chooses the Lot*, N.Y. TIMES (Jan. 27, 2023), <https://www.nytimes.com/2023/01/27/nyregion/south-street-seaport-250-water.html> (describing the trial court's vacatur

places, zoning is effectively pretextual: the ordinance itself precludes any reasonable development, thereby forcing all developers to negotiate with the municipality in exchange for a waiver.¹⁵⁸ This de facto requirement of discretionary approval is as costly as a de jure one. Finally, zoning may reduce information costs while imposing costs of other sorts. A zoning ordinance undertakes to identify which land uses interfere unreasonably with others' land uses, and it may perform this task badly. If it incorrectly judges the value of various uses or fails to update them over time, it may forbid land uses that are in fact beneficial, potentially outweighing any information cost savings from the easier application of zoning rules.¹⁵⁹

But compared to nuisance, zoning does limit the information costs of communicating land use obligations to landowners and developers. Even scholars who generally criticize zoning recognize the benefits of its complex, detailed rules. For example, Professor Robert Ellickson has proposed replacing zoning's strict prohibitions on uses that are harmful to neighbors with a version of nuisance that would instead require payment for such uses.¹⁶⁰ But though Ellickson rejected zoning's remedies, he accepted its detailed, use-by-use strategy for defining obligations: he proposed that a "Nuisance Board," structured much like the agencies that administer zoning ordinances, should "publish regulations stating with considerable specificity which land use activities are considered unneighborly by that metropolitan population at that time" and even "promulgate schedules of damages for typical harms."¹⁶¹ These rules impose duties to pay rather than duties governing use. But, as with zoning, they are cheap to apply: they determine required payments in terms of intentionally chosen features of development, like its use, that developers will already know, and developers can comply with the obligation to pay simply by tendering the payment that is required by law.

of the certificate of appropriateness); *S. St. Seaport Coal., Inc. v. Landmarks Pres. Comm'n of N.Y.*, 217 A.D.3d 468 (N.Y. App. Div. 2023) (reversing trial court).

¹⁵⁸ See Robert C. Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 681, 702–03 (1973) [hereinafter Ellickson, *Alternatives to Zoning*]; Michael Manville & Taner Osman, *Motivations for Growth Revolts: Discretion and Pretext as Sources of Development Conflict*, 16 CITY & CMTY. 66, 73–74 (2017).

¹⁵⁹ An example, plausibly, is the continued prevalence of single-family zoning in an era of soaring housing costs. See ROBERT C. ELLICKSON, *AMERICA'S FROZEN NEIGHBORHOODS: THE ABUSE OF ZONING* 111–32 (2022).

¹⁶⁰ See Ellickson, *Alternatives to Zoning*, *supra* note 158, at 719–61.

¹⁶¹ *Id.* at 763.

According to exclusion theorists, information costs increase when property law enacts detailed and complex rules to directly regulate particular activities; by contrast, simpler rules that delegate wider choices to owners impose lower costs because they are easier to learn.¹⁶² In my view, however, this argument misses the greatest source of property's information costs. Any rule must specify what features distinguish permitted and forbidden actions. In addition to the costs of learning it, then, the rule imposes costs on individuals who must identify whether an action possesses whatever feature would make it forbidden. These costs vary considerably by context because different facts are easier to learn for individuals engaged in different activities. Thus, though it is harder to learn complex rules tailored to different activities, such variation may make rules easier to apply if the rules are tailored to prohibit conduct in each context based on facts that individuals in that context know. On this account, then, the information costs of a particular rule are not use-neutral but rather can be evaluated only relative to a particular use of that property, given the information individuals engaged in that use possess. The low information costs of parcel boundaries are not intrinsic to boundaries; rather, they arise because individuals intentionally choose their locations when engaged in activities, like locomotion, that boundaries regulate. But boundaries produce high application costs when used to regulate other activities that do not involve intentionally choosing to cross boundaries, including aviation, oil and gas development, and urban land use. The rules need not change to accommodate these new activities; a costly regulatory regime may be desirable for undesirable activities.¹⁶³ But to reduce information costs, the law must actively shape its rules to the different activities performed on property rather than simply deferring to owners' authority.

III. EXCLUSION AND ACCESS

The examples I have discussed thus far generally involve activities on land whose participants are often unaware of whether they are crossing parcel boundaries. I have not addressed the core

¹⁶² *E.g.*, Merrill & Smith, *Coasean Property*, *supra* note 8, at S95 (“[B]ecause of transaction costs, we delegate to owners a range of sovereign authority over their property, with a presumptive right to repel invasions.”).

¹⁶³ It is not an accident that the modifications of property law I have discussed plausibly involve changes in the optimal use of land: it was because new uses were desirable that new rules were necessary to accommodate them.

activity regulated by trespass—intentional entrance onto the property of another. But that activity lies at the heart of many controversial disputes over the scope of owners’ exclusion rights. In contexts ranging from beaches¹⁶⁴ to college campuses¹⁶⁵ to casinos,¹⁶⁶ courts have permitted members of the public to access private property over the objections of its owners. While some have defended mandatory public access to private property,¹⁶⁷ exclusion theorists have broadly rejected it.¹⁶⁸ To be sure, they do not condemn public access to private property in itself. Rather, while they of course recognize that nonowners often do enter property, they insist that owners must control who may enter.¹⁶⁹ Property is a gate, not a wall, in Professor James Penner’s metaphor, and the owner is the gatekeeper.¹⁷⁰ If the simplicity of the rule to keep off restricts the information costs of respecting others’ property rights, exclusion theorists argue, complicating the rule by adding

¹⁶⁴ *E.g.*, *State ex rel. Thornton v. Hay*, 462 P.2d 671, 678 (Or. 1969).

¹⁶⁵ *E.g.*, *State v. Schmid*, 423 A.2d 615, 633 (N.J. 1980).

¹⁶⁶ *E.g.*, *Uston v. Resorts Int’l Hotel, Inc.*, 445 A.2d 370, 371 (N.J. 1982).

¹⁶⁷ *See, e.g.*, DAGAN, PROPERTY: VALUES AND INSTITUTIONS, *supra* note 24, at 44–54; Alexander, *Social-Obligation Norm*, *supra* note 1, at 801–10; Depoorter, *supra* note 1, at 1100–13; Peñalver, *Property as Entrance*, *supra* note 1, at 1938–62; Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 723–30 (1986) [hereinafter Rose, *Comedy of the Commons*]; Joseph William Singer, *No Right to Exclude: Public Accommodations and Private Property*, 90 NW. U. L. REV. 1283, 1412–49 (1996) [hereinafter Singer, *No Right to Exclude*].

¹⁶⁸ Thomas W. Merrill, *Property and the Right to Exclude II*, 3 BRIGHAM-KANNER PROP. RTS. CONF. J. 1, 22–25 (2014) [hereinafter Merrill, *Right to Exclude II*] (criticizing “forced sharing”); Merrill & Smith, *Architecture of Property*, *supra* note 3, at 153 (discussing the “significant costs to creating a statutory right to roam”); Smith, *Mind the Gap*, *supra* note 11, at 971–74 (defending the morality of exclusion as a means of achieving varied normative objectives); Smith, *Persistence of System*, *supra* note 14, at 2076–78 (criticizing academic arguments for weakening trespass protections); *see also* Wyman, *supra* note 3, at 215–16 (surveying exclusion theorists’ arguments).

¹⁶⁹ *E.g.*, Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730, 740 (1998) (“As Blackacre’s gatekeeper, A has the power to determine who has access to Blackacre and on what terms.”); Merrill, *Right to Exclude II*, *supra* note 168, at 3 (“[T]he right to exclude entails the right to include . . .”); Merrill & Smith, *Architecture of Property*, *supra* note 3, at 141 (“In order to use, enter, exploit, or develop the thing, all the world must obtain the permission of the person who has the right to exclude.”); Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 394 (describing the “general presumption that physical invasions to the land are trespasses unless the owner consents to them”); Smith, *Economy of Concepts*, *supra* note 16, at 2115 (describing property as imposing “a duty to respect the right (in this case, by not crossing boundaries without the permission of the owner)”); Smith, *Property and Property Rules*, *supra* note 21, at 1793 (describing exclusion as applying “against all those lacking the owner’s permission”). For a survey of methods through which owners may allow nonowners onto their property, *see* Daniel B. Kelly, *The Right to Include*, 63 EMORY L.J. 857, 882–89 (2013).

¹⁷⁰ PENNER, IDEA OF PROPERTY, *supra* note 2, at 74–75.

exceptions under which access is permitted can only increase those costs.¹⁷¹

The right to exclude precludes mandatory access to private property: the law of trespass generally forbids individuals from accessing property without the owner's consent.¹⁷² In the previous Part, I focused on the first of these two facts, arguing that the law often restricts the right to exclude in contexts where individuals cannot easily determine whether their actions would access property in a particular way—namely, by crossing the boundary of a land parcel. But disputes over public access to private property ordinarily involve contexts in which individuals know easily whether particular actions would involve crossing parcel boundaries. People know when they are entering a particular location, such as a store, a university campus, or a shopping mall. Thus, in applying my account of information costs to these disputes, I turn to the second fact central to the right to exclude—whether the owner has consented to entrance. Rather than focusing on the information costs of learning more complex rules, which may increase when the law adds exceptions to trespass, my analysis instead focuses on the costs of applying those rules, which depend on whether the facts used to define violations may be easily ascertained. As with any fact about another's mental state, I argue, identifying whether a particular property owner has consented for a particular individual to enter onto that property is often challenging, and thus rules regulating conduct in terms of owner consent are generally costly to apply. Those costs become particularly significant when property is accessed widely by the public, since the more people access property, the more people must face the costly task of delineating the precise scope of an owner's consent in order to identify what conduct is permissible. Thus, rules

¹⁷¹ Merrill, *Right to Exclude II*, *supra* note 168, at 23 (“Forced sharing would inevitably result in more complicated management problems.”); Smith, *Mind the Gap*, *supra* note 11, at 971 (“[R]eferring constantly to ultimate ends is costly and is reserved for high-stakes situations where other mechanisms do not work so well.”); Smith, *Law of Things*, *supra* note 8, at 1717 (“So commentators are led to ask questions such as whether exceptions for trespass or the balancing test proposed for nuisance are efficient, fair, moral, or conducive to human flourishing. That style of analysis ignores the costs of and even the choice of methods for achieving those objectives.”).

¹⁷² RESTATEMENT (SECOND) OF TORTS § 158 cmt. c (AM. L. INST. 1962) (“The word ‘intrusion’ is used throughout the Restatement of this Subject to denote the fact that the possessor’s interest in the exclusive possession of his land has been invaded by the presence of a person or thing upon it without the possessor’s consent.”). Trespass law also grants a number of additional privileges of entry that are not generally relevant to disputes over public access to property. *See id.* §§ 167–215.

conditioning public access to private property on its owner's consent often impose substantial information costs.¹⁷³

On my account, these costs could be reduced by replacing rules requiring owner consent to access private property with alternative rules that may be applied at low cost because they prohibit conduct in terms of facts members of the public already know. Devising such rules would require identifying some kind of fact typically known by members of the public who seek access to private property. And, indeed, such individuals do characteristically know certain facts: when members of the public seek access to private property, they typically know what property they seek to enter and how they intend to use it. That is, individuals who enter onto private property typically know the nature and purpose of their own actions. Thus, individuals can cheaply apply regulations that define when and how public access is permitted by directly specifying permissible activities: individuals will already know, with no further inquiry, whether their intended activities are among those permitted by the rule.

To illustrate this argument, I will begin by contrasting two types of personal property typically left on public land: cars, exclusion theorists' canonical example of the information-cost benefits of exclusion,¹⁷⁴ and household objects, which are often abandoned on the street. These examples occupy opposite extremes in terms of public access: owners park their cars in public intending them to be waiting, untouched, when they return, whereas owners abandon property on the street so that others may take it. Because the public's obligations with respect to these types of

¹⁷³ As with border crossings, *see supra* note 82, individuals must often apply multiple rules sequentially to evaluate whether their interactions with property are consistent with the owner's consent. In particular, if the owner promulgates a general policy specifying when access is permitted rather than evaluating each attempt to access property case by case, individuals must first apply the rule to keep off absent the owner's consent, yielding a more specific rule permitting access based on the policy promulgated by the owner, and then must evaluate individual actions using that more specific rule. In analyzing the information costs of parcel boundaries, I considered the costs incurred in applying multiple different rules sequentially. The rule to keep off, I argued, imposes high application costs due to the difficulty of identifying the parcel boundaries that must be known to apply that rule, *see supra* Part II.A, while application costs at the second step vary because rules prohibiting entrance onto specific locations are often easy to apply, *see supra* Part II.B–D. In this Part, my analysis focuses on the first step: I argue that the right to exclude is costly to apply because in many contexts the owner's consent is costly to ascertain, and that in those contexts public access is often mandated instead. I do not consider the application costs of rules whose content is given by the policies that owners might adopt to govern access to their property under the right to exclude.

¹⁷⁴ *See supra* note 16.

property differ, I will argue, different legal rules communicate those obligations efficiently. When entrance is rare, members of the public need rarely determine whether the owner has consented to entrance, so the costs of applying the right to exclude are minimal in the aggregate. But when entrance is the norm, those costs would be prohibitive, and thus the law should, and does, directly regulate access instead. Having analyzed this quotidian example of mandatory access, I turn to two more prominent and significant examples of laws overriding the right to exclude—the prohibition on discrimination in public accommodations and the New Jersey Supreme Court’s controversial public access jurisprudence. These direct regulations of access are more complex than a simple directive to enter only with the owner’s consent. But the cost of learning these more complex rules, I argue, is outweighed by the reduced costs of application: it is easier to learn a single rule that consistently regulates conduct with respect to an entire class of property than to separately identify the bespoke, potentially shifting permissions granted by the owners of each item with which one interacts. Property law may thereby reduce information costs by restricting owners’ right to exclude and directly regulating access to private property that is open to the public. Because such rules do not limit permissible conduct based on the owner’s consent, individuals may avoid the information costs of identifying what the owner has consented to.

A. The Information Costs of Access

Exclusion theorists argue that the right to exclude efficiently informs people of their obligations with respect to things that are not theirs. Individuals encountering unfamiliar objects must somehow know what to do with them, and the right to exclude solves this problem by promulgating a simple, general default rule that applies to all unfamiliar objects: keep off.¹⁷⁵ In the standard example, a stranger walking past a row of parked cars knows not to touch any.¹⁷⁶ But disputes over public access to private property center on forms of property that differ in a key respect from parked cars: they involve property that is generally used by the public at large.¹⁷⁷ Mandatory access laws do not entirely

¹⁷⁵ Smith, *Law of Things*, *supra* note 8, at 1705 (“Exclusion is at the core of this architecture because it is a default, a convenient starting point.”).

¹⁷⁶ See *supra* note 17.

¹⁷⁷ See, e.g., Rose, *Comedy of the Commons*, *supra* note 167, at 774 (arguing that, historically, doctrines designating certain kinds of property as inherently public applied when

override property owners' right to exclude the public from all property; rather, while antidiscrimination law in public accommodations and free speech rights in shopping malls forbid owners from excluding particular individuals from property, those laws apply only to parcels that the general public may enter. Publicly accessible property is characteristically used in a particular way. And since the information costs of a rule vary as it is applied to different activities, the low costs of regulating access to parked cars through exclusion do not guarantee equally low costs when regulating access to other sorts of property that are used in different ways. Rather, I will argue, though the rule requiring individuals to keep off of property may be applied cheaply to property that individuals typically do keep off, it imposes high costs when applied to property that members of the public frequently enter.

On exclusion theorists' account, the right to exclude communicates a simple rule that applies whenever individuals encounter unfamiliar things—namely, the rule to keep off. This rule lowers information costs because it is the same whenever individuals encounter an unfamiliar object: they need not learn complex rules requiring different conduct on different occasions but rather must always simply keep off. But the efficiency with which the right to exclude communicates obligations is inseparable from the content of the obligation that it communicates. That is, the right to exclude does not provide some general strategy that can efficiently inform strangers of any obligation the law might impose concerning unfamiliar things; instead, because its low information costs depend on the uniformity of the rule to keep off, the right to exclude can efficiently communicate only the single obligation to keep off of unfamiliar things. Thus, the claim that exclusion imposes low information costs depends upon a crucial presumption—namely, that individuals must keep off the unfamiliar things they encounter. When individuals must in fact keep off, the right to exclude imposes low information costs. But when private property is accessible to the public at large, individuals are not obligated to keep off but instead are permitted to enter. In those contexts, then, the law must communicate an obligation different than the one governing parked cars: it must tell people not to keep off but rather that they may enter. And the efficiency with which the right to exclude communicates that people must keep

“the properties themselves were most valuable when used by indefinite and unlimited numbers of persons—by the public at large”).

off need not guarantee efficiency in communicating to the public at large that they may enter.

Of course, keeping off is only a default obligation under the right to exclude; entrance is permitted when the owner consents. Thus, under the right to exclude both the obligation to keep off and the permission to enter can be communicated. But because each must be communicated differently, each incurs quite different information costs. Because under the right to exclude individuals must keep off by default, the law need not actively communicate that obligation; an owner need take no additional steps to communicate to particular individuals that they must keep off particular property on any particular occasion. By contrast, because the permission to enter is not a default, the information costs of communicating that access is allowed are much higher. Since keeping off is the default for all persons on all occasions, each individual person must be actively informed that consent to enter has been granted on each occasion when access is allowed. Furthermore, since the owner must consent, members of the public must confirm that the consent they have received originated from the owner, even though the public at large will likely have little access to the owner and may not even know who she is. Lastly, because every owner is free to impose whichever rules she wishes as a condition for individuals to enter her property, the public at large must somehow be informed of the scope of consent granted for the use of each specific parcel, which may differ from the scope of consent granted for the use of any or all other parcels.

As exclusion theorists stress, a primary advantage of the right to exclude is that it makes expensive information about the owner irrelevant: strangers encountering parked cars can know to keep off despite knowing nothing about the owner.¹⁷⁸ But such information is irrelevant only when strangers must, in fact, keep off: they need to know nothing about the owner to know they must keep off, but they must know something about the owner to know that they may enter. Because the owner's consent is required to enter, the public must investigate the owner despite the expense of doing so. Thus, the right to exclude imposes low information costs only on those actually excluded, whereas it imposes much higher information costs on those permitted to enter property. Such costs will be limited for property mostly kept private, but if property is publicly accessible—and thus entrance, rather than

¹⁷⁸ See, e.g., PENNER, *IDEA OF PROPERTY*, *supra* note 2, at 75–76.

exclusion, is the norm—the information costs faced by the many individuals who do enter become much more significant.

Indeed, while exclusion theorists present their parked-cars hypothetical as an example of the advantages of exclusion,¹⁷⁹ that example just as well illustrates exclusion's limits. Rather than being representative of property in general, publicly parked cars are atypical, and thus the effectiveness of exclusion in regulating access to parked cars need not generalize to other kinds of property. Public parking is a form of temporary storage on public property. Because parking locations must be publicly accessible so that car owners may use them, members of the public frequently encounter parked cars. And storage is a use for which public access is generally undesirable. Property owners derive no benefit from public access to stored property but risk considerable harm: unsupervised use may cause damage unlikely to be reimbursed, and property may be unavailable when owners wish to retrieve it. By contrast, because individuals tend to lack compelling reasons to access a stranger's car, they generally should keep off parked cars. And if exclusion is generally optimal, it is an excellent default. Furthermore, on the rare occasions when a nonowner does need access to another's car, consent will usually be easy to communicate. Because cars require keys to open and operate, nonowners almost always either enter in the owner's presence or borrow the key beforehand, at which point consent may easily be given. Thus, "keep off unless the owner consents" regulates strangers' access to unfamiliar cars at low cost. Though members of the public frequently encounter parked cars, keeping off is almost always appropriate, so individuals will only rarely bear the costs of gaining permission to enter, and in those few cases the costs will be low because the owner will be present.

Nonetheless, the widespread storage of cars on public property is anomalous, as most chattels are stored in people's houses or in designated storage facilities. Because cars are used for transportation, they must be stored at the destinations to which people travel; because many trips occur alone, nobody is available to monitor the car or drive it elsewhere when not in use; and because of their size, cars cannot be taken indoors and must instead be left outside—indeed, they are even stored in public at homes lacking private parking. Thus, cars often must be stored in public, and because they are publicly stored, the strangers who

¹⁷⁹ See *supra* note 17 and accompanying text.

encounter them must be excluded from accessing them. Other things are stored very differently, however. We do not ordinarily store chattels worth tens of thousands of dollars—often the most expensive ones we own—unattended, in public, on land that is not ours, for hours or even days at a time. Due to the unusual way in which they are used, only cars (and other vehicles) are stored in this way. Thus, members of the public do not often encounter other kinds of objects in storage. And if keeping off is appropriate behavior for cars because we typically encounter them being stored in public, other rules may be appropriate for objects that are not generally stored where the public can access them.

In addition to parked cars, someone walking down a city sidewalk may encounter all sorts of objects on the curb, from books to artwork to furniture. While strangers must generally keep off of cars, a very different practice applies to household goods: strangers do not keep off but rather help themselves.¹⁸⁰ While the curb is the most convenient place to store cars not in use, many better options are available for storing household goods—kitchenware may be stored in cabinets, books on bookshelves, and furniture may simply be left in place. Household goods are placed on the sidewalk not for storage, then, but to be given away. Oftentimes, individuals no longer want property that may be valuable to others.¹⁸¹ Discarding or destroying it would be wasteful, and gifting or selling it can be costly. Abandonment solves this problem: it allows owners to cheaply disclaim their interest in property while transferring it to someone who values it.¹⁸² Few ways of abandoning property are easier than putting it on the sidewalk. Thus, while the cars strangers encounter at the curb are there to be stored, the household goods strangers encounter are there to be taken. And while public access may interfere with storage, the public must access property to take it.

What is the most efficient way to communicate to strangers that they may take items left on the sidewalk? For exclusion theorists, low information costs require simple rules like trespass,

¹⁸⁰ *E.g.*, Matt Corriel, Comment, *Up for Grabs: A Workable System for the Unilateral Acquisition of Chattels*, 161 U. PA. L. REV. 807, 817 (2013).

¹⁸¹ For a discussion of why owners might want to give away property that is valuable to others, or even to the owner himself, see Lior Jacob Strahilevitz, *The Right to Abandon*, 158 U. PA. L. REV. 355, 364–70 (2010).

¹⁸² *See id.* at 375–90 (analyzing “abandonment’s comparative appeal”). *But see* Eduardo M. Peñalver, *The Illusory Right to Abandon*, 109 MICH. L. REV. 191, 214–19 (2010) (defending “the common law’s suspicion of abandonment”); Strahilevitz, *supra* note 181, at 372–75 (discussing the “costs of abandonment”).

which enforces owners' right to exclude by obligating nonowners to keep off unless the owner permits entry.¹⁸³ But this focus on the simplicity of the rule rather than the costs of applying it is misplaced. Perhaps a single, uniform rule to keep off absent owner consent is easiest to learn.¹⁸⁴ The information costs of applying that rule may be much higher, though, since such costs are lowest not when rules are simple but rather when the permissibility of conduct depends on features intentionally chosen by the individuals performing it. And someone can take a particular book from a particular box on the sidewalk without having any intentions concerning the owner's consent. Furthermore, determining whether the owner consents will often be difficult. One could ask the owner, but he may be difficult to find—it may be unclear where he lives, and he may be unavailable. Many potential takers simply would not bother; rather than determining whether the owner consents, they would forego taking the property entirely. Because it is difficult to determine what an owner consents to, a rule permitting access only with the owner's consent would be costly to apply.

Of course, there are ways to ameliorate this problem—for example, owners might provide written permission to take goods that are left out. Passersby might still struggle to verify the authenticity of such permissions, though, and it would still be unclear whether one could take property that lacked an accompanying note. More generally, adding costs of this sort undermines the value of sidewalk giveaways. Abandoned property is typically worth little—not enough to justify the cost of marketing it for sale—and abandonment's low cost is its chief advantage as a method of property transfer.¹⁸⁵ The owner can simply leave the

¹⁸³ Merrill & Smith, *Property in Law and Economics*, *supra* note 8, at 394 (“But adopting a general presumption that physical invasions to the land are trespasses unless the owner consents to them is a low-cost rule compared to a presumption that all invasions are privileged unless the entrant has agreed to desist.”); Smith, *Persistence of System*, *supra* note 14, at 2065 (“For example, the law of trespass, as with exclusion strategies in general, implements this basic modular setup. It creates a simple message for potential trespassers, such as to a person walking through a parking lot who knows not to take or damage cars belonging to unknown others.”).

¹⁸⁴ To be sure, one might be skeptical of this emphasis on the simplicity of trespass. Strictly speaking, trespass instructs nonowners to keep off absent a privilege of entry. The Restatement of Torts requires forty-eight sections and over one hundred pages to cover privileges to enter land, RESTATEMENT (SECOND) OF TORTS §§ 167–215 (AM. L. INST. 1962), and eighteen sections over twenty-two pages to cover privileges to access chattels, *id.* §§ 252–280. The cost of learning this much dense legal doctrine hardly seems low.

¹⁸⁵ See Strahilevitz, *supra* note 181, at 386–87.

property; strangers can simply take it. Any rule that requires owners to do more than simply place goods on the curb or takers to do more than simply take them imposes additional costs. Some will decline to pay those costs, instead concluding that abandoning property for others to take, or taking it, is not worth the trouble. And such costs would ultimately depend on the underlying requirement that strangers must secure the owner's consent to take her property.

The way to reduce these costs, of course, is simple: just as the most efficient rule to communicate to strangers that they must keep off specific parked cars is a general duty to keep off parked cars, the most efficient way to communicate to strangers that they are free to help themselves to specific household goods on the sidewalk is by granting a general privilege to help oneself to household goods on the sidewalk. While strangers taking books from the sidewalk may know very little about the mental states of their owners, they know they are taking a book left on the sidewalk because they intend to do so. Thus, strangers require only information they already possess to apply a rule permitting them to take goods left on the sidewalk. This information-cost advantage is shared by the rule governing parked cars and the rule governing sidewalk giveaways: each defines permissible conduct based solely on intentionally chosen features of action, which agents know more or less automatically. If you see a parked car, keep off; if you see household goods left on the sidewalk, help yourself. Thus, not exclusion, but its opposite, limits information costs when property is abandoned: in Hohfeldian terms, privileges and no-rights are jural correlatives, so if strangers are free to help themselves, the owner necessarily lacks the right to exclude.¹⁸⁶ Abrogating the right to exclude, not deferring to it, reduces strangers' information costs when taking abandoned property.

And, indeed, the law does abrogate owners' right to exclude others from abandoned property. Once property has been abandoned, any member of the public may take it, and the first to do so becomes its new owner.¹⁸⁷ The previous owner cannot impose restrictions on abandoned property that might allow only some to

¹⁸⁶ Wesley Newcomb Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 *YALE L.J.* 16, 33 (1913) ("[T]he correlative of X's privilege of entering himself is manifestly Y's 'no-right' that X shall not enter.").

¹⁸⁷ *E.g.*, *Terry v. Lock*, 37 S.W.3d 202, 206 (Ark. 2001) ("Property is said to be 'abandoned' when it is thrown away, or its possession is voluntarily forsaken by the owner, in which case it will become the property of the first occupant.").

claim it: once he has abandoned a particular item of property, he cannot exclude any particular members of the public from it, for it belongs automatically to whoever first claims it.¹⁸⁸ Thus, no individual need determine whether the owner would consent for him in particular to take abandoned property, which could require a costly investigation, since no such restrictions are valid. Instead, once property has been made generally available to the public, any member of the public knows automatically that he may take it. Though some costs may be incurred in learning the rules specifying the locations where abandoned property may be left, such as the sidewalk,¹⁸⁹ they are plausibly outweighed by the reduced costs of applying such a rule. Owners still must decide whether to make property accessible to the public at all—that is, whether to abandon it. But once it has been made publicly accessible, information costs decline if all members of the public may access it regardless of owner consent.

While owners clearly cannot exclude any specific individual from taking abandoned property, the law may in fact even go further, abrogating the owner's right to exclude anyone who takes property in the reasonable belief that it has been abandoned—say, because it was taken from an apparently discarded box on the sidewalk—regardless of the owner's actual intent. To be fair, black letter law requires that the owner intend to relinquish ownership; on this rule, goods carelessly left on the sidewalk might remain the owner's property if she did not actually intend that they be taken.¹⁹⁰ Commentators, however, have been quite critical of this rule, precisely because of the information costs it creates for potential takers,¹⁹¹ and they have proposed a number of alternatives.¹⁹² Furthermore, because abandonment is not commonly discussed either in the caselaw or in scholarship,¹⁹³ it is not clear

¹⁸⁸ Strahilevitz, *supra* note 181, at 376–94 (describing how abandonment acts as a “roll of the dice”).

¹⁸⁹ Such rules are often established by social custom rather than by positive law.

¹⁹⁰ *E.g.*, *Griffis v. Davidson Cnty. Metro. Gov't*, 164 S.W.3d 267, 272 (Tenn. 2005) (requiring a showing of “intent to abandon”); Strahilevitz, *supra* note 181, at 376; Corriel, *supra* note 180, at 817–19.

¹⁹¹ Strahilevitz, *supra* note 181, at 372–73; Corriel, *supra* note 180, at 817.

¹⁹² Strahilevitz, *supra* note 181, at 408–09 (suggesting that owners be required to label abandoned property); Corriel, *supra* note 180, at 829–35 (proposing a three-part scheme for classifying property as abandoned without reference to owner intent).

¹⁹³ See Strahilevitz, *supra* note 181, at 358–59 (suggesting that abandonment may be poorly regulated due to “the dearth of attention” it has received).

how closely courts would follow the black letter rule.¹⁹⁴ Prominent cases imposing liability on takers involve a facially unreasonable belief that property was abandoned;¹⁹⁵ by contrast, it is eminently reasonable to think that household goods left on the sidewalk have been abandoned. In addition, courts determine the owner's intent to abandon primarily by examining the nature of his conduct: behavior objectively evincing an intention to abandon property often suffices to establish the required intent.¹⁹⁶ Since leaving goods on the sidewalk surely indicates an intention to abandon them, a court might hold property to be abandoned based on that conduct alone. Finally, even if the law of abandonment is unavailing, a taker would have an arguably stronger defense sounding in equitable estoppel, which applies when "one by his acts . . . intentionally or through culpable negligence induces another to believe

¹⁹⁴ Cf. R.H. Helmholz, *Wrongful Possession of Chattels: Hornbook Law and Case Law*, 80 NW. U. L. REV. 1221, 1223–24 (1986) (describing how courts do not actually apply the black letter rule stated in casebooks and treatises with regard to a doctrine involving ownership of found chattels). I was unable to find any reported cases litigating ownership of goods taken from the sidewalk in the belief they were abandoned.

¹⁹⁵ In the leading case, the buyer of a building, who had been informed that a third party rented a locked room in the basement for storage, nonetheless sold barrels that were being stored there full of valuable wine, after a cursory inspection led him to think they were empty, to individuals who were subsequently arrested and whom the court described as perpetuating "a fraud and theft." *Poggi v. Scott*, 139 P. 815, 815 (Cal. 1914). Certainly, the conclusion that those barrels were abandoned was facially unreasonable.

¹⁹⁶ Cf. *Long v. Dilling Mech. Contractors, Inc.*, 705 N.E.2d 1022, 1025 (Ind. Ct. App. 1999) (holding that placing trash in a dumpster constitutes abandonment because "one relinquishes personalty when he voluntarily makes it available for someone else's disposition"); *Right Reason Publications v. Silva*, 691 N.E.2d 1347, 1351 (Ind. Ct. App. 1998) ("We are also convinced that Right Reason intended to abandon the student journals, for, by making the journals freely available to the public, Right Reason displayed conduct inconsistent with an intention to maintain ownership of them."); *Herron v. Whiteside*, 782 S.W.2d 414, 417 (Mo. Ct. App. 1989) ("The act of escape is unequivocally inconsistent with any intention to retain ownership of property left at the penitentiary."); *Hawkins v. Mahoney*, 990 P.2d 776, 780 (Mont. 1999) (holding that a prisoner's escape creates "a rebuttable presumption that he intended to abandon the property that he left behind" that must be rebutted "prior to its acquisition by anyone else"); *Llewellyn v. Phila. & Reading Coal & Iron Co.*, 162 A. 429, 430 (Pa. 1932) ("Abandonment includes both the intention and the external act by which the intention is carried into effect; intention may and indeed often must be inferred from acts."); *J. A. Bel Lumber Co. v. Stout*, 64 So. 881, 887 (La. 1914):

And the intention to abandon may be inferred, in a case such as this, where the owner makes no effort, and takes no action, looking to the recovery of his property, and particularly where he, himself, acts upon, and profits by, a common understanding to the effect that property such as is here in question is to be regarded as abandoned.

The right to exclude may be preserved when conduct alone can establish a presumption of consent to take, but only nominally: if leaving property in certain locations creates an irrebuttable presumption of consent, then the rule actually governing the conduct of nonowners turns on the location of the property, not the subjective fact of actual consent.

certain facts to exist and such other rightfully relies and acts on such belief.”¹⁹⁷ Leaving household goods on the sidewalk induces the belief they have been abandoned, and reliance on that belief is surely reasonable; thus, an owner might be estopped in a suit against a taker who believed the goods to be abandoned. But regardless of how a court would ultimately decide and whether its decision would sound in abandonment or estoppel, information costs favor abrogating the owner’s right to exclude. Because it is much more difficult to determine an owner’s subjective intentions than to understand what his conduct objectively indicates, a rule employing the former to determine the permissibility of taking goods is much more costly to apply than one employing the latter.

Of course, most owners surely do consent to strangers’ taking property they have left on the sidewalk. Thus, one might argue that abrogating the right to exclude is not necessary to allow abandonment; even without a legal privilege to take, strangers could still treat the placement of goods on the sidewalk as reliable evidence that the owner consents to their being taken. Nonetheless, though perhaps a workable system of abandonment could exist in which the placement of goods on the sidewalk was merely evidence of owner consent, fully abrogating the right to exclude produces lower information costs. Simply allowing strangers to take goods if they are on the sidewalk makes information costs trivial, since individuals would need identify only the goods’ location. But treating the placement of goods on the sidewalk only as evidence exposes potential takers to the risk of liability for taking them if, in a particular instance, that evidence is misleading. That risk may lead strangers to seek explicit permission from the owner or simply to forego taking entirely—information costs that undermine successful abandonment and that abrogating the right to exclude completely avoids. And it would still be costly for passersby to consider and evaluate their evidence about the owner’s consent before taking goods, even were the law to presumptively include the goods’ location among that evidence.

Furthermore, potential takers are justified in inferring that goods left on the sidewalk may be taken in part because passersby do, in fact, help themselves. The rule that passersby may take is itself the reason why owners typically leave household goods on the sidewalk if and only if they intend to abandon them. Owners who intend to abandon goods choose the sidewalk because

¹⁹⁷ *Nw. Nat’l Bank v. Commonwealth*, 27 A.2d 20, 23 (Pa. 1942).

strangers know those goods may be taken, and, for the same reason, owners with no intention of abandonment keep their goods off the sidewalk. Thus, the correlation between goods' location on the sidewalk and owners' consent that they be taken—the correlation that makes location good evidence of consent—itself depends on the prior existence of the rule. Abrogating the right to exclude therefore increases the reliability of the relevant evidence: by establishing that goods on the sidewalk are abandoned, it increases the likelihood that goods there were intended to be abandoned. Only because the rule exists may owner consent for taking be so easily inferred. The fact that goods left on the sidewalk in fact are normally intended to be abandoned, then, is not an argument for why abrogating the right to exclude is unnecessary.

Of course, I do not mean to deny the importance of consent: while unwanted goods should pass to new owners who could use them, strangers generally should not take goods that their owners still want. Too-frequent nonconsensual takings of goods might well indicate a flawed rule. But the importance of owner consent does not entail that the rules governing abandonment must themselves directly regulate conduct based on owner consent. Rather, as Merrill and Smith themselves have argued, oftentimes there ought to be a gap between the ends the law pursues and the means by which it pursues them.¹⁹⁸ The most effective way to achieve some goal may not be a rule directly requiring individuals to pursue it.¹⁹⁹ Thus, even if the law aims for unwanted property to be transferred to new owners only if previous owners consent, that aim may be best achieved not by requiring new owners to secure consent but rather by permitting them to take goods that are found in a particular location. Establishing such a rule, as I have noted, makes clear to owners when they do or do not succeed at abandoning property. And even if such a rule were to result in some nonconsensual takings, those costs would likely be outweighed by the greater ease with which strangers may identify

¹⁹⁸ *E.g.*, Merrill & Smith, *Architecture of Property*, *supra* note 3, at 137 (“There is a ‘gap’ between the contours of a rule or feature of property on the one hand and the system’s overall goals and effects on the other.”); Smith, *Mind the Gap*, *supra* note 11, at 963 (“Property is an area of law that has gappiness at its core. Exclusion rights serve interests in use only indirectly.”).

¹⁹⁹ *Cf.* Smith, *Mind the Gap*, *supra* note 11, at 970 (“[P]roperty may promote human flourishing even if not every rule or decision on the part of courts or parties, such as an invocation of trespass, directly (or best) promotes human flourishing.”).

goods to be taken and the additional successful abandonments that cheaper rules make possible.

Household goods on the sidewalk are an extreme case, in which the owner's right to exclude is fully abrogated in order to transfer ownership. But public access to private property is widespread: many kinds of property can be used effectively only if members of the public are free to enter, if not to take. Another example, ironically, is the favorite of exclusion theorists themselves—cars. While strangers normally must keep off of unfamiliar cars, a prominent exception exists—a kind of car that strangers are welcome to enter. These cars—painted distinctive, bright colors and prominently marked—are, of course, taxis. Potential passengers must determine which cars they may enter, but a rule forbidding them from entering without the driver's consent would be costly to apply, since the permissibility of entering would then depend on hard-to-identify facts about drivers' mental states. Hailing a ride would require directly communicating with drivers until one willing to provide the requested trip was found, which would involve considerable effort and wasted time.²⁰⁰ Especially for passengers seeking to travel to less popular destinations, the information costs of identifying a driver willing to provide a ride might be quite substantial.²⁰¹ The right to exclude passengers, then, increases the information costs of hailing cabs.

The approach that taxis employ instead to communicate riders' privileges is obvious. Taxicabs themselves are visually distinguished from other cars by distinctive colors and other markings.²⁰² If a car is marked as a taxicab that is on duty, riders may enter; otherwise, they must keep off. This rule is ordinarily trivially easy to apply: (sighted) people rely on their sense of vision when interacting with the world, and thus those who intentionally enter cars typically identify which car they will enter by its visual appearance. Individuals can tell whether a car is a taxi at

²⁰⁰ Of, course technological changes certainly could reduce these costs. Given the development of e-hailing apps, riders now can tell all drivers in the vicinity quite cheaply that they would like a ride, and a driver can cheaply reply that he is willing to provide it. Unsurprisingly, then, e-hailing services do not rely on the visual signals—distinctive colors and markings, lit “for hire” lights—that taxicabs use to indicate availability.

²⁰¹ See, e.g., Michael M. Grynbaum, *Taxi Panel Focuses on Destination Discrimination*, N.Y. TIMES (Feb. 24, 2011), <https://cityroom.blogs.nytimes.com/2011/02/24/taxi-panel-focuses-on-destination-discrimination/> (quoting the chairman of New York's Taxi and Limousine Commission lamenting “the bad old days when taxis wouldn't go to Brooklyn”). The rise of e-hailing may have reduced such costs, of course.

²⁰² Often, taxis are required by law to display these markings. See N.Y.C., N.Y., THE RULES OF THE CITY OF N.Y. tit. 35, § 58-32(i) (2024).

a glance. And they need no additional information to apply a rule permitting entrance to taxis; in particular, since riders do not need to secure the driver's consent, they incur no costs in investigating drivers' mental states, nor will they waste time and effort seeking consent to enter a particular vehicle whose driver ultimately denies it. But privileges and no-rights are correlatives: if riders have a privilege of entrance, then drivers must have no right to exclude.²⁰³ Thus, the law explicitly abrogates that right. In New York City, for example, "[a] Driver must not refuse . . . to take a Passenger . . . to any destination within the City of New York, the counties of Westchester or Nassau, or Newark Airport."²⁰⁴ Looking alone will not inform passengers that they may enter if drivers can still exclude them; thus, to communicate obligations efficiently, the law must deny drivers that right.²⁰⁵ Drivers need not operate taxis, but if they make their cars generally accessible to the public by operating a taxi, they cannot exclude particular passengers.

The easier it is for passengers to identify which cars they may enter, the lower the information costs of taxi services. But the mental states of other people are, in general, relatively costly to identify; thus, the right to exclude increases information costs by making access to property depend on the owner's consent. Instead, the law reduces information costs by depriving the owner of control over access: if property is made available for a particular use by the general public, as taxis are available to be hailed for rides, then any member of the public is permitted to enter. This rule ordinarily requires no additional information to apply. Individuals who intentionally access property ordinarily know the use of the property they access; those hailing cabs already know they are entering a car that provides transportation for hire, since successful use of a taxicab ordinarily requires knowing its function. Furthermore, it is easy to distinguish publicly accessible property through immediately apparent aspects of the property itself—the fact, say, that it is a car painted bright yellow and

²⁰³ Hohfeld, *supra* note 186, at 33.

²⁰⁴ N.Y.C., N.Y., THE RULES OF THE CITY OF N.Y. tit. 35, § 80-20(a)(1) (2024).

²⁰⁵ This privilege of entry is limited to members of the public who enter for a particular purpose: passengers seeking rides cannot be excluded from taxicabs, but no rule requires that all members of the public be admitted to taxicabs for any reason. A rule on which the permissibility of conduct depends on its purpose, though, may be applied with low information costs—members of the public hailing cabs typically know their own purposes in doing so. Indeed, the rule applies only to passengers traveling to certain destinations, and individuals seeking rides already know where they intend to go.

labelled with a “T.” (Indeed, since property owners themselves benefit from public access, they would likely adopt some such convention themselves even if the law did not force them to do so.) Because our sense of vision is essential in interacting with the world, individuals will almost always be aware of the distinctive visual features of the property they intend to use.²⁰⁶ Thus, a rule allowing access to property that is generally used by the public will be easy to apply: perhaps individuals must learn that particular markings designate publicly accessible property, but it will ordinarily be easy on any particular occasion to determine that entrance is permitted.

B. Public Accommodations

Taxis are not the only kind of property whose visual appearance indicates that entrance is allowed. Retail businesses—stores, restaurants, hotels, and the like—require public access to function, since customers must enter to make purchases. These businesses similarly inform strangers they may enter through visual markings, such as posted menus or displayed merchandise, that distinguish retail establishments from residences, with closed blinds and intercom boxes, where entrance is forbidden. But in the United States, retail business owners have sometimes possessed the right to exclude members of the public: the law once permitted the exclusion of patrons from public accommodations on the basis of race or other characteristics.²⁰⁷ During the 1960s, this practice was largely prohibited by Title II of the federal Civil Rights Act of 1964²⁰⁸ and by parallel state statutes.²⁰⁹ Today, mandatory access to public accommodations, regardless of race and other protected characteristics, is among the most prominent restrictions on owners’ right to exclude individuals from publicly

²⁰⁶ For more on how the visual appearance of objects is used to communicate property claims to them, see generally CAROL M. ROSE, *Seeing Property*, in PROPERTY AND PERSUASION: ESSAYS ON THE HISTORY, THEORY, AND RHETORIC OF OWNERSHIP 267 (1994); and Robert C. Ellickson, *The Inevitable Trend Toward Universally Recognizable Signals of Property Claims: An Essay for Carol Rose*, 19 WM. & MARY BILL RTS. J. 1015 (2011).

²⁰⁷ For a historical survey of segregation in public accommodations, see Singer, *No Right to Exclude*, *supra* note 167, at 1331–45, 1348–90.

²⁰⁸ 42 U.S.C. § 2000a(a). Federal law does not fully outlaw the practice because Title II’s definition of public accommodations does not include retail stores. *See id.* § 2000a(b).

²⁰⁹ *E.g.*, N.Y. EXEC. LAW § 296(2) (McKinney 2023).

accessible property.²¹⁰ Because of their prominence, in turn, these restrictions provide a suggestive test of exclusion theorists' claim that information costs increase when owners' right to exclude is restricted. Exclusion theorists support antidiscrimination law, of course.²¹¹ But they do not exempt mandatory access to public accommodations from their general position that restricting the right to exclude produces an increase in information costs; rather, they argue that public accommodations are among the "important examples" of "exceptional circumstances in which the right to exclude gives way to some kind of privilege of entry."²¹² Mandatory access to public accommodations is justified, but only despite the resulting increase in information costs.²¹³

On my view, however, mandatory access to public accommodations instead neatly illustrates how laws restricting the right to exclude in favor of direct regulation of permissible conduct may decrease information costs rather than increasing them. Prohibiting discrimination in access to public accommodations arguably increases the complexity of the laws that individuals must learn, since that prohibition establishes a new exception to the general rule that owner consent is required to access property. But an information-cost analysis that considers only the cost of learning additional exceptions misleads by failing to consider the application costs of requiring owner consent for entrance. In the context of public accommodations, those costs were considerable. As explained by *The Negro Travelers' Green Book*, a guidebook published between 1936 and 1966, "The White traveler has had no

²¹⁰ *E.g.*, DAGAN, PROPERTY: VALUES AND INSTITUTIONS, *supra* note 24, at 48–50; Merrill & Smith, *Architecture of Property*, *supra* note 3, at 142; Singer, *No Right to Exclude*, *supra* note 167, at 1450–53.

²¹¹ *E.g.*, Merrill & Smith, *Coasean Property*, *supra* note 8, at S96 (describing "the need for antidiscrimination law").

²¹² Merrill & Smith, *Architecture of Property*, *supra* note 3, at 142 ("The law has long recognized exceptional circumstances in which the right to exclude gives way to some kind of privilege of entry Modern anti-discrimination and public accommodation laws provide important examples.").

²¹³ In particular, they characterize public accommodations law as a form of governance, a strategy for regulating access to things that abandons the simplicity of exclusion and consequently incurs greater information costs, but that can be justified by policy considerations besides information costs. *See, e.g.*, Yun-chien Chang & Henry E. Smith, *An Economic Analysis of Civil Versus Common Law Property*, 88 NOTRE DAME L. REV. 1, 34 (2012) (characterizing antidiscrimination law as a modification of the simple baselines of exclusion); Smith, *Mind the Gap*, *supra* note 11, at 964 (describing the information-cost savings of exclusion but conceding that important social interests may justify exceptions like antidiscrimination law); Smith, *Persistence of System*, *supra* note 14, at 2074 (describing antidiscrimination law as a form of governance).

difficulty in getting accommodations, but with the Negro it has been different. He, before the advent of a Negro travel guide, had to depend on word of mouth, and many times accommodations were not available.”²¹⁴ When owners could and did exclude Black patrons from their establishments, those patrons faced the costs of determining which owners would agree to serve them. The magnitude of such costs is evidenced by the existence of guidebooks dedicated solely to mitigating them. Indeed, once the costs that those guidebooks were designed to combat had been eliminated by the law’s mandating access to public accommodations, the guidebooks, too, disappeared. The *Green Book* ceased publication after the passage of civil rights laws in the 1960s, as its authors had foreseen:²¹⁵ a guidebook was no longer necessary to help identify which businesses would consent to serve Black customers once antidiscrimination law required all businesses to do so.²¹⁶ The elimination of such costs surely outweighed the relatively trivial cost of learning a new rule prohibiting discrimination in public accommodations.

Public accommodations law reduces information costs by making the public’s right to enter property depend on facts members of the public typically know. When owners had the right to exclude on the basis of race, Black customers could enter only if the owner consented to provide service. Information about the mental states of particular owners is difficult and costly to acquire; thus, potential customers struggled to identify which businesses would serve them. Abrogating the right to exclude eliminated these costs by making the owner’s consent irrelevant: the law forces businesses to serve Black customers whether their owners want to or not.²¹⁷ Customers need not incur the costs of determining whether a business owner consents if that consent does not affect their obligations. Instead, by requiring public accommodations to serve customers regardless of race,

²¹⁴ THE NEGRO TRAVELERS’ GREEN BOOK 3 (Victor H. Green ed., 1956 ed.).

²¹⁵ THE NEGRO MOTORIST GREEN BOOK 1 (Victor H. Green ed., 1948 ed.) (“There will be a day sometime in the near future when this guide will not have to be published. That is when we as a race will have equal opportunities and privileges in the United States.”).

²¹⁶ The final edition covered 1966–1967. See generally VICTOR H. GREEN, TRAVELERS’ GREEN BOOK: FOR VACATION WITHOUT AGGRAVATION (int’l ed. 1966–1967).

²¹⁷ Of course, antidiscrimination law does still allow owners to refuse service for reasons other than race. But to the extent this right is not frequently exercised, the information costs it creates will be negligible. And in contexts where the right is frequently exercised, other solutions must be employed to limit information costs—witness, say, the “no shirt, no shoes, no service” signs in beach locations where excluding underdressed customers might be common.

antidiscrimination law makes the permissibility of entering a business depend only on what kind of business it is, which customers ordinarily know in choosing to patronize it: if a business is a public accommodation, customers may enter and must be served. To be sure, some information costs will remain—it may still be difficult for a traveler to find a restaurant or hotel in an unfamiliar town. But abrogating the right to exclude on the basis of race eliminates the further costs of determining whether the owners of those businesses will serve customers of certain races.

Of course, I do not mean to deny that the gross injustice of racial discrimination would justify a prohibition on discrimination in public accommodations even if the resulting information costs were high. Nor do I mean to claim that information costs are the most significant problem with racial discrimination or the primary justification for mandating access to public accommodations.²¹⁸ Rather, my analysis advances only a narrower point: far from illustrating the rare circumstances in which pressing public policy concerns can override information costs to justify restricting exclusion, public accommodations law illustrates how information costs often decline when the right to exclude is abrogated and individuals need not investigate the contours of property owners' consent in order to permissibly interact with their property. Contrary to exclusion theorists' central argument in favor of exclusion, deferring to owners' authority over their property by enforcing their right to exclude specific individuals from public

²¹⁸ In his analysis of antebellum public accommodations law, Professor Joseph William Singer has argued that the common law required a business to serve all members of the public so long as it held itself out as being open generally to the public. See Singer, *No Right to Exclude*, *supra* note 167, at 1309–10:

Being open to the public they create a “universal *assumpsit*”—effectively, a promise to the world to accept and serve any traveler who seeks such service. They have a duty to do what they have represented they would do—provide shelter for any travelers who come to them, as long as they have room.

According to Singer, this rule was narrowed considerably after the Civil War precisely because Black plaintiffs had relied on it to argue that they were legally entitled to be served in public accommodations. See *id.* at 1390–1412. The rule that had prevailed before appears to be obviously justifiable on grounds of information costs: a rule entitling individuals to service from any business open to the public eliminates the costs individuals of determining whether owners would consent to provide particular members of the public with service. Prohibitions on discrimination in public accommodations based on race or other protected characteristics are justified by considerations more important than information costs. But the existence before the Civil War of a rule mandating nondiscriminatory access more generally suggests that information costs could play a more important role in justifying mandatory public access in contexts where particularly pernicious forms of discrimination are not at issue.

accommodations does not reduce information costs. Rather, because public accommodations are accessed widely by the public, the law reduces information costs by abrogating the right to exclude and imposing rules that directly permit access to public accommodations, which individuals can apply to their own conduct simply by knowing whether the particular business they plan to patronize is a public accommodation or not.

C. Exclusion and Access in New Jersey

Of all U.S. courts, the New Jersey Supreme Court has been the most aggressive in restricting owners' right to exclude under state law.²¹⁹ While many scholars have applauded its decisions, largely for reasons unrelated to information costs,²²⁰ exclusion theorists have criticized them,²²¹ citing the information costs of learning the novel exceptions to the right to exclude introduced under New Jersey law.²²² As with other forms of mandatory public access, however, I will argue that such exceptions reduce information costs due to the difficulty the public faces in applying rules that regulate conduct based on owner consent. Thus, while exclusion theorists rely on information costs to criticize the New Jersey decisions mandating access, I will argue that information costs in fact justify them—as revealed in the court's reasoning itself.

When property is publicly accessible, New Jersey restricts the right to exclude. In *State v. Schmid*,²²³ the New Jersey Supreme Court overturned a defendant's trespass conviction for distributing political literature on the campus of Princeton

²¹⁹ Gregory S. Alexander, *The Complex Core of Property*, 94 CORNELL L. REV. 1063, 1064 (2009) (describing New Jersey as "a jurisdiction that has taken the lead in defining the complex core of property"); Singer, *No Right to Exclude*, *supra* note 167, at 1442 ("The only exception to this uniform pattern of [pro-exclusion] cases is the State of New Jersey.").

²²⁰ See *supra* note 167. As mentioned, however, some scholars who generally favor restrictions on the right to exclude have questioned in passing whether information costs uniformly favor exclusion, as exclusion theorists argue. See *supra* note 37.

²²¹ Merrill, *Right to Exclude II*, *supra* note 168, at 23 (highlighting the "more complicated management problems" that would arise from "forced sharing"); Smith, *Mind the Gap*, *supra* note 11, at 983 ("[T]he [New Jersey Supreme Court] gives zero weight to the informational and other advantages of legal categories like leases."); Smith, *Persistence of System*, *supra* note 14, at 2076 (critiquing the New Jersey Supreme Court's "fits of balancing in the context of leafleting, and even card counting").

²²² Smith, *Mind the Gap*, *supra* note 11, at 983–84 ("[T]he common law has the resources to make public policy exceptions to trespass and the right to exclude more generally, but the question is how many exceptions to make given the presumption for the right to exclude.").

²²³ 423 A.2d 615 (N.J. 1980).

University.²²⁴ The court's opinion stresses the public accessibility of the University's campus, noting that Princeton "has endorsed the educational value of an open campus and the full exposure of the college community to the 'outside world,' *i.e.*, the public at large" and "has indeed invited such public uses of its resources."²²⁵ The defendant's activities did not "cause[] any interference or inconvenience with respect to the normal use of University property and the normal routine and activities of the college community," the court held, and thus the University could not exclude him.²²⁶ In *New Jersey Coalition Against War in the Middle East v. J.M.B. Realty Corp.*,²²⁷ the court extended *Schmid* from college campuses to shopping malls.²²⁸ Once again, its opinion centers on the scope of public access to the property. It defines the "factual issue" in the case as "the overall nature and extent of the invitation to the public," and it holds that "[t]he predominant characteristic of the normal use of these properties is its all-inclusiveness. Found at these malls are most of the uses and activities citizens engage in outside their homes."²²⁹ Because the shopping center extended "the broadest, indefinable, almost limitless invitation" to the public,²³⁰ and because leafletting is a reasonable use of public space,²³¹ it could not be excluded.

New Jersey courts have not restricted owners' right to exclude, however, when property is generally inaccessible to the public. Much like *Schmid*, *State v. Guice*²³² concerned the trespass convictions of defendants engaged in political speech on the campus of a university, the Stevens Institute of Technology. The New Jersey Superior Court affirmed the conviction in *Guice*, however, because Stevens, unlike Princeton, did not grant the general public access to its campus.²³³ Similarly, in *Bellemead Development*

²²⁴ *Id.* at 633. For a similar decision in Pennsylvania, see generally *Commonwealth v. Tate*, 432 A.2d 1382 (Pa. 1981).

²²⁵ *Schmid*, 423 A.2d at 631; see also *id.* at 631 n.10 (describing the University's "implicit invitation" as to its grounds and walk-ways 'generally available to the public'" (quoting PRINCETON UNIV., UNIV. REGULS. AS PASSED BY THE COUNCIL OF THE PRINCETON UNIVERSITY UNIV. CMTY. (May 1975, amended 1979) [hereinafter PRINCETON UNIV. REGULS.])).

²²⁶ *Id.* at 631.

²²⁷ 650 A.2d 757 (N.J. 1994).

²²⁸ *Id.* at 771–72.

²²⁹ *Id.* at 772.

²³⁰ *Id.* at 773.

²³¹ *Id.* at 775.

²³² 621 A.2d 553 (N.J. Super. Ct. 1993).

²³³ *Id.* at 555 ("[T]he record below reflects a deliberate policy to maintain the property as private.").

Corp. v. Schneider,²³⁴ the Superior Court refused to permit political speech in a privately owned office park because “[p]laintiffs here discourage public use of their property and seek to limit, to the fullest extent possible, public access.”²³⁵ Finally, in *Committee for a Better Twin Rivers v. Twin Rivers Homeowners’ Ass’n*,²³⁶ the New Jersey Supreme Court cited the lack of public access to a residential development in upholding limitations on sign posting, community-room use, and newsletter access.²³⁷ Thus, New Jersey law restricts owners’ right to exclude depending on whether property is generally accessible to the public.²³⁸ If not, owners are free to restrict access. If, however, a property owner permits public access, the law prohibits the exclusion of particular individuals who are engaged in reasonable activities on the property. New Jersey law thus follows the pattern of allowing owners to choose whether or not to allow public access but requiring that public access be universal, if it is allowed.

As indicated by the court’s decision to frame its discussion in *Coalition Against War* around “the extent and nature of the public’s invitation to use that property,”²³⁹ the reasoning of these opinions focuses on how the law can efficiently communicate the rules governing the use of property to the individuals who use it. The opinions, that is, analyze information costs. Obviously, information costs increase if individuals receive inaccurate information about how they must behave. Thus, the court requires individuals’ actual legal obligations not to diverge from the information they are given about what uses are permitted at the shopping mall, information that the court terms their “invitation” to use it.²⁴⁰ The rules governing publicly accessible property must track the information communicated to the public about how that

²³⁴ 472 A.2d 170 (N.J. Super. Ct. 1983), *aff’d*, 483 A.2d 830 (N.J. Super. Ct. App. Div. 1984).

²³⁵ *Id.* at 174–75.

²³⁶ 929 A.2d 1060 (N.J. 2007).

²³⁷ *Id.* at 1073 (“[U]nlike the university in *Schmid*, and the shopping center in *Coalition*, Twin Rivers is not a private forum that invites the public on its property to either facilitate academic discourse or to encourage public commerce. Rather, Twin Rivers is a private, residential community.”).

²³⁸ To be sure, not all controversial New Jersey cases involve publicly accessible property. In *State v. Shack*, 277 A.2d 369 (N.J. 1971), the court denied a farmer the right to exclude aid workers from entering his farm to assist resident migrant farmworkers. Since my argument concerns publicly accessible property, I will not further discuss *Shack*.

²³⁹ *Coal. Against War*, 650 A.2d at 771–72 (N.J. 1994) (quoting *Schmid*, 423 A.2d at 630).

²⁴⁰ There are obvious parallels between this principle and the common law’s approach, on Singer’s analysis, to public accommodations. See *supra* note 218.

property may be used. And because the information conveyed does not ordinarily reveal the property owner's determinations concerning which specific activities may or may not be performed on her property, the court concluded that owner consent cannot determine which activities are excluded from property.

Coalition Against War, the most thorough and detailed of the New Jersey Supreme Court's public access opinions, best illustrates its focus on how obligations are communicated to the individuals they bind. Central to the disagreement between the majority and dissenting opinions was the question of how the court should analyze the invitation extended to the public to use the mall, and, in particular, whether the content of that invitation should depend on the subjective intentions of the mall's owners or instead on the public's actual use of the mall.²⁴¹ The trial court and the dissent each took the former approach, which follows the right to exclude in permitting access only with the owner's actual consent.²⁴² By examining "the testimony of the mall managers, designers and planners," the trial court found "that the public's invitation to each of the defendant malls is for the purpose of the owners' and tenants' business."²⁴³ The majority, however, denied that the court's inquiry should be "restricted to the subjective 'purpose' of defendants' uses"; instead, it held, the task was to determine what invitation was "implied" by "defendants' actual conduct, the multitude of uses they permitted and encouraged."²⁴⁴

The dissent's proposal, on which the subjective purposes of a shopping center's managers, designers, and planners determine what conduct is permissible, would impose high information costs on members of the public: to determine how to act, they would have to ascertain how the mall's managers, designers, or planners in fact intended the property to be used. This would often be a difficult and expensive procedure—the trial court itself, for example, relied on the trial testimony of sworn witnesses, which would hardly be available to ordinary individuals using the mall.²⁴⁵ On the majority's rule, by contrast, how a member of the public may

²⁴¹ Compare *Coal. Against War*, 650 A.2d at 776, with *id.* at 796 (Garibaldi, J., dissenting).

²⁴² See *N.J. Coal. Against War in the Middle E. v. J.M.B. Realty Corp.*, 628 A.2d 1094, 1097–99 (N.J. Super Ct. 1991), *rev'd*, *Coal. Against War*, 650 A.2d 757; *Coal. Against War*, 650 A.2d at 791–92 (Garibaldi, J., dissenting).

²⁴³ *Coal. Against War*, 628 A.2d at 1098; see also *Coal. Against War*, 650 A.2d at 790–91 (Garibaldi, J., dissenting).

²⁴⁴ *Coal. Against War*, 650 A.2d at 772.

²⁴⁵ See *Coal. Against War*, 628 A.2d at 1098.

use property depends on how it is actually used, which is considerably easier to determine: one may identify that property is open to general public use simply by looking and seeing the public generally using it.²⁴⁶ Indeed, as the court noted, the public accessibility of such spaces is typically conveyed by their design, which aims to welcome the public.²⁴⁷ The invitation to use property that matters is the invitation that members of the public actually receive, whether or not that is the invitation to use property that its owners want to convey. And, obviously, individuals face lower information costs if their obligations depend on the information that they actually receive—information they need not inquire to possess—rather than on property owners’ intentions, which may be difficult to ascertain.

Having held that the public’s right of access to malls depends on what invitation is conveyed by their use, *Coalition Against War* then investigates what invitation was in fact conveyed by the public’s actual use of the malls. The court surveyed the wide range of activities that was allowed there, describing “[t]he almost limitless public use of defendants’ property, its inclusion of numerous expressive uses, its total transformation of private property to the mirror image of a downtown business district and beyond that, a replica of the community itself.”²⁴⁸ The malls did

²⁴⁶ *Coalition Against War* in fact subtly modified the test set forth in *Schmid*. In *Schmid*, the court employed a three-factor test that distinguished, as separate factors:

(1) the nature, purposes, and primary use of such private property, generally, its “normal” use, (2) the extent and nature of the public’s invitation to use that property, and (3) the purpose of the expressional activity undertaken upon such property in relation to both the private and public use of the property.

423 A.2d at 630. *Schmid* separately considered how each factor applied to Princeton’s campus. *Id.* at 630–31. By contrast, the majority opinion in *Coalition Against War* explicitly combined consideration of the first two *Schmid* factors in analyzing the shopping mall: “The normal use of these properties and the nature and extent of the public’s invitation to use them (the first two elements) are best considered together.” *Coal. Against War*, 650 A.2d at 772. Indeed, the dissent noted—and pointedly criticized—this refashioning of *Schmid*: “[T]he majority rewrites *Schmid*, lumps the first two factors together into one, and continually misapprehends the test.” *Id.* at 791. On my analysis, however, that refashioning demonstrated the court’s appreciation of the underlying information-cost considerations: the normal use of the property is relevant precisely because the way the property is normally used indicates to the public how they are invited to use it.

²⁴⁷ *Id.* at 773 (describing “the vast open spaces, the benches, the park-like settings [that] together carry the message that this is the place to be”). Similarly, Princeton University, the owner of the property at issue in *Schmid*, made little effort to demarcate the boundary between campus and public land. For example, the court noted in *Schmid* that the University’s “grounds and walkways [were] ‘generally available to the public.’” 423 A.2d at 631 n.10 (quoting PRINCETON UNIV. REGULS., *supra* note 225).

²⁴⁸ *Coal. Against War*, 650 A.2d at 774.

not dispute that range of uses; they merely sought to make leafletting an exception. The court, however, refused to allow such exceptions: if a property owner invites the public generally onto property, it cannot selectively cancel that invitation with respect to particular activities.²⁴⁹ The general use of malls by the public conveys an invitation to engage in any reasonable use: “Come here, that’s all we ask. . . . You can do *whatever* you want so long as you do not interfere with other visitors.”²⁵⁰ This analysis does correctly identify what rules are actually conveyed by how the public uses a mall. By observing people engaged in numerous activities at a mall, it is easy to infer that a wide range of uses is allowed. But it would be extremely difficult to tell, merely from looking, that an owner has idiosyncratically withheld consent to engage in one particular activity. Thus, though the use of malls by the public will convey that public access is generally allowed, it is very unlikely to convey specific rules excluding particular activities. Blocking property owners from idiosyncratically banning particular activities on publicly accessible property therefore reduces the information costs the public faces. Since individuals can tell easily whether property is open to the public, the law does allow owners to make property private. But because individuals would face high information costs in determining that a property owner excludes any particular activity from otherwise publicly accessible property, the law does not permit that sort of prohibition. Once owners make property public, the law lowers information costs by restricting owners’ right to exclude specific activities from that property. Because how malls are used communicates that all uses are allowed, all uses must be allowed.

To be sure, the right to exclude is not wholly abrogated: property owners may still forbid unreasonable conduct that disturbs or harasses other members of the public.²⁵¹ Thus, it is not quite true that individuals must determine only whether property is

²⁴⁹ *Id.* (denying that the “implied invitation of constitutional dimensions [can] be obliterated by defendants’ attempted denial of that invitation”).

²⁵⁰ *Id.* at 773 (emphasis in original).

²⁵¹ *Id.* at 761:

[N]on-commercial leafletting and its normal accompanying speech (without megaphone, soapbox, speeches, or demonstrations) [must] be permitted by defendants subject to such reasonable rules and regulations as may be imposed by them. This free speech can be, and we have no doubt will be, carefully controlled by these centers. There will be no pursuit or harassment of shoppers.

See also *Schmid*, 423 A.2d at 631 (noting no evidence that the defendant’s activities interfered with the ordinary use of Princeton’s campus).

publicly accessible; they must also identify what would unreasonably disturb other users of the property.²⁵² Nonetheless, this rule is easy to apply. As the court stresses, shopping malls recreate traditional forms of public space;²⁵³ reasonable behavior in shopping malls is simply reasonable behavior in public generally.²⁵⁴ But individuals already know—indeed, they had better know—how to behave appropriately in public, which is a normal adult capacity essential for harmonious coexistence in society.²⁵⁵ Simply by living and interacting with others, we learn how to go about our own activities without bothering them. To be sure, what counts as reasonable behavior may sometimes vary; no doubt it differed in the court of King Louis XIV from in a suburban New Jersey shopping mall. It is the same in a suburban New Jersey shopping mall as in other public spaces in suburban New Jersey, though. And because those who live in New Jersey already need to know how to behave in the latter, they will know how to behave in the former, too. Individuals thus face low information costs in complying with social norms governing reasonable conduct in public spaces.

In *Coalition Against War*, the New Jersey Supreme Court reasoned that individuals investigate the appropriate use of publicly accessible spaces like shopping malls primarily by observing

²⁵² *Coalition Against War* is not particularly clear about exactly what “reasonable conditions” owners may impose. See 650 A.2d at 783. Indeed, the possibility of idiosyncrasy in such restrictions strikes me as the greatest potential source of information costs under the court’s holding in the case.

²⁵³ *Id.* at 774 (“The regional and community shopping centers have achieved their goal: they have become today’s downtown and to some extent their own community.”).

²⁵⁴ See *id.* at 772 (“The predominant characteristic of the normal use of these properties is its all-inclusiveness. Found at these malls are most of the uses and activities citizens engage in outside their homes.”).

²⁵⁵ This rule requiring reasonable conduct may be applied at low cost because the frequency with which we must behave reasonably in public forces us to learn how to do so. Thus, this rule provides one example of how compliance with vague standards that employ normative concepts need not always be costly. When the standard appeals to normative judgments that are widely shared within a relevant community, members of the community, who will typically share those judgments, can easily apply the rule. See Rose, *Crystals and Mud*, *supra* note 127, at 609 (arguing that the Uniform Commercial Code’s “commercial reasonableness” standard is easy to apply because individuals engaged in mutual commerce often share judgments about what is commercially reasonable). Obviously, though, such shared normative judgments do not always exist. For example, individuals need not learn norms of reasonable drilling or reasonable real estate development in the same way that they must learn norms of reasonable public behavior, so rules governing those activities through a reasonableness standard will be much more costly to apply. See *supra* Part II.C–D.

how those spaces are actually used by the public.²⁵⁶ The costs of applying the legal rules governing conduct in those spaces will thus depend on whether the facts required to apply them may be learned by observing others' conduct. Observing the use of public space does not readily convey information about the mental state of the property owner, so individuals would struggle to comply with the property owner's potentially idiosyncratic decisions to permit or forbid specific uses of her property. In this context, the right to exclude will be costly to apply. The court therefore abrogated that right in favor of a rule permitting individuals to enter publicly accessible spaces so long as they comply with social norms governing reasonable public conduct. This rule is easy to apply because individuals are ordinarily aware of both whether property is publicly used and whether conduct complies with the ordinary social norms of appropriate public behavior. Mandatory public access thus reduces information costs because it replaces a rule that is costly for individuals to apply to their own conduct with a rule that may be applied easily.

Not all the New Jersey property cases involve spaces governed by the ordinary rules of reasonable conduct. In *Uston v. Resorts International Hotel, Inc.*,²⁵⁷ the New Jersey Supreme Court held that casinos lack the right to exclude card counters.²⁵⁸ Blackjack is a game governed by formal rules, which someone must set; members of the public cannot simply be told to play reasonably. The court insisted, though, that the authority to set those rules belonged to New Jersey's Casino Control Commission, not to individual casinos. Since the Commission's rules permitted card counting, it could not be excluded.²⁵⁹ As in the campus and shopping center cases, the court's abrogation of the owner's right to exclude lowers information costs for nonowners, who need no longer concern themselves with a particular casino operator's policies. In any casino in the state, the Commission's rules govern; no casino operator can impose bespoke rules governing its casino alone. Learning the Commission's rules may be costly—costlier than identifying reasonable behavior in a shopping mall—but not as costly as separately learning each different casino's rules. Of course, card-counters typically know the attitude casinos take towards them; surely the plaintiff, as a patron of the casino, knew

²⁵⁶ *Coal. Against War*, 650 A.2d at 772–73.

²⁵⁷ 445 A.2d 370 (N.J. 1982).

²⁵⁸ *Id.* at 373.

²⁵⁹ *Id.* at 373–75.

what rule the casino would impose if it could. Thus, it may seem that this particular prohibition could have been imposed at low cost.²⁶⁰ But a rule permitting casinos to impose regulations beyond the Commission's rules only if those regulations are universally known would itself be costly to apply: the validity of any casino regulation would depend on whether gamblers in general knew that casinos would impose that regulation, and such information about the beliefs of third parties would be costly to acquire. By contrast, if the Commission's rules apply uniformly, gamblers will always know how to play: by abrogating the right to exclude, state law allows individual gamblers to avoid the costs of identifying what a particular casino owner has consented to.

Information costs are surely not the sole consideration relevant to these decisions. I do not claim to have comprehensively defended New Jersey law on mandatory access. But the requirement that publicly accessible property be open to the public without idiosyncratic restrictions lowers information costs by abrogating owners' right to exclude. If the permissibility of performing some activity depended on the property owner's consent, members of the public would all face the costly task of identifying which activities the owner had consented to. By contrast, on New Jersey's approach, individuals need know only that property is open to the public. If so, the owner's consent does not determine what is permissible; rather, individuals may generally enter publicly accessible spaces so long as they behave reasonably.

CONCLUSION

Any one individual's autonomy must be limited by the rights of others; though we are each given a broad freedom to act, we cannot cross the boundaries that protect others from our conduct. But determining where those boundaries lie is often difficult: individuals ought not interfere unreasonably with the interests of others, but it is often very unclear just which actions actually constitute such interference and thus must be avoided. That question must somehow be answered if individuals are to know what to do. On one approach, the law might delegate that task to individuals themselves, who would thereby be forced to determine which actions do interfere with the interests of others. Because it is often difficult to acquire information about the nature of others' interests and their susceptibility to harm, though, this approach would

²⁶⁰ I thank Henry Smith for pressing this objection.

impose considerable information costs on ordinary individuals. Alternatively, if the law seeks to limit those information costs, it could instead itself identify the limits on the permissible range of individuals' conduct. On that approach, the state would bear information costs that might otherwise be left for individuals to pay. But this approach involves a state that is far more active in directly regulating individual conduct: if the state itself determines which actions impermissibly threaten the interests of others, then it will enact detailed rules that specify precisely which actions, in which contexts, are prohibited.

If the state does aim to reduce information costs by itself determining which particular actions are permitted, then the rules it produces must be applicable to individuals' conduct without further inquiry. Such rules, I have argued, should prohibit conduct based on information individuals already possess—namely, information about the intentionally chosen features of their conduct. This account explains both the advantages and the limits of the right to exclude. Participants in many activities choose their spatial location, but in some activities participants do not; securing owner consent may often be unimportant or easy, but not when the public at large accesses private property. To regulate behavior in these contexts by requiring individuals to keep off absent owner consent would impose considerable information costs, making such activities impractical or even impossible. Rather, participants in such activities require rules that efficiently clarify their obligations. Reducing the information costs of property is a task for an active state, not a passive one: when it is unclear whether particular actions would cross boundaries or contravene an owner's consent, the state must itself actively provide more complex rules that more clearly identify which actions are permitted or prohibited.