

The Evolution of Private and Open Access Property

*Abraham Bell** and *Gideon Parchomovsky***

In this Article we explore the evolution of property law and examine the applicability of the prevailing accounts according to which property institutions oscillate between the extreme points of open access and private property. We show that the evolution of property is a much more nuanced process, shaped by the interplay of the following three dimensions: number of owners, extent of dominion and asset configuration. Accordingly, property institutions can assume a myriad of positions along the aforementioned dimensions in response to the constant change in exclusion and management costs. We demonstrate our theory by discussing examples of three dimensional adjustments of real, personal and intellectual property.

INTRODUCTION

This Article highlights and examines the significant pressures in the world of property that drive assets from private property ownership toward open access or other community property structures. In particular, it examines why such forces result in less open access property than might be expected by standard evolutionary theories of property.

The Article's two points of reference are Harold Demsetz's seminal *Toward a Theory of Property*,¹ which presented an evolutionary account of property rights that has long dominated the field, and Barry Field's *The*

* Professor, Bar Ilan University Faculty of Law; Visiting Professor, University of Connecticut School of Law.

** Professor, University of Pennsylvania Law School and Bar Ilan University Faculty of Law. We would like to thank the Cegla Center Community and Property conference participants and the editorial board of *Theoretical Inquiries in Law* for invaluable comments and criticisms

¹ Harold Demsetz, *Toward a Theory of Property*, 57 AM. ECON. REV. 347 (1967).

Evolution of Property Rights,² which analyzed shifts back from private property to communal ownership.

Demsetz's highly influential thesis was that assets transition from community property to private property regimes whenever transaction costs so warrant. Demsetz's theory of evolution pictured the world of property as a progression from open access property (open to all of the community) toward private property. Open access property, he noted, was deficient in permitting users to externalize many of the costs of their use — such as the value of the depleted resources — on to other members of the community. Private property resolves this problem by assigning assets to owners who internalize the costs and benefits of use. However, creating private property rights is costly, requiring a mechanism for assigning and enforcing rights. Thus, Demsetz concluded, private property would replace open access and community property regimes as the benefits from internalizing externalities exceeded the costs of formalizing and defending private property rights in the underlying assets.

Barry Field's critique of Demsetz's account began with the observation that the effect of externalities may be ameliorated — even in an open access regime — by means of management rules. Thus, he noted, a true comparison of open access and private property regimes must compare management costs (associated with open access) and exclusion costs (associated with private property). Field noted that exclusion and management costs are not fixed and that the former may often grow at a faster rate than the latter. When this happens, property arrangements will shift away from private property back to communal arrangements, reversing the expected Demsetzian path.

Our account points to the incompleteness of both accounts in describing the evolutionary and devolutionary paths of property. The accounts fail by assuming that the asset to be held in private or communal property is of a fixed character. In a recent article,³ we posited that property is best understood as shaped by three forces (or in three dimensions): the number of owners, the scope of owner's dominion, and asset configuration. We argued that property's three-dimensionality often requires a readjustment of property rights into intermediate positions to satisfy the needs of maximizing property value along one or another of the dimensions. Thus, we expect to see shifts back to communal property not only as a result of adjustments to exclusion and transaction costs, as Field posits, but also as a consequence of the costs

² Barry Field, *The Evolution of Property Rights*, 42 KYKLOS 319 (1989).

³ Abraham Bell & Gideon Parchomovsky, *Reconfiguring Property in Three Dimensions*, 75 U. CHI. L. REV. (forthcoming 2008).

of asset reconfiguration or adjustment of dominion. In our three-dimensional model, property regimes will continue to develop to their optimal form — that which maximizes the net internalized benefits of transaction costs — but often do so not by returning to communal property, but rather by reconfiguring assets or adjusting the panoply of rights enjoyed by the owner.

Our three-dimensional account complements the evolutionary picture portrayed by both Demsetz and Field. We show that evolutionary pressures in the world of property are often dealt with by options other than switching from community to private property or vice versa. Rather, both property owners and lawmakers employ an array of strategies in response to changing transaction and management costs. Most importantly, when exclusion costs or the cost of protecting the entitlement rise, property owners will frequently respond by voluntarily reconfiguring their assets in order to prevent them from reverting to a full-fledged commons regime. Lawmakers, for their part, help property owners reach intermediate positions along the evolutionary path by recognizing new property rights and new forms of ownership.

It bears emphasis that our goal is not to mount a head-on challenge to either Demsetz's or Field's approach. Instead, as befits a contribution to an evolutionary theory, our Article seeks to build on extant theories and refine them by highlighting a hitherto unexplored dimension of the story. Stated differently, our three-dimensional theory unveils a richer account of the evolution of property beyond the private property threshold.⁴

The dynamic world of intellectual property provides examples of how our account complements and revises the Demsetzian and Fieldian approaches. The development of new technologies has dramatically raised the cost of protecting private property rights in some assets, thereby generating pressure to shift these assets back to a common regime. This pressure can best be seen in the context of copyrights. The advancement of the internet together with various compression technologies and file-sharing applications have made it increasingly difficult for copyright owners to exclude non-payers. Simultaneously, theorists working in the field have cautioned that the proliferation of intellectual property rights has created serious holdout problems that threaten to dampen the production of new works of ownership. Field's theory would predict the abolition of private property rights in expressive content — at least in the online world. Yet, notwithstanding two new movements that seek to place expressive content

⁴ Cf. Abraham Bell & Gideon Parchomovsky, *Of Property and Federalism*, 115 YALE L.J. 72 (2005) (exploring aspects of the political economy of property evolution affected by federalism).

under a commons regime — the open source and the Creative Commons movements — the increase in exclusion costs has not resulted in a wholesale abolition of copyright over easily duplicated works. Rather, consistent with our three-dimensional approach, copyright owners have responded to the heightened exclusion costs by reconfiguring their expressive assets. For example, record labels have abandoned the dominant package of prior decades — the music album on vinyl, tape or CD — and have begun marketing music online on a per-track basis. The new asset configuration enables the operation of online music sites, such as iTunes,⁵ affording buyers significant cost savings.⁶ Importantly, the reconfiguration of the assets lowered the attractiveness of illegal file sharing. Thus, in 2006, "[t]he number of households downloading legally almost caught up to the number of homes that download illegally via peer-to-peer (P2P) file-sharing networks."⁷

The Article consists of three parts. In Part I, we present and discuss the evolutionary theories advanced by Demsetz and Field. In Part II, we explain our three-dimensional approach to property questions. In Part III, we demonstrate how our three-dimensional approach complements and refines the Demsetzian and Fieldian accounts and discuss examples in which asset reconfiguration was the response of choice to evolutionary pressures.

I. THE EVOLUTION OF PROPERTY INSTITUTIONS

Our discussion of evolutionary theories of property law is consciously confined to the Coasian efficiency-based accounts exemplified by the work of Harold Demsetz and Barry Field. We readily admit the existence and importance of other perspectives on the evolutionary path of property institutions. Yet, we have chosen to limit ourselves to the evolutionary theories stemming from Demsetz's exploration of the Coasian path for two reasons: first, it is the most prominent and best-known modern evolutionary theory of property, and, second, it offers concrete predictions as to the movement of property institutions between private property and commons

5 See Christopher Sprigman, *The 99¢ Question*, 5 J. TELECOMM. & HIGH TECH L. 87, 91 (2006) (pointing out that when songs are on a CD they "are sold in a bundle" comprised of desired songs and filler tracks).

6 See, e.g., Randall C. Picker, *Mistrust-Based Digital Rights Management*, 5 J. TELECOMM. & HIGH TECH L. 47, 67 (2006) (discussing the cost savings effected by online music delivery services, such as iTunes).

7 See Joseph Palenchar, NPD: Illegal Downloads Outpacing Legal Downloads Twice (Mar. 14, 2007), <http://www.twice.com/article/CA6424429.html>.

property. Moreover, many of the limitations of a narrow efficiency-based approach are overcome by the capaciousness of the concept of "transaction costs" as used by Demsetz and the consequent literature. For instance, imperfections of the political process created by interest group politics are easily classified as transaction costs that burden the creation of private property rights.⁸ Thus, the Demsetzian line of evolutionary theories provides a good reference point for the exposition of our own contribution in Parts II and III.

A. Demsetz: The One-Directional Path of Property Evolution

Harold Demsetz's seminal *Toward A Theory of Property*⁹ provides a natural starting point for discussions of the extant literature on the evolution of property rights. Demsetz's point of departure was a primitive society in which all property was held in common.¹⁰ Demsetz sought to explain how resources transition in this primitive society from a commons regime to a private property regime. For Demsetz, the primitive society was not a purely theoretical construct as might be found in social contractarian theories such as that of John Locke.¹¹ Rather, Demsetz presented the findings of anthropological studies as asserted empirical evidence for his evolutionary analysis. Demsetz argued that the data supported his belief that private property developed in response to the economic incentives created by commons and private property regimes.

Demsetz noted that open access and commons property regimes invariably give rise to negative externalities in asset use. In open access regimes, actors may fully enjoy the full marginal benefit of their use of common resources; however, they incur only a very small share of the marginal cost — that

8 For an excellent account that incorporates political decision-making into the basic Demsetzian framework, see Katrina M. Wyman, *From Fur to Fish: Reconsidering the Evolution of Private Property*, 80 N.Y.U. L. REV. 117 (2005) (explaining and exemplifying how different political processes and costs can affect the evolution of private property rights in ways that were overlooked by Demsetz).

9 Demsetz, *supra* note 1. The article was justly described by Itay Sened as "[o]ne of the most influential neo-classical theor[ies] of the emergence of property rights." ITAI SENED, *THE POLITICAL INSTITUTION OF PROPERTY* 34 (Robert E. Goodin ed., 1997). Likewise, Thomas Merrill referred to it as "the point of departure for virtually all efforts to explain changes in property rights." Thomas W. Merrill, *Introduction: The Demsetz Thesis and the Evolution of Property Rights*, 31 J. LEGAL STUD. 331 (2002).

10 Demsetz, *supra* note 1, at 354.

11 *Id.* at 350-52.

small proportion of the diminution of commons wealth that corresponds to the individual actor's expected ability to draw from common resources. This characteristic of commons property suggests that resources held in common will be over-exploited or depleted prematurely. Demsetz argued that a private property system overcomes the externalities problem by concentrating the costs and benefits to be derived from an asset in the hands of a single owner. Doing so permits a single owner to internalize most costs and benefits, and thus greatly reduces the owner's ability to pass the costs of his behavior with respect to the asset onto third parties.¹²

Demsetz recognized that the transition of assets from open access and community property regimes to a private property regime is not cost-free. The creation of private property rights in assets requires lawmakers to define assets, allocate rights in them, and then protect those rights through the legal system. Thus, Demsetz predicted that private property would arise whenever the gains produced by internalization exceeded the transaction costs involved in defining a property right and operating the legal mechanisms necessary to protect that right.¹³

Accordingly, Demsetz suggested that private property rights in a resource would emerge either when (a) the resource becomes scarce or the demand for it goes up; and/or (b) technological advances lower the cost of formalizing and protecting private property rights in the asset. Demsetz illustrated his thesis by describing the emergence of property rights in land, and specifically in hunting territories, in Canada's Labrador peninsula. According

¹² *Id.* at 355-56.

¹³ *Id.* at 350.

In a recent article, Daniel Fitzpatrick argued that Demsetz's prediction did not materialize in many parts of the world even though the requisite conditions were present:

Outside of more developed economies, this optimistic picture does not appear to be matched by reality. Despite rapidly increasing populations and resource values, many Third World property systems remain plagued by widespread legal uncertainty, resource conflicts, and environmental degradation. These phenomena may be seen in Sub-Saharan cycles of famine and war, in the vast, informal settlements in Asian and Latin American mega-cities, and in the alarming rates of deforestation and illegal logging in tropical regions. Indeed, in many contexts, relatively viable resource-governance regimes have reverted to open access notwithstanding conditions favorable to the creation of property rights. In short, a number of contemporary cases challenge Demsetzian optimism about the emergence and maintenance of property rights.

Daniel Fitzpatrick, *Evolution and Chaos in Property Rights Systems: The Third World Tragedy of Contested Access*, 115 YALE L.J. 996, 999 (2006).

to Demsetz, private property rights emerged when it became sufficiently valuable to those concerned to internalize benefits and costs.¹⁴

In sum, Demsetz's theory presents the evolution of property institutions as a one-way movement from commons property to private property. It is clear that in his view commons property represents an inferior evolutionary stage that survives only when a society is so primitive that its members cannot realize great gains by internalization. However, once the return from internalization becomes sufficiently large to exceed transaction costs, the transition from commons to private property becomes cost-effective and resources irreversibly gravitate toward private property.

Subsequent scholars emphasized a cost of private property that may not have received sufficient attention from Demsetz: holdouts.¹⁵ Private property can potentially create holdout problems where, for instance, multiple owners have the ability to veto a project that ultimately relies on the involvement of many properties. Each owner can — and often will — use her veto power to try to hold out for a price that appropriates all of the gain that inheres in the assembly project. Predictably, the multiple inconsistent claims to the same item (the entirety of the profit) can foil valuable projects. Scholars who have focused on holdouts and other likely bargaining failures have noted that private property protection enables owners to behave strategically by withholding their consent to efficient transactions. Holdout problems are likely to arise with respect to unique assets for which there are no ready substitutes or when multiple assets must be acquired to make an efficient project possible. Indeed, holdout problems may prove the dominant transaction cost that must be paid in order to create and preserve private property rights. Hence, Richard Epstein has opined that in designing specific property doctrines, lawmakers must balance externalities and holdouts.¹⁶

This subsequent refinement notwithstanding, Demsetz's account has become the classic story of the evolution of property institutions and has been widely accepted by subsequent scholars.¹⁷

¹⁴ Demsetz, *supra* note 1, at 354.

¹⁵ See Richard A. Epstein, *Holdouts, Externalities, and the Single Owner: One More Salute to Ronald Coase*, 36 J.L. & ECON. 553 (1993).

¹⁶ *Id.* at 557.

¹⁷ Daniel Fitzpatrick has noted, though, that in political environments rife with conflict, formalization of private property rights may only exacerbate conflict and strife since affected parties may oppose the resulting distributional consequences. Fitzpatrick, *supra* note 13, at 1008.

B. Field: The Evolution of Property as a Two-Way Street

While never attaining the fame of Demsetz's seminal article, Barry Field's contribution to the study of property evolution nevertheless proved a vital and nuanced amendment to the Demsetzian account. Field began his analysis with the observation that Demsetz's one-way evolutionary account is not fully supported by history. Historical studies of the evolution of property institutions reveal that at certain historic periods, property moved from commons to private, while at others it moved in the other direction. For instance, medieval England witnessed a transition from individual land holdings to a common field system, while industrial England saw a shift in the opposite direction. Furthermore, the same studies indicated that population growth was largely responsible for both dynamics. This finding presented Field with a puzzle: how could it be that population growth drives both types of changes? It is this question that Field sought to answer.

Field observed that two types of costs affect the choice between commons and private property: governance costs and exclusion costs.¹⁸ Governance costs refer to the costs of establishing rules and norms that control the exploitation of the common resource. These rules and norms are inwardly addressed and as such apply to the members of the relevant group or community to which the resource belongs. Governance (or management) costs include not only the cost of enacting the rules and norms, but also of monitoring compliance and enforcement in cases of breach. By contrast, exclusion costs refer to the costs of preventing *non*-members from non-consensually taking or using the common asset. Field noted that both types of costs are not fixed, i.e., they change over time.

Field explained that population growth affects both management and exclusion costs.¹⁹ *Ceteris paribus*, larger communities entail greater governance costs. As the number of members of a certain group grows, the group finds it more expensive to adopt rules of conduct, as well as to monitor and enforce rules. Increased group size is also likely to generate pressure to change longstanding norms and understandings in order to effect a reallocation of entitlements with respect to the common resource. At

18 See Field, *supra* note 2, at 323. It is important to note that Field refers to the first type as internal "transaction costs." We employ the terms "management costs" and "governance costs" (the latter term being preferred by Henry Smith, *Exclusion v. Governance: Two Strategies of Delineating Property Rights*, 31 J. LEGAL STUD. 453 (2002)), to specify more clearly the type of transaction costs involved.

19 For discussion of the full panoply of effects of population growth on both types of costs, see Field, *supra* note 2, at 329.

the same time, population growth *may* make exclusion of potential takers of community resources more difficult. This latter effect — previously identified by Demsetz — is due to the fact that population growth increases output value by creating more demand for resources.²⁰

Field's key insight is that while population growth usually increases both management and exclusion costs, the magnitude of the effect is not the same. When population growth increases exclusion costs proportionately more than management costs, the pendulum will swing toward commons property. When the effect on management costs is proportionately greater, we will see a shift toward private property.²¹

Field concluded, therefore, that the evolution of property institutions is characterized by a two-way movement between private property and commons property, with the specific direction at any given time determined by the relative costs of management and exclusion.

Several scholars, independently as well as with reference to Field, reached similar conclusions. Saul Levmore, for example, wrote several years later that changes in the benefits of internalizing and in transaction costs could be expected to lead both to evolution toward private property and to reversion to

²⁰ *Id.* at 327-28.

²¹ Naturally, no discussion of the evolution of property institutions is complete without reference to the effect of politics. As public choice theory teaches, politicians have a knack for maximizing their own payoffs, rather than social welfare. This tendency of politicians implies that the evolution of property institutions will not always track the efficiency path. Indeed, in a recent article, Saul Levmore observed that property institutions develop along two paths. See Saul Levmore, *Property's Uneasy Path and Expanding Future*, 70 U. CHI. L. REV. 181 (2003) [hereinafter Levmore, *Uneasy Path*]; see also Saul Levmore, *Two Stories About the Evolution of Property Rights*, 31 J. LEGAL STUD. S421 (2002) [hereinafter Levmore, *Two Stories*]. The first path is presumed to be efficient, and is based on the forces of supply and demand, mediated by transaction cost economics. Levmore, *Uneasy Path*, *supra*, at 182. Movement along this path ensures that new property rights evolve when the expected value from their creation exceeds the expected cost. The second path is not presumed to be efficient. It is dominated by interest groups engaged in constant rent seeking. These actors do not seek to achieve efficient economic institutions, but rather to take advantage of their political influence to obtain favorable property regimes. *Id.* The influence exerted by these actors may lead to the enactment of property entitlements and forms that run afoul of the demands of efficiency and whose goal is to enrich the politically powerful groups at the expense of the general public. The evolution of property law is thus shaped by two inconsistent forces and especially the interplay between them. Accordingly, one cannot assume that existing property institutions are always efficient.

open access.²² Technological changes might make internalization valuable, leading to progression along Demsetz's expected path to private property. By the same token, technological activities might reduce the value of some activities, making internalization less valuable and pushing back toward open access. Similar effects toward and away from private property might be the result of changes in the cost and effectiveness of enforcement.²³ Levmore also pointed to another kind of change in transaction costs that would affect the evolutionary path of property: the costs of organizing collective action through a political process. Elaborating on this theme, Daniel Fitzpatrick noted that when the establishment of property institutions requires state intervention, "the successful supply of property institutions will be affected by state legitimacy, coercive capacity, and interest group capture."²⁴

II. THE THREE-DIMENSIONAL VIEW OF PROPERTY

In prior work, we have argued that every property question invariably involves three distinct dimensions: (1) the number of owners, (2) the scope of owner's dominion, and (3) asset configuration. We also claimed that the interplay among the three dimensions shapes the field of property and holds the key to understanding the deep structure of property law. On this view, while ideally property law's aim may be to allocate total dominion over discrete assets to a single owner, in practice the law of property is the result of a balancing act that requires policymakers and private actors constantly to juggle the often-conflicting demands lying along these three dimensions. Property rights may be adjusted along any or all three of the dimensions and, indeed, often are.²⁵

The menu of policy tools available to policymakers and property owners is not limited to the choice between open access and community property. Even if we focus on the dimension of number of owners, it is plain to see a continuum of options between the extremes of open access (everyone) and a single owner (one). A complex variety of ownership forms has been created over time. For example, lawmakers have recognized the ability of individuals to own property jointly, in tenancy in common, or in tenancy by the entirety. Likewise, some states recognize the ownership form of

²² Levmore, *Two Stories*, *supra* note 21, at 423.

²³ *Id.* at 425-26.

²⁴ Fitzpatrick, *supra* note 13, at 1000.

²⁵ See Bell & Parchomovsky, *supra* note 3.

community property for married couples, viewing the couple as a single owner of the assets they acquired during the marriage. Additionally, property may be owned not only by natural persons but also by artificial legal entities, such as firms, partnerships, cooperatives and kibbutzim.

Asset configuration is another strategy employed by owners and lawmakers to maximize value. Different uses require different asset configurations. Assets need to be continuously reconfigured to fit the complexities of a dynamic economy with changing preferences. For example, the optimal size of a residential parcel of land in New York City was very different in the 18th century than it is today. Moreover, the fact is that many assets, especially land, are suitable for simultaneous uses. Consequently, for many purposes a parcel size is optimal for one particular use while suboptimal or supra-optimal for another.²⁶ Size adjustments in realty are often conducted through aggregation and disaggregation of lots. However, reconfiguration of assets may also be carried out by bundling one asset with other assets or services.

The reification of property rights in Anglo-American law dramatically increases the possibilities for reconfiguring assets. While it is often difficult to divide a home to create different owners of different rooms, it is less difficult to divide abstract estates in land. For instance, the physical home may remain intact while the abstract legal asset (i.e., the fee simple) is divided into two: a life estate and a remainder. This means that in Anglo-American law, asset reconfiguration often proves a better means of maximizing property value than aggregating ownership or reducing the package of ownership rights.²⁷

The third and final dimension along which adjustments can be made is the dimension of dominion. The modern conception of property as a "bundle of rights" portrays property as an aggregation of entitlements, which contains

²⁶ See Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1332-33 (1993).

²⁷ For a critical discussion of reification of rights, together with a post-Hohfeldian view of property as a "bundle of sticks" of legal rights, see generally James E. Penner, *The "Bundle of Rights" Picture of Property*, 43 UCLA L. REV. 711 (1996). These pose a challenge for those examining the three dimensions of property. Specifically, if property is merely a collection of owner rights — dominion, in our terminology — what does it mean to speak of a property "asset"? The answer is that even when the defined property asset is purely an abstraction, it is still conceived of as distinct from the dominion over it. For instance, if the property right consists of a right to profit from an idea, the idea is the asset, and the profit right the dominion. Property rules always partake of distinct dimensions of dominion and asset because they are rights *in rem*. Thus, even if the protected *res* is merely abstract, it must be defined or conceived of in some fashion before one can proceed to define the rights comprising owner dominion.

at the very least the rights to exclude, use and alienate. In addition, property rights are characterized as rights *in rem* that avail against the rest of the world. While both characterizations are correct in principle, the dominion of property owners may be restricted either by narrowing the rights and privileges owners enjoy with respect to their property or by limiting the list of duty bearers who must respect the rights of property owners. For example, the classic right of property owners to use and abuse their land has been narrowed significantly in modern times by reinterpretation of nuisance laws and the promulgation of zoning regulations. Similarly, owners' rights to exclude have been limited in myriad circumstances, such as when applied to workers of relief organizations²⁸ and law enforcement agencies,²⁹ or when in service of racial prejudice.³⁰

Attention to the three-dimensionality of property highlights a key flaw of the evolutionary theories exemplified by Demsetz and Field. Each models the development of property on the assumption that property is one-dimensional. Both asset configuration and extent of dominion are taken as fixed, while property evolves or devolves solely along the owner dimension. The near-exclusive focus on number of owners leads the theories to pay insufficient heed to the multiple dimensions along which property institutions may adjust in response to changes in transaction or exclusion costs and fluctuations in tastes affecting demand. Frequently, adjustments along the asset and dominion dimensions are more efficient than changes in the number of owners; and, frequently, asset and/or dominion adjustments obviate the need to move assets from open access or community property to a single owner and vice versa.

To illustrate, imagine a very large tract of land with an ancient oak forest that provides a sanctuary for a species of birds. Assume that we could measure the actual social utility and disutility associated with this tract of land and it were costless to enforce optimal use. Under these assumptions, it would be socially optimal to have a small number of trees harvested every year for timber and a small number of birds captured and consumed. Assume

28 See, e.g., *State v. Shack*, 277 A.2d 369 (N.J. 1971).

29 U.S. CONST. amend. IV (allowing police to enter private homes upon securing a search warrant). Despite the clear language of the Fourth Amendment, warrantless searches may be permitted under exigent circumstances. See *Ker v. California*, 374 U.S. 23, 41-42 (1963) (plurality opinion) (approving a warrantless search of a private apartment when police had probable cause to arrest and feared destruction of evidence).

30 See generally Joseph William Singer, *No Right to Exclude: Public Accommodation and Private Property*, 90 NW. U. L. REV. 1283 (1996).

further that initially the tract is subject to an open access regime, but that — as in Demsetz's primitive society — population is sparse and there is little demand for oak timber or birds. In this primitive state, even with open access, consumption would presumably approximate the social optimum, and at any rate, the social losses from suboptimal use would be relatively small. Over time, however, population increases would drive up the value of the oaks and birds and continuation of the open access regime would "bring[] ruin"³¹ to the trees and birds, i.e., would lead to excessive chopping down of trees and killing of birds.

Demsetz would predict the emergence of private property rights in the tract, transaction costs permitting. The new property rights, under Demsetz's prediction, would lead the owner to internalize many of the costs and benefits associated with conserving and consuming the tract. However, this development would occur only when the gains produced by this internalization were sufficiently great to justify paying the costs of accomplishing internalization through formal property rights.

Yet, the private property rights solution is hardly perfect. Many of the externalities will remain even after private property rights are established over the tract. Other members of society may have an interest in conserving environmental amenities, yet their needs will likely not be attended to given the high costs of coordinating pro-conservation groups and of forging bargains between them and the owner. In such a case, the owner might over-consume the timber and birds. Conversely, the owner may lack a cost-effective capacity to bring timber or bird meat to market, leading her to under-consume the trees and birds; naturally this would occur only if the social gains of bringing the items to market were less than the transaction costs involved in doing so.

In other words, even a private property regime may fail to lead to effective internalization since the full stream of benefits from keeping the birds and trees alive will not be realized by the private owner. The byproducts of creating a private property system — the unrealized utility of other parties who cannot cost-effectively bargain with the owner — are, together with the costs of defining and defending rights, the chief costs of a private property system. The creation of a single owner is not a panacea.

Field observes that these many exclusion costs might be contrasted with governance costs if the tract remains — or reverts to — open access. If the growing population has well-developed social norms regarding conservation and use of ecological assets, it may turn out that societal utility is maximized

31 Garret Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

by maintaining an open access regime. While decreased internalization will likely lead to greater social cost due to suboptimal use of the trees and birds, governing costs may be so low as to justify this loss. In other words, the total value of present and future utility derived from the assets in open access (net of governance costs) may exceed the total value of such assets under private property (net of exclusion costs). Should this turn out to be the case, Field would posit, the tract would be found under an open access regime.

The discussion so far tracks the standard one-dimensional analysis in the property literature. Yet, other solutions are available once we recognize that property rules may be adjusted along the axes of asset and dominion as well as ownership.

Let us begin with asset configuration. While standard analysis takes the tract as the asset, there is no reason to assume it must be so. For example, the tract may be divided into several parcels, some of which might be placed under private ownership (of, for example, conservators) with others remaining open access. The division and creation of private titles may be combined with the creation of servitudes in the tract. A conservator might be granted title to the tract, subject to timber or hunting easements. Alternatively, a lumber company might own the tract subject to a conservation easement in certain areas.

Indeed, asset reconfigurations are possible in response to population growth, technological changes or any of the other phenomena that are viewed in standard evolutionary theories as driving transformations between private property and open access regimes. As with standard evolutionary accounts, changes in asset configuration may proceed in either direction: toward larger or smaller parcels, more or fewer servitudes, larger or smaller temporal slices. Such asset reconfigurations may entirely obviate the need for changes in ownership structure from private to open access.

Even greater possibilities present themselves along the dominion axis. Changes in transaction and governance costs may lead to alterations in owner dominion rather than (or in addition to) movements between private and open access property. For example, the government can use its zoning power to restrict development of environmentally sensitive areas.

Solutions need not be restricted to a single dimension. By conscious decision or market developments, societies may adopt mixed solutions, reconfiguring assets and owner dominion while also developing new private property rights, or ending rights and restoring items to open access.

The point of this discussion is to bring to light the full range of responses that society can adopt to deal with changing circumstances. It is clear that adjustment of the number of owners is just one option among many and will not always be the optimal means of adjusting to changes in

costs and preferences. Furthermore, even when adopted, the owner-oriented transitions may be complemented by additional refinements of asset and dominion definition. In the next Part, we discuss real world examples of property evolution that track the three models we have reviewed, namely, Demsetz's, Field's and ours.

III. APPLICATIONS

In this Part, we examine recent developments in the world of property and explore their evolutionary paths. As we shall see, the standard accounts of evolution of private property and the reversion to community property do not provide a complete explanation. The standard Demsetzian-Fieldian path of evolution would seem to indicate a clear shift back to open access for many resources for which exclusion has become costly or internalization is no longer a feasible strategy. Yet, as we show in a number of examples, the expected evolutionary path is often the one not taken. Instead, the evolution stops partway, as a result of alterations in the configuration of the assets subject to the property rights, or redefinition of ownership dominion.

Many of the cases we discuss come from the domain of intellectual property. The field of intellectual property provides a fertile ground for investigation of the evolution of property institutions, as it is an area where technological changes rapidly change evolutionary pressures. On the one hand, technological change alters transaction costs, and, especially, exclusion and governance costs. On the other hand, technological advances constantly affect resource value as they transform the value of informational assets as well as the cost of protecting them. Technological change is not uniform, leading at times to Demsetzian pressures to form new private property rights, and at other times to Fieldian pressures toward open access. We show, however, that the expected Demsetzian-Fieldian path of evolution does not fully account for the ultimate property forms, and that our three-dimensional account often provides a better explanation of intellectual property developments.

Additionally, while intellectual property law will be the focal point of our discussion, we also address examples involving tangible property. Tangible items such as environmentally sensitive land and common interest communities provide valuable opportunities to examine the evolutionary path of property, as they represent areas where changing knowledge and tastes alter both resource values and transaction costs. Here too we show that our three-dimensional account provides a better explanation of the evolutionary path of property.

Before delving into our examples, we should note that the possibility of interim solutions has been previously explored in the literature. Henry Smith, for example, has written a great deal on what he calls a semicommons, defined as a regime in which "a resource is owned and used in common for one major purpose, but, with respect to some other major purpose, . . . individuals . . . have property rights to separate pieces of the commons."³² Our three-dimensional view provides a way of tying these interim solutions to a broader theory of the evolution of property rights. Smith's semicommons, for example, is achieved by alterations in owner dominion (and, perhaps, asset reconfiguration). As we will show, it is but one historical type of partial evolution.

A. Copyright

We begin with an examination of the evolutionary path of copyright. Copyright represents an area of the law where rapid technological changes lead to constant evolutionary and open access pressures on property. In recent years, vast improvements in computer and communication technology have made the aggregation and distribution of information cheaper and more efficient than ever before. This has led to a number of changes that cut both ways. Various kinds of information have increased in value, as their audiences have grown. But at the same time, competition over information provision and declining costs of gathering information have lowered market prices. Ease in digitizing information and expressions, and the shortcomings of encryption technology, have led to widespread (and frequently unauthorized) duplication of many kinds of copyrighted expression.

Overall, it is clear that there is a strong impetus in many areas of copyright toward Fieldian open access evolution. Recall that Field predicted that when exclusion costs grow disproportionately to management costs, assets should gravitate from private property to commons property. Logically, then, Field's theory would suggest that a significant increase in exclusion costs may be the first omen of the disintegration of private property. And this dynamic is present in the area of copyright law. More importantly, Fitzpatrick singles out effective enforcement of property rights as the principal determinant of the direction of property evolution. According to Fitzpatrick, ineffective enforcement through second parties and the state that

³² Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 J. LEGAL STUD. 131 (2000).

compromises a claimant's right to exclude often pushes resources in the direction of open access regimes. And although Fitzpatrick does not discuss intellectual property, he provides many examples of property institutions in Third World countries that demonstrate the challenge of putting and keeping resources under a private property regime when exclusion is ineffective.³³

Even absent technological change, expressive content presents a challenge for exclusion-based development of property rights, since informational goods are characterized by non-rivalrous consumption. Unlike tangible property, informational goods may be consumed by multiple people simultaneously and their consumption by one person does not diminish consumption opportunities for others. Furthermore, informational goods are non-exhaustible. Absent price discrimination and other factors, these traits tend to drive down the competitive price of information to zero and make it relatively costly for owners of protected informational goods to detect non-consensual uses and enforce their rights against infringement.

The exclusion challenge has grown more acute with the development of the internet, compression technologies and file-sharing applications. The combined effect of these changes has been, on the one hand, to facilitate the ease with which content may be shared and duplicated, and, on the other, to make it more difficult for owners to identify authorized users (at least under the existing legal regime³⁴). The popularity of file-sharing has further raised the price of exclusion by fostering social norms in opposition to copyright protection. Given these phenomena, it is not surprising that there have been various movements toward restricting or eliminating copyright protection over many kinds of electronic expressions, as well as increasing amounts of content provided to the market without practical means of exclusion.

A Demsetzian-Fieldian analysis of the current state of the field would appear to predict the demise of private property rights. While many types of information are valuable, exclusion is increasingly so difficult as not to be cost-effective. Thus, the traditional Demsetzian-Fieldian approach would seem to point to a reversion to open access for digital information. Yet, the record shows a different result. Notwithstanding some very clear shifts toward open access, digital information has instead maintained a great deal of private property protection. The response to the evolutionary pressures has come in the form of asset reconfiguration and dominion adjustments that have alleviated the relative burden of high exclusion costs.

First, consider the configuration of musical compositions in digital format,

³³ Fitzpatrick, *supra* note 13, at 1030-45.

³⁴ It is important to note that it is technologically possible to identify infringing users.

an instance of asset reconfiguration that — at least for the time being — has suspended evolution to open access. Once copyright owners realized that illegal exchange of music files via email and peer-to-peer applications presented an imminent threat to their rights,³⁵ they adopted a two-pronged approach to the new challenge. At first, the content industry began to employ encryption and other technological exclusion measures to render illegal copying of content more difficult and less cost-effective. Aware that such measures can be circumvented, the content owners pressured Congress to pass legislation that bars the circumvention of technological protection measures.³⁶ Congress responded by enacting the Digital Millennium Copyright Act (DMCA) that both banned circumvention and prohibited the marketing of circumvention measures. The DMCA bolstered the exclusion powers of copyright holders vis-à-vis hackers and file-sharers. In three-dimensional terminology, the DMCA expanded the dominion of copyright holders.

But copyright holders took an additional step to fend off the threats to their private property. Realizing that self-help measures, even when augmented by legislation, would neither stop all circumvention attempts nor put an end to illegal file-sharing, copyright holders voluntarily reconfigured their primary asset. For decades musical works had been distributed as a bundled good: several works pooled together on an LP, audio tape or Compact Disc.³⁷ The typical bundle contained two or three hits and several filler tracks, meaning that music buyers wishing to listen to the hit songs were forced to pay for songs they would not otherwise buy. The rise of file-sharing spurred music labels to reconfigure their traditional asset and offer music on a per-track basis. The unbundling of music enabled music sites, such as iTunes, to sell music by the song. The new distribution model is much more appealing to buyers as it offers them the songs they want at a lower cost. The availability of songs for less than a dollar reduced the attractiveness of illegal downloading. Since illegal downloading runs the risk of legal action, many music lovers calculated that it is in their best interest to respect copyrights in music and pay a small amount for legal downloads.

Adjustment of owner dominion has proved an even more fruitful means

35 According to some estimates, at the height of the practice, over one billion illegal files were shared every month. See *Protecting Innovation and Art While Preventing Piracy: Hearings on S. 2560 Before the S. Judiciary Comm.*, 108th Cong. (2004) (testimony of Mr. Mitch Bainwol, Chairman and CEO of the Recording Industry Association of America), available at http://judiciary.senate.gov/testimony.cfm?id=1276&wit_id=3753.

36 See 17 U.S.C. § 1201 *passim* (2000).

37 See Sprigman, *supra* note 5, at 91.

of avoiding full reversion to open access, as can be seen by the development of the open source and Creative Commons movements.

We begin with the open source movement, originally aimed at abolishing private property rights in digital information and launched under the slogan, "Information Wants to Be Free." By 1990, a group of computer programmers headed by Richard Stallman had completed the development of most major aspects of a Unix-compatible operating system. The one missing component was the kernel, which interfaces with the computer hardware. This component was provided in 1992, when a Norwegian programmer by the name of Linus Torvalds designed a Unix-based kernel entitled Linux and made it available to anyone in the world. Stallman integrated the kernel into his operating system and launched the GNU/Linux, the world's first open-source operating system. GNU/Linux was followed by several successful open-source programs such as the Apache software, run by most web servers and the Firefox web browser.³⁸

While the goal was the elimination of private property rights, the actual result was preserved private rights with greatly diluted owner dominion. The open source movement is predicated on an inclusive creation and distribution model. The basic idea is to create a copyrighted core of software and then make it available to all, subject to a license permitting follow-on improvements and modifications so long as they too are made available to the rest of the world. The movement got its name because the license also requires that all sources remain open for a certain period of time. The most common license under which open source software is distributed is the GNU General Public License (GPL).

By making use of a standardized license to regulate future development and distribution, the open source movement was able to establish an effective mechanism for management of the resource. Some commentators have argued that the collaborative process by which open source software is produced is the optimal way to produce software. More importantly for our purpose, the open source movement has avoided a complete open access regime in software by restricting use and adaptation of the software to those willing to enter the terms of the license.

Another important change in the landscape of copyright law was the emergence of the Creative Commons movement, founded in 2001. Like the open source movement, it arose out of concern that the expansion of copyright protection would stifle the very creativity it is supposed

38 See Fabrizio Marella & Christopher S. Yoo, *Is Open Source Software the New Lex Mercatoria?*, 47 VA. J. INT'L L. 807, 809-11 (2007).

to encourage. The founders worried that the various legislative and technological amplifications of the protection afforded to content owners would prevent access to and use of existing works.³⁹ In their view, the measures adopted to enable content owners to exclude third parties from their works imposed too high a cost. The website of Creative Commons makes it clear that the movement is committed to a cooperative and community-oriented ideology that views exclusion from content as undesirable.⁴⁰ In Fieldian terms, it could be said that the Creative Commons movement was born out of a sense that in the information age the cost of excluding others from most informational works is too high.

Yet, at the end of the day, the Creative Commons movement, like the open source movement, has generally preserved private property rights with greatly diluted owner dominion. Despite the stated goal of fostering cooperative behavior with respect to copyrighted content, the Creative Commons movement permits owners to keep key private property incidents. Indeed, correctly understood, the Creative Commons movement allows interested copyright owners to maintain incidents of their dominion voluntarily as they see fit. The chosen means is a standardized licensing scheme designed to facilitate access to copyrighted content.

The specific means employed by the movement is meant to be "voluntary and libertarian,"⁴¹ without any coercion or reward involved. The movement affords interested content owners the ability to mark "their content with a tag that expresses [the] kind of freedom" they wish to grant others with respect to their works.⁴² The tools employed to advance this goal include notices, "commons deeds," and licenses.⁴³ According to an estimate from October 2006 over 140 million webpages have taken advantage of the Creative Commons tools.⁴⁴

However, the licenses offered by the Creative Commons movement still

39 See Niva Elkin Koren, *What Contracts Cannot Do: The Limits of Private Ordering in Facilitating a Creative Commons*, 74 *FORDHAM L. REV.* 375, 378-83 (2005).

40 Creative Commons, History, <http://wiki.creativecommons.org/History> (last visited Nov. 25, 2007).

41 *Id.*

42 Lawrence Lessig, *Creative Commons*, 65 *MONT. L. REV.* 1 (2004).

43 Lydia Pallas Loren, *Building a Reliable Semicommons of Creative Works: Enforcement of Creative Commons Licenses and Abandonment of Copyright*, 14 *GMLR* 271 (2007).

44 Lawrence Lessig, A Report on the Commons (Oct. 18, 2006), <http://creativecommons.org/weblog/entry/6106>.

preserve some private property rights, permitting only a limited class of royalty-free uses of expressive content. As Michael Carroll has explained:

The most permissive license permits all uses so long as the copyright owner's directions concerning attribution are followed. Other optional conditions include a requirement that derivative works be licensed under the same terms, a limitation to non-commercial uses, and a prohibition on the creation of derivative works. These can be combined to create six permutations.⁴⁵

While the licensed works are supposed to function as a common pool,⁴⁶ and thereby reduce the cost of creating additional content, in practice owners have not completely abandoned their assets to the commons.

In terms of our three-dimensional analysis, the Creative Commons licenses that have been adopted in practice allow content owners to narrow their dominion by ceding some of their exclusion rights. However, as implemented, the Creative Commons movement does not require owners to relinquish all ownership incidents and, indeed, most content owners insist on receiving attribution from users.

B. Environmentally Sensitive Lands

A second example of incomplete regression to open access can be found in the instance of environmentally sensitive lands. The late twentieth century witnessed the birth of a host of environmental movements, and with them a popular taste for low-impact "consumption" of land. Preserving land, water and other natural resources in their natural states is a "use" that is non-rivalrous within itself. That is, one user's preservation use is non-rivalrous with the preservation uses of other users. Thus, environmentally sensitive resources can provide an example of open access property pressures very much like those found regarding copyright.⁴⁷

⁴⁵ Michael W. Carroll, *Creative Commons and the New Intermediaries*, 2006 MICH. ST. L. REV. 45, 47 (footnotes omitted). The creative commons menu also contains several specialized standardized licenses, such as a sampling license that permits incorporation of sampled music into derivative works and the developing nations license that permits more favorable use conditions to the denizens of developing countries. *See* Creative Commons, *Choose a License*, <http://creativecommons.org/license> (last visited May 1, 2008).

⁴⁶ Carroll, *supra* note 45, at 48.

⁴⁷ Of course, there are differences between this and the copyright context, particularly regarding exhaustability and cost of exclusion.

The standard Demsetzian-Fieldian account, then, would seem to indicate a movement toward evolution of property rights back to open access when lands or natural resources become highly valuable in their natural state. For instance, one might expect to see wetlands or fragile ecosystems under open access regimes. Yet, in many cases, reconfiguration of assets or alterations of owner dominion have proved the result, rather than the expected full open access.

Consider, for instance, the recent legal recognition of conservation easements in the U.S. Traditionally, the English common law allowed only four types of negative easements: "the right to stop your neighbor from (1) blocking your windows, (2) interfering with air flowing to your land in a defined channel, (3) removing the support of your building (usually by excavating or removing a supporting wall), and (4) interfering with the flow of water in an artificial stream."⁴⁸ Additionally, negative easements could only be appurtenant (i.e., for the benefit of a property) and not in gross (for the benefit of a person).⁴⁹ American property law incorporated a restrictive view of the types of negative easements that may be created.⁵⁰

A glaring exception is the conservation easement. A conservation easement is "a negative restriction on land which prohibits a landowner from using her land in a manner that will change the ecological, scenic, open or natural state of the land."⁵¹ Today, the law of the vast majority of states allows the creation of conservation easements by private agreement between owners of the green space and government agencies or private conservation organizations.⁵² In exchange for creating a conservation

48 A. JESSE DUKEMINIER ET AL., PROPERTY 855-58 (6th ed. 2006) (footnotes omitted).

49 See 4 RICHARD R. POWELL, POWELL ON REAL PROPERTY § 34A.01 (Michael Allan Wolf ed., 1999).

50 DUKEMINIER ET AL., *supra* note 48, at 857 ("In the main, American courts accepted the English restrictions on creating new types of [negative] easements.").

51 Kimberly K. Winter, Comment, *The Endangered Species Act Under Attack: Could Conservation Easements Help Save the Sea?*, 13 N. ILL. U. L. REV. 371, 385 (1993).

52 See ALASKA STAT. §§ 34.17.010-34.17.060 (1992); ARIZ. REV. STAT. ANN. §§ 33-271 to 33-276 (1990); ARK. CODE ANN. §§ 15-20-401 to 15-20-410 (Michie 1987); CAL. CIV. CODE §§ 815-16 (West 1982); COLO. REV. STAT. §§ 38-30.5-101 to 38-30.5-111 (1973); CONN. GEN. STAT. §§ 7-131b to 7-131d (1989); D.C. CODE ANN. §§ 45-2601 to 45-2605 (1990); FLA. STAT. ANN. § 704.06 (West 1988); GA. CODE ANN. §§ 44-10-1 to 44-10-8 (Michie 1982); HAW. REV. STAT. ANN. §§ 198-1 to 198-6 (Michie 1988); IDAHO CODE §§ 55-2101 to 55-2109 (1988); ILL. ANN. STAT. ch. 5, paras. 2401-1 to 2401-3 (Smith-Hurd 1992); IND. CODE ANN. §§ 32-5-2.6-1 to 32-5-2.6-7 (West 1992); IOWA CODE ANN. §§ 111D.1-111D.8 (West 1983); KAN. STAT. ANN. §§ 58-3803 to 58-3809 (1991); KY. REV. STAT. ANN. §§ 382.800-382.990 (Michie/Bobbs-Merrill); LA. REV. STAT. ANN.

easement, the granting owner receives various tax benefits. Conservation easements protect the designated property in perpetuity, though they usually may be discharged by circumstances that render them impossible.

Recognition of conservation easements came in response to growing concern about conservation of environmental amenities and green space on private land. The rising societal interest in conservation fanned anti-private property sentiments. The fear that private owners may destroy valuable environmental amenities in order to maximize their profits prompted calls to restrict the owners' right to develop their property either by regulation or even by eminent domain. Taken to extremes, pro-conservation pressures might have resulted in the transitioning of private lots to a restricted commons regime. However, this possibility was co-opted by the emergence of conservation easements.

The conservation easement allowed property owners to restrict their dominion voluntarily by "severing" the right to develop environmentally sensitive areas and transferring that power to a third party who can be trusted not to exercise it. Formalization of the conservation easement enabled pro-conservation interests to transact with private property owners and consummate voluntary deals that would ensure environmentally responsible development of private land. The option given to private property owners to narrow their dominion provided an adequate response to the evolutionary forces that might have led to the erosion of private property.

§§ 9:1271-9:1276 (West 1991); ME. REV. STAT. ANN. tit. 33, §§ 476 to 479-B (West 1988); MD. REAL PROP. CODE ANN. § 2-118 (1988); MASS. GEN. LAWS ANN. ch. 184, §§ 31-33 (West 1991); MICH. COMP. LAWS ANN. §§ 399.251-399.257 (West 1988); MINN. STAT. ANN. §§ 84C.01-84C.05 (West 1993); MISS. CODE ANN. §§ 89-19-1 to 89-19-15 (1991); MO. ANN. STAT. §§ 67.870-67.910 (Vernon 1989); MONT. CODE ANN. §§ 76-6-201 to 76-6-211 (1991); NEV. REV. STAT. ANN. §§ 111.390-111.440 (Michie 1986); N.H. REV. STAT. ANN. §§ 477:45-477:47 (1992); N.J. STAT. ANN. §§ 13:8B-1 to 13:8B-9 (West 1991); N.M. STAT. ANN. §§ 47-12-1 to 47-12-6 (Michie 1992); N.Y. ENVTL. CONSERV. LAW §§ 49-0301 to 49-0311 (McKinney 1984); OHIO REV. CODE ANN. §§ 5301.67-5301.99 (Anderson 1989); OR. REV. STAT. §§ 271.715-271.795 (1989); PA. STAT. ANN. tit. 3, §§ 914.1-914.2 (1992); R.I. GEN. LAWS §§ 34-39-1 to 34-39-5 (1984); S.C. CODE ANN. §§ 27-8-10 to 27-8-80 (Law. Co-op. Supp. 1992); TENN. CODE ANN. §§ 11-13-101 to 11-13-117, 66-9-301 to 66-9-309 (1992); TEX. NAT. RES. CODE ANN. §§ 183.001-183.005 (West Supp. 1993); UTAH CODE ANN. §§ 57-18-1 to 57-18-7 (1990); VA. CODE ANN. §§ 10.1-1009 to 10.1-1016 (Michie 1989); WASH. REV. CODE ANN. § 64.04.130 (West 1992); WIS. STAT. ANN. §§ 61.34(3m), 700.40 (West 1988).

C. Historically and Architecturally Significant Buildings

A similar development may be seen with respect to historically or architecturally significant properties. As with environmentally sensitive lands, historical buildings generate spillovers for third parties and many non-owners derive non-rivalrous utility from their existence. Internalization of these utilities by an owner is often impractical, and no exclusion strategy is therefore available. The traditional Demsetzian-Fieldian account, therefore, would appear to point toward open access. The path actually taken in the United States, however, is maintenance of private property rights together with dilution of dominion.

The government has been involved in protecting historically notable or valuable properties since the 1930s. Early models sought to preserve traditional private property forms, while transferring ownership to the government. The Historic Sites Act of 1935⁵³ empowered the Secretary of the Interior to acquire historic properties by "gift, purchase, or otherwise," subject to proper appropriations by Congress;⁵⁴ and the Antiquities Act of 1906⁵⁵ protected historic sites already located on government land. Under legislation of this type, the government must acquire title — by purchase or other voluntary transfer, or, if need be, by eminent domain — in order to protect the properties.

Later efforts left title to the property in private hands, but restricted owner dominion. New York's Landmarks Preservation Law, upheld in *Penn Central Transportation Co. v. New York City*,⁵⁶ adopted this approach. It permits a commission to designate private real properties as landmarks and neighborhoods of privately owned properties as historic districts. Once a building is so designated, the owner may no longer make any alterations to the external façade of the building without obtaining a certificate of appropriateness from the commission. Rather than restrict owner dominion outright, some states have chosen to offer tax benefits to owners who willingly restrict their dominion by subjecting their properties to a landmark designation and thereby accept the attendant development restrictions.⁵⁷

53 16 U.S.C. § 461 *passim* (2000).

54 *Id.* § 462(d).

55 *Id.* § 431 *passim*.

56 438 U.S. 104 (1978).

57 See, e.g., ALASKA STAT. § 45.98.020 (Michie 2005) (granting loans); N.M. STAT. ANN. § 7-2-18.2 (West 1978) (offering tax credits); FLA. STAT. ANN. § 196.1977 (West 1999) (providing property tax exemptions for historic properties).

D. Common Interest Communities

A final example of how our three-dimensional account presents a fuller understanding of the evolution of property rights may be found in common interest communities. Common interest communities are real estate developments where numerous parcels are individually owned but are accompanied by ownership in common of certain "common areas," while private units are subject to a restrictive common set of servitudes and the management power of an association.⁵⁸ Realty in common interest communities is increasingly popular in the United States, and it is presumed that this is due to owners finding that "common interest communities can provide homebuyers with extra value because they provide a workable mechanism for homeowners to share resources with their neighbors."⁵⁹ The fact that greater value can be realized by preventing internalization would seem to indicate the value of open access arrangements under standard Demsetzian-Fieldian accounts. Yet, this is not what has happened.

In our three-dimensional view, greater value is to be realized not by throwing realty back into open access arrangements, but rather, by reconfiguring assets and owner dominion in order to preserve different aspects in private property. For instance, in many common interest developments, the ideal asset configuration for unit owners includes a series of servitudes ensuring quiet, clean and safe surroundings, neighbors with similar preferences for local amenities, and aesthetically harmonious exteriors. From a condominium unit owner's perspective, alternative asset configurations are too small or ill-fitting to ensure all the attributes they want in their property, while devolving the entire development into open access property promises excessive use and insufficient investments. Owning a unit in a common interest development enables owners to achieve new asset configurations that allow them to enjoy amenities without having to assemble all the attributes they value into one large individually-owned parcel.

⁵⁸ See generally RESTATEMENT (THIRD) OF PROPERTY: SERVITUDES § 1.8 (2000).

⁵⁹ Susan F. French, *Making Common Interest Communities Work: The Next Step*, 37 URB. LAW. 359, 360 (2005).

CONCLUSION

In this contribution, we have sought to establish that property institutions may adopt a myriad of responses to evolutionary pressures. Conventional analysis to date has focused primarily on evolution along the dimension of number of owners. However, there are two other dimensions — dominion and asset configuration — along which property can adjust in reaction to evolutionary pressures. Our goal was to complement preexisting accounts rather than challenge them. The three-dimensional adjustments we have discussed may often be less dramatic than the transitions discussed by Demsetz and Field. Yet, it is quite possible that they occur more frequently and over time exert significant influence on the shaping of property institutions. We believe that it is important to pay heed to such adjustments to get a more complete picture of the evolution of property.