THE PLATFORM-PROPERTY PARADOX

Nikolas Guggenberger*

In digital markets, the essential functions of property turn against each other. Common law property divides the world into mine, yours, and others' by excluding non-owners. This exclusion strategy generally serves three essential functions in economic ordering: it internalizes externalities by channeling positive and negative effects on third parties back to the owner; it creates modularity by dividing the world into manageable chunks; and it promotes liberty by enabling private control over resources. Usually, these functions work in harmony. Not so in the digital platform economy.

Digital networks create enormous value through communication, transactions, and knowledge production—value that grows exponentially as more people participate. Through property-like entitlements, law enables platforms like Amazon, Google, and Facebook to exclude others from these networks and thereby capture their exponential returns. Law encloses digital networks just as it once enclosed common meadows. Control over such scaling resources disproportionately benefits incumbents while legal enclosures make those advantages durable. Paradoxically, property's internalization function—designed to improve economic ordering—captures value so

* Assistant Professor of Law, University of Houston Law Center, with courtesy appointment in the University of Houston Cullen College of Engineering's Electrical and Computer Engineering Department and Affiliated Fellow, Yale Information Society Project. For valuable thoughts, conversations, and feedback, thanks to Jack Balkin, Emily Berman, Darren Bush, Anupam Chander, Danielle D'Onfro, Dave Fagundes, Leah Fowler, David Froomkin, Amy Kapczynski, Andrew Lanham, Andrew Miller, Christopher Mirasola, Douglas Moll, James Nelson, Francesca Procaccini, Peter Salib, and Daniel Sokol, and the participants of the Boston University Cyber Alliance Speaker Series, Junior Intellectual Property Scholars Association Winter Workshop, LPE of Technology Workshop, Second Annual Conference on Networks, Platforms, and Utilities, University of Houston Law Center Work in Progress Workshop, University of North Carolina School of Law Faculty Workshop, USC-Cambridge Virtual Antitrust Workshop. Special thanks to Elizabeth Graff, Levi Loveless, and Alyvia Todd for their excellent research assistance. This project has been supported by the University of Houston's Elizabeth D. Rockwell Center Faculty Research Award.

effectively that it fuels industrial concentration. Rather than creating modularity, this concentration amplifies systemic complexity and fragility. Instead of promoting liberty, it entrenches economic dependence, centralizes control, and breeds oligarchy.

This Article's analysis reveals that platform dominance primarily stems from property design, rather than technological inevitability. More fundamentally, the Article challenges the classical prescription that property should maximize internalization of externalities where boundary enforcement is cost-effective. When platforms internalize network effects under that logic, the result is industrial concentration with deep structural harms to modularity and liberty. Realizing all of property's essential functions in the digital economy thus requires curtailing property-like entitlements, expanding digital commons, and recalibrating the remaining protections.

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INTRODUCTION

Property divides the world into mine, yours, and others' by excluding non-owners.[1] The conventional wisdom holds that this exclusion strategy[2] serves three essential functions.[3] First, exclusion internalizes externalities by incentivizing parties to account for the benefits and costs they impose on third parties.[4] Second, it creates modularity to reduce complexity by dividing the world into manageable chunks.[5] Third, it promotes economic liberty by enabling individual

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[1] *See* 2 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 2 (1766) (defining property as "that sole and despotic dominion ... over the external things of the world, in total exclusion of the right of any other individual in the universe"); MICHAEL HELLER & JAMES SALZMAN, MINE! HOW THE HIDDEN RULES OF OWNERSHIP CONTROL OUR LIVES 1–41, 47 (2021) (noting that from eighteen months onward, distinctions between mine, yours, and others' shape toddlers' social interactions); Morris Cohen, *Property and Sovereignty*, 13 CORNELL L.Q. 8, 12 (1927) ("[T]he essence of private property is always the right to exclude others.").

[2] *See* Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1753–74 (2004) (theorizing property's "exclusion strategy").

[3] On property's essentialism grounded in positive transaction costs, see Henry E. Smith, *Economics of Property Law*, *in* THE OXFORD HANDBOOK OF LAW AND ECONOMICS 147, 152 (Francesco Parisi ed., 2017); Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742, 1747 (2007).

[4] FRIEDRICH A. VON HAYEK, THE ROAD TO SERFDOM 39–40 (1944); Harold Demsetz, *Toward a Theory of Property Rights*, 52 AM. ECON. REV. 347, 348–49, 350–53 (1967) (contending that "[a] primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities"). Incentivizing innovation and preventing the overexploitation of common resources falls into this category, *see* Henry E. Smith, *Exclusion versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453, 457–58 (2002).

[5] CARLISS Y. BALDWIN & KIM B. CLARK, DESIGN RULES 63–93 (2000) (theorizing modularity's function in managing complexity); RICHARD A. EPSTEIN, SIMPLE RULES FOR A COMPLEX WORLD 53–70 (3d ed. 1995) (including property in his proposed six rules); Harold Demsetz, *Toward a Theory of Property Rights II: The Competition between Private and Collective Ownership*, 31 J. LEGAL STUD. 653, S664–65 (2002) (identifying "the productivity gains that result from specialization" and thus the inevitable "need for coordination" as "[t]he single most important force behind our growing use of private ownership"); Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1701–8 (2012) (identifying property as a system that manages complexity by reducing interdependencies to decomposable modules); *see also* HERBERT A. SIMON, THE SCIENCES OF THE ARTIFICIAL 183–216 (3d ed. 1996) (delineating "the architecture of complexity").

control over resources and safeguarding the resulting reliance interests from arbitrary interference.[6] These functions usually work in harmony to facilitate decentralized decision-making and information aggregation,[7] underpinning claims about efficient market ordering[8] and, for some, claims about the foundations of liberal democracy.[9]

In digital markets, paradoxically, property's internalization function works so well that it facilitates market concentration, which systematically undermines property's other two functions.[10] Understanding why this happens—and how to correct it—is crucial for realizing property's functions online. This Article makes two key contributions, one to understanding platform power, the other to recalibrating property theory.

First, this Article demonstrates that online market concentration is primarily a problem of property design.[11] Digital networks create

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[6] *Board of Regents v. Roth*, 408 U.S. 564, 577 (1972) ("It is a purpose of the ancient institution of property to protect reliance that must not be arbitrarily undermined."); BLACKSTONE, *supra* note 1, at 2; MILTON FRIEDMAN, CAPITALISM AND FREEDOM 7–18 (40th anniversary ed. 2002); HAYEK, *supra* note 4, at 108–9.

[7] *See* Henry E. Smith, *The Economics of Property Law*, *in* THE OXFORD HANDBOOK OF LAW AND ECONOMICS 1, 147–50 (2017); Smith, *supra* note 5, at 1693–94; Henry E. Smith, *Toward an Economic Theory of Property in Information*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF PROPERTY LAW 104 (Kenneth Ayotte & Henry E. Smith eds., 2011); Smith, *supra* note 2, at 1753–63 (emphasizing property's exclusion strategy as primary sources of decentralized decision-making and efficient information aggregation).

[8] *See* F. A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 521–28 (1945) (arguing that competition and the pricing system enable efficient decentralized information aggregation).

[9] *See* FRIEDMAN, *supra* note 6, at 7–21; HAYEK, *supra* note 4, at 73, 108; s*ee also* HANNAH ARENDT, THE HUMAN CONDITION 71 (2d ed. 1998) (emphasizing property's role in protecting privacy).

[10] On the precarious relationship between property and monopoly, see Lee Anne Fennell, *Fee Simple Obsolete*, 91 N.Y.U. L. REV. 1457, 1466–79 (2016) (analyzing the "perpetual spatial monopoly" awarded by the fee simple in land); Eric A. Posner & E. Glen Weyl, *Property Is Only Another Name for Monopoly*, 9 J. LEGAL ANALYSIS 51, 60–70 (2017); Katrina M. Wyman, *In Defense of the Fee Simple*, 93 NOTRE DAME L. REV. 1, 25–38 (2017) (discussing the economic efficiency of a fee simple in light critiques grounded in monopoly concerns).

[11] Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 489–91, 602–6 (1998). *See generally* HAYEK, *supra* note

enormous value through communication, transactions, and knowledge production—value that grows exponentially with the number of participants ("network effects").[12] Who gets to extract this value? Law emphatically answers: digital platforms, like Amazon, Google, and Facebook. However, network effects need not accrue to individual platforms.[13] Whether they do—and thereby make it costly for users to switch platforms, creating entry barriers that drive concentration—depends primarily on how legal institutions allocate control over networks.[14]

Through a web of entitlements that function like property[15]—state-enforced terms of service, expansive intellectual property, control-based privacy regimes, anti-hacking laws, and a comprehensive liability

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4, at 39 (observing "that serious shortcomings [in property design] have ... led to the destruction of competition in many spheres"). *But see* James Grimmelmann, *The Internet is a Semicommons*, 78 FORDHAM L. REV. 2799, 2799 (2010) (attributing the Internet's success to "get[ting] property boundaries right").

[12] Bell Telephone Laboratories researchers formalized the modern understanding of network effects, see Roland Artle & Christian Averous, *The Telephone System as a Public Good: Static and Dynamic Aspects*, 4 BELL J. ECON. & MGMT. SCI. 89, 90, 97–98 (1973); Jeffrey Rohlfs, *A Theory of Interdependent Demand for a Communications Service*, 5 BELL J. ECON. & MGMT. SCI. 16, 16–17 (1974).

[13] Michael Kades & Fiona M. Scott Morton, *Interoperability as a Competition Remedy for Digital Networks*, Equitable Growth 12–13, 33 (Sep. 2020) (comparing telephony networks to social media).

[14] For a related argument, see Sanjukta Paul, *Antitrust as Allocator of Coordination Rights*, 67 UCLA L. REV. 378, 388, 401–9 (2020) (contending that antitrust constructs the firm by selectively permitting individuals to cooperate).

[15] Julie E. Cohen, *Law for the Platform Economy*, 51 U.C. DAVIS L. REV. 133, 155 (2017) (identifying "de facto property arrangements"). This Article functionally analyzes property-like protections without opining on formal "Property" status platform entitlements for constitutional or other legal purposes. *See* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 48 (9th ed. 2014) (using the "concept of a de facto property right" to characterize electromagnetic spectrum licenses). On the legal nature of digital goods generally, see JOSHUA A. T. FAIRFIELD, OWNED: PROPERTY, PRIVACY, AND THE NEW DIGITAL SERFDOM 135 (2017) (contending that digital goods should be treated as property); Danielle D'Onfro, *The New Bailments*, 97 WASH. L. REV. 97, 100–101 (2022) (characterizing digital files as "digital property assets" with "sufficient similarity to traditional chattel property"); Christopher Yoo, *Beyond Coase: Emerging Technologies and Property Theory*, 160 U. PA. L. REV. 2189, 2193–2204 (2012) (analyzing "examples of new propeorty rights").

shield—law excludes non-owners from digital networks.[16] This framework functionally encloses digital networks much as law once enclosed common meadows during the English enclosure movement: access to networks depends on platforms' permission.[17] Granting platforms control over these networks disproportionately benefits incumbents. Platforms' entitlements entrench their dominance. Concentration in digital markets, therefore, is primarily a function of property's institutional design, not—as conventional accounts hold[18]—technological inevitability.[19]

Second, this Article posits that realizing property's essential functions in creating modularity and promoting liberty paradoxically requires limiting the internalization of externalities, property's other

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[16] *See* Cohen, *supra* note 15, at 153–75 (distinguishing four types of platform entitlements); Thomas Kadri, *Digital Gatekeepers*, 99 TEX. L. REV. 951 (2021) (focusing on the CFAA); Thomas Kadri, *Platforms as Blackacres*, 68 UCLA L. REV. 1184 (2022) (focusing on the CFAA).

[17] *See* James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33, 33–52 (2003) (theorizing a second enclosure movement centered on intellectual property in analogy to the English enclosure movement).

[18] *See e.g. United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 20–22 (D.D.C. 1999); CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 184 (1999); Mark Armstrong, *Competition in Two-Sided Markets*, 37 RAND J. ECON. 668, 668–69 (2006); David Autor et al., *The Fall of the Labor Share and the Rise of Superstar Firms*, 135 Q.J. ECON. 645, 650–51, 656 (2020); Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS'N 990, 990–91 (2003).

[19] Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 297 n.148 (2007); Lemley & McGowan, *supra* note 11, at 489–91. *See also* Robert Ahdieh, *Making Markets: Network Effects and the Role of Law in the Creation of Strong Securities Markets*, 76 CAL. L. REV. 277, 296–321 (2003) (focusing on the role of law in the emergence and maturing of securities markets). On the role of law in constructing digital markets, see JULIE E. COHEN, BETWEEN TRUTH AND POWER: THE LEGAL CONSTRUCTIONS OF INFORMATIONAL CAPITALISM (2019); KATHARINA PISTOR, THE CODE OF CAPITAL: HOW THE LAW CREATES WEALTH AND INEQUALITY 8, 184–204 (2019); Elettra Bietti, *Self-Regulating Platforms and Antitrust Justice*, 101 TEX. L. REV. 165, 169–88 (2022); Anupam Chander, *How Law Made Silicon Valley*, 63 EMORY L.J. 639, 647–69 (2014); Cohen, *supra* note 15; Amy Kapczynski, *The Law of Informational Capitalism, Review*, 129 YALE L.J. 1460 (2020). *See generally* KARL POLANYI, THE GREAT TRANSFORMATION - THE POLITICAL AND ECONOMIC ORIGINS OF OUR TIME 147 (2d ed. 2001) ("While laissez-faire economy was the product of deliberate State action, subsequent restrictions on laissez-faire started in a spontaneous way.").

essential function. In doing so, the argument challenges classic prescriptions that internalizing externalities is beneficial where practically feasible.[20] These prescriptions build on Harold Demsetz's famous observation that "property rights develop to internalize externalities when the gains of internalization become larger than the cost of internalization,"[21] treating this account as a template for optimal property design.[22] Cost, in this context, refers to boundary enforcement—particularly, expenses of drawing, monitoring, and policing property lines.[23] In digital markets, boundary enforcement costs are minimal while network externalities generate enormous value. Internalization is thus optimal by classical principles.[24] Yet "optimal" internalization turns the exclusion strategy against itself. It creates concentrated industrial structures that systematically undermine modularity and liberty. Therefore, realizing all of property's essential

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[20] *See e.g.* POSNER, *supra* note 15, at 41, 43–44 (discussing overexploitation and observing that "[t]he creation of exclusive rights is a necessary rather than sufficient condition for efficient use of resources."); Robert Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1327–30 (1993); Henry E. Smith, *Exclusion and Propeorty Rules in the Law of Nuisance*, 90 VA. L. REV. 965, 988–89 (2004) (suggesting "reason to think that institutions are efficient when their costs and benefits are more internalized to the members of [a] group"); Smith, *supra* note 2, at 1755 (explaining that successful internalization "will at the same time maximize the social value of the asset").

[21] Demsetz, *supra* note 4, at 348–50.

[22] Brett M. Frischmann, *Evaluating the Demsetzian Trend in Copyright Law*, 3 REVIEW OF LAW & ECONOMICS 650-659, (2007) (detailing how "Demsetz's theory has ... been extended to support normative arguments for increased propertization" and contending that "the normative argument permeates Demsetz's article"); Frischmann & Lemley, *supra* note 19, at 264 n.21. *See e.g.* Scott F. Kieff, *Property Rights and Propeorty Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 717–27 (2001); Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV. 1293, 1326 n.94 (1996) (discussing the "Demsetzian theory of optimal property rights").

[23] Ellickson, *supra* note 20, at 1327–32; Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 J. LEGAL STUD. 131, 133, 143 (2000). *See also* Demsetz, *supra* note 4, at 353. Assuming the theorem included *all* costs, including monopoly harms, would render it tautological—property rights would develop wherever they produce net benefits. *See Id.* at 354 (observing that "property rights arise when it becomes economic for those affected by externalities to internalize benefits and costs"); Smith, *supra* note 4, at S462–67. *See generally* Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163 (1999).

[24] *See* Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 236–58 (1996) (focusing on informational works in cyberspace).

functions requires radically constraining, rather than maximizing, the internalization of network effects.

Property's imbalance has severe practical consequences. A handful of digital platforms now control the critical chokepoints of commerce and communication, including social media, app stores, advertising ecosystems, and large language models.[25] This concentration directly undermines property's other two functions. Rather than creating modularity, concentration amplifies systemic complexity and fragility:[26] when a CrowdStrike update failed on July 19, 2024, thousands of flights were canceled or delayed, illustrating how interdependent systems create single points of failure and cascading outages that modular design aims to prevent.[27] Instead of promoting economic liberty, concentration replaces voluntary exchange with

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[25] See *United States v. Google LLC*, 747 F. Supp. 3d 1, 107–24, 136–39 (D.D.C. 2024) (finding that Google holds "monopoly power in the general search services market" and "the market for general search text advertising"); Memorandum Opinion, No. 1:23-cv-00108, Doc. 1410 (E.D. Va. 2025); H. Subcomm. on Antitrust, Com. and Admin. L. of the H. Com. on the Judiciary, *Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations* 28–30, 110–317 (Oct. 2020); Autor et al., *supra* note 18, at 648–51; Sara Calligaris et al., *Mark-Ups in the Digital Era*, OECD Sci., Tech. & Indus. Working Papers No. 2018/10, 13–18 (Apr. 2018); Jacques Crémer et al., *Competition Policy for the Digital Era* 12–13, 23 (Directorate-General for Competition 2019); Lina M. Khan, *The Separation of Platforms and Commerce*, 119 COLUM. L. REV. 973, 983–1008 (2019); Steven C. Salop, *Dominant Digital Platforms: Is Antitrust Up to the Task?*, 130 YALE L.J. FORUM 563, 564–66 (2021); *see also* Jan De Loecker et al., *The Rise of Market Power and the Macroeconomic Implications*, 135 Q.J. ECON. 561, 567–605 (2020) (observing especially the largest firms have significantly increased their mark-ups over time and inferring rising market power).

[26] *See* Jeffrey Jou et al., Bank Fragility After Mergers, SSRN Scholarly Paper No. 5121787 (Feb. 2, 2025), https://ssrn.com/abstract=5121787 (showing that especially "mega-mergers of large banks" mergers leave banks "become more vulnerable to adverse economic conditions").

[27] Jeffrey L. Tully et al., *Patient Care Technology Disruptions Associated with the CrowdStrike Outage*, 8 JAMA NETWORK OPEN e2530226 (2025) (finding wide-spread outages in hospitals); Adam Satariano et al., *Chaos and Confusion: Tech Outage Causes Disruptions Worldwide* (Jul. 19, 2024), https://www.nytimes.com/2024/07/19/business/microsoft-outage-cause-azure-crowdstrike.html.

structural coercion,[28] with contractors from advertisers on Google to merchants on Amazon at the whim of their private central planners.[29] Systemically, it centralizes economic control and breeds oligarchy as economic power translates into political influence.[30]

The Article proceeds in four parts. Part I explores property's exclusion strategy, its functions, and entitlement design options. Part II delineates five layers of legal enclosure that create what I call "Demsetzian Platforms"—entities optimized to capture spillover benefits.[31] Part III demonstrates how these enclosures lay the groundwork for economic concentration, while antitrust law and sector-specific regulation have failed to counterbalance these effects. Part IV reveals how concentration systematically undermines modularity and liberty. In response, it proposes and discusses remedies that curtail exclusionary entitlements, expand digital commons, and recalibrate remaining protections—an approach that reframes traditional common carrier and public utility regulation as tools for aligning property's essential functions.

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[28] FRIEDMAN, *supra* note 6, at 14; Thurman Arnold, *An Inquiry into the Monopoly Issue*, N.Y. TIMES MAGAZINE, Aug. 21, 1938, at 95, 95.

[29] H. Subcomm. on Antitrust, Com. and Admin. L. of the H. Com. on the Judiciary, *supra* note 25, at 146–76, 207–56. See Memorandum Opinion, *United States v. Google LLC*, No. 1:23-cv-00108, Doc. 1410; Francesca Procaccini, *Social Net Work: A Labor Paradigm for Regulating Speech on Social Media*, 110 CORNELL L. REV. 389, 415–17 (2025) (demonstrating the granular control platforms exercise over their users, creating employee-like relations).

[30] DAVID KIRKPATRICK, THE FACEBOOK EFFECT 254 (2011) (citing Mark Zuckerberg's comparison of Facebook to "a government"); Anupam Chander, *Facebookistan*, 90 N.C. L. REV. 1807, 1817–19 (2012) (identifying similarities between Facebook's power and sovereign power). *See also* MARTIN GILENS, AFFLUENCE AND INFLUENCE: ECONOMIC INEQUALITY AND POLITICAL POWER IN AMERICA 10, 48, 83, 162–63 (2012) (observing that "gross levels of [economic] inequality ... seem incompatible with notions of political equality"); Reilly Steel, Lobbying Against Enforcement, SSRN Scholarly Paper No. 5005959 (Oct. 31, 2024), https://papers.ssrn.com/abstract=5005959 ("offer[ing] new empirical evidence that companies regularly use political spending to defend against enforcement"); Thomas B. Nachbar, *The Antitrust Constitution*, 99 IOWA L. REV. 57, 70–74 (2013) (warning of "private regulation"). On oligarchy as a governance arrangement generally, see JEFFREY A. WINTERS, OLIGARCHY (2011).

[31] *See* Frischmann & Lemley, *supra* note 19, at 262–64 (defining spillovers).

I. PROPERTY, PROPERTY FUNCTIONS, AND ENTITLEMENT DESIGN

Property's "legal magic" flows from its exclusion strategy—the framework imposing duties on all non-owners to exclude themselves. This abstract legal principle underpins core pillars of private governance, ranging from ejecting trespassers to algorithmically curating digital content. To set the stage for demonstrating how the exclusion strategy turns against itself, this Part establishes the strategy's theoretical foundation, identifies its essential functions in economic ordering, and analyzes how legal institutions design and protect specific entitlements.

A. Foundations of Property's Exclusion Strategy

Property carves out domains of control. It distinguishes what is mine from what is yours and others'. Rather than prescribing how an owner may use something, property law primarily operates through exclusion: it excludes non-owners.[32] This exclusion strategy is why courts and commentators often associate property with a "right to exclude" that is enforceable against the world at large, not just individual counterparties. Property's "exclusion strategy" relies on rights *in rem* (binding everyone) as opposed to *in personam* (binding only specific parties).[33] As James Penner points out, however, a precise account of property must begin with a focus on non-owners, who bear the duty "to exclude themselves."[34] Property rights, in this view, are the

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[32] JAMES E. PENNER, THE IDEA OF PROPERTY IN LAW 71–74 (1997) (observing that "property is driven by an analysis which takes the perspective of exclusion, rather than one which elaborates a right to use" and defining the "exclusion thesis [as] the right to property is a right to exclude others from things which is grounded by the interest we have in the use of things"); Smith, *supra* note 5, at 1693 ("[E]xclusion strategies, including the right to exclude, serve the interest in use."). For greater emphasis on a positive manifestation of a right to use in civil law traditions, see e.g. Bürgerliches Gesetzbuch [BGB] [Civil Code], § 903 (1), https://www.gesetze-im-internet.de/englisch_bgb/ (Ger.).

[33] PENNER, *supra* note 32, at 23–31.

[34] *Id.* at 71.

flipside of non-owners' *in rem* duties.[35] By imposing these duties on non-owners, property regimes allocate control to owners, empowering them to engage in private governance over their domain.[36]

By default, a homeowner gets to set the temperature in the bedroom, and a car owner may choose the music. Roman law identified this "rule over things by the individual" as *dominium*, in contrast to *imperium*, or state power.[37] In other words, the exclusion of non-owners enables owners to use their property as they please, without positively defining specific permitted uses.[38]

Granted, property's exact contours are notoriously difficult to circumscribe, and exclusion is no clean binary category. What kind of *in rem* duties must the law specifically impose on non-owners to create property? What about hybrid forms of entitlements that share *in rem* and *in personam* characteristics, like rental leases and security interests?[39] These and other questions have led many scholars to doubt whether property regimes possess any coherent logic.[40] Rather than defining property as a distinct institution, they have characterized it as

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[35] *Id.* There is longstanding controversy over whether property rights transcend mere interpersonal relations. *See* Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 YALE L.J. 710, 719–23 (1917) (arguing that, logically, "all rights *in rem* are against persons"; Cohen, *supra* note 1, at 12 [urging an understanding "that a property right is a relation not between an owner and a thing, but between the owner and other individuals in reference to things"]; PENNER, *supra* note 32, at 23–31 [observing that "physical things or states of affairs such as bodily security, mediate between rights *in rem* and duties *in rem*, blocking any content which has to do with the specific individuality of particular persons from entering the right-duty relation"]; Smith, *supra* note 5, at 1693–1700 [foregrounding "our interest in using things" and conceptualizing "property as a right to a thing"].

[36] Smith, *supra* note 4, at S454–55. *See* BARBARA H FRIED, PROGRESSIVE ASSAULT ON LAISSEZ FAIRE: ROBERT HALE AND THE FIRST LAW AND ECONOMICS MOVEMENT. 51–52 (2009).

[37] Cohen, *supra* note 1, at 8–9.

[38] Henry Smith, *Modularity in Contracts: Boilerplate and Information Flow*, 104 MICH. L. REV. 1175, 1187 (2006).

[39] Thomas Merrill & Henry Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 820–43 (2001) (locating bailments, landlord-tenant law, security interests, and trusts at the property/contract interface).

[40] *See e.g.* Felix S. Cohen, *Transcendental Nonsense and the Functional Approach*, 35 COLUM. L. REV. 809, 814–17 (1935) (criticizing the "veiled ... 'thingification' of *property*").

a "bundle of sticks" or "bundle of rights" to emphasize its composite nature. At its most extreme, the bundle-of-sticks perspective conceives of property as a mere vehicle for ultimately arbitrary policy preferences, devoid of inherent meaning or function: property is what the law defines as property.[41]

Along the spectrum between viewing property as a distinct institution and a mere vehicle for policy preferences, Thomas Merrill distinguishes three main schools of thought, each defined by the role they assign to the exclusion strategy: "single-variable essentialism," "multi-variable essentialism," and "nominalism."[42] The first school, associated with William Blackstone's conceptualization of property as dominium, treats the exclusion of non-owners as the necessary and sufficient condition for property rights.[43] The second approach considers exclusion as one of several essential features of property rights.[44] Third and finally, nominalism ascribes only historic path dependency to property; exclusion may or may not be part of what law considers property.[45]

In practice, courts have pragmatically combined elements of the realist tradition with more institutional approaches. They frequently invoke the "bundle of sticks" metaphor but qualify it, referencing the exclusion strategy. In *United States v. Craft*, for example, the Supreme Court defined the idiomatic bundle as "a collection of individual rights which, *in certain combinations*, constitute property."[46] In *Kaiser Aetna v. United States*, the Court explained that "one of the most essential sticks" distinguishing a property bundle from other entitlements is the power of exclusion, claiming that this understanding was universally

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[41] Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730, 737–38 (1998). *See also* RESTATEMENT OF PROPERTY § 10 (Am. L. Inst. 1936) (defining owner as "person who has one or more interests").

[42] Merrill, *supra* note 41, at 734.

[43] *Id.* (identifying "the right to exclude other [as] *sine qua non*"). *See* 2 BLACKSTONE, *supra* note 1, at 2.

[44] Merrill, *supra* note 41, at 736–37.

[45] *Id.* at 737–39.

[46] *United States v. Craft*, 535 U.S. 274, 278 (2002) (emphasis added).

shared.[47] The object of exclusion—the thing—may be land, chattel, or various forms of intangibles.[48] Courts recognize that typically, but not necessarily, state law creates and defines the individual sticks, while state or federal law determines whether the resulting bundle constitutes "property" for statutory or constitutional purposes.[49]

Ultimately, critiques suggesting that legal definitions of property are inherently arbitrary[50] do not undermine the argument about conflicting essential property functions advanced in this Article.[51] Even accepting the notion that the law could recognize arbitrary combinations of sticks as property does not mean that the law at large does so. As applied, property is more than an empty vehicle for policy preferences. It is neither a coincidence that courts detect patterns in property rights, nor that property textbooks cover broadly similar themes.[52] Whether exclusion is seen as foundational, significant, or merely incidental to property rights, the exclusion strategy is practically ubiquitous in the domain of property.[53] It serves distinct functions in resolving conflicting interests in resources within market-based ordering, as further elaborated in the following section.

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[47] *Kaiser Aetna v. United States*, 444 U.S. 164, 178–80 (1979). See *See also* Property, BLACK'S LAW DICTIONARY (11th ed. 2019). *See* Dave Fagundes, *Why Less Property Is More: Inclusion, Dispossession, & Subjective Well-Being*, 103 IOWA L. REV. 1361, 1363–66 (2018) (emphasizing exclusion and possession as characteristics of contemporary property doctrine).

[48] Smith, *supra* note 5.

[49] *United States v. Craft*, 535 U.S. at 278; *Drye v. United States*, 528 U.S. 49, 58 (1999); *Board of Regents of State Colleges v. Roth*, 408 U.S. 564, 577 (1972); *United States v. Bess*, 357 U.S. 51, 55–56 (1958); *Morgan v. Commissioner*, 309 U.S. 78, 80–81 (1940).

[50] Cohen, *supra* note 40, at 814–17.

[51] *See* IV.

[52] *See e.g.* JESSE DUKEMINIER ET AL., PROPERTY (10th ed. 2022); SHELDON F. KURTZ ET AL., CASES AND MATERIALS ON AMERICAN PROPERTY LAW (7th ed. 2019); THOMAS W. MERRILL ET AL., PROPERTY: PRINCIPLES AND POLICIES (4th ed. 2022).

[53] Merrill, *supra* note 41, at 747–52; Henry E. Smith, *The Persistence of System in Property Law*, 163 U. PA. L. REV. 2055, 2064–69 (2015).

B. Property's Essential Functions

Property's exclusion strategy is widely regarded as essential to three core functions of market-based economic ordering.[54] Essential means that, given positive transaction costs, only property regimes can achieve these functions at scale.[55] First, exclusion incentivizes parties to internalize externalities.[56] This entails "that the owner benefits from all the useful services rendered by his property and suffers for all the damages caused to others by its use," as Friedrich von Hayek explained.[57] Property rights, Harold Demsetz argued in 1967, tend to emerge when and where the gains of internalizing externalities outweigh the costs of drawing, monitoring, and policing the enclosure's boundaries.[58] Costs, in Demsetz's account, refer to the administrative burdens of boundary enforcement, not the systemic costs that exclusion

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[54] *See* Smith, *supra* note 2, at 1753–1174 (using the term exclusion strategy).

[55] In a hypothetical, friction-less world, the exclusion strategy would be unnecessary at best and obstructing at worst. Contract law and regulation would suffice; property's crude exclusion and information-hiding would only reduce efficiency without purpose. For an inquiry into "the 'essential role' of property" to delineate its unique character, see Smith, *The Economics of Property Law*, *supra* note 7, at 152 (observing that "[p]roperty law owes its actual contours to positive transaction costs"); Smith, *supra* note 5, at 1696 (observing that "in a zero-transaction-cost world ... any benefit to be secured by parsing out relations in a fine-grained manner could be obtained at zero cost"); Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, *supra* note 3, at 1747 (explaining that "the focus on exclusion—for reasons of simplicity and cheapness—only makes sense because of positive transaction costs").

[56] *See* Demsetz, *supra* note 4, at 348–49, 350–53.

[57] HAYEK, *supra* note 4, at 39–40.

[58] *See* Demsetz, *supra* note 4, at 348–49, 350–53; *see also* HAYEK, *supra* note 4, at 40; Jonathan M. Barnett, *Property as Process: How Innovation Markets Select Innovation Regimes*, 119 YALE L.J. 384, 421–43 (2009) (observing that Demsetzian property formation can work in reverse and providing examples of "large firms ... sometimes act[ing] as the strongest bulwark against too much property"); Demsetz, *supra* note 5, at S656 (defending yet softening the original observation); Fennell, *supra* note 10, at 1463, 1473–74 (emphasizing the normative dimension of the Demsetzian argument and extending it to the reverse proposition—stopping the internalization as its costs exceed its benefits); Smith, *supra* note 4, at 463–83 (offering a more nuanced account of "Demsetzian Models" by identifying exclusion costs as potentially endogenous to changes in the value of land use and correcting the historical record of enclosure in England).

might impose on society.[59] From this perspective, property's contours shift with technological, economic, or social changes that alter boundary-drawing costs.[60] Demsetz's framework has served both analytical and normative purposes: describing how property historically emerged while prescribing how legal systems should allocate rights for efficient ordering.[61] Practical examples are patent law (internalizing positive externalities of inventions for a set duration) and emission trading systems (internalizing the negative externalities of pollution).[62]

Second, property frameworks can provide an efficient tool to reduce complexity.[63] Without offering a formal positive definition, Herbert Simon "[r]oughly" identifies "a complex system [as] one made up of a large number of parts that have many interactions."[64] In society, complexity increases with heightened levels of specialization and reduced compactness of relations in mature and sophisticated economies, as specialization necessitates coordination among different economic actors.[65] To reduce complexity, property breaks

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[59] *See supra* note 23. *But see* Thomas W. Merrill, *Introduction: The Demsetz Thesis and the Evolution of Property Rights*, 31 J. LEGAL STUD. S331, S333 (2002).

[60] Demsetz, *supra* note 4, at 350 (observing that, historically, property rights emerged in reaction to "new or different beneficial and harmful effects"); Smith, *supra* note 4, at S453.

[61] Frischmann, *supra* note 22, at 650-659,; Frischmann & Lemley, *supra* note 19, at 264 n.21. *But see* Harold Demsetz, *Frischmann's View of "Toward a Theory of Property Rights,"* 4 REV. L. & ECON. 127 (2008).

[62] Smith, *supra* note 4, at 457–58.

[63] BALDWIN & CLARK, *supra* note 5, at 63–92; Demsetz, *supra* note 5, at S660–65; Smith, *supra* note 5, at 1701–8 (identifying property as a system that manages complexity by reducing interdependencies to decomposable modules). *See generally* LEE ANNE FENNELL, SLICES AND LUMPS (2019) (delineating the immense power that comes with defining the chunks and modules); SIMON, *supra* note 5, at 183–216. *But see also* Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 624, 660–79 (1998) (observing that overlapping and fragmented property rights also contribute to complexity and may lead to resource underuse). For an internet specific account, see Christopher Yoo, *Modularity Theory and Internet Regulation*, 2016 U. ILL. L. REV. 1, 18–24 (2016).

[64] SIMON, *supra* note 5, at 183–84. Distinguishing simplicity, organized complexity, and disorganized complexity, Warren Weaver demonstrated that complexity is a matter of degree, defined by the variables at play. *See* Warren Weaver, *Science and Complexity*, 36 AMERICAN SCIENTIST 536, 536–42 (1948).

[65] Demsetz, *supra* note 5, at S664 (defining "compactness [as] the degree to which the problem is largely confined to a group whose members").

interdependencies into chunks and insulates these chunks from their environment, creating modular structures.[66] This modularity allows individuals to interact with specific components without needing to understand the entire system.[67] They require less information to interact with the world, making modular systems more information-efficient. As Henry Smith illustrates, a car's modularity, for example, allows mechanics to repair brakes without needing to know about the fuel injection system.[68] Such modularity not only eases repairs but also increases resilience, as mistakes do not immediately spill over.[69] In essence, modularity reduces the cognitive load, enabling individuals to act effectively without having to understand the full complexity of their social and economic environment.[70] At a system level, this information-hiding feature[71] facilitates decentralized decision-making and, ultimately, enables decentralized information aggregation through the price system.[72]

Third, property is widely credited with promoting economic liberty, securing the foundation for voluntary exchange and collaboration.[73] In this view, property enables individuals to manage their economic affairs independently and exercise control over resources, free from collective control or the need for third-party

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[66] Smith, *supra* note 5, at 1701–3 see also BALDWIN & CLARK, *supra* note 5, at 63 (identifying the first idea of modularity as "*interdependence within and independence across modules*") .

[67] BALDWIN & CLARK, *supra* note 5 ("For human beings, the only way to manage a complex system or solve a complex problem is to break it up.").

[68] Smith, *supra* note 5, at 1701.

[69] *Id.*

[70] EPSTEIN, *supra* note 5, at 53–70 (including property in his proposed six rules); Smith, *supra* note 5, at 1701–8 (identifying property as a system that manages complexity by reducing interdependencies to decomposable modules).

[71] BALDWIN & CLARK, *supra* note 5 (identifying "[t]he second idea [of modularity as] "captured by three terms: *abstraction, information hiding, and interface*").

[72] Demsetz, *supra* note 5, at S664 n.18; Hayek, *supra* note 8, at 525–26; Ludwig Mises, *Die Wirtschaftsrechnung im sozialistischen Gemeinwesen (The Economic Calculation in the Socialist Commonwealth)*, 47 ARCHIV FÜR SOZIALWISSENSCHAFT UND SOZIALPOLITIK 86, 93–97, 100–105 (1920); Smith, *supra* note 2, at 1753–63.

[73] 2 BLACKSTONE, *supra* note 1, at 2; FRIEDMAN, *supra* note 6, at 7–18; HAYEK, *supra* note 4, at 108–9.

permission.[74] Crucially, property protects the resulting reliance interests, safeguarding these expectations from arbitrary interference.[75] Some have identified this form of economic liberty both as "an end in itself [and] an indispensable means toward the achievement of political freedom."[76] Friedrich von Hayek praised "the system of private property as the most important guarantee of freedom." Private property and competitive markets, Milton Friedman argued, provided the only reliable institutional arrangement securing both the material independence necessary to advocate radical ideas and the basis for permissionless association with fellow political travelers.[77] Hannah Arendt drew attention to the connection between private property and privacy, observing that "[t]he only efficient way to guarantee the darkness of what needs to be hidden against the light of publicity is private property, a privately owned place to hide in."[78] By extension, these accounts all elevate some version of the exclusion strategy to a necessary precondition for political freedom and, thus, liberal democracy.[79]

The exclusion strategy's essential functions generally work in harmony. Together, they aim toward the same goal, enabling decentralized decision-making and efficient information aggregation,[80] which underpin claims about the efficiency of market ordering as well as democratic governance.[81] Beyond pursuing common goals, each

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[74] FRIEDMAN, *supra* note 6, at 27.

[75] *See Board of Regents v. Roth*, 408 U.S. 564, 577 (1972); BLACKSTONE, *supra* note 1, at 2.

[76] FRIEDMAN, *supra* note 6, at 8.

[77] *Id.* at 16–18.

[78] ARENDT, *supra* note 9, at 71.

[79] FRIEDMAN, *supra* note 6, at 9–11.

[80] *See* Smith, *The Economics of Property Law*, *supra* note 7, at 147–50; Smith, *supra* note 5, at 1693–94; Smith, *Toward an Economic Theory of Property in Information*, *supra* note 7; Smith, *supra* note 2, at 1753–63 (emphasizing property's exclusion strategy and its modularity as an information-hiding strategy).

[81] *See* HAYEK, *supra* note 4, at 108; Hayek, *supra* note 8, at 521–28 (arguing that competition and the pricing system enable efficient decentralized information aggregation); FRIEDMAN, *supra* note 6, at 9. Resolving the conflicts over scarce resources also contributes to prevent open violence, see Smith, *The Economics of Property Law*, *supra* note 7, at 149; Robert Bates et al., *Organizing Violence*, 46 THE

function also directly strengthens the others. Mitigating spillover effects strengthens modularity, while insufficient internalization increases complexity, and *vice versa*. The failure to internalize risks in the financial sector, for example, led to an opaque web of dependencies that undermined modularity and hid risks. When these interconnected risks materialized in 2008, failures cascaded across seemingly discrete financial institutions.[82] Post-crisis reforms—from increased capital requirements to recovery and resolution schemes—internalized some externalities, thereby enhancing the sector's modularity.[83] Similarly, internalization supports economic liberty: it allows individuals to reap the benefits of their actions while protecting them from negative externalities imposed by others. It enables independence. Modularity and liberty are also closely intertwined. The former frees individuals from systemic concerns. The latter, in turn, enables individuals to act upon the incentives to internalize externalities and engage in trade. This harmony among property's essential functions explains the exclusion strategy's theoretical appeal and practical significance.[84]

C. Protecting and Structuring Property Entitlements

Recognizing the exclusion strategy as a form of private legal ordering is one thing; legally specifying the protections and contours of individual entitlements is another. First, consider the protective strategies defining individuals' ability to determine the fate of the entitlement and seek remedies. Guido Calabresi and Douglas Melamed provided a foundational account of how the law protects entitlements, which identifies three principal modes: "Property Rules, Liability Rules

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JOURNAL OF CONFLICT RESOLUTION 599, 612–18 (2002); W.C. Bunting, *Resolving Conflicts Over Scarce Resources: Private Versus Shared Ownership*, 99 MARQ. L. REV. 893, 897–903 (2016). For critical accounts, see, *e.g.,* Cohen, *supra* note 1, at 12; Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 749–61, 771–74 (1986) (warning of privatization's dangers and contending that some resources are inherently public).

[82] *See generally* ANAT R. ADMATI & MARTIN F. HELLWIG, THE BANKERS' NEW CLOTHES (2013).

[83] Aaron Klein, *Three Cheers for Normal Bank Failure*, BROOKINGS (Nov. 26, 2024), https://www.brookings.edu/articles/three-cheers-for-normal-bank-failure/.

[84] Merrill, *supra* note 41, at 747–52.

and Inalienability."[85] Property rules, the authors explain, protect entitlements through a consent requirement.[86] The holder of the entitlement determines the price of any transfer.[87] Attempts to take the entitlement without consent can be enjoined.[88] Liability rules, in contrast, do not support injunctions.[89] An intruder upon an entitlement protected by a liability rule will only need to pay damages, as determined by a state institution, typically a court.[90]

Both entitlements protected by property and liability rules are transferable. Inalienable entitlements are not.[91] Restricting or eliminating the ability to transfer the entitlement is part of the protective or regulating framework.[92] Property regimes can rely on all three types of rules to protect individuals' entitlements. They may even attach all three types of rules to the same entitlement. Calabresi and Melamed discuss the example of a house, subject to property rules for private purchases, liability rules for eminent domain, and inalienability rules when the owner is incapacitated.[93] Absent extraordinary circumstances, however, property regimes typically stay clear of inalienability rules, because the ability to transfer an asset lies at the core of what property regimes generally aim to bestow. As the authors emphasize in the article's title, this matrix provides only one of many possible perspectives.[94] Yet, even as subsequent scholarship has expanded Calabresi and Melamed's framework to include hybrid types

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[85] Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1089 (1972).

[86] *Id.* at 1092. See also Cohen, *supra* note 1, at 12.

[87] Calabresi & Melamed, *supra* note 85, at 1092.

[88] *Id.*

[89] *Id.*

[90] *Id.*

[91] *Id.* at 1092–93.

[92] *Id.* at 1093. For critiques of the boundaries of commodification, see Kieran Healy & Kimberly D. Krawiec, *Repugnance Management and Transactions in the Body*, 107 AM. ECON. REV. 86, 86–89 (2017); Kimberly D. Krawiec, *Markets, Repugnance, and Externalities*, J. INST'L ECON. 944, 949–51 (2023).

[93] Calabresi & Melamed, *supra* note 85, at 1093.

[94] Karen Tani, *Legal History Blog: Guido Calabresi and the "Economic Style," Part 3: Partial Views and "Pearls Beyond Price,"* LEGAL HISTORY BLOG (May 11, 2023), https://legalhistoryblog.blogspot.com/2023/05/guido-calabresi-and-economic-style-part_0793482911.html.

of rules, its foundational structure remains dominant and continues to serve as a reliable tool for categorizing different approaches to protect entitlements.[95]

Second, there are different approaches to defining the contours of entitlements. Despite the exclusion strategy's prominent presence, property regimes also rely on governance strategies—precise and positive definitions of permitted and prohibited uses.[96] In fact, governance and exclusion lie at the opposite ends of a continuum, describing the "roughness of the proxy measurement used to define the right," as Henry Smith put it.[97] Relying on transaction and enforcement cost analysis, Smith shows that both modes of property design are compatible with a refined formulation of the Demsetz hypothesis.[98] Property rights evolve in response to changes in resource valuation and enforcement costs. Yet, enforcement costs must be understood to incorporate the costs of exclusion—policing access to the property through fencing and monitoring—and the costs of governance—defining specific uses with precision. In some instances, emphasizing the former will prove more cost-effective; in others, the latter will prevail. As in the original Demsetzian framework, technological innovation in resource use, monitoring, and boundary-drawing constantly alters this calculation, as Smith demonstrates in the context of English agricultural land use.[99]

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[95] *See* Abraham Bell & Gideon Parchomovsky, *Pliability Rules*, 101 MICH. L. REV. 1 (2003) (identifying pliability rules as a hybrid of property and liability rules); Tani, *supra* note 94.

[96] Smith, *supra* note 4, at S454–55, S 457-S462, S478–87 (emphasizing the developments in the wake of the English enclosure movement). *See also* Smith, *Semicommon Property Rights and Scattering in the Open Fields*, *supra* note 23, at 134–38 (identifying "the medieval open-fields system" as "a semicommons").

[97] Smith, *supra* note 4, at S467–74.

[98] *Id.* at S467-483.

[99] *Id.* at S454–55, S 457-S462, S478–87. See also Terry Anderson & P. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 172 (1975) (analyzing the effects of the invention of barbed wire).

II. NETWORK ENCLOSURE INTERNALIZES NETWORK EXTERNALITIES

Just like historical enclosure movements converted common meadows into private capital, this Part demonstrates how property-like entitlements today internalize network externalities, enabling digital platforms to capture the value of network effects and convert it into durable platform capital.[100] To understand this conversion, it is essential to distinguish between network effects and network externalities.[101] Network effects describe the relationship between a network's user base and utility. As more participants join, networks generally become dramatically more useful. The more people use email or speak English, for example, the more valuable these communication networks become for everyone.[102] Network externalities, on the other hand, refer to the spillover effects of an individual's participation in a network. When someone uses email or learns English, this changes the utility a network provides to others. Network externalities aggregate into network effects.[103]

Unlike the English language or email protocols, which remain open networks where anyone with the necessary skills can participate and benefit, digital platforms benefit from comprehensive legal enclosure.[104] This Part first examines how multiple layers of legal protection create property-like entitlements that allocate control over digital networks. It then analyzes how this legal architecture constructs "Demsetzian Platforms" as distinct organizational entities, optimized to internalize network externalities.

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[100] See Cohen, *supra* note 15, at 144, 153–75; *see also* Cohen, *supra* note 1, at 13 (delineating property rights' power to allocate future returns).

[101] *See supra* note 12.

[102] DAVID SINGH GREWAL, NETWORK POWER: THE SOCIAL DYNAMICS OF GLOBALIZATION 21–25 (2008) (identifying language as a mediating standard); Lawrence Lessig, *Do You Floss?*, 27 LONDON REVIEW OF BOOKS (Aug. 18, 2005), https://www.lrb.co.uk/the-paper/v27/n16/lawrence-lessig/do-you-floss.

[103] Nikolas Guggenberger, *Essential Platforms*, 24 STAN. TECH. L. REV. 237, 278 (2021).

[104] *See* Mike Masnick, *Protocols, Not Platforms: A Technological Approach to Free Speech*, KNIGHT FIRST AMENDMENT INST. (Aug. 21, 2019), https://knightcolumbia.org/content/protocols-not-platforms-a-technological-approach-to-free-speech.

A. Five Layers of Network Enclosures

Five distinct layers of protection enclose digital networks: state-enforced terms of service, intellectual property and trade secret protection, control-based privacy regimes, trespass and anti-hacking laws, and an expansive intermediary liability shield.[105] Individually, these frameworks may appear benign—each simply regulating aspects of user-platform, developer-platform, and platform-platform interactions. Together, however, they establish comprehensive duties for non-owners to exclude themselves from digital networks, conferring exclusive control to individual platforms and enabling private governance at scale.

1. Contract

It may appear counterintuitive to start delineating property-like entitlements through recourse to contracts.[106] Fundamentally, contracts are freely customizable and only bind voluntarily consenting parties.[107] This, however, describes classic, idealized, and today, rather anachronistic forms of contracting: equals negotiate individual agreements as expressions of their autonomy. Meaningful consent justifies that the state holds the parties' future selves to their promises.[108] Margaret Radin calls this World A and contrasts it with World B—that of modern contractual reality.[109]

Actual user-platform, developer-platform, and platform-platform interactions look, feel, and work very differently from what the

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[105] See Cohen, *supra* note 15, at 153–75 (identifying four functional types of entitlements).

[106] Smith, *Modularity in Contracts*, *supra* note 38, at 1175 (pointing at the potential appearance of "a category mistake").

[107] Thomas Merrill & Henry Smith, *Optimal Standardization in the Law of Property: The* Numerus Clausus *Principle*, 110 YALE L.J. 1, 3 (2000); Smith, *Modularity in Contracts*, *supra* note 38, at 1175.

[108] Heidi M. Hurd, *The Moral Magic of Consent*, 2 LEGAL THEORY 121, 123–24 (1996); Kaiponanea T. Matsumura, *Binding Future Selves*, 75 LA. L. REV. 71, 83–84 (2014) (developing a "different selves" rationale to explain contract enforcement across temporal identity changes).

[109] MARGARET JANE RADIN, BOILERPLATE 3, 8 (2014).

contractual ideal assumes.[110] Platforms rely on terms of service articulated in boilerplate to set the rules under which others may access their networks. Facebook refers to these terms as "Community Standards,"[111] while YouTube calls them "Community Guidelines" and "Advertiser-Friendly Content Guidelines,"[112] for example. Platforms regularly condition their services on users' authorization to use their data for personalized advertising.[113] The app stores have created similar frameworks for third-party developers.[114] Platforms rely on terms of service to define the affordances they grant developers via APIs, which enable interconnection between databases and networks. Facebook, for instance, required that developers "agreed (i) not to compete with Facebook's core services and (ii) not to facilitate the growth of potential rivals to Facebook."[115]

The circumstances in which platforms' terms of service operate and their legal effects give them characteristics that transcend their usual purely contractual classification.[116] They materialize as property-like entitlements.[117] First, consider the minimal threshold for

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[110] BRETT M. FRISCHMANN & EVAN SELINGER, RE-ENGINEERING HUMANITY 71 (2018); David A. Hoffman, *Defeating the Empire of Forms*, VA. L. REV. 1367, 1377–78 (2023); Michael Simkovic & Meirav Furth-Matzkin, *Proportional Contracts*, 107 IOWA L. REV. 229, 236–54 (2021).

[111] Facebook Inc., *Community Standards*, https://www.facebook.com/communitystandards/ (last visited May 19, 2025).

[112] *Community Guidelines*, HOW COMMUNITY & AD-FRIENDLY GUIDELINES WORK, https://www.youtube.com/howyoutubeworks/our-policies/ (last visited May 19, 2025).

[113] *See e.g. Terms of Service* § 2, META, https://www.facebook.com/legal/terms. *See also* Nikolas Guggenberger, *Consent as Friction*, 66 B.C. L. REV. 353, 365–69 (2025) (describing the business practice as "surveillance by adhesion').

[114] Apple, Inc., *App Store Review Guidelines - Apple Developer*, https://developer.apple.com/app-store/review/guidelines/ (last visited May 19, 2025); Google Inc., *Developer Policy Center*, https://play.google.com/about/developer-content-policy/ (last visited May 19, 2025).

[115] First Amended Complaint at 4–5, 12–14, *FTC v. Facebook*, No. 1:20-cv-03590, Doc. 75-1 (D.D.C. Aug. 19, 2021), https://www.courtlistener.com/docket/18735353/federal-trade-commission-v-facebook-inc/.

[116] *See also* Danielle D'Onfro, *Contract-Wrapped Property*, 137 HARV. L. REV. 1058, 1075–1125 (2024) (observing a blurring of contract and property through contractual encroachment on property).

[117] Mark Lemley, *Terms of Use*, 91 MINN. L. REV. 459, 470–72 (2006).

contractual assent. All too often, it is challenging to discern meaningful affirmations of agreement, let alone genuine expressions of autonomy in this context.[118] Despite these deficits and almost insurmountable cognitive challenges in processing heaps of boilerplate,[119] however, courts have largely upheld boilerplate as legally binding contracts.[120] Courts have found assent in clickwrap contracts when offerees click "I agree" or a similar affirmation, relying on the doctrine that parties have a duty to read the terms to which they assent.[121] Even without explicit affirmation, courts have found assent where offerees had actual or constructive knowledge of the terms and continued to use a website or service nonetheless.[122]

Courts elevate acquiescence to assent by assuming a duty to read or let the mere accessing of information—technically, a ping of a server—suffice as assent to the platform's terms.[123] Only in exceptional circumstances have courts resorted to reasonable expectations and rejected standard terms as unconscionable —generally, limited to cases

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[118] RADIN, *supra* note 109, at 21, 89–90. Concerning privacy see WILLIAM MCGEVERAN, PRIVACY AND DATA PROTECTION LAW 474 (2d ed. 2023); Guggenberger, *supra* note 113, at 365–66.

[119] *See generally* RADIN, *supra* note 109; Yannis Bakos et al., *Does Anyone Read the Fine Print? Consumer Attention to Standard-Form Contracts*, 43 J. LEGAL STUD. 1, 3 (2014) ("only one or two in 1,000 shoppers access a product's EULA for at least 1 second"); Lauren Henry Scholz, *Fiduciary Boilerplate: Locating Fiduciary Relationships in Information Age Consumer Transactions*, 46 J. CORP. L. 173 (2020); Simkovic & Furth-Matzkin, *supra* note 110 (highlighting boilerplates' attentional toll).

[120] *See, e.g.* B.D. v. Blizzard Ent., Inc., 292 Cal. Rptr. 3d 47, 58–62 (2022) (discussing various methods of assent to an online contract); Deni Assocs. of Fla., Inc. v. State Farm Fire & Cas. Ins. Co., 711 So.2d 1135, 1140 (Fla. 1998) (rejecting the doctrine of reasonable expectations); Hill v. Gateway 2000, Inc., 105 F.3d 1147, 1148 (7th Cir. 1997) (pointing out that a contract "need not be read to be effective"); ProCD, Inc. v. Zeidenberg, 86 F.3d 1447, 1452–53 (7th Cir. 1996) (finding buyer's acceptance of delivered goods after meaningful time to review the product); RADIN, *supra* note 109, at 21–23.

[121] See Uri Benoliel & Shmuel I. Becher, *The Duty to Read the Unreadable*, 60 B.C. L. REV. 2255 (2019); Charles L. Knapp, *Is There a "Duty to Read"?*, 66 HASTINGS L.J. 1083 (2015); Scholz, *supra* note 119, at 173–75.

[122] CHARLES L. KNAPP ET AL., PROBLEMS IN CONTRACT LAW: CASES AND MATERIALS 206 (10th ed. 2023).

[123] *See* Benoliel & Becher, *supra* note 121; Knapp, *supra* note 121; Scholz, *supra* note 119, at 173–75.

involving unsophisticated parties.[124] The minimal threshold for constructive consent replaces actual agreements with fictions thereof.[125] This ability to invoke state backing[126] for quasi-unilateral domain governance resembles the exclusionary strategy of property regimes.[127] It propertizes platforms, as Mark Lemley observes.[128]

Second, and logically following from the lack of meaningful consent, *something* must have been implicitly pre-allocated to platforms for them to bind anyone who merely accesses information.[129] Without such a pre-allocated domain, platforms could factually refuse to provide services, but they could not legally bind those who access their networks.[130] Much less could they define the parameters of access. And terms of service are generally not negotiable; users, developers, and even most rival platforms face take-it-or-leave-it options.[131] This recognition of pre-allocated information silos in plain sight as exclusive domains, subject to access permission and platforms' ability to act as gatekeepers, suggests the implicit recognition of an underlying property-like entitlement.[132]

Third, boilerplate and property reveal parallel approaches to dealing with complexity.[133] As Henry Smith observes, boilerplate, like property, breaks complex arrangements into manageable and

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[124] *See, e.g.*, C & J Fertilizer, Inc. v. Allied Mut. Ins. Co., 227 N.W.2d 169, 176 (Iowa 1975) (holding insurance companies to customers' reasonable expectations); Gerber v. Twitter, Inc., No. 4:23-cv-00186-KAW, 2024 WL 5173313 (N.D. Cal. Dec. 18, 2024).

[125] Lemley, *supra* note 117, at 464–72 (criticizing the death of assent).

[126] *See* Calabresi & Melamed, *supra* note 85, at 1090–91, n.4 (emphasizing the need of "a minimum level of state intervention" of entitlements, which may but does not need to include force).

[127] Lemley, *supra* note 117, at 470–72.

[128] *Id.* (referring to websites).

[129] *Id.*

[130] *Id.*

[131] *See* Guggenberger, *supra* note 113, at 365–66. *See generally*, Friedrich Kessler, *Contracts of Adhesion—Some Thoughts about Freedom of Contract*, 43 COLUM. L. REV. 629, 632 (1943) (observing that "standardized contracts are frequently contracts of adhesion; they are *à prendre au à laisser*").

[132] This works despite the emerging reorientation of the CFAA.

[133] Smith, *Modularity in Contracts*, *supra* note 38, at 1179–90.

independent chunks.[134] Boilerplates' individual definitions, terms, and clauses can be exchanged without rewriting the entire contract.[135] Drafters can specialize in different areas of law and collaborate more easily, while non-drafters can dedicate their full attention to the operational side of their business.[136] Again, boilerplate contracting appears propertyesque.

2. Intellectual Property and Trade Secrets

Intellectual property conveys exclusive rights to intangible assets, including inventions and creative works. Trade secrets law—whether or not formally recognized as property[137]—serves a similar function for confidential information that is reasonably protected and has independent economic value.[138] Intellectual property, particularly patent law and trade secrets, protects core platform functions.[139] For example, when Sergey Brin and Lawrence Page invented methods

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[134] *Id.* at 1190–91.

[135] *Id.*

[136] *Id.* at 1188.

[137] *See* Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as IP Rights*, 61 STAN. L. REV. 311 (2008).

[138] 18 U.S. Code § 1839(3); Unif. Trade Secrets Act § 1(4) (Unif. L. Comm'n 1985).

[139] SHAPIRO & VARIAN, *supra* note 18, at 271–74; Daniel McIntosh, *We Need to Talk about Data: How Digital Monopolies Arise and Why They Have Power and Influence*, 23 J. TECH. L. & POL'Y 185, 189 (2019); Peter S. Menell, *Economic Analysis of Network Effects and Intellectual Property*, 34 BERKELEY TECH. L.J. 221, 224–25 (2019) ("[T]he availability, scope, and remedies for intellectual property protection for network features of systems technologies and platforms [e.g., interface specifications] provide a key strategic asset for controlling network markets."). *See e.g.* Meta Platforms, Inc. Annual Report (Form 10-K) 9, 44–46 (Jan. 30, 2025), https://www.sec.gov/Archives/edgar/data/1326801/000132680125000017/meta-20241231.htm (observing that Meta "rel[ies] on a combination of patents, trademarks, copyrights, trade secrets" and warning of risks to the company's assets related to reduced intellectual property protection); Alphabet, Inc., Annual Report (Form 10-K) 13 (Feb. 5, 2025), https://www.sec.gov/Archives/edgar/data/1652044/000165204424000022/goog-20231231.htm (stating that the company's "intellectual property rights are valuable, and any inability to protect them could reduce the value of our products, services, and brands as well as affect our ability to compete"). *See also* Greg R. Vetter, *The Collaborative Integrity of Open-Source Software*, 2004 UTAH L. REV. 563, 586–94 (2004) (discussing intellectual property protection for software and source code).

facilitating online indexing and search,[140] Google received exclusive protection for twenty years from filing.[141] Likewise, the process of placing advertisements—the heart of Google Search's revenue generation—received patent protection.[142] In 2024 alone, the United States Patent and Trademark Office granted Alphabet, Google's parent company, 2,698 patents, up from 2,579 the year before.[143] These patents establish far-reaching duties for all non-owners to exclude themselves. For example, unlike copyright law, patent law does not recognize a fair use regime.[144] Even essential patents and related licensing conditions generally hinge on voluntary agreements.[145] Mandated antitrust-based limitations on patents have remained extremely rare.[146]

Beyond protecting core features, patent law enables platforms to control network boundaries and information flows. Application Programming Interfaces (APIs), which enable different software systems to communicate and share data, are essential for interoperability between networks. While API interfaces themselves rarely qualify for patent protection, platforms can restrict competitors' implementation of essential functions necessary for network

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[140] Information extraction from a database, U.S. Patent No. US6678681B1 (filed Mar. 9, 2000) (issued Jan. 13, 2004); Method for node ranking in a linked database, U.S. Patent No. US6285999B1 (filed Jan. 9, 1998) (issued Sep. 4, 2001).

[141] As Brin and Page were still students at Stanford University, some of the early patents were assigned to Stanford University.

[142] See U.S. Patent No. 7,778,872 (filed Mar. 29, 2002); U.S. Patent No. 8,078,494 (filed Jul. 6, 2010).

[143] Intellectual Property Owners Association, Number of patents in the United States granted to Alphabet Inc. from 2010 to 2024, https://www.statista.com/statistics/897763/alphabet-inc-patents-usa-registered/ (last visited May 23, 2025). *See also* McIntosh, *supra* note 139, at 190.

[144] Katherine J. Strandburg, *Patent Fair Use 2.0 Bend or Break - The Patent System in Crisis*, 1 UC IRVINE L. REV. 265, 266 (2011); Henry E. Smith, *Semicommons in Fluid Resources*, 20 MARQ. INTELL. PROP. L. REV. 209–10 (2016) (characterizing fair use as establishing a semicommons).

[145] Guggenberger, *supra* note 103, at 308–9; Herbert Hovenkamp, *FRAND and Antitrust*, 105 CORNELL L. REV. 1683, 1684 (2020); A. Douglas Melamed & Carl Shapiro, *How Antitrust Law Can Make FRAND Commitments More Effective Collection: Unlocking Antitrust Enforcement*, 127 YALE L.J. 2110, 2117–18 (2018).

[146] Menell, *supra* note 139, at 304–6.

interconnection—from data processing methods to algorithmic techniques.[147]

In contrast, copyright law currently plays only a subordinate role in network enclosure,[148] as the Supreme Court has recognized fair use protections for third-party use of source code in programming APIs.[149] This recognition is crucial for enabling interoperability, even when platforms have strong incentives to keep their networks proprietary.[150] After all, many key innovations—from the development of PCs, to cross-platform file transfers between Apple and PC, and most importantly, the emergence of the internet—would have been unthinkable without permissionless or "adversarial interoperability."[151] Yet the legal footing of this principle remains precarious.[152] By sidestepping the question of whether API source code is copyrightable, the Court effectively reduced interoperability to a case-by-case assessment of fair use.[153] Forum shopping could bring future disputes before the Federal Circuit, which has previously sided with parties asserting copyright claims.[154] And even when such claims ultimately fail on doctrinal grounds, the fair use standard still enables platforms to impose substantial litigation costs on

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[147] *See* U.S. Patent No. 5,960,411 (filed Sep. 12, 1997) (method for one-click purchasing); U.S. Patent No. 8,255,526 (filed Nov. 20, 2009) (social graph modeling); U.S. Patent No. 5,933,811 (filed Aug. 20, 1996) (targeted ad delivery); U.S. Patent No. 10,425,386 (filed May 10, 2017) (API access control in multi-tenant systems). See also *Id.* at 316–19 (delineating the parsimony and proportionality principles).

[148] Cohen, *supra* note 15, at 156.

[149] *Google LLC v. Oracle America, Inc.*, 593 U.S. 1, 26–40.

[150] Mark A. Lemley & Pamela Samuelson, *Interfaces and Interoperability After Google v. Oracle*, 100 TEX. L. REV. 1, 45 (2021). *See also* Lemley & McGowan, *supra* note 11, at 533–34; Menell, *supra* note 139, at 225 ("Control of interface specifications and other network features of computer technologies through intellectual property protection has become the key to market dominance in a growing number of important Information Age markets.").

[151] Cory Doctorow, *Interoperability: Fix the Internet, Not the Tech Companies*, ELECTRONIC FRONTIER FOUNDATION (Jul. 11, 2019), https://www.eff.org/deeplinks/2019/07/interoperability-fix-internet-not-tech-companies (coining the term "adversarial interoperability"); Lemley & Samuelson, *supra* note 150, at 45–48 (detailing the history of interoperability's contributions to major innovation).

[152] Lemley & Samuelson, *supra* note 150, at 2, 42–44.

[153] *Id.*

[154] *Id.*

those seeking interconnection.[155] Moreover, trade secrecy protection remains an option for controlling APIs and preventing interoperability.

Finally, platforms operate on source code and rely on algorithms to organize their vast networks. These inner mechanics plausibly constitute trade secrets,[156] rendering any unauthorized disclosure a criminal offense.[157] Beyond directly enclosing information, trade secret protections yield spillover effects on labor markets. The broader the legal protections for secrecy, the less potential there is for knowledge exchange via employee turnover. Patent, trade secrecy, and, to some extent, copyright protections insulate platforms from interference with their core functionalities and lend their control over networks durability.

3. Privacy and Data Protection

Misguided privacy and data protection frameworks create a third layer of legal fencing around platform networks. This occurs in two steps. The first involves the link these frameworks create between an individual and data about that individual. Both the U.S. and EU privacy regimes center on notions of individual control, operationalized through functionally ineffective regulatory mechanisms of choice or consent, complemented by general privacy torts.[158] Depending on the jurisdiction, these control rights are protected by property, liability, or

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[155] *Id.*

[156] *WeRide Corp. v. Kun Huang*, 379 F.Supp.3d 834, 842–47 (N.D. Cal.). *See also* Matt Stieb, *Facebook's Ad Algorithm Discriminates Even When It's Not Told To, Study Finds*, INTELLIGENCER (Apr. 5, 2019), https://nymag.com/intelligencer/2019/04/facebooks-ad-algorithm-is-a-fully-functional-racism-machine.html.

[157] 18 U.S. Code § 1832.

[158] Neil Richards & Woodrow Hartzog, *The Pathologies of Digital Consent*, 96 WASH. U. L. REV. 1461 (2019); Neil Richards & Woodrow Hartzog, *Taking Trust Seriously in Privacy Law*, 19 STAN. TECH. L. REV. 431, 444 (2016); Daniel J. Solove & Woodrow Hartzog, *The FTC and the New Common Law of Privacy*, 114 COLUM. L. REV. 583, 590–95 (2014); Daniel J. Solove, *Introduction: Privacy Self-Management and the Consent Dilemma*, 126 HARV. L. REV. 1880, 1883 (2013).

inalienability rules under the Calabresi-Melamed framework.[159] Foregrounding the "relational entitlement to exclude," Lauren Scholz suggests classifying privacy as quasi-property.[160] This first step alone, however, does not grant platforms property-like entitlements. On the contrary, it creates property-like entitlements against platforms.

In a second step, platforms can capture individuals' entitlements as privacy laws create the fiction that individuals have exercised meaningful control through continued use (under the U.S. notice and choice framework), informed consent (under sector-specific U.S. laws and the European General Data Protection Regulation), or other justifications.[161] Platforms can thereby insert themselves and become privy to the link between the individual and the data about them. Whether one considers this doctrinally as a transfer of the entitlement, a license, or a momentary permission, the platform is now within the exclusive zone. Others—especially competitors—remain outside; control-based privacy frameworks continue to impose a duty on them to exclude themselves from the data relation. As a result, platforms gain a legally protected quasi-property-like position themselves, which encloses data within their networks.[162]

4. Trespass and Anti-Hacking Laws

Trespass law has traditionally protected physical spaces from unlawful intrusion, recognizing the home as a person's "castle and fortress."[163] Functionally, trespass embodies property's exclusion

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[159] *See* Calabresi & Melamed, *supra* note 85, at 1090, 1092–93, 1111–15 (stressing the importance of the actual enforcement); Guggenberger, *supra* note 113, at 385–86.

[160] Lauren Henry Scholz, *Privacy as Quasi-Property*, 101 IOWA L. REV. 1113, 1115 (2016). See also *Property, Privacy, and Personal Data*, 117 HARV. L. REV. 2056, 2069–76, 2090–2116 (Paul M. Schwartz ed., 2004). For data's relational dimension, see Salomé Viljoen, *A Relational Theory of Data Governance*, 131 YALE L.J. 573, 603–16 (2021).

[161] For the legal bases for data processing in the EU, see GDPR Art. 6(1).

[162] *See* Anita L. Allen, *Dismantling the "Black Opticon": Privacy, Race, Equity, and Online Data-Protection Reform*, YALE L.J. F. 907 (2022).

[163] Semayne's Case (1604) 77 Eng. Rep. 194, 198 (K.B.). (holding "[t]hat the house of everyone is to him as his castle and fortress, as well for his defence against injury and violence, as for his repose")

strategy more than any other doctrine—it is, quite literally, the legal mechanism that tells others to stay off one's lawn. With the rise of the internet, this principle has been extended into the digital realm. While the extent of the doctrine's adoption online has remained contested, the basic principle "get off my lawn" became "get off my platform."

However, common law trespass does not act alone. Statutory anti-hacking laws complement and expand it. The Computer Fraud and Abuse Act (CFAA), originally passed in 1986, prohibits "intentionally access[ing] a computer without authorization or exceed[ing] authorized access, and thereby obtain[ing] information from any protected computer."[164] Anti-hacking laws in all fifty states provide similar protections.[165] Hacking into a computer system or network of computers and gaining relevant information constitutes a crime.[166] The law works as a deterrent, complementing firewalls and other technical means employed by owners and operators of computer systems to secure their information.[167] Yet the law reaches far beyond preventing hackers from accessing information; it effectively establishes a property-like regime.[168]

Based on the CFAA's core function to prevent unauthorized access, Orin Kerr argues that trespass norms, which generally protect real property, should and inevitably do define the law's reach.[169] The unilateral power to exclude others or specify the conditions under which they are welcome provides the basis for this analogy.[170] Drawing from work by Jennifer Granick and James Grimmelmann on the concept of

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[164] 18 U.S. Code § 1030(a)(2)(C).

[165] Orin S Kerr, *Norms of Computer Trespass*, 116 COLUM. L. REV. 1143, 1144 (2016).

[166] 18 USC §1030(a)(2).

[167] Kadri, *Digital Gatekeepers*, *supra* note 16, at 585.

[168] *Id.* at 954–55; Kadri, *Platforms as Blackacres*, *supra* note 16.

[169] Kerr, *supra* note 165, at 1153–61; Orin S. Kerr, *Trespass, Not Fraud: The Need for New Sentencing Guidelines in CFAA Cases*, 84 GEO. WASH. L. REV. 1544, 1554–56 (2016) (identifying two kinds of protected goods: confidentiality of data and the integrity of data); Orin S. Kerr, *Cybercrime's Scope Interpreting "Access" And "Authorization" in Computer Misuse Statutes*, 78 NYU L REV 1596, 1605–7, 1617–19 (2003) (observing substantive parallels and identifying trespass terminology in state laws).

[170] Kerr, *supra* note 165, at 1154.

authorization, Thomas Kadri expounds the central role of the operators' sovereignty over their virtual environment.[171] "It's all about consent," Kadri explains.[172]

That said, the CFAA's reach is in flux. In *hiQ Labs v. LinkedIn*, the Ninth Circuit grappled with the question of whether LinkedIn could prevent hiQ Labs from scraping otherwise publicly accessible information to conduct market analyses.[173] In a departure from earlier jurisprudence, the court prevented LinkedIn from restricting hiQ Lab's access to the professional network's publicly displayed user profiles.[174] The Supreme Court vacated and remanded the case "for further consideration in light of *Van Buren*,"[175] in which the Court held that "an individual 'exceeds authorized access' [only] when he accesse[d] a computer with authorization but then obtain[ed] information located in particular areas of the computer ... that are off limits to him."[176] Merely exceeding permissible purposes of obtaining information is not criminally sanctioned at the federal level.[177] Effectively, the Court established a "gates-up-or-down approach."[178]

Even as the Court has established limitations on platforms' ability to govern their networks via the CFAA, anti-hacking laws will likely continue to play a significant role in converting platforms into

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[171] Jennifer Granick, *Towards Learning from Losing Aaron Swartz*, CENTER FOR INTERNET AND SOCIETY AT STANFORD LAW SCHOOL (Jan. 14, 2013), http://cyberlaw.stanford.edu/blog/2013/01/towards-learning-losing-aaron-swartz; James Grimmelmann, *Consenting to Computer Use Hacking into the Computer Fraud and Abuse Act: The CFAA at 30*, 84 GEO. WASH. L. REV. 1500, 1501 (2016) ("The issue is not whether X is allowed, but whether X is allowed by the computer's owner."); Kadri, *Digital Gatekeepers*, *supra* note 16, at 960–61.

[172] Kadri, *Digital Gatekeepers*, *supra* note 16, at 961–62.

[173] *See hiQ Labs, Inc. v. LinkedIn Corp*, 938 F.3d 985 (9th Cir. 2019).

[174] Kadri, *Digital Gatekeepers*, *supra* note 16, at 954.

[175] Linkedin Corp. v. hiQ Labs, Inc., S.Ct., No. 19-1116, 2021 WL 2405144 (U.S. June 14, 2021).

[176] *Van Buren v. United States*, 593 U.S. 373, 396 (2021). hiQ Labs, Inc. and LinkedIn Corp. eventually reached a settlement, prohibiting hiQ from scraping LinkedIn's content in violation of the platform's terms of service, hiQ Labs, Inc. v. LinkedIn Corp., No. 3:17-cv-03301-EMC, ECF No. 406 (N.D. Cal. Dec. 8, 2022).

[177] *Id.*

[178] *Id.* at 390–91.

"blackacres."[179] First, it remains unclear what exactly courts count as publicly accessible websites. Second, platforms may still be able to exclude entire groups, such as researchers or competitors, based on their identity rather than their conduct. Third, the recent controversy focused on scraping for analytical purposes, rather than real adversarial interoperability by horizontal competitors[180]—the central question defining the extent to which competitors have access to incumbents' "data silos."[181] Fourth, common law trespass claims may attract renewed attention where the CFAA recedes.[182] Finally, and arguably most consequentially, *van Buren*'s doctrinal constraints apply only to federal anti-hacking laws.[183] Declining to extend *van Buren*'s logic, courts have already construed state anti-hacking statutes to include conduct that merely exceeds permissible purposes.[184] Thus, even after *van Buren*, the CFAA remains a powerful reinforcement of networks' legal enclosure. And where the CFAA recedes, terms of service can easily expand further.

5. Intermediary Liability Shield

Communication platforms, which constitute a substantial portion of all online platforms—and a disproportionate share of monopolistic ones—benefit from a liability shield for third-party generated content. Under ordinary defamation or privacy law principles, platforms that exercise editorial control by organizing, filtering, or moderating third-party content may face liability for publishing or distributing infringing material. Although nominally a mere liability modification to encourage content moderation, Section 230 of the Communications Act categorically insulates platforms from these claims,[185] effectively

[179] Kadri, *Platforms as Blackacres*, *supra* note 16.

[180] *See* III.B.2.

[181] Kadri, *Digital Gatekeepers*, *supra* note 16, at 971–74.

[182] *See Best Carpet Values, Inc. v. Google LLC*, No. 5:20-cv-04700-EJD, slip op. at 7–13 (N.D. Cal.); *eBay, Inc. v. Bidder's Edge, Inc.*, 100 F. Supp. 2d 1058, 1067, 1069–70 (N.D. Cal. 2000); Kerr, *supra* note 165, at 1149 n.23.

[183] *Commonwealth v. Derr*, 293 A.3d 671, 679 (Superior Court 2023).

[184] *Id.*

[185] 47 U.S. Code § 230(c)(1) stipulates that interactive computer services shall not be considered as the publisher or speaker of user generated content; 47 U.S. Code § 230(c)(2) provides a safe haven against any liability for content moderation.

establishing yet another property-like entitlement protected by a property rule.[186]

Consider two perspectives illustrating Section 230's propertizing function. First, Section 230 enables unfettered internal governance without constraints imposed by liability for hosted content.[187] Effectively, this decoupling of domains from their environment constitutes an extreme version of the exclusion strategy—one that ignores centuries of precedent constraining nuisances emitted from a property into the public.[188] Drawing on Roman legal principles, Renaissance-era English jurisprudence and legal commentary had already formalized the law of nuisance.[189] In 1610, *Aldred's Case* provided the now canonical articulation of the doctrine of *sic utere tuo ut alienum non laedas* ("use your own [property] without injuring another").[190]

These limitations on the use of property had become necessary to preserve the value of other properties, especially as tensions among competing land uses heightened in the wake of the early urbanization

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[186] *See* Calabresi & Melamed, *supra* note 85, at 1092; Cohen, *supra* note 15, at 163–64.

[187] Kate Klonick, *The New Governors, The People, Rules, and Processes Governing Online Speech*, 131 HARV. L. REV. 1598, 1603–15 (2018).

[188] Rebecca Tushnet, *Power without Responsibility: Intermediaries and the First Amendment*, 76 GEO. WASH. L. REV. 986, 988 (2008) (observing that "intermediaries possess power over individual speakers, but they have no corresponding responsibility").

[189] Daniel Coquillette, *Mosses From an Old Manse: Another Look at Some Historic Property Cases About the Environment*, 64 CORNELL L. REV. 761, 766–76, 780–81 (1979); Noga Morag-Levine, *The Case of Proclamations (1610), Aldred's Case (1610), and the Origins of the Sic Utere/Salus Populi Antithesis*, 40 LAW & HIST. REV. 383, 405–6 (2022); Elmer Smead, *Sic Utere Tuo Ut Alienum Non Laedas A Basis of the State Police Power*, 21 CORNELL L.Q. 276, 276–80 (1936).

[190] *Aldred's Case*, 9 Co. Rep. 57b, 59a, 77 Eng. Rep. 816, 821 (K.B. 1610); JOHN BAKER, INTRODUCTION TO ENGLISH LEGAL HISTORY 455 (5th ed. 2019); Coquillette, *supra* note 189, at 773–76; Morag-Levine, *supra* note 189, at 383, 403, 405–6 (providing the cited translation and recounting the doctrine's history); Smead, *supra* note 189, at 276–80. *But see also* Oliver Wendell Holmes, *Privilege, Malice, and Intent*, 8 HARV. L. REV. 1, 3 (1894) (criticizing the doctrine "as hollow deductions from empty general propositions").

and nascent industrialization.[191] American courts readily adopted the basic logic of nuisance law and applied it to both tangible and intangible emissions. By and large, courts on both sides of the Atlantic then gradually modified the doctrine to balance the societal value of the contested activity against the resulting harm to the plaintiff before granting relief.[192] Some, however, have upheld the traditional approach.[193]

Breaking not only with principles of publisher and distributor liability, but also with the basic logic of nuisance law's limitations on exclusive governance,[194] Section 230 completely eliminated any liability of platforms, whether in the form of injunctive relief or damages.[195] From this perspective, the Communications Act expanded others' duty to exclude themselves, even in the face of potential significant harm. This turns platforms into lords of their networks.[196]

Second, applying the Calabresi-Melamed framework, distinguishing between property, liability, and inalienability rules further illuminates Section 230's propertizing function. Recall that the liability shield protects against injunctions without compensation. This

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[191] Cohen, *supra* note 1, at 21 ("To permit anyone to do absolutely what he likes with his property in creating noise, smells, or danger of fire, would be to make property in general valueless."); Coquillette, *supra* note 189, at 764.

[192] MERRILL ET AL., *supra* note 52, at 948–49; Guido Calabresi, *Some Thoughts on Risk Distributions and the Law of Torts*, 70 YALE L.J. 499, 534–37 (1961); Coquillette, *supra* note 189, at 782–99; Danielle D'Onfro, *Companies as Commodities*, 48 FLA. ST. U. L. REV. 1, 44–46 (2020); Robert Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 720–22 (1973).

[193] MERRILL ET AL., *supra* note 52, at 948–49.

[194] Cruicially, *sic utere* governs private nuisance, requiring an injury to real property; public nuisance demands a showing of special damages. See

[195] A similar dynamic unfolded in English railway regulation. Statutes replaced common law nuisance claims with administrative compensation processes to assess property value losses upfront rather than through costly ongoing litigation. In practice, however, tribunals denied compensation to plaintiffs, leaving landowners without recourse until 1973's Land Compensation Act. *See* P. S. Atiyah, *Liability for Railway Nuisance in the English Common Law: A Historical Footnote*, 23 J.L. & ECON. 191, 195–96 (1980).

[196] Lindsay Jones & Tim Samples, *On the Systemic Importance of Digital Platforms*, 25 UNIVERSITY OF PENNSYLVANIA JOURNAL OF BUSINESS LAW 141, 177–80 (2023).

corresponds to rule three in the framework.[197] It grants platforms an "entitlement [to pollute] protected by a property rule, for only by buying [them] out at [their] price can [harmed parties] end the pollution."[198] Pollution in this analogy stands for the spread of defamation and privacy violations, among others.[199] Although property may be protected by any type of rule, where a property rule protects an entitlement, this entitlement logically exhibits some property-like characteristics. Both perspectives demonstrate that Section 230 constitutes a fifth layer of property-like insulation, imposing far-reaching duties on others to exclude themselves from platforms' networks.

B. Constructing Demsetzian Platforms

The five layers of network enclosure construct what this Article terms "Demsetzian platforms"—organizational entities optimized to capture spillover benefits from network participation.[200] The various entitlements constructing these platforms perfectly satisfy Demsetz's conditions for property rights formation: enormous network externalities can be internalized while boundary enforcement costs remain minimal. Crucially, the legal framework does not just regulate platforms; it defines their existence as entities structured around network control.

This conceptualization of platforms' legal construction builds on Sanjukta Paul's insight of firms in the market as underpinned by allocated coordination rights.[201] In her article challenging Ronald

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[197] Calabresi & Melamed, *supra* note 85, at 1092, 1116.

[198] *Id.*

[199] *See* Omri Ben-Shahar, *Data Pollution*, 11 J. LEGAL ANALYSIS 104, 106 (2019) (characterizing "data emissions" as pollution); A. Michael Froomkin, *Regulating Mass Surveillance as Privacy Pollution: Learning from Environmental Impact Statements*, 2015 U. ILL. L. REV. 1713 (2015).

[200] *See* Marshall W. Van Alstyne et al., *Pipelines, Platforms, and the New Rules of Strategy*, HARVARD BUSINESS REVIEW 54, 54, 57–58 (Apr. 2016); Bietti, *supra* note 19, at 169; Cohen, *supra* note 15, at 143–45, 153–75 (observing that "[p]latforms represent infrastructure-based for introducing friction into networks" and emphasizing the role of entitlements). The argument resembles aspects of the network neutrality debate at the ISP-level, see Frischmann & Lemley, *supra* note 19, at 295–98.

[201] Paul, *supra* note 14.

Coase's transaction cost analysis,[202] Paul contends that antitrust constructs the firm by selectively permitting some individuals (inside the firm) to cooperate, while forcing others (outside the firm) to compete.[203] Her analysis shows how selective permission for consolidation asymmetrically distributes power.

A comparable mechanism is at work in digital networks. Just as antitrust law creates firms by selectively permitting internal coordination while requiring external competition, network enclosure constructs organizational entities by selectively permitting internal aggregation of network effects while establishing duties for users and competitors to exclude themselves. Outsiders can participate only with platforms' consent. Effectively, the economic internalization of (positive) network effects creates the organizational entities we know as digital platforms.[204]

The five layers of network enclosure work cumulatively to create unprecedented conditions for internalization. While each layer contributes individually to exclusion, their combined impact far exceeds the sum of their parts. The internalization effect compounds across layers: terms of service establish comprehensive governance frameworks; intellectual property and trade secret protections add durability to core features;[205] anti-hacking laws provide criminal enforcement; privacy regimes establish tradeable data entitlements; and Section 230 removes most external restraints on internal governance. Together, these property-like entitlements create the legal conditions for platforms to capture network externalities.

This multifaceted legal architecture enables Demsetzian platforms to internalize network externalities comprehensively. Unlike the original Demsetzian example—hunting grounds for fur-bearing animals[206]—where externalities were singular and unidirectional,

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[202] Roald H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386, 388 (1937).

[203] Paul, *supra* note 14, at 388, 401–9.

[204] To be clear, rights to exclude can drive property value significantly, even without network effects, see Jonathan Klick & Gideon Parchomovsky, *The Value of the Right to Exclude: An Empirical Assessment*, 165 U. PA. L. REV. 917, 945–65 (2017).

[205] Lemley & McGowan, *supra* note 11, at 603–4.

[206] Demsetz, *supra* note 4, at 350–53.

digital network externalities emerge from complex interactions between users, developers, advertisers, and content creators. Each relationship generates different types of spillover value: social connections create engagement externalities, data aggregation produces algorithmic improvements, and content creation generates advertising value. The five-layer framework captures all these diverse value streams simultaneously, enabling platforms to achieve levels of internalization that would have been impossible under any single legal mechanism.

Platforms' property-like entitlements maximize internalization through deliberate structural design choices. First, legislators and courts have consistently chosen property rules over liability rules across all five layers of enclosure, enabling platforms to exclude others completely rather than merely collecting damages for unauthorized use.[207] Even violations of platforms' terms of service—that is, contract breaches—routinely support injunctive relief rather than mere monetary damages as would be typical in contract law.[208] Second, the frameworks emphasize exclusivity over governance-based approaches, creating broad zones of corporate control rather than granular permissions and prohibitions of specific uses. Finally, legal institutions have systematically avoided limiting the extraction of network value—for example, by imposing interoperability requirements or mandating access obligations.[209] Together, these property design choices create the comprehensive exclusion necessary for platforms' unprecedented levels of externality internalization.

To be clear, despite all this, platforms' property-like entitlements do not internalize all externalities. Indeed, one layer—Section 230—

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[207] Where platform commons like Wikipedia have emerged, they rely on the same exclusionary framework, while voluntarily choosing to open access to their content. *See* Yochai Benkler, *Coase's Penguin, or, Linux and* The Nature of the Firm, 112 YALE L.J. 369, 446 (1999) (referring to this technique as "institutional jiujitsu"); David McGowan, *Legal Implications of Open-Source Software*, 2001 ILLINOIS LAW REVIEW 241, 287–88 (2000) (emphasizing the need for exclusion).

[208] Injunctions are a form of equitable relief that is typically only available to the extent monetary damages prove insufficient. *See e.g.* hiQ Labs, Inc. v. LinkedIn Corp., No. 3:17-cv-03301-EMC, ECF No. 406 (N.D. Cal. Dec. 8, 2022).

[209] *But see*, *e.g.*, Regulation (EU) 2022/1925 (Digital Markets Act), Art. 6(7), 2022 O.J. (L 265) 1.

deliberately protects against internalizing negative externalities from user-generated content. No doubt, these externalities could be internalized.[210] And platforms would be the least-cost-avoiders.[211] However, this selective approach is perfectly compatible with Demsetzian logic: internalize externalities where benefits exceed costs, externalize externalities where enforcement would be cost-prohibitive. Platforms would need to pre-screen all content or abandon curation altogether to avoid uncapped liability for defamation and privacy violations. The former would insert significant friction into communicative processes; the latter would render platforms useless.[212] In this sense, Section 230 represents strategic boundary-drawing that further optimizes internalization—capturing network value while avoiding the costs of comprehensive content liability.[213] Even externalities that remain entirely unaddressed confirm the Demsetzian logic underlying platform construction. In this category fall broad negative social effects, like misinformation or institutional deterioration, or widespread spillovers that are challenging to define, like non-participants' fear of missing out.[214] The necessary boundary-drawing would be impossible or cost-prohibitive.

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[210] A small subset of these harms is internalized—notably through carve-outs from Section 230 immunity, like FOSTA-SESTA, or specific types of statutory liability like the Take IT Down Act. *See* Jess Miers, *A Takedown of the Take It Down Act*, TECHNOLOGY & MARKETING LAW BLOG (Jun. 5, 2025), https://blog.ericgoldman.org/archives/2025/06/a-takedown-of-the-take-it-down-act.htm (delineating and criticizing the reach of the Take It Down Act). Traditional publisher and distributor liability, for example, would internalize significantly more externalities.

[211] *See* GUIDO CALABRESI, THE COSTS OF ACCIDENTS 135–73 (1970) (observing that "[a] pure market approach to primary accident cost avoidance would require allocation of accident costs to those acts ... which could avoid the accident costs most cheaply"). See also Calabresi, *supra* note 192, at 505–7 (arguing that "the proper party to bear the risk is the party whose insurance costs are lower").

[212] Mark A. Lemley, *The Contradictions of Platform Regulation*, 1 J. FREE SPEECH L. 303, 308–9, 3025 (2021).

[213] *See* Atiyah, *supra* note 195, at 195–96 (observing that common law nuisance claims against railways were statutorily barred for analogous reasons).

[214] *See* Andrew K. Przybylski et al., *Motivational, Emotional, and Behavioral Correlates of Fear of Missing Out*, 29 COMPUTERS IN HUMAN BEHAVIOR 1841 (Jul. 2013); Jones & Samples, *supra* note 196, at 180–93.

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As the previous sections have shown, five layers of legal protection create comprehensive duties for non-owners to exclude themselves from digital networks. These layered entitlements carve out domains of exclusive control, propertizing networks in a manner similar to the legal enclosure of common meadows in England some 500 years ago.[215] Following the long tradition of "coding capital,"[216] network enclosure internalizes network externalities and allocates the value of network effects to individual platforms, excelling at one essential function of property regimes.

III. FROM NETWORK ENCLOSURE TO PLATFORM MONOPOLIES

Network enclosure, not network effects alone, facilitates industrial concentration.[217] Consider the English language. It creates enormous network effects, connecting some 1.5 billion speakers whom it enables to communicate.[218] Yet no single entity controls access or extracts the network's value. The difference: English remains an open standard.[219] Digital networks, by contrast, have been enclosed. This Part theorizes the exclusion strategy's heightened propensity for monopoly online, demonstrates how platforms' entitlements particularly favor large incumbents over nascent challengers, and shows

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[215] *See* PISTOR, *supra* note 19, at 29–33 (describing the transformation of common land into private property and marketable commodities); Boyle, *supra* note 17, at 33–52 (Focusing on Intellectual property). See generally J. A. YELLING, COMMON FIELD AND ENCLOSURE IN ENGLAND, 1450-1850 (1977). Like the English enclosure movement, the propertization of networks is also neither complete nor unidirectional. *See* Smith, *Semicommon Property Rights and Scattering in the Open Fields*, *supra* note 23, at 134–44 (identifying English open fields as semicommons); Grimmelmann, *supra* note 11.

[216] *See* PISTOR, *supra* note 19, at Preface ("This book tells the story of the legal coding of capital.").

[217] Lemley & McGowan, *supra* note 11, at 489–91, 602–6 (observing that "the mere existence of network effects is not outcome determinative). *See generally* Sandeep Vaheesan, *The Profound Nonsense of Consumer Welfare Antitrust*, 64 ANTITRUST BULL. 479, 487–88 (2019) (critiquing presumptions of naturalization of the market in antitrust law).

[218] GREWAL, *supra* note 102, at 21–25 (identifying language as a mediating standard); Lessig, *supra* note 102.

[219] *See* Masnick, *supra* note 104.

that democratic oversight has systematically failed to counterbalance property's concentrating tendencies.

A. Property's Propensity for Monopoly

Property and monopoly share core characteristics.[220] Both are inherently exclusive and reflect elements of control and power. Lee Anne Fennell, for instance, describes "the very essence of the fee simple ... [as] a perpetual spatial monopoly."[221] Others identify property as "only another name for monopoly."[222] Yet despite these similarities, individual property rights rarely translate into market-level monopolies. The reason is simple: if I must exclude myself from my neighbor's bike, I can use one of the roughly 120 million remaining bikes in the United States.[223] Put differently, the objects of property rights are usually substitutable. This holds generally even for intellectual property.[224]

Network effects, however, fundamentally alter this dynamic. Unlike traditional property, which internalizes relatively fixed externalities—enjoying planted crops, for example—network externalities grow almost exponentially with network size. As Bell Telephone Laboratories researchers demonstrated in the 1970s, network utility depends on desired, reachable connections between participants.[225] Later work distinguished two key mechanisms.[226] Networks with a single class of participants produce "direct" network effects, as in messaging services where utility depends on total users.

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[220] *See* Fennell, *supra* note 10, at 1466–79; Posner & Weyl, *supra* note 10, at 60–70; Wyman, *supra* note 10, at 25–38; *see also* Rose, *supra* note 81, at 749–61.

[221] Fennell, *supra* note 10, at 1472.

[222] Posner & Weyl, *supra* note 10. But see also Wyman, *supra* note 10, at 25–33.

[223] Rhys Smith, *Cycling Statistics*, RUNREPEAT (Aug. 22, 2023), https://runrepeat.com/cycling-statistics.

[224] Mark A. Lemley, *Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1066 (1997).

[225] Artle & Averous, *supra* note 12, at 90, 97–98; Rohlfs, *supra* note 12, at 16–17.

[226] Michael L Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93, 95–100 (1994). See also Lemley & McGowan, *supra* note 11, at 488–95 (identifying actual and virtual network effects, and distinguishing them from mere positive feedback effects).

Networks with complementary participants create "indirect" network effects, forming multi-sided markets where, for example, buyers care about the presence of sellers and *vice versa*.[227] This dynamic dramatically increases the propensity of spatial monopolies to underwrite market monopoly.

The mathematics of network value are striking.[228] Networks have the potential to enable n*(n-1)/2 direct connections, where *n* is the number of participants in the network.[229] Accounting for sub-networks—think Facebook with its groups—implies an even steeper function: up to 2^n-n-1 unique subsets of network participants can emerge.[230] To illustrate the enormous scale at issue, a group of just 100 participants theoretically allows for more than one nonillion unique subsets of users—a number with 30 zeros.[231] While only a tiny fraction of these subsets can ever materialize in practice, that fraction suffices to explain why large networks are enormously more useful and, thus, more valuable than smaller ones.

These basic models of network utility equate increasing network reach with super-linear utility gains, overlooking crucial practical constraints. First, the marginal utility of additional connections decreases at some point because human attention is limited—as is computational power and energy—and unable to sustain infinite connections and interactions with others.[232] Second, network effects can turn negative. Once our attentional capacity is exceeded, additional interactions manifest as information overload and distraction.[233] Networks can also create unwanted connections or expose participants

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[227] Rochet & Tirole, *supra* note 18, at 990–94.

[228] *See* Christopher S. Yoo, *Network Effects in Action*, *in* GAI REP. DIGIT. ECON. 159, 162–66 (Joshua D. Wright & Douglas H. Ginsburg eds., 2020).

[229] SHAPIRO & VARIAN, *supra* note 18, at 184 (discussing Metcalfe's Law).

[230] David Reed, *That Sneaky Exponential—Beyond Metcalfe's Law to the Power of Community Building*, CONTEXT MAGAZINE (1999), https://www.deepplum.com/dpr/locus/gfn/reedslaw.html.

[231] Based on the formula 2^N-N-1, as articulated by David Reed, *Id.*

[232] *See* R.I.M. Dunbar, *Neocortex Size as a Constraint on Group Size in Primates*, 22 J. HUM. EVOL. 469, 478–91 (1992); Patrik Lindenfors et al., *'Dunbar's Number' Deconstructed*, 17 BIOLOGY LETTERS 2–3 (2021).

[233] *See* CAL NEWPORT, DIGITAL MINIMALISM: CHOOSING A FOCUSED LIFE IN A NOISY WORLD 3–25 (2019).

to undesired content. Many people may prefer not to encounter their parents or work colleagues on dating platforms, for example. Such encounters may deter usage and honest self-presentation, undermining the network's core function. Similarly, the presence of misinformation and harassment-spewing participants can reduce utility to others.[234] Third, growing traffic can congest networks, jamming effective communication.[235] The exact limit of a network's increasing marginal utility varies among individual participants and depends on the type of network, the interactions it enables, and its management. Despite these practical limitations, however, networks' utility functions remain astonishingly steep: empirics approximates Facebook's and Tencent's actual utility, for example, as proportionate to the square of their user base[236]—a fact that profoundly shapes competitive dynamics.

Conventional wisdom in industrial organization points to network effects as drivers of platform concentration.[237] As Carl Shapiro and Hal Varian summarized, "[n]etwork externalities make it virtually impossible for a small network to thrive," since new networks must overcome "the collective switching costs ... of all users." This observation rests on twin dynamics. First, the chicken-egg problem: platforms need users to attract users and the super-linear relationship between participants and utility creates significant entry barriers for any nascent competitor. Second, users face mirror-image switching costs, when leaving an incumbent platform. They would need to give up their existing connections unless users can either migrate their entire social

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[234] Guggenberger, *supra* note 103, at 280.

[235] Barbara van Schewick, *Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like*, 67 STAN. L. REV. 1, 41–43 (2015).

[236] Xing-Zhou Zhang et al., *Tencent and Facebook Data Validate Metcalfe's Law*, 30 J. COMP. SCI. & TECH. 246, 248 (2015) (relying on revenue as a proxy, which necessarily only accounts for the value platforms extract).

[237] *See* Nicholas Economides, *The Economics of Networks*, 14 INT'L J. IND. ORG. 673 (1996); Katz & Shapiro, *supra* note 226; Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424 (1985); Geoffrey G. Parker & Marshall W. Van Alstyne, *Two-Sided Network Effects: A Theory of Information Product Design*, 51 MMGT. SCI. 1494 (2005); Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report*, 37 RAND J. ECON. 645 (2006); Rochet & Tirole, *supra* note 18; Marc Rysman, *Competition between Networks: A Study of the Market for Yellow Pages*, 71 REV. ECON. STUD. 483 (2004).

graph—an enormous collective action problem—or multi-home across platforms.

Multi-homing comes with its own constraints, however. Platforms actively discourage it through technical incompatibility and design friction, and, in the case of app stores, for example, it would require an additional smart phone. Even where practically feasible, multi-homing provides no solution if users seek to exit platforms entirely. For platforms with indirect network effects, cross-subsidization between market sides further entrenches incumbency.[238]

To be clear, even entirely internalized network externalities do not guarantee (durable) monopoly power. Product differentiation, varying user preferences, the relative significance of complementary products and services without network effects, and niche markets can sustain competition even in networked industries. Moreover, using the power of "hubs" as a competitive strategy may mitigate the power of network effects: instead of trying to overcome the collective switching costs of all users, nascent platforms can target central nodes, like celebrities or large-volume sellers, and induce their switching, hoping that ordinary participants follow.[239] Despite these limitations, however, the historical record speaks clearly: today's largest digital platforms have maintained their dominant positions grounded in internalized network effects for 15-25 years now.

Empirical research across industries confirms these dynamics. Junhong Chu and Puneet Manchanda documented "large, significant, and positive" indirect network effects on Taobao.com, Alibaba's consumer marketplace, with seller presence affecting buyer participation far more than the reverse.[240] Historical technology battles reveal similar patterns: in format wars, network effects explained 70-

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[238] Geoffrey G. Parker & Marshall W. Van Alstyne, *InterNetwork Externalities and Free Information Goods*, Proc. 2d ACM Conf. Elec. Com. 107, 107 (2000); Rochet & Tirole, *supra* note 18, at 992, 1014–18.

[239] Raz Agranat, Michal Gal, Hub Power and Hub(uses): Power Dynamics in Platform Ecosystems (Jun. 20, 2025), https://ssrn.com/abstract=5136029.

[240] Junhong Chu & Puneet Manchanda, *Quantifying Cross and Direct Network Effects in Online Consumer-to-Consumer Platforms*, 35 MKTG. SCI. 870, 883 (2016).

86% of the variation in relative sales between VHS and Betamax,[241] while a 10% increase in CD titles had the same impact as a 5% price cut on player adoption.[242] Similar findings span from technological compatibility[243] to advertising-funded platforms,[244] consistently demonstrating how network effects facilitate winner-take-all markets.

However, these models and empirical studies—while well-supported—treat the internalization of network externalities as the natural starting point of competitive analysis, overlooking the central role of networks' enclosure. Platforms can leverage exclusive control over a scaling resource into market-level dominance. Network effects don't create monopolies; they amplify property's exclusionary potential and thus propensity for monopoly. The crucial difference thus does not lie in the mere presence of network effects, but in who gets to capture how much of their value—a question determined by legal architecture. Since networks' layered enclosure far exceeds the complexity of a fee simple in land or a patent right,[245] the models' inference from network effects to concentration represents more than a simple logical shortcut. It obscures the centrality of institutions and diminishes the validity of any generalizable conclusions.[246]

When platforms capture network externalities facilitated by legal enclosure, two additional mechanisms intensify competitive dynamics. First, digital exclusion, supported by algorithmic enforcement, scales

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[241] Sangin Park, *Quantitative Analysis of Network Externalities in Competing Technologies: The VCR Case*, 86 REV. ECON. AND STAT. 937, 943 (2004).

[242] Neil Gandal et al., *The Dynamics of Technological Adoption in Hardware/Software Systems: The Case of Compact Disc Players*, 31 RAND J. ECON. 43, 53–58 (2000).

[243] Harikesh Nair et al., *Empirical Analysis of Indirect Network Effects in the Market for Personal Digital Assistants*, 2 QUANT. MKTG. & ECON. 23, 47 (2004) ("network advantage factor explains the remaining 22%" of the [log] relative sales of standard compatible PDAs); Hiroshi Ohashi, *The Role of Network Effects in the US VCR Market, 1978-1986*, 12 J. ECON. & MGMT. STRATEGY 447, 463–69 (2003) (explaining the advantage of VHS format over the competing format Beta).

[244] Rysman, *supra* note 237, at 499–504 (showing positive effects of usage on advertising). For a literature review, see Chu & Manchanda, *supra* note 240, at 872.

[245] Yoo, *supra* note 15, at 2212.

[246] *See* Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics?*, 111 YALE L.J. 357, 358 (2001).

much more efficiently than physical enclosures.[247] This renders effective control and governance relatively cost-effective, even for networks spanning billions of participants. Second, exclusive access creates self-reinforcing data advantages: proprietary user interactions improve algorithms, which attract more users, generating more data—a feedback loop unavailable to competitors. Google Search exemplifies both dynamics: marginal boundary enforcement costs approach zero while exclusive query data creates insurmountable quality advantages.

B. Entitlements' Entrenchment of Monopoly

The property-like entitlements that create network enclosure do not merely allocate the value of a scaling resource, they systematically entrench incumbent power. While these legal frameworks appear facially neutral, they generate scale-dependent advantages that compound over time. Terms of service exemplify this dynamic. All platforms rely on contractual terms to govern user relationships, but state enforcement of these terms becomes exponentially more valuable with network scale. This creates a widening moat: once platforms achieve scale, the same legal framework that enabled their growth transforms into a barrier against challengers. A narrow concern about outright anticompetitive provisions—most-favored-nation clauses and anti-steering terms, for example—misses the deeper structural issue: state enforcement itself creates a scalable subsidy in the form of delegated power, regardless of the terms' content.[248]

While courts typically emphasize private ordering in contracting, the Supreme Court has occasionally recognized the transformative role of state backing.[249] When platforms achieve sufficient scale, their terms of service functionally cease to be mere individual private agreements and become market-defining standards. State backing of these terms

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[247] See Ellickson, *supra* note 20, at 1332–34 (delineating the costs of physical boundary-drawing relative to property scale).

[248] *See* KNAPP ET AL., *supra* note 122, at 12; Vaheesan, *supra* note 217, at 485.

[249] *See Shelley v. Kraemer*, 334 U.S. 1, 19 (1948) (distinguishing between discriminatory private agreements and the state's lending of "the full coercive power of government to deny to petitioners, on the grounds of race or color, the enjoyment of property rights").

creates a powerful entrenchment mechanism: platforms with large networks can leverage state enforcement power to engage in de-facto private regulation, while smaller competitors' terms lack the scale to achieve similar market-defining effects.[250] The app stores illustrate this dynamic.[251] Apple and Google's terms dictate content policies, privacy requirements, and payment systems for mobile developers. Through delegated state enforcement of these terms, Apple and Google effectively govern access to the entire mobile internet and can use this power to entrench their position by shaping the market in their favor and steering the direction of innovation.[252]

Intellectual property and trade secret protection similarly favors large incumbents over challengers.[253] While these protections theoretically apply equally to all firms, startups cannot afford expensive legal battles against incumbents and face the constant threat of being overwhelmed by incumbent lawsuits. This creates a dual advantage for large platforms: they can use intellectual property and trade secret claims to limit knowledge exchange and hinder follow-on innovation,

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[250] *See* Nachbar, *supra* note 30, at 88–92 (arguing that "the Supreme Court developed ... a comprehensive understanding of antitrust's role in the constitutional allocation of regulatory authority ... : the federal government regulates interstate commerce; state governments regulate intrastate commerce, and private entities may regulate nothing"). *But see* Daniel A. Crane, *The Magna Carta of Free Enterprise Really*, 99 IOWA L. REV. BULL. 17 (2013).

[251] COHEN, *supra* note 19, at 37–46; Cohen, *supra* note 15, at 135.

[252] *See* Daron Acemoglu, *Distorted Innovation: Does the Market Get the Direction of Technology Right?*, 113 AMERICAN ECONOMIC ASSOCIATION PAPERS AND PROCEEDINGS 1, 2–4 (National Bureau of Economic Research 2023); W. Brian Arthur, *Competing Technologies, Increasing Returns, and Lock-In by Historical Events*, 99 ECON. J. 116, 126–28 (1989) (discussing e QWERTY typewriter keyboards and light water reactors as inferior technology that prevailed); Mark A. Lemley & Matthew T. Wansley, *Coopting Disruption*, 105 B.U. L. REV. 457, 476–518 (2025); *See generally* Kevin A. Bryan & Jorge Lemus, *The Direction of Innovation*, 172 J. ECON. THEORY 247 (2017); Hugo Hopenhayn & Francesco Squintani, *On the Direction of Innovation*, 129 JOURNAL OF POLITICAL ECONOMY 1991 (2021).

[253] *See* McIntosh, *supra* note 139, at 189–91 ("It is only after a company's rise to dominance and wealth that it seeks to bolster its position with intellectual property rights.").

while smaller competitors lack meaningful access to the same legal tools.[254]

More fundamentally, intellectual property protection enables platforms to secure decisive advantages during the critical period of market tipping.[255] Even time-limited patents become permanently valuable when they allow platforms to initially capture network effects that persist beyond patent expiration.[256] Google's foundational search patents, though long expired,[257] supported the company to establish network dominance that continues to generate competitive advantages today. Once platforms achieve market dominance through initial IP protection—as with early API decisions that granted broad exclusivity over interface code[258]—subsequent legal corrections cannot undo the network advantages that entrench market power.

Privacy and data protection frameworks provide additional scale-dependent advantages for incumbent platforms. While privacy regulations appear to constrain all platforms equally through consent mandates, transparency obligations, and procedural requirements, they tend to favor those with existing data advantages and compliance resources. As Anita Allen observes, "[t]he ironic downside to [certain] type[s] of privacy policy is that it could concentrate monopolistic power of existing platforms, as smaller platforms would confront barriers to acquiring the quantities of data needed for competition."[259] To be sure, the reason for this "ironic downside" is not an inherent contradiction between privacy and competition at an abstract level—it is about an

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[254] *See* Jeanne C. Fromer, *Machines as the New Oompa-Loompas: Trade Secrecy, the Cloud, Machine Learning, and Automation Symposium*, 94 N.Y.U. L. REV. 706, 712 (2019).

[255] Lemley & McGowan, *supra* note 11, at 603–4.*But see* McIntosh, *supra* note 139, at 189–91 ("It is only after a company's rise to dominance and wealth that it seeks to bolster its position with intellectual property rights.").

[256] Harold Feld, *Case for the Digital Platform Act*, Roosevelt Institute 25 (2019); Menell, *supra* note 139, at 225 ("[T]he availability, scope, and remedies for intellectual property protection for network features of systems technologies and platforms…provide a key strategic asset for controlling network markets.").

[257] *See* II.A.2.

[258] *See Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339 (Fed. Cir. 2014); Menell, *supra* note 139, at 318.

[259] Allen, *supra* note 162.

approach to privacy that emphasizes easily scalable processes and compliance regimes, building on a quasi-property understanding of privacy.[260]

The privacy-monopoly entrenchment occurs through two main mechanisms. First, privacy compliance imposes significant fixed costs, from legal expertise to technical infrastructure, that disproportionately burden smaller platforms while representing only marginal expenses for large incumbents. Second, data protection restrictions limit the ability of smaller platforms to scale up by acquiring the user data necessary to compete with incumbents who already possess vast behavioral datasets.

Finally, Section 230 is often celebrated as a vital protection for nascent platforms, shielding them from potentially crippling liability for user-generated content and enabling low-cost innovation.[261] This narrative, however, obscures how the statute also fortifies the dominance of large incumbents. While smaller platforms do benefit from the liability shield, it is even more valuable to firms with vast market capitalizations. For these platforms, liability—especially from uncapped claims like defamation—threatens far greater absolute losses. Nascent competitors are less likely to cause equivalent harm and, even if they did, would often present as judgment-proof. In this sense, Section 230 functions as a disproportionate subsidy for incumbents. Shielding Meta from a settlement like the $787.5 million in *Dominion v. Fox News*, for example, is worth precisely that to Meta. To a startup with a $50 million valuation, on the other hand, the same protection is worth only a fraction, as the amount would far eclipse its market capitalization. Section 230, then, does not merely empower smaller players; it preserves the accumulated network wealth of dominant platforms, entrenching their control and reinforcing the skewed distribution of network effects.

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[260] *See* Michal Gal, *"Do Our Privacy Laws Strengthen the Already Strong?,"* CONCURRENTIALISTE REVIEW (Mar. 9, 2021), https://leconcurrentialiste.com/gal-privacy-competition/.

[261] *See, e.g.*, JEFF KOSSEFF, THE TWENTY-SIX WORDS THAT CREATED THE INTERNET (2019).

C. Democracy's Abdication to Monopoly

The preceding analysis has demonstrated how property-like entitlements both create monopolistic tendencies in digital networks and systematically entrench incumbent advantages through seemingly neutral legal frameworks. This, however, does not need to lead to concentrated markets. Just like wealth and income can be both pre- and redistributed, market power can be pre-allocated and mitigated. In practice, however, this did not happen. Democracy systematically abdicated its role in counteracting industrial concentration in the digital economy. In particular, early internet-specific policy choices from the 1990s continue to cast a long shadow.

"For electronic commerce to flourish, the private sector must lead," the Clinton Administration Framework for Global Electronic Commerce declared in 1997.[262] The Framework called for a "non-regulatory, market-oriented approach," with government "refrain[ing] from imposing new and unnecessary regulations, bureaucratic procedures, or taxes and tariffs on commercial activities that take place on the internet."[263] The unleashed ingenuity and dynamism of the private sector were to propel economic development. While limiting the role of the state in guiding the digital revolution, the Administration defined an enabling function for government: providing a legal framework conducive to innovation by private parties.[264]

Conceptually, the Framework drew from the then-dominant Washington Consensus, emphasizing private markets, competition, and

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[262] William J. Clinton & Albert Gore, *The Framework for Global Electronic Commerce*, THE WHITE HOUSE (Jul. 1, 1997), https://clintonwhitehouse4.archives.gov/WH/New/Commerce/. Some internet evangelists went much further. *See* John Perry Barlow, *A Declaration of the Independence of Cyberspace* (Feb. 8, 1996), https://www.eff.org/cyberspace-independence (observing that no government was welcome online, because it lacked the consent of the governed).

[263] Clinton & Gore, *supra* note 262.

[264] *But see* MARIANA MAZZUCATO, THE ENTREPRENEURIAL STATE: DEBUNKING PUBLIC VS. PRIVATE SECTOR MYTHS (2015) (emphasizing the role of state investments and planning in innovation online).

open structures for innovation and growth.[265] This included, for example, "support for private governance of domain names," as Anupam Chander explained.[266] The Administration's concerns about monopoly focused exclusively on access to telecommunication and internet infrastructure. For example, the Framework mentions "interconnect[ion] with the networks of incumbent telecommunication companies" and "[a]ttaching equipment to the network" as areas of concern.[267] In contrast, the Framework's focus on online market dysfunction was minimal, limiting itself mainly to intellectual property protection, privacy, and IT security. Where it anticipated dysfunction, the Administration favored soft approaches, announcing that it would "encourage the creation of private fora to take the lead in areas requiring self-regulation."[268] The Framework did not address potential market concentration in the application layer, even as modern network theory had been well established by then.

The Framework's faith in private governance extended to technical standards. While the Administration recognized that "standards will be needed to assure reliability, interoperability, ease of use, and scalability," it flatly rejected government involvement, endorsing instead a "non-bureaucratic system of development managed by technical practitioners."[269] Indeed, even today's monopolies operate countless APIs to enable information flows, yet this practice of voluntary interoperability remains limited to situations advantageous to incumbents. The Clinton Administration's hands-off approach to digital markets ushered in two decades of regulatory restraint. These internet-specific policy choices intersected with broader institutional failures, most consequentially timid antitrust enforcement.

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[265] Anupam Chander, *The New, New Property*, 81 TEX. L. REV. 715, 725 (2003). *See also* Boyle, *supra* note 17, at 41, 51.

[266] Chander, *supra* note 265, at 725. *See also* Jay P. Kesan & Rajiv C. Shah, *Fool Us Once Shame on You—Fool Us Twice Shame on Us: What We Can Learn from the Privatizations of the Internet Backbone Network and the Domain Name System*, 79 WASHINGTON UNIVERSITY LAW QUARTERLY 89, 167–88 (2001) (detailing the privatization of the domain system).

[267] Clinton & Gore, *supra* note 262.

[268] *Id.*

[269] *Id.*

Antitrust law has not been effective in countering the concentrating effects of property-like network enclosure. This is due, mainly, to four key features of contemporary antitrust doctrine: it systematically embraces monopoly profits as incentives for dynamic innovation, largely tolerates arrangements that extend market power beyond the boundaries of the relevant market, vigorously rejects structural considerations as bases for enforcement, and shows restraint in merger control.

First, the perception of monopoly profits as a driver of innovation is deeply ingrained in contemporary doctrine. In *Trinko*, the Supreme Court unanimously rejected Trinko's claim that Verizon violated Section 2 of the Sherman Act by denying competitors access to its infrastructure on a non-discriminatory basis.[270] When discussing the anticompetitive nature of Verizon's conduct, the Court went so far as to celebrate monopoly as "an important element of the free-market system," reasoning that "[t]he opportunity to charge monopoly prices—at least for a short period—is what attracts 'business acumen' in the first place."[271] In the same decision, the Court identified a tension between mandates to share proprietary infrastructure and the very purpose of antitrust law: access rights might "lessen the incentive … to invest in those economically beneficial facilities."[272]

Trinko, however, fails to address crucial evidence that shows how open infrastructure mandates, through antitrust duty-to-deal remedies, common carriage, or other means, can spur follow-on innovation by enabling permissionless experimentation in downstream markets. Decreasing marginal returns of rewards for innovation are not even entertained in the decision, painting an unrealistic picture of companies' incentive structures. The Court's exclusive focus on speculative links

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[270] *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 416 (2004); Frank X. Schoen, *Exclusionary Conduct after Trinko*, 80 N.Y.U. L. REV. 1625, 1634–46 (2005).

[271] *Trinko*, 540 U.S. at 407 (adding, this opportunity "induces risk taking that produces innovation and economic growth.").

[272] *Id.* at 407–8.

between incentives and innovation[273] also misses the crucial role of ecosystems and environments conducive to innovation.[274] This emphasis on incentives for dynamic innovation renders the very idea of counteracting the allocation of network effects counterproductive: it would simply reduce the expected reward.

Second, lax merger control has facilitated rapid growth to monopoly. This is mostly because contemporary merger analysis overemphasizes short-term price effects at the expense of competitive entry and long-term innovation threats. Facebook's acquisitions of Instagram and WhatsApp exemplify this dynamic. While internal communications revealed CEO Mark Zuckerberg viewed Instagram as building "networks that are competitive with our own,"[275] the FTC closed its investigation without challenge.[276] By merging these networks, Facebook exponentially increased switching costs while eliminating two of the most promising challengers without needing to convince users to join its ecosystem.

This pattern extends beyond individual mergers. Weak oversight has allowed platforms to absorb innovations that extend their reach, eliminate features that threaten their business model, and ultimately redefine the exit options for entrepreneurs and investors. Google's acquisition of Waze, for example, integrated innovative features into

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[273] Donald F. Turner, *The Scope of Antitrust and Other Economic Regulatory Policies*, 82 HARV. L. REV. 1207, 1216 (1969) (doubting the immediate link between the possibility of future forced divestiture and present competitive efforts).

[274] Ketan Ahuja, *Innovating Antitrust Law: How Innovation Really Happens and How Antitrust Law Should Adapt*, ROOSEVELT INSTITUTE 12–16 (Oct. 19, 2022), https://rooseveltinstitute.org/publications/innovating-antitrust-law/.

[275] Kurt Wagner & Josh Sisco, *Zuckerberg Testifies on Emails About Instagram, WhatsApp Deals*, BLOOMBERG.COM (Apr. 15, 2025), https://www.bloomberg.com/news/articles/2025-04-15/meta-ceo-zuckerberg-testifies-on-emails-about-instagram-whatsapp-deals.

[276] Fed. Trade Comm'n, FTC Closes Its Investigation Into Facebook's Proposed Acquisition of Instagram Photo Sharing Program (Aug. 22, 2012), https://www.ftc.gov/news-events/news/press-releases/2012/08/ftc-closes-its-investigation-facebooks-proposed-acquisition-instagram-photo-sharing-program.

Google Maps;[277] its purchase of DoubleClick expanded its control to the entire advertising technology stack.[278] Facebook acquired promising social apps like tbh and Moves, only to shut down their potentially disruptive features.[279] Finally, as Mark Lemley and Andrew McCreary demonstrated, acquisitions have crowded out IPOs as preferred exit strategies, thereby distorting innovation toward incumbent compatibility rather than fostering competitive disruption.[280] The extent to which the 2023 Merger Guidelines and retrospective attempts to address previously approved mergers, like the ongoing FTC litigation seeking divestiture of Instagram and WhatsApp, can fundamentally change these dynamics remains to be seen.[281]

Third, entities possess the ability to expand their control beyond the boundaries of their networks, as antitrust doctrine has proven overly permissive toward anti-steering provisions, most-favored-nation clauses, and other measures that raise rivals' costs.[282] *Ohio v. American Express Co.* exemplifies this permissiveness.[283] In this 2018 decision, the Supreme Court upheld American Express's anti-steering provisions, which prohibited merchants from encouraging customers to use competing payment methods with lower fees. The Court not only accepted this contractual reinforcement of market power but also

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[277] Umar Shakir, *Google Maps is Getting Even More like Waze*, VERGE (Jul. 31, 2024), https://www.theverge.com/2024/7/31/24209969/google-maps-destination-guidance-waze-camera-events.

[278] Steve Lohr, *This Deal Helped Turn Google Into an Ad Powerhouse. Is That a Problem?*, N.Y. TIMES (Sep. 21, 2020), https://www.nytimes.com/2020/09/21/technology/google-doubleclick-antitrust-ads.html.

[279] *See generally* Colleen Cunningham et al., *Killer Acquisitions*, 129 J. POL. ECON. 649 (2020) (theorizing the deliberate destruction of competitors by acquisition).

[280] Mark A. Lemley & Andrew McCreary, *Exit Strategy*, 101 B.U. L. REV. 1, 61–72, 90–101 (2021).

[281] *See* First Amended Complaint, *FTC v. Facebook*, No. 1:20-cv-03590, Doc. 75-1 (D.D.C. Aug. 19, 2021), https://www.courtlistener.com/docket/18735353/federal-trade-commission-v-facebook-inc/.

[282] *See* Thomas Krattenmaker & Steven Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L.J. (1986); Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267 (1983).

[283] *Ohio v. Am. Express Co.*, 138 S. Ct. 2274 (2018).

reframed the antitrust inquiry to emphasize purported procompetitive justifications—such as benefits to the two-sided market as a whole—while disregarding the exclusionary harm to competitors and innovation ecosystems. Instead of challenging arrangements that entrench network advantages, antitrust doctrine tolerates contracting for further exclusivity, enabling dominant platforms to leverage their internalized network effects into adjacent markets and relationships.[284]

Fourth, courts have strongly rejected no-fault liability—an approach based on purely structural considerations—in antitrust law.[285] Instead, they have strictly tied liability to specific anticompetitive conduct.[286] Under Section 1 of the Sherman Act, anticompetitive agreements naturally provide the behavioral hook. For Section 2 of the Sherman Act, sanctioning unilateral monopolization, the Supreme Court defined the necessary conduct as the "willful acquisition or maintenance of [monopoly] power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident."[287] In contrast to the EU's antitrust regime, mere monopoly rent extraction—even over long periods of time—does not satisfy the Court's standard for liability.[288] Crucially, neither the text of the statute nor doctrinal coherence mandated the Court's narrow reading.[289] This narrow reading is particularly consequential where concentration results from companies' leveraging exclusivity granted by law.

Sector-specific regulatory frameworks have equally failed to mitigate the structural effects of network enclosure. Traditional media regulation imposed structural limits that could have prevented platform

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[284] Thomas Piraino, *Identifying Monopolists' Illegal Conduct under the Sherman Act*, 75 N.Y.U. L. REV. 809, 824 (2000).

[285] *See United States v. Grinnell Corp.*, 384 U.S. 563, 570–71 (1966).

[286] *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004); PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 650a (5th ed. 2020).

[287] *United States v. Grinnell Corp.*, 384 U.S. at 570–71.

[288] Nikolas Guggenberger, *Moderating Monopolies*, 38 BERKELEY TECH. L.J. 119, 137 (2023).

[289] Turner, *supra* note 273, at 1219–20.

monopolization. Broadcast ownership rules, for example, cap any single entity's reach at 39% of the national television audience.[290] Newspaper-broadcast cross-ownership restrictions have prevented concentration across media types. Yet, the Telecommunications Act of 1996 embraced a deregulatory approach for the internet, and courts have restricted administrative agencies from applying existing broadcasting rules to digital platforms on First Amendment grounds.[291] More fundamentally, policymakers failed to extend proven regulatory approaches addressing market concentration to digital platforms:[292] neither common carriage principles (requiring equal access to essential infrastructure)[293] nor neutrality requirements akin to network neutrality (preventing ISP discrimination against content providers)[294] were applied to platforms despite their similar gatekeeper functions, allowing them to discriminate and extend their control to downstream markets. All this exacerbates the market-level effects of platforms' property-like arrangements.

IV. PROPERTY'S EXCLUSION STRATEGY TURNS AGAINST ITSELF

As Part III has illustrated, network enclosures successfully internalize network externalities. Yet this very success creates a paradox. When internalization works too well, it facilitates market concentration, which can systematically undermine property's other essential functions in promoting liberty and modularity. This Part delineates the platform-property paradox, suggests reforms that

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[290] 47 C.F.R. § 73.3555(e)(1).

[291] *See* Reno v. ACLU, 521 U.S. 844, 868–70 (1997).

[292] *See generally* MORGAN RICKS ET AL., NETWORKS, PLATFORMS, AND UTILITIES 7–241, 933–1163 (2022).

[293] *See* Biden v. Knight First Amend. Inst., 141 S. Ct. 1220, 1224 (2021) (Thomas, J., concurring) (opining that common carriage obligations for platforms are conceivably constitutional); Ganesh Sitaraman, *Deplatforming*, 133 YALE L.J. 497, 553–67 (2023) (demonstrating how reasonable deplatforming can occur under a common carriage regime for platforms); Blake E. Reid, *Uncommon Carriage*, 76 STAN. L. REV. 89, 150–57 (2024) (developing a "context-sensitive approach to platform regulation").

[294] *See* van Schewick, *supra* note 235.

reconcile property's functions, and closes by addressing limitations and trade-offs associated with these reforms.

A. The Paradox, Demonstrated

In digital markets, the usual harmony between property's essential functions breaks down. The following analysis demonstrates how industrial concentration systematically undermines modularity and liberty—property's two other essential functions. Excessive internalization amplifies systemic complexity, centralizes control, reduces information efficiency, and fuels oligarchy, turning the exclusion strategy against itself.

1. Modularity, Undermined

Economic concentration undermines modularity. Monopoly reverses it to its opposite. Recall that modular design aims to break complex systems into discrete, manageable chunks, enabling individuals to interact with components without needing to understand entire systems.[295] However, orienting boundary-drawing toward cost-effective internalization of network externalities results in boundaries so extensive they encompass sprawling ecosystems instead of discrete chunks. Platform boundaries now encompass social networks with three billion users, app ecosystems encompassing half of mobile devices with millions of apps, and advertising stacks covering most online advertising—creating systemic interdependence rather than modular independence. The overemphasis on the internalization of externalities has created an industrial structure that defeats modularity's core benefits.

The enormous level of industrial concentration results in managerial and algorithmic monoculture, susceptible to systemic risk.[296] It elevates a handful of executives and a few major algorithmic

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[295] *See* I.B.

[296] *See* Caleb N. Griffin, *Systematically Important Platforms*, 107 CORNELL L. REV. 445, 509–14 (2022); Jones & Samples, *supra* note 196, at 192–206; Kevin Werbach & David Zaring, *Systemically Important Technology*, 101 TEX. L. REV. 811, 814–49 (2023).

architectures to single points of failure for economic coordination and democratic discourse.[297] For illustration, recall the 2021 Facebook outage[298] and the 2024 CrowdStrike failure, both functions of technical monoculture, and the banning of a sitting president from major communication channels, a function of managerial monoculture.[299] These examples reveal how platform concentration has systematically eliminated modularity's core benefit: systemic fragility has replaced modular resilience, raising the stakes of every single choice.

Rather than enabling market participants to interact with discrete components through simple interfaces, platform ecosystems force comprehensive engagement with entire ecosystems bundling countless features. A developer cannot simply distribute an app—they must master both Google's and Apple's review guidelines, payment processing, developer agreements, and constantly changing technical requirements. Merchants cannot simply offer products but need to buy into Amazon's fulfillment services, advertising machinery, and rating system to compete effectively. Worse, relying on their definitional power over terms of service, platforms effectively create tailored *in rem* governance, diminishing the information-hiding function that modularity provides.[300]

The resulting lack of modular interfaces stifles innovation.[301] Where modularity enables recombination—building new systems from discrete, interoperable components—platform control forces developers to work within closed ecosystems with proprietary interfaces that cannot be freely combined or extended. Granted, platforms do create certain modular elements within their ecosystems—standardized product listings like the Amazon Standard Identification Number and standardized APIs and admission criteria for apps, for example. Once

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[297] *See* Guggenberger, *supra* note 288, at 141–47.

[298] *See* Carl Öhman & Nikita Aggarwal, *What If Facebook Goes down? Ethical and Legal Considerations for the Demise of Big Tech*, 9 INTERNET POLICY REVIEW (2020).

[299] *See* Tully et al., *supra* note 27 (finding widespread outages in hospitals); Satariano et al., *supra* note 27.

[300] *See* D'Onfro, *supra* note 116, at 1078, 1112–14; Merrill & Smith, *supra* note 39, at 802 (observing the need for standardization of *in rem* entitlements).

[301] Yoo, *supra* note 63, at 21–24.

market participants fully adopt a single ecosystem, their cognitive load in fact decreases as everything syncs seamlessly and operates according to unified design principles. But *internal* modularity rests on platforms design choices. Notably, platforms are neither impartial umpires nor infallible designers,[302] and appropriately setting the boundaries for efficient modules is a challenging, ideally iterative process.[303]

At a system level, the anti-modular structure of the platform economy then hinders efficient information aggregation. Rather than price signals that aggregate dispersed information efficiently through decentralized market interactions, platform control creates systematically distorted signals through algorithmic curation, preferential placement, and self-dealing—with the platform representing the entire market or a significant part thereof.[304] The exclusion strategy's success in internalizing network externalities thus turns against itself, revealing the first element of the platform-property paradox: it creates anti-modular industrial structures that undermine property's essential role in managing complexity and aggregating information efficiently.[305]

2. Liberty, Undermined

The second element of the platform-property paradox involves the undermining of liberty, property's third essential function. The exclusion strategy's success in internalizing network externalities creates industrial concentration that systematically constrains both economic independence and democratic self-governance.[306]

Consider the position of any business, whether small or large, that seeks to reach its customers. Platform dominance has nearly eliminated choice in digital customer access, replacing economic autonomy with dependence and structural coercion. How can this

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[302] Khan, *supra* note 25, at 977, 1052–55.

[303] *See* BALDWIN & CLARK, *supra* note 5, at 76–80.

[304] Cohen, *supra* note 15, at 146–47; Khan, *supra* note 25, at 988–1000.

[305] This differs from property-as-monopoly-critiques, conceptualizing exclusion as monopoly, see, *e.g.*, Posner & Weyl, *supra* note 10, at 61–63.

[306] See Cohen, *supra* note 1, at 12 (observing that when exercised with coercive power, property becomes "sovereign power compelling service and obedience").

business reach mobile customers without Google's and Apple's app stores? How can it advertise effectively without Google's search ads or Meta's social platforms? For countless businesses, these platforms have become essential infrastructure.[307] As Thurman Arnold, President Franklin Roosevelt's chief antitrust enforcer, noted about similar infrastructural concentration in his time, chokepoints act as "economic toll bridges," wielding "[t]he power … to levy what in fact are taxes" on economic opportunity.[308]

The resulting asymmetry of power transforms even contracting itself. Under extreme concentration, platform terms cease to reflect voluntary exchange and become what Friedrich Kessler termed the power "to legislate by contract," a power he identified as a feudal artifact.[309] When platforms control essential infrastructure, this private governance extends beyond individual relationships to regulate entire economic sectors.[310] Market concentration thus elevates platform policies into unchecked "private regulation"—a development "anathema to our system of ordered liberty,"[311] particularly where platforms act both as players and umpires.[312]

Beyond commercial control, dominant platforms wield systematic political power.[313] When platforms control essential infrastructure for democratic discourse—such as search engines that determine information discovery, social networks that shape public debate, and

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[307] Procaccini, *supra* note 29, at 421; Guggenberger, *supra* note 103, at 252–76.

[308] Arnold, *supra* note 28, at 95.

[309] Kessler, *supra* note 131, at 640.

[310] Crémer et al., *supra* note 25, at 60–63 (identifying "platforms as regulators"). See also Jack M. Balkin, *Free Speech Versus the First Amendment*, 70 UCLA L. REV. 1206, 1219 (2023) (identifying "elaborate bureaucracies ... for governing speech"); Evelyn Douek, *Content Moderation as Systems Thinking*, 136 HARV. L. REV. 526, 539–64 (2022) (urging an administrative understanding of content moderation).

[311] *See* Nachbar, *supra* note 30, at 70–74, 114 (explaining that "whether an act of control is appropriately described as 'regulatory' [versus 'proprietary'] is a function of the distance between the given exercise of control and a recognized property right").

[312] Crémer et al., *supra* note 25, at 60–63; Andrea Asoni, *Digital Platforms' Vertical Integration: Friend or Foe?*, 30 AUSTL. J. COMP. & CONSUMER L. 167 (2022); Khan, *supra* note 25, at 977, 1052–55 (emphasizing conflicts of interest arising from vertical integration).

[313] Guggenberger, *supra* note 288, at 17–141.

app stores that decide which tools citizens can access—economic dependency becomes a form of political vulnerability.[314] Political candidates must navigate Meta's advertising policies to reach voters; news outlets depend on Google's algorithms for audience discovery; civic organizations rely on platform-controlled tools for democratic organizing. Platforms' power to exclude from digital markets thus becomes the power to exclude from democratic participation.[315] As Thurman Arnold explained, monopoly power "may sometimes be exercised benevolently, but, nevertheless, it is a dictatorial power … which is the antithesis of our democratic tradition."[316]

This exclusionary power is amplified by the direct access to public attention that dominant platforms have, enabling them to manipulate democratic processes for corporate advantage. When the Protecting Americans from Foreign Adversary Controlled Applications Act (PAFACA)[317] was set to ban TikTok from operating in the United States in January 2025, the platform first threatened to and then actually shut down—albeit briefly, and arguably performatively.[318] At several critical moments, the company communicated directly with its 170 million U.S. users, urging them to contact their representatives and oppose the legislation.[319] First, the outgoing Biden Administration, then the incoming Trump Administration, acted immediately and assured cloud providers, who would have faced potential fines, that the law would not be enforced.[320] In violation of PAFACA, TikTok has remained online

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[314] Procaccini, *supra* note 29, at 421 (equating power imbalances between social media platforms and users to those between employers and workers).

[315] *Id.*

[316] Arnold, *supra* note 28, at 95.

[317] *Protecting Americans from Foreign Adversary Controlled Applications Act*, Pub. L. No. 118-50, Div. H, § 2, 138 Stat. 955, 955-959 (2024).

[318] David E. Sanger, *TikTok Engineered Its Shutdown to Get Saved. But Trump's Solution May Fall Short.*, N.Y. TIMES (Jan. 19, 2025), https://www.nytimes.com/2025/01/19/us/politics/tiktoks-shutdown-notice-trump.html.

[319] Richard Lawler, *TikTok Shuts down in the US*, THE VERGE, https://www.theverge.com/2025/1/18/24346961/tiktok-shut-down-banned-in-the-us (last visited Jul. 29, 2025); Mia Sato, *TikTok is Urging Users to Call Congress about a Looming Ban*, THE VERGE (Mar. 7, 2024), https://www.theverge.com/2024/3/7/24093308/tiktok-congress-ban-push-notification.

[320] *See* Executive Order No. 14166, 90 Fed. Reg. 8611 8611 (Jan. 20, 2025).

without the required divestiture. The episode demonstrates the enormous power of platforms' instant access to vast audiences. Notably, TikTok's approach was blunt, consisting solely of indiscriminate notifications sent to all users. Platforms' attentional power may prove even more potent when exercised subtly with algorithmic precision, covertly shaping political opinions or undermining public trust.[321] Yet even TikTok's crude mobilization eclipsed what traditional lobbying—constrained by costly needs for coalition-building and attentional competition—could ever hope to achieve, steering an administration to refrain from enforcing a law expressly targeting a specific company.

Finally, platform concentration exhibits a classic feature of industrial concentration: altered economics of political influence.[322] In competitive industries, lobbying benefits often spread across all competitors, creating free-rider problems that limit individual firms' incentives to invest resources in political influence.[323] Industry associations seeking to overcome this coordination problem face agency costs and cannot prevent competitors from participating in their regulatory successes. Monopolists, by contrast, capture most returns from political expenditures themselves.[324] The higher degree of internalization of returns on political investments, in turn, generates powerful incentives for further lobbying and campaign spending,[325] systematically distorting democratic processes and eroding liberty.

Together, these mechanisms systematically breed oligarchy and corruption.[326] The exclusion strategy's success in internalizing network externalities thus turns against itself once more: it undermines property's essential role in promoting liberty, thereby completing the second element of the platform-property paradox.

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[321] See generally, SHOSHANA ZUBOFF, THE AGE OF SURVEILLANCE CAPITALISM (2019).

[322] George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3, 13 (1971).

[323] *Id.*

[324] *See Id.*

[325] *Id.*

[326] See Boyle, *supra* note 17, at 53–55 (invoking a richer founding-era understanding of monopoly rooted in intellectual property).

B. Reconciling Property's Functions

Having demonstrated how the exclusion strategy's success in internalizing network externalities in the digital economy systematically undermines both modularity and liberty, reconciling property's essential functions requires a counterintuitive response: constraining, rather than maximizing, the internalization of network externalities. This approach recognizes that property's essential functions can conflict. When they do, institutional design must carefully balance internalization against modularity and liberty rather than maximizing any single function at the expense of others. One might wonder whether simpler alternatives exist—such as allocating network value to users through mandatory compensation frameworks.[327] This may be appealing, as it would overcome the economic underprovision problem that is said to result when positive network externalities go uncaptured.[328] However, such an approach would require assessing network externalities in each platform relationship and dynamically updating them, making it practically infeasible.

In practice, the necessary rebalancing can be achieved through three complementary approaches: curtailing exclusionary property-like entitlements, expanding digital commons, and carefully recalibrating protections for remaining entitlements. The following sections will showcase exemplary doctrinal reforms for each of these three categories. First, lawmakers and courts can scale back legal mechanisms that allocate exclusive control over networks to platforms.[329] Recent CFAA jurisprudence illustrates this approach: the Supreme Court in *Van Buren* established a "gates-up-or-down" rule, preventing platforms from leveraging criminal liability to fortify against terms of service violations. Effectively, this narrower reading of the CFAA marginally constrains

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[327] For suggestions to expand concepts of labor law, for example, see Imanol Arrieta-Ibarra et al., *Should We Treat Data as Labor? Moving beyond "Free,"* 108 AEA PAPERS & PROC. 38 (2018) (discussing compensation for data production as labor); Procaccini, *supra* note 29 (contending that labor law paradigms should govern network engagement).

[328] *See* Ahdieh, *supra* note 19, at 300; Katz & Shapiro, *supra* note 226, at 96.

[329] See Lemley & McGowan, *supra* note 11, at 606 (identifying intellectual property as an "'easy' case" for such curtailment).

the internalization of network externalities by increasing platforms' costs of maintaining exclusion—without the deterrent of criminal liability, platforms must invest more in drawing, monitoring, and policing digital boundaries to extract networks' value exclusively. However, even as courts have restricted the reach of the CFAA, more action is needed. Platforms may shift to relying on identity-based exclusions and state anti-hacking laws that have not adopted *Van Buren*'s narrower approach.

Contractual exclusions require a different approach. Going beyond mere antitrust liability, courts should invalidate terms of service provisions that enable dominant platforms to exclude competitors from accessing network features and data when such restrictions lack adequate business justification.[330] Like non-compete clauses—which many jurisdictions now refuse to enforce when their primary purpose is to stifle competition rather than protect legitimate business interests[331]—contractual restrictions on scraping and interoperability should be deemed unenforceable when they primarily serve to preserve market position. While platforms may legitimately restrict access to protect user privacy, prevent system overload, or maintain data integrity, for example, courts should scrutinize whether these justifications are genuine or merely pretextual.[332] Federal and state authorities should reinforce this approach by treating such restrictions as unfair practices under existing consumer protection statutes.[333] This rebalancing would limit platforms' ability to contractually enclose digital networks and thereby contribute to constraining the internalization of network externalities.

Just as policymakers should constrain property-like entitlements, they should also strengthen antitrust enforcement. Enhanced application of existing laws can help, but current antitrust law remains

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[330] *See Id.* at 608 (suggesting to rely on "existing doctrines of contract law or equitable estoppel ... to compel access to a standard-setting organization").

[331] KNAPP ET AL., *supra* note 122, at 716–20. The FTC's ban on non-compete clauses, 16 C.F.R. § 910 (Final Rule), but the rule's enforcement has been enjoined. See *Ryan LLC v. Fed. Trade Comm'n*, No. 3:24-CV-00986-E (N.D. Tex. Aug. 20, 2024).

[332] *See* Piraino, *supra* note 284, at 855–59.

[333] 15 U.S.C. § 45.

structurally inadequate to rebalance property's essential functions.[334] This is because industrial concentration itself, regardless of how it was achieved or how it is exercised, directly undermines modularity and liberty.[335] Only structural approaches, such as no-fault liability as originally advanced by Donald Turner[336] or caps on concentration, as common in traditional media regulation, could hope to provide effective countervailing forces to rebalance property's functions. These approaches may appear to be in tension with the Supreme Court's classic formulation that antitrust law is intended "to protect, not to destroy, rights of property."[337] However, at a functional level, the application of the Court's formulation and this Article's argument are perfectly compatible. In the very cases that articulate the classic formulation about property rights, the Court ordered the breaking up of a conglomerate, as in *Standard Oil*,[338] and established comprehensive access rights against the owner of a bridge, as in *Terminal Railroad*.[339] In doing so, the Court, in fact, reconciled and thus, advanced all of property's essential functions.

Second, policymakers should expand digital commons by shifting network effects from the firm level to the market level.[340] Mandatory interoperability requirements, data portability rights, and selective data sharing mandates can contribute to this redistribution.[341] When platforms must allow competitors to access their networks, the exponential value of network growth becomes distributed across

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[334] *See* II.C.

[335] See Turner, *supra* note 273, at 1219–20 (demonstrating similar outcomes, regardless of the source of monopoly).

[336] *See Id.* (contending that antitrust should differentiate "between the acquisition of monopoly power ... and the persistent retention of monopoly over a substantial period of time").

[337] *Standard Oil Co. v. United States*, 1910 221 U.S. 1, 78; *United States v. Terminal Railroad Ass'n of St. Louis*, 224 U.S. 383, 409 (1912).

[338] *Standard Oil Co. v. United States*, 1910 221 U.S. at 78.

[339] *Terminal Railroad Ass'n*, 224 U.S. at 409.

[340] Kades & Scott Morton, *supra* note 13, at 12–13, 33. *See also* Boyle, *supra* note 17, at 58–65 (urging a wider recognition of the public domain).

[341] *See* Thomas Piraino, *An Antitrust Remedy for Monopoly Leveraging by Electronic Networks*, 93 NW. U. L. REV. 1, 30–62 (1998) (arguing for access rights to essential networks).

competing platforms rather than concentrated within individual firms.[342] This approach directly strengthens modularity by creating standardized interfaces that enable information exchange. Like property law's *numerus clausus* principle, which uses standardized property forms to hide complex legal details behind simple interfaces,[343] mandatory interoperability requirements create standardized protocols that allow competitors to access platform networks without understanding each platform's proprietary systems.[344] This information-hiding function enables firms to interact with discrete, interoperable components rather than being forced into comprehensive platform relationships. The EU's Digital Markets Act, for instance, already implements aspects of this strategy by requiring gatekeepers to provide standardized data portability and interoperability for messaging services.[345] Beyond this direct modularity benefit, these mandates also counter the winner-take-all dynamics of fully internalized network externalities, contributing to an industrial structure more conducive to modularity and liberty.

Third, lawmakers and courts should recalibrate the structure and protection of remaining property-like platform entitlements. As discussed above, entitlements can be protected through property, liability, or inalienability rules, and structured through either exclusion or governance strategies.[346] Ample scholarship has examined the efficiency of these arrangements at the micro-level, with some specifically emphasizing property rules and the exclusion strategy's contributions to efficiency-enhancing decentralized information-aggregation and decision-making.[347] Champions of liability rules, on the

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[342] Kades & Scott Morton, *supra* note 13, at 12–13, 33.

[343] Merrill & Smith, *supra* note 107, at 58–67.

[344] See Yoo, *supra* note 63, at 42–61 (detailing the application of modularity theory on internet protocol policy and specifically the implications for opn APIs).

[345] Art. 6(7), 7 Digital Markets Act.

[346] *See* II.B.

[347] Smith, *supra* note 2, at 1754–63 (observing that "[c]ontrary to the thrust of recent pro–liability rule commentary, it is property rules rather than liability rules that truly decentralize decisionmaking"); Smith, *supra* note 4, at 457–67 ("develop[ing] an account of the costs and benefits of a spectrum—from exclusion to governance—of different methods of delineating rights and the different-sized resources over which they can be used").

other hand—whether advocating for their limited use in high-transaction-cost environments or their broader application—have largely rested their case on the framework's informational efficiency rather than its structural implications.[348] Yet, the structural implications of these design choices have largely been overlooked.[349] The double focus on exclusion in the digital economy—strong property-rule protection combined with exclusion-based entitlement structures—lies at the core of the excessive internalization of network externalities. To reconcile property's functions, lawmakers and courts should thus reconsider their approach to protecting and structuring entitlements in the digital economy through property rules and the exclusion strategy.[350] Practically, this adds a tip on the scale in favor of liability and, potentially, inalienability rules on the one hand and the governance strategy on the other.

This rebalancing works by constraining platforms' ability to use property-rule protection to exclude competitors entirely from accessing network resources. Property rules grant platforms injunctive relief that completely forecloses competitor access to their networks and data, enabling them to internalize network externalities exclusively. Liability rules, by contrast, would permit competitive access while requiring compensation for legitimate harms such as server costs or security breaches. This shift would reduce platform enclosure while protecting genuine business interests, thereby contributing to the redistribution of network effects from individual platforms to the broader market.

Consider, for example, replacing property rule protection for terms of service violations with liability rules. Currently, when

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[348] Calabresi & Melamed, *supra* note 85, at 1106–15 (explaining preferences for liability rules citing high transaction cost, holdout and freeloader concerns, and distributional goals); Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, HARV. L. REV. 713 (1996) (distinguishing between harmful externalities, for which they largely support liability rules, and the taking of things, for which they endorse property rules).

[349] Monopoly harm in the form of deadweight losses and innovation barriers extend beyond traditional transaction cost analysis.

[350] See Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, *supra* note 3, at 1749–50 (obeserving that even expanding property regimes can shift toward "fine-graned governance rules") .

competitors enable interoperability or scrape platform data in violation of terms of service, platforms can seek injunctions that completely block such access.[351] Under a liability rule approach, competitors could access platform networks and data by paying compensation for any proven harms, but platforms could not obtain injunctions that foreclose access entirely. To avoid burdening nascent competitors, the application of these limitations could be limited to dominant platforms. When implementing the transition to a liability framework, lawmakers and courts should, through statutory frameworks or common law development, limit damage awards to actual harms such as server costs and security expenses, avoiding punitive or excessive statutory damages that would function as *de facto* injunctions.

This conversion of property to liability protection could extend to anti-hacking provisions, whether originating in common law trespass or the CFAA, that currently support injunctive relief. Replacing property-rule trespass protections with liability rules—for activities aimed at interoperability and data access rather than system disruption—would likewise limit platforms' power to foreclose markets. Mitigating the over-deterrent effects of the CFAA's criminal liability would encourage legitimate adversarial interoperability efforts where competitors currently exercise self-restraint due to prosecution risk.

Furthermore, policymakers could split Section 230's current complete immunity, with its property rule-protected entitlement to "pollute" the digital public sphere, into two components: maintaining platforms' shield against damages while allowing victims to seek injunctions against the dissemination of infringing content.[352] This reform would establish enforceable rights against digital harm—such as defamation, slander, harassment, or other infringing content—while preserving platforms' protection from financial liability. Crucially, this approach would constrain platforms' ability to monetize harmful content by requiring removal, thereby limiting the network value that can be extracted from hosting infringing material. At the same time, allowing

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[351] *See e.g.* hiQ Labs, Inc. v. LinkedIn Corp., No. 3:17-cv-03301-EMC, ECF No. 406 (N.D. Cal. Dec. 8, 2022).

[352] I am grateful to Anupam Chander for the idea on which this proposal builds.

injunctive relief would internalize some of digital networks' negative externalities by forcing platforms to bear the costs of content removal rather than externalizing these harms to victims and society. Practical safeguards, like fee shifting, could further enhance this approach and avoid unintended chilling effects on speech. Moreover, policymakers could even exempt smaller platforms from injunctive liability to avoid burdening nascent competitors and account for the relatively lower risks posed by content on smaller networks. With these caveats, transforming Section 230 to provide selective immunity against damages could preserve the statute's core function without enabling the type of unfettered private governance that can be leveraged into market dominance.

Transitioning to inalienable data protection rules could address the privacy layer of platform enclosures and help break the mutually reinforcing cycle between network effects and data advantages.[353] Rather than relying on the current individual consent mechanisms that platforms can appropriate, policymakers could establish direct prohibitions on certain data uses—such as behavioral advertising or algorithmic profiling[354]—and permissions on others, regardless of user consent.[355] The approach would prevent platforms from using consent frameworks to enclose data zones that exclude competitors.[356] This would help disrupt the mutually reinforcing transmission between data advantages and internalized network externalities.

Finally, lawmakers and courts could more heavily lean on governance strategies to structure platforms' remaining property-like entitlements. They could redistribute network effects by replacing broad exclusionary boundaries with specific access rules. Instead of enabling blanked exclusion, governance regimes create limited access rights that enable competitive use while constraining monopolistic capture. For instance, expanding mandatory FRAND licensing requirements for standard essential patents necessary for network interconnection would

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[353] *See* III.A.

[354] *See* David Dayen, *Ban Targeted Advertising*, NEW REPUBLIC (Apr. 10, 2018), https://newrepublic.com/article/147887/ban-targeted-advertising-facebook-google.

[355] *See* Viljoen, *supra* note 160, at 634–53.

[356] *See* II.A.3.

prevent platforms from using patent portfolios to exclude competitors entirely, instead creating governance-based access rights with specific licensing terms.

To summarize, three complementary approaches can contribute to the reconciliation of property's essential functions: curtailing exclusionary property-like entitlements, expanding digital commons, and carefully recalibrating protections for remaining entitlements. Each of the five layers of network enclosure offers room for reforms.

C. Limitations and Trade-offs

Yet these exemplary remedies, while targeting the excessive internalization of network effects—the fundamental mechanism behind platform concentration—operate within important constraints and involve several significant trade-offs. First, legally induced internalization of network effects is not the only force driving concentration in the digital economy. The characteristics and legal treatment of data, economies of scale and scope associated with algorithms, and the availability of funding all contribute to industrial concentration independently from network effects. Moreover, digital networks and their affordances are deeply grounded in physical infrastructure, from massive data centers to underwater cables, all of which exhibit characteristics conducive to monopoly. That said, redistributing network effects might indirectly address some of these alternative drivers of concentration. Recall, for example, that redistributing network effects can help to upend the mutually perpetuating cycle of data-induced network power and network-induced data power.

Second, any intervention that limits the internalization of positive externalities inevitably creates its own economic costs, even if it succeeds in expanding modularity and liberty. Most significantly, restrictions on the internalization of externalities reduce the economic incentives for dynamic innovation.[357] To the extent that property regimes are instrumental to maximizing economic welfare, any chilling

[357] Ahdieh, *supra* note 19, at 303–4.

of innovation due to reduced incentives to innovate would present a substantial trade-off. This concern weighs especially severely as dynamic competition for innovation, rather than static competition over price, defines the trajectory of long-term economic development.

Yet, while trade-offs between the extent of the internalization and incentives for innovation are real, frontloading and maximizing incentives for dynamic innovation are not optimal.[358] This is because innovation, as a process, requires more than just raw financial incentives.[359] Open ecosystems and ongoing competition are equally crucial ingredients.[360] Time is another central factor. Innovation is a process; it cannot be crammed into a short period of competition for the market. Even dynamic innovation stands on the shoulders of giants, and high-spillover industries, in fact, innovate more—and more quickly.[361] The creation of email, social media, and now artificial intelligence builds on an entire infrastructure deck from physical cables to communication protocols and ultimately around eighty years of chip and computer development.[362] All this is to say that reconciling property's functions, while reducing the up-front incentives for dynamic innovation, works to improve other central ingredients for innovation.

Third, concentrated control over network effects may provide genuine efficiency benefits that distributed alternatives cannot match. Unlike passive networks such as language, many digital networks require active management, making unified control more essential for coordination, security oversight, and performance optimization. Moreover, certain innovations—such as large language models and global search systems—may require resources that only large platforms can marshal. However, many apparent coordination efficiencies may reflect infrastructure specifically designed for concentration rather than inherent technical obstacles. Distributed protocols, such as email and

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[358] *See* Fromer, *supra* note 254, at 712.

[359] *See* Benkler, *supra* note 207, at 423–43 (theorizing conditions for collaboration online); Frischmann & Lemley, *supra* note 19, at 259–61.

[360] Boyle, *supra* note 17, at 44–49.

[361] Frischmann & Lemley, *supra* note 19, at 259–61, 268.

[362] *See* Tejas N. Narechania & Ganesh Sitaraman, *An Antimonopoly Approach to Governing Artificial Intelligence*, 43 YALE L. & POL'Y REV. 95, 108–28 (2024).

the internet itself, demonstrate that complex global networks can function effectively without centralized control. Most importantly, any efficiency benefits of concentration must be weighed against the substantial costs to modularity, liberty, and long-term innovation that concentrated network effects create.

Fourth, curtailing the exclusion strategy may hinder both product and social differentiation, undermining market disruption in networked markets. Exclusion enables nascent competitors to distinguish their offerings from dominant platforms in two crucial ways. On the one hand, it allows for technical differentiation. Consider Snapchat's development of disappearing messages: if Snapchat had been required to make this feature interoperable with Facebook or Instagram, which did not support this feature, from the beginning, the core value proposition would have been undermined. Exclusion was essential to ensure messages disappeared. This enabled Snapchat to build user behaviors around ephemeral content that couldn't have developed in an interoperable environment where content persistence was the norm.

On the other hand, exclusion enables social differentiation by creating distinct user communities.[363] Separate platforms separate social contexts—teens can share content without their parents seeing it, professionals can network separately from personal connections, or niche communities can form around specific interests. This audience separation often drives platform adoption as much as technical features. Forced interoperability could undermine these distinct social spaces by blurring the boundaries of audiences that users prefer to keep separate. Effectively, this would reduce the overall value of the networks by creating unwanted connections. However, these concerns can be addressed through design choices. Interoperability requirements could be structured asymmetrically, preserving far-reaching exclusion for nascent challengers while preventing incumbents from benefiting from the same protections. Additionally, many forms of innovation—such as third-party apps or LLM model extensions—require access to existing networks rather than exclusion from them. To protect users from

[363] Rohlfs, *supra* note 12, at 19 (discussing "community of interest groups" as hook for product differentiation).

unwanted interception, regulatory regimes could establish consent requirements.

CONCLUSION

In digital markets, five layers of network enclosures successfully internalize network externalities, fulfilling one of property's three essential functions. Yet this success breeds failure. When internalization works too well, it facilitates market concentration, systematically undermining property's two other essential functions in promoting liberty and modularity. At its core, market concentration online is thus a property design problem. This is the platform-property paradox. Practically, it manifests as textbook monopoly harm and oligarchy. To mitigate these harms, lawmakers and courts must reconcile property's essential functions. This includes curtailing exclusionary property-like entitlements, expanding digital commons, and carefully recalibrating protections for remaining entitlements.