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CAPTURING INTANGIBLES IN A PROPERTY RESTATEMENT

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ABSTRACT

What "property" means for intangibles raises fundamental issues. With the rise of the "bundle of sticks" picture of property, many see property as an arbitrary label with nothing holding property together at all. One of the goals of the Restatement (Fourth) of Property is to present property doctrine as a coherent system of principles and doctrines that addresses recurring problems of resource allocation, control, and use across a variety of different contexts. When technology intersects with law in the Restatement process, it puts into issue some basic notions in property. This Article analyzes the notions of "possession," "thing," and "conversion" in the light of valued intangible resources. The range of intangibles, from cryptoassets to data files, are different in terms of the nexus of human activity that they present and the social legibility of such activity. Attention to the architecture of property and its function as a system helps manage the tradeoffs involved in property protection of intangibles.

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I. INTRODUCTION

The field of property law is often viewed as a "grab bag" of loosely related topics and doctrines, whose subject matter is conceptualized as a "bundle of sticks" having more or less arbitrary contents. One of the goals of the Restatement (Fourth) of Property is to present property doctrine as a coherent system that addresses recurring problems of resource allocation, control, and use across a variety of contexts. The challenge is to highlight the cross-contextual similarities of these problems, and the key doctrines to which they give rise, while also making sense of the modifications needed to deal with variant resources calling for different solutions.

Like many concepts, property has certain core applications, surrounded by a periphery of potential ones that share salient characteristics yet differ in important ways. For one thing, property rights are typically in rem — they avail against others generally — which means the stakes are quite high in this area. This is one reason to be sparing in giving in rem effect: duty bearers do not consent to be bound and must either process such rights to avoid violating them or incur costs to avoid violations.[1] Not all aspects of property are in rem, and not all rights should get this treatment.

The impulse to extend a doctrine generated in the core will often provide a useful first-cut approach to a new problem, but each such doctrine relies on premises that may not apply equally in the new context. At some point, differences outweigh similarities enough that core doctrines no longer serve the same purposes or else lack the same justifications. To discern what needs to be adjusted, and how, requires

1. *See, e.g.*, Ben McFarlane, *The* Numerus Clausus *and Covenants Relating to Land*, *in* 6 MODERN STUDIES IN PROPERTY LAW 313 (Susan Bright ed., 2013); Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The* Numerus Clausus *Principle*, 110 YALE L.J. 1 (2000).

a deeper sense of the architecture of the law and its social context. This is a matter of both theory and practice, and it is vital for a Restatement.[2]

This dynamic of extension and slippage is prominent in the field of intellectual property ("IP"), which relies on core property doctrines governing ownership, exclusive use, and transfer, in spite of ongoing objections to thinking about intellectual property in property terms.[3] The current Property Restatement project[4] does not address intellectual property, which has become a highly developed field of its own, part of which (Copyright) now has its own Restatement.[5] At the same time, the digital environment gives rise to new sorts of intangible assets (such as data and its various instantiations) that fall outside the scope of current intellectual property law and to which the application of property doctrines has either begun or been advocated.[6] This article examines this landscape, identifying the aspects of these new resources that seem conducive to property reasoning, while counselling caution in the transplantation of traditional concepts and doctrines.

Property rights are protected though tort law. The torts of trespass to land, nuisance, and ejectment vindicate owners' rights in real property, while owners of personal property have the related but distinct torts of trespass to personal property and conversion along with replevin.[7] Reference here to rights of "owners" is loose; standing to

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2. For more on the architectural approach, see, for example, Thomas W. Merrill & Henry E. Smith, *The Architecture of Property*, *in* RESEARCH HANDBOOK ON PRIVATE LAW THEORIES 134 (Hanoch Dagan & Benjamin Zipursky eds., 2020); Henry E. Smith, *Restating the Architecture of Property*, *in* 10 MODERN STUDIES IN PROPERTY LAW 19 (Sinéad Agnew & Ben McFarlane eds., 2019).

3. Among the more categorical rejections of IP that oppose its role as a property regime, see generally MICHELE BOLDRIN & DAVID K. LEVINE, AGAINST INTELLECTUAL MONOPOLY (2008); STEPHAN N. KINSELLA, AGAINST INTELLECTUAL PROPERTY (2015).

4. The ALI is currently working on the Restatement (Fourth) of Property. For an overview of the project status, see *Restatement of the Law Fourth, Property*, AM. L. INST., https://www.ali.org/projects/show/property/ [https://perma.cc/JPG2-PGYT].

5. *See* RESTATEMENT OF COPYRIGHT (AM. L. INST., Tentative Drafts No. 1–5, 2024).

6. *See, e.g.*, Kremen v. Cohen, 337 F.3d 1024, 1030 (9th Cir. 2003) (analyzing California conversion law as extending to some intangibles); Thyroff v. Nationwide Mut. Ins. Co., 864 N.E.2d 1272, 1278 (N.Y. 2007) (recognizing claim for conversion of electronic data). *See generally* Danielle D'Onfro, *The New Bailments*, 96 WASH. L. REV. 97 (2022); James Grimmelmann & Christina Mulligan, *Data Property*, 72 AM. U. L. REV. 829 (2023).

7. The Property Torts were originally part of the project for the First Restatement of Property but were shifted over to the First Restatement of Torts. The Property Torts are part of the Fourth Restatement of Property and the Sections on the property torts will all serve as part of the Restatement Third of Torts. The ALI Membership has approved material on trespass to land, nuisance, and ejectment. RESTATEMENT (FOURTH) OF PROP. Vol. 2, Div. I (AM. L. INST., Tentative Draft No. 2, 2022 and Tentative Draft No. 3, 2023). Sections on conversion have been drafted and are being revised for presentation to the ALI Council. Relevant provisions on possession and bailment have been approved by the ALI membership and will be noted in the following discussion.

bring these torts is usually possession or a right to possess.[8] And traditionally, possession and rights to possess required a physical resource.[9] Often taken for granted, the notion of possession and the law of conversion have long raised difficult borderline issues with intangibles.[10] In earlier times, many intangibles, such as stock, bonds, and notes, were closely associated ("merged into") documents such that one could achieve conversion liability for them by applying traditional, physical possession-based doctrine to the documents. No longer.

Perhaps the most immediate problem involving intangibles and their status as property (or not) is whether they can be converted. It is unclear what it means to "steal" files and data. If someone steals your bag, they have it and you don't. If someone "steals" your data simply by copying and using it, you still have the data and can use it yourself. Under what circumstances, if any, can intangibles like data be said to be "converted"? Courts and commentaries have diverged greatly on this question.[11]

We offer a proposal of how the law of conversion can provide some protection for rights in intangibles without throwing the door open to

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8. *See* RESTATEMENT (SECOND) OF TORTS § 217 (AM. L. INST. 1965) (defining trespass to chattels as requiring either "dispossession" or intermeddling with a chattel "in the possession of another"); *id.* § 224A ("For a conversion the actor is subject to liability to another who was at the time in possession of the chattel.").

9. *See id.* at § 216 (defining possession as "physical control").

10. *See, e.g.*, Simon Douglas, *The Nature of Conversion*, 68 CAMBRIDGE L.J. 198, 209 (2009) (arguing that possession and conversion should remain restricted to tangible property).

11. As for courts, see, for example, Casillas v. Berkshire Hathaway Homestate Ins. Co., 79 Cal. App. 5th 755, 757 (Cal. Ct. App. 2022) (holding that the unauthorized copying of electronic files does not give rise to property tort); Missouri Ozarks Radio, Network, Inc. v. Baugh, 598 S.W.3d 154, 162 (Mo. Ct. App. 2020) (finding that a domain name is intangible personal property subject to conversion); Austin v. Gould, 93 N.Y.S.3d 33, 34 (N.Y. App. Div. 2019) (finding conversion of intangible property not actionable); CamSoft Data Sys., Inc. v. S. Elecs. Supply, Inc., 2019 WL 2865359, at *3 (La. Ct. App. July 2, 2019), *cert. denied*, 282 So. 3d 1071 (La. 2019) (declining to extend the tort of conversion to immovable, intangible information possession of which cannot be deprived); Thyroff v. Nationwide Mut. Ins. Co., 864 N.E.2d 1272, 1278 (N.Y. 2007) (recognizing claim for conversion of electronic data). As for commentators, see, for example, Stephen T. Black, *Who Owns Your Data?*, 54 IND. L. REV. 305 (2021) (arguing that data is property); Michael J.R. Crawford, *Contract as Property: Triangles and Tragic Choices*, 82 CAMBRIDGE L.J. 83 (2023) (arguing that contract handles interference with intangibles, making conversion liability unnecessary and undesirable); Simon Douglas, *The Scope of Conversion: Property and Contract*, 74 MOD. L. REV. 329 (2011) (arguing against extending conversion to intangibles); Grimmelmann & Mulligan, *supra* note 6 (advocating application of property doctrine to data files); D'Onfro, *supra* note 6 (advocating application of bailment law to electronic assets); Joshua A. T. Fairfield, *Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property*, 97 IND. L.J. 1261 (2022) (arguing that NFTs should be treated as property); Spence Howden, *Text Messages Are Property: Why You Don't Own Your Text Messages, but It'd Be a Lot Cooler If You Did*, 76 WASH. & LEE L. REV. 1073 (2019) (arguing that text messages should be treated as tangible personal property and protected by torts such as trespass to chattels and conversion); João Marinotti, *Tangibility as Technology*, 37 GA. ST. U. L. REV. 671 (2021) (offering a test to determine which digital assets count as objects of property rights); Robert Stevens, *Crypto Is Not Property*, 139 L.Q. REV. 615, 621 (2023) (arguing that conversion cannot apply to intangibles because they are not physical things and so not property).

vast new kinds of hard-to-track liability. Our approach is to allow for a modest extension (or perhaps clarification) of the law of conversion to cover the denial of all access to some intangibles. Only in such situations can it be said that the "owner" of the intangible loses control of it in the relevant fashion. Losing control in the sense of misuse or misappropriation is a different kind of loss of control. We argue that this modest approach is better than a redefinition of possession (making conversion apply across the board) on the one hand and denying all protection to intangibles through the law of conversion on the other. We also discuss the role of possession in bailments and how an extension of such possessory relations to intangibles in this area would cause more trouble than it would prevent.

Because concepts like possession do, pace the Legal Realists, occupy a central and interconnected place in the law of property, they present characteristic strengths and weaknesses when technological change puts pressure on the law. The strength of central notions like possession is that they can adjust aligned areas of the law in tandem. That is also their weakness: changing a notion like possession itself can lead to massive unanticipated and undesirable ripple effects, like back-door intellectual property.[12] The architecture of property can be harnessed to manage the tradeoff between the benefits and costs of property protection in the area of intangibles.

The Article begins in Part II with a restatement of the problem of intangibles. While all intangibles share the quality of not having mass or taking up physical space, they present different needs for protection and costs in providing it. Part III provides a theory of possession, thinghood, and conversion that provides a more flexible, articulated, yet still systemic account of possession than many of the current, inconsistent, and less-than-helpful formulations. Part IV proposes a limited extension of the law of conversion to intangibles that is consistent with the theory. We then show in Part V that the conversion of intangibles on our approach illustrates the surprising strengths and often overlooked limits of the coevolution of technology and the common law.

II. THE PROBLEM OF INTANGIBLES

Recent technological developments give rise to a range of new intangibles that are candidates for property protection. These are not the first intangibles that have fallen under, or come close to falling

12. For example, if one were to define possession to mean exclusive control of a data file, it could mean that any unauthorized reproduction of that file would constitute a property tort, notwithstanding the limitations that copyright law imposes on the scope of the duty not to reproduce the work of authorship embodied in the file.

under, the law of property.[13] As we will see, the law's traditional treatment of intangibles exhibits inconsistencies reflecting the difficulties they pose for property institutions. These difficulties have not disappeared but only grown more urgent with the advent of new kinds of intangibles. Thus, it may be more important than ever for property law to address intangibles, but it may well be that it can be more difficult as well.

The most developed application of property principles to intangibles is IP, which applies exclusive use rights to works of authorship and inventions.[14] Such resources cannot straightforwardly be "possessed," although there are proxies for the sort of relationship that term symbolizes. One can exercise exclusive control (hence "possession") of a work or invention by keeping it secret from others, and wrongful deprivation of this exclusive relationship is addressed by the common law rights of first publication and trade secret protection.[15] Then again, requirements of fixation and written description for copyrights and patents are functionally analogous to the requirement that one reduce a physical resource to actual possession in order to acquire property rights in it.[16]

The logic of possession in IP breaks down once a work or invention becomes public. As simultaneous uses do not immediately impede each other, IP law must be aimed at some other purpose. One purpose is dynamic: IP allows creators to recoup the cost of creation.[17] Another set of purposes is related: IP allows for capturing the returns on other rival resources — the time, effort, lab space, equipment, advertising space, etc. — which are used in the development and commercialization of intellectual property.[18]

Intellectual property is notoriously hard to bound as a "thing" for purposes of protection, and use by multiple parties is often valuable. This makes it what one of us has termed "fluid" property, resources

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13. William Blackstone, famous for the "sole and despotic dominion" of property gave extensive coverage to intangibles known as "incorporeal hereditaments." 2 WILLIAM BLACKSTONE, COMMENTARIES *20–43.

14. See 17 U.S.C. § 106 (copyright); 35 U.S.C. § 271 (patent).

15. See Wheaton v. Peters, 33 U.S. 591, 657 (1834) (recognizing common law property rights in an unpublished manuscript); RESTATEMENT (FIRST) OF TORTS § 757 (AM. L. INST. 1939) (liability for disclosure or use of a trade secret).

16. 17 U.S.C. § 102; 35 U.S.C. § 112; *see, e.g.*, Dotan Oliar & James Y. Stern, *Right on Time: First Possession in Property and Intellectual Property*, 99 B.U. L. REV. 395, 417–28, 435–40 (2019); Timothy R. Holbrook, *The Importance of Communication to Possession in IP*, 100 B.U. L. REV. ONLINE 16, 16–18 (2020); TIMOTHY R. HOLBROOK, PATENTS, PROPERTY, AND POSSESSION: A UNIFYING APPROACH TO PATENT LAW (forthcoming 2025); Poorna Mysoor, *Possession in Copyright by Analogy*, 140 L.Q. REV. 277 (2024) (arguing that a concept analogous to possession is operative in copyright law).

17. *See, e.g.*, RONALD A. CASS & KEITH N. HYLTON, LAWS OF CREATION 97–125 (2013).

18. *See, e.g.*, F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 707–08 (2001); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 276 (1977).

that, in a fashion reminiscent of fluid matter, are hard to separate into discrete things. These include water, radio spectrum, and information, and many kinds of fluid property relate to intangibles.[19] Such resources are often valuable to multiple users whose uses sometimes do not conflict. When they do conflict, rights against interference tend to make reference to particular uses rather than rationing access (governance rather than exclusion).[20] Allowing potentially conflicting uses to occur subject to rules enables access by multiple users at the cost of setting up and enforcing those governance rules. Often such a regime is a semicommons, i.e., here different users have private rights in the same resources and the rights interact.[21]

The traditional category for an intangible is a chose in action, as opposed to a chose in possession. A chose in action is a right to sue to recover a debt, money, or a thing.[22] Items that themselves are not normally treated as property can be packaged as property and made assignable through the mechanism of a chose in action.[23] However, because they are not tangible property, courts traditionally did not allow conversion to apply to choses in action (or debts).[24] The chose in action is not fully property in the in rem sense, because it is only enforceable through an action against a specific person; it is in this sense in personam.[25] Extending conversion liability to choses in action would make them full-blown property rights.[26] This would impose a duty on others generally, and we would have to ask what that duty is. What

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19. Henry E. Smith, *Semicommons in Fluid Resources*, 20 MARQ. INTELL. PROP. L. REV. 195, 209–10 (2016); *see also* Michael J. Madison, *Law as Design: Objects, Concepts, and Digital Things*, 56 CASE W. RES. L. REV. 381, 402 (2005).

20. *See* Henry E. Smith, *Exclusion Versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453 (2002); Henry E. Smith, *Governing Intellectual Property*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW: VOLUME 1: THEORY 47 (Ben Depoorter, Peter Menell & David Schwartz eds., 2019).

21. On semicommons in IP, see, for example, BRETT M. FRISCHMANN, INFRASTRUCTURE: THE VALUE OF SHARED RESOURCES 302–03 (2012); Robert A. Heverly, *The Information Semicommons*, 18 BERKELEY TECH. L.J. 1127, 1184 (2003); Peter K. Yu, *Intellectual Property and the Information Ecosystem*, 2005 MICH. ST. L. REV. 1, 11; Lydia Pallas Loren, *Building a Reliable Semicommons of Creative Works: Enforcement of Creative Commons Licenses and Limited Abandonment of Copyright*, 14 GEO. MASON L. REV. 271, 296–97 (2007).

22. Bolz v. State Farm Mut. Auto. Ins. Co., 52 P.3d 898, 901 (Kan. 2002) ("A chose in action is the right to bring an action to recover a debt, money, or thing. Black's Law Dictionary 234 (7th ed. 1999).").

23. *See, e.g.*, *id.*

24. The traditional position has been maintained in the English case law. OBG v. Allan [2007] UKHL 21. For a survey of the traditional rules at a time when the law in the United States was beginning to loosen them, *see* Comment, *Conversion of Choses in Action*, 10 FORDHAM L. REV. 415 (1941).

25. *See* W. S. Holdsworth, *The History of the Treatment of Choses in Action by the Common Law*, 33 HARV. L. REV. 997, 1000 (1920) ("The right of action . . . is an essentially personal right of one person against another . . . .").

26. For arguments against such wholesale extension of conversion liability to intangibles, *see, e.g.*, Crawford, *supra* note 11; Douglas, *supra* note 11.

would others be expected to respect and how much information would one have to process to avoid liability? The danger here would be that the full content of the underlying right would suddenly bind others generally and impose costly duties on them nonconsensually in flagrant derogation of the *numerus clausus*. Under that principle, property comes in standard forms which parties and courts are not free to add to or tailor beyond prescribed limits.[27]

Another kind of intangible property right is an "equitable property right." These rights are a hybrid of in personam and in rem, in which a legal property right is subject to a layer of duties owed to a beneficiary of some kind.[28] For example, the quasi property arising out of misappropriation (hot news mostly) consists of equitable property rights that do not bind in an in rem fashion.[29] Hot news rights only avail against direct competitors. And in a fashion similar to the chose in action, there is the "mere equity" that protects some underlying interest that would be acquired by applying the equitable remedy called for by the equity and that would otherwise be unprotected.[30] Thus, someone who has relied on a promise to be able to live in premises does not have a lease but under traditional law (and currently in English law) might have an equity enforceable as a right to possession against the owner.[31] Through the mechanism of equity, a spectrum of rights in between fully in rem and fully in personam can be achieved.[32]

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27. *See, e.g.*, Bernard Rudden, *Economic Theory v. Property Law: The* Numerus Clausus *Problem*, *in* OXFORD ESSAYS IN JURISPRUDENCE 239 (John Eekelaar & John Bell eds., 3d series 1987); Merrill & Smith, *supra* note 1, at 3–4.

28. *See, e.g.*, Jessica Hudson & Charles Mitchell, *Justificanda*, *in* PHILOSOPHICAL FOUNDATIONS OF THE LAW OF EXPRESS TRUSTS 12 (Simone Degeling, Jessica Hudson & Irit Samet eds., 2023); Ben McFarlane & Robert Stevens, *The Nature of Equitable Property*, 4 J. EQUITY 36, 36 (2010); JE Penner, *An Untheory of the Law of Trusts, or Some Notes Towards Understanding the Structure of Trusts Law Doctrine*, 63 CURRENT LEGAL PROBS. 653, 657–58 (2010).

29. Int'l News Serv. v. Associated Press, 248 U.S. 215, 236 (1918) (recognizing a quasi-property interest in the immediate commercial dissemination of independently gathered news); *see also* Shyamkrishna Balganesh, *Quasi-Property: Like, But Not Quite Property*, 160 U. PA. L. REV. 1889, 1892 (2012).

30. *See, e.g.*, G.C. Cheshire, *A New Equitable Interest in Land*, 16 MOD. L. REV. 1, 3 (1953); A.R. Everton, *"Equitable Interests" and "Equities"—In Search of a Pattern*, 40 CONVEYANCER & PROP. LAW. 209, 210 (1976); Jack Wells, What Is a Mere Equity?: An Investigation into the Nature and Function of So-Called 'Mere Equities' (2019) (Ph.D. dissertation, University of York).

31. *See* Errington v. Errington [1952] KB 290 (CA) (UK); Cheshire, *supra* note 30, at 3; *see also* Thorner v. Major [2009] UKHL 18; BEN MCFARLANE, THE LAW OF PROPRIETARY ESTOPPEL (2d ed. 2022). Such placeholder equities were also the origin of good faith purchase law. Someone defrauded of property would lose title but would retain an equity that would stand in for the right to reverse the transaction; the equity would travel into remote hands but could be overcome by a good faith purchaser for value.

32. Henry E. Smith, *Equitable Meta-Law: The Spectrum of Property*, *in* EQUITY TODAY: 150 YEARS AFTER THE JUDICATURE REFORMS 319 (Ben McFarlane & Seven Elliott eds., 2023).

What these various interests have in common is that their subject matter is not physical, which means rights violations cannot be defined in physical terms as is normally required by the possession-based tort of conversion. To assess the potential pros and cons of altering the concept of possession or of downplaying it, we must first understand what work it has been doing.

III. A THEORY OF POSSESSION — AND NON-POSSESSION

Possession has long served as a touchstone for property theory, with approaches ranging from nineteenth-century formalism to Legal Realist inspired skepticism.[33] Some theorists have tried to spell out possession in necessary and sufficient conditions at the level of detail that would tell one whether a given resource is possessed in a given context. At the same time, they claim that this very notion of possession operates in many areas of the law, such as proving standing for bringing property torts, presumptively proving title, and the like.[34] At the other extreme, some express skepticism that possession offers any guidance at all in a legal sense, contending that it is a sociological fact, and the various uses of the term "possession" in the law — for standing to bring property torts, adverse possession, relativity of title, and the like — have little to nothing in common.[35]

In the Restatement project, our working hypothesis is that possession is an important and unifying notion in the law, which draws heavily on social fact on the one hand and must be distinguished from related legal notions like the right to possess on the other.[36] Thus, possession is distinct from but interfaces with changing social mores surrounding technology, and it also has loose, non-deductive implications in a variety of areas of law. Thus, the question a Restatement such as ours faces is how to adjust possession and/or the parts of property law in which it operates in order to meet the challenges of new technology.

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33. FRIEDRICH CARL VON SAVIGNY, VON SAVIGNY'S TREATISE ON POSSESSION; OR THE JUS POSSESSIONIS OF THE CIVIL LAW (Sir Erskine Perry trans., London, S. Sweet, 6th ed. 1848); *see also* Richard A. Posner, *Savigny, Holmes, and the Law and Economics of Possession*, 86 VA. L. REV. 535 (2000).

34. *See, e.g.*, JOHN SALMOND, JURISPRUDENCE 287 (10th ed., 1947).

35. *See* Joseph W. Bingham, *The Nature and Importance of Legal Possession*, 13 MICH. L. REV. 535, 535–36 (1915); Burke Shartel, *Meanings of Possession*, 16 MINN. L. REV. 611, 612 (1932).

36. RESTATEMENT (FOURTH) OF PROP Vol. 1, Div. II, ch. 1 (AM. L. INST., Tentative Draft No. 2, 2021).

A. The Why and How of Possession

There is much loose talk surrounding possession, and as we will see, a fair amount of confusion relating to how possession actually functions in the law. This looseness and confusion prove especially troublesome for intangibles, which magnify the problems and weak points in the theory and practice of possession. To clarify the meaning and function of possession, this Section will provide a close analysis of the concept as it applies to tangibles. From there we will consider how possession fits into a general theory of property and what this means for intangibles.

The basic concept of possession arises out of two key facts of life in the material world:

(1) Many desired uses of physical things are possible only by means of establishing and maintaining a certain physical position in relation to them.

(2) The number of people who can be in this relation to a given thing simultaneously is sharply limited; attempts by one person to establish such a position will conflict with those of others.

The physical relation between a person and a thing that enables use is called control. Begin with the example of inanimate things small enough to be held in one person's hands or on their person: articles of food or adornment, tools, building materials, etc. Such things are physically inert; in order to derive any benefit from one I need to grasp and manipulate it. By grasping such a thing, I acquire the practical ability to move it, to subject it to force, to consume it. This is the key meaning of control.

Implicit in the idea of control for these purposes is a notion of intent. Someone is said to possess a thing only if they intend to control it. If someone happens to be sitting on a newspaper without realizing it, we would not say that they are in possession of it. A liminal situation arises when someone controls a container with the requisite intent but lacks knowledge of its contents. Here the law wavers, allowing for a general intent to control contents in some contexts and not in others, with a heavy use of presumptions.[37] For example, if a salesperson parks a car at an indoor garage in such manner that the garage takes possession of the car as bailee,[38] the bag of commercial samples in the trunk will not be "possessed" by the garage unless it is brought to the

37. *See, e.g.*, Robin v. Colaizzi, 166 N.Y.S. 978, 978–79 (N.Y. App. Div. 1917) (holding no presumed control of pocketbook left in checked coat). *See generally* RESTATEMENT (FOURTH) OF PROP. Vol. 3, Div. III, § 2 cmt. d (AM. L. INST., Tentative Draft No. 3, 2022).

38. *Id.* § 2, Reporters' Note, at 74–75.

attention of its agent.[39] On the other hand, one can take possession of a bag and its contents without knowing what they are or whether there are any.[40]

Note too that control in this sense of physical ability to use is something distinct — both conceptually and sometimes practically — from *exclusivity*. Someone living in isolation would still need to exercise control over things for the purpose of using them, even though there would be no interest in exclusivity. In a social setting, the relationship between control and exclusivity will vary with the natures of the resource and the desired use,[41] an ambiguity that will turn out to be important in the case of intangibles. For readily graspable objects of the type contemplated above, simultaneous control is not usually possible or desirable — either I am using the hammer, or you are.[42] In such situations, the same physical position that gives one the control needed to use the thing usually precludes other people from controlling it — at least, assuming that the others do not use force to supplant one in that position. This is the realm in which the interest in possession and the interest in being free from physical aggression are overlapping. Presumably respect for the latter interest is the most basic social norm, and so we do not need any distinct concept of possession to protect the ancillary interest in not having things wrested from our immediate control.

In a world with norms against aggression but no concept of possession, I can use something that I control without interference so long as I maintain control of it. But as soon as I relinquish control by putting it down or moving away, the thing becomes fair game for someone else to take and use. Such a system is perfectly fine for some things in some situations, and is not uncommon — e.g., use of the equipment in a public gym.[43] It becomes inadequate once there is a thing under my control about which I have two simultaneous desires:

(1) The desire to relinquish physical control of the thing for some time, e.g., in order to make use of other things, or to be free of the burden of carrying or wearing it.

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39. Greenberg v. Shoppers' Garage, 105 N.E.2d 839, 842 (Mass. 1952).

40. RESTATEMENT (FOURTH) OF PROP. Vol. 3, Div. III, § 2 cmt. d (AM. L. INST., Tentative Draft No. 2, 2021).

41. Some uses do not require control at all. Think of multiple people admiring the beauty of Mt. Fuji. Whereas use of a work of authorship may require control of a copy, but not exclusive control of the work.

42. To be sure, there may be times when it is useful or necessary for two or more people to cooperate in using a thing. But this will only work well if they either share a common purpose or recognize someone as entitled to set that purpose.

43. Though even there a form of possession is tacitly recognized, as people are understood to still be "using" equipment even during moments when they put it down to rest or even leave it momentarily, so long as other indicia of intent to resume use are present (and not too much time has passed).

(2) The desire to have it readily available for me to reestablish control over at a time of my choosing in the future.

Clearly, we often have these two desires with regard to many objects that we use regularly. Fulfillment of desire (1) is always in one's power. But desire (2) is trickier. Absent a social norm protecting it, the only option is the inconvenient one of guarding or hiding the thing when I am not using it. Otherwise, my ability to reestablish control in the future is likely to be impeded by the actions of others, who in the meantime may have altered, consumed, or established an ongoing control over it they are unwilling to relinquish. The solution is creation of a social norm mediated by a concept — possession — that turns the *physical fact* of control over a thing into a persistent *social status* as the person having the right to relinquish and reassume that immediate control without interference.[44] Once I recognize you as not just momentarily controlling a thing, but *possessing* it, I recognize you as having an interest in the thing that persists even during moments when you cease to exercise control.

For this to work as a generally applicable social norm, the following things need to be true:

(1) It must be readily discernible whether a thing one encounters is in another person's possession.

(2) The recognized means of establishing possession must discourage overreaching claims.

(3) The rights and duties that follow from possession must be readily understandable and not excessively burdensome.

Concern (1) is addressed by socially legible manifestations of intent to maintain exclusive control, buttressed by the default assumption that any valuable things one encounters belong to someone absent indicia of donation, abandonment, or absence of prior appropriation. Concern (2) is addressed by the requirement that one establish effective control, coupled with accession doctrines determining the scope of the thing possessed. As for Concern (3), the *in rem* duty imposed by the doctrine of possession is that of refraining from activities that damage the thing, or that deny or interfere with the

44. The Restatement Fourth of Property, like the earlier Torts Restatements, takes possession to be an enduring status unless displaced. RESTATEMENT (FOURTH) OF PROP. Vol. 1, Div. II, § 1.1 (AM. L. INST., Tentative Draft No. 2, 2021) ("A person has possession of a physical thing if the person has established effective control over that thing and manifests an intent to maintain such control to the exclusion of others.").

rightful possessor's right and ability to reassume control of it. This is where conversion and trespass to personal property come in.[45]

Linguistic usage is not always precise, but it is desirable to distinguish the following:

> Physical control: an immediate physical relationship to a thing that permits one to use it and/or determine how it will be used.
>
> Possession: a state of affairs initiating in physical control that persists even upon its relinquishment, so long as the thing is left in a place known and accessible to the possessor such that the possessor may readily reestablish control at will. Possession is lost if the thing becomes inaccessible to its prior possessor, or if some other person establishes their own physical control over it.[46]

We can think of the above two terms as denoting factual states of affairs. Yet unlike immediate physical control, possession-as-fact may not be clearly observable by third parties without reliance on assumed social norms: When I see a car left in an airport parking lot, I infer it has an owner who knows where he left it and intends at some point to retrieve it. And I understand myself and all other third parties to be bound by a social norm not to interfere with that intent. It is the universal recognition of this norm that permits me to regard the one most recently in control of the thing — who may be across the globe — as still retaining a practically justified expectation of being able to resume control upon returning, and thus remaining meaningfully "in possession" of something despite currently having no control. Thus "possession" is as much a social status as a factual state of affairs; you remain in possession as long as you are practically able to reestablish control at will, and you have that practical ability as long as other people refrain from interfering with it.

> Right to possession: a legal relationship to a thing that entitles one to establish (or recover) a state of factual

45. We will have more to say about conversion. For reasons touched on in the text, trespass to personal property is not well suited for intangibles. RESTATEMENT (FOURTH) OF PROP. Vol. 2, Div. I Ch. 3 (AM. L. INST., Preliminary Draft No. 4, 2018). *See infra* note 48 and accompanying text.

46. *See supra* note 44 and accompanying text.

> and legal possession of that thing, even if it is currently in the possession of another.[47]

If someone steals my car from the airport lot while I am in Australia, they have now cut off my practical ability to resume control, thus superseding my possession with their own. But I retain a right to have my possession restored.

The system of possession works for tangible objects because it is usually easy to discern whether a thing is in the possession of someone (the car is in a parking spot and not a heap of junk in a ravine), and the duty that flows from this fact is easy to understand: do not take actions that will interfere with the possessor's ability to reestablish control over the thing or that harm its usability. And to make it even easier, we tend to simplify this to a bright line rule: refrain from taking control or intermeddling with the thing.[48]

Another simplifying assumption is that anyone who has possession-in-fact also has the *right to possession*. This enables most disputes over possession to be resolved by focusing solely on who has the better right to possess under the law of ejectment.[49] Evidence as to who was the prior possessor is usually not difficult to produce, and as between the two parties, it is the one who disrupted this preexisting status quo that has to justify their actions. One way to do this is for the taker to establish a right of possession superior to that of the prior actual

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47. RESTATEMENT (FOURTH) OF PROP. Vol. 1, Div. II, § 1.8 (AM. L. INST., Tentative Draft No. 2, 2021) ("The right to possession is the legal right to gain possession of a physical thing or prevent its loss. A person in possession of a physical thing typically has a right to possession against all except those with superior title. A person not in possession of a physical thing who has a superior title relative to the actor in possession also typically has a right to possession. A person not in possession who asserts a right to possession based on superior title can typically gain possession only if the right is to immediate possession."). Earlier Restatements did not make this distinction, perhaps because they did not cover actions like ejectment or perhaps because this distinction is easy to elide.

48. This Article is about conversion, but it is worth noting that the other personal property tort, trespass to personal property (aka trespass to chattels) has been somewhat harder to define: it can involve dispossession but also other interactions with things. These interactions have to rise to the level of intermeddling and some courts see this as including a requirement of physical damage or impairment of use. *See, e.g.*, Maureen E. Brady & James Y. Stern, *Analog Analogies:* Intel v. Hamidi *and the Future of Trespass to Chattels*, 16 J. TORT L. 205 (2023). And if anything, the extension of trespass to personal property outside the physical realm presents worse problems of notice and expansive liability than does conversion of intangibles. As a result, there is little authority for — or reason to advocate — the extension of trespass to personal property into the domain of intangible things.

49. RESTATEMENT (FOURTH) OF PROP. Vol. 2, Div. I, § 0.1.1 (AM. L. INST., Tentative Draft No. 2, 2021) ("An actor who wrongfully possesses real property is subject to liability in ejectment to another holding a superior right to possession. A successful ejectment action entitles the plaintiff to be put in possession and may also entitle the plaintiff to damages."); *see also* RESTATEMENT (FOURTH) OF TORTS: REMEDIES § 58 (AM. L. INST., Tentative Draft No. 3, 2024) ("Recovering or Protecting Interests in Land"). As in earlier law, one could focus on the manner in which the current possessor superseded the immediately previous one in that role (as in the old action for "novel disseisin").

possessor. But absent such a showing, the default assumption is that an actual possessor has a right to possession good against any taker,[50] and that anyone deliberately interfering with this right is liable for conversion.

The conceptual innovation of a "right to possession" (which is really a right to *reestablish* possession) that can persist even while the thing is possessed by another enables the law to remedy dispossession by putting things back into the hands of the dispossessed.[51] But it also permits the law to conceptualize transactions in which a possessor permits another to make conditional use of a thing without thereby forfeiting all claim to it. The ability to lend, rent, or otherwise entrust a thing of mine to your possession, knowing that you are bound to redeliver it unharmed, makes possible a wide variety of valuable cooperation in the use and improvement of resources.

The practical link between control and exclusivity that characterizes use of physical things forms a crucial premise of the default in rem rules governing bailment. As we have explained, the possessor of a thing either has actual control (which is by nature exclusive), or the possessor has a relationship to the thing that forbids others in most cases from interacting with it. This means that absent any violations of duty, the fate of the thing is entirely under control of its current possessor, insofar as its fate is under human control. This makes the possessor of a thing its gatekeeper, who determines what shall be done with it, where it shall be left when not in use, and who shall be authorized to interact with it. All of this is readily understood to follow from the observable fact of possession, which, again, originates in the act of establishing and manifesting an intent to maintain exclusive control.

It follows that when I place my possession into your hands, the only thing we need to communicate about is the purpose of this transfer. Either I am relinquishing all my rights in the thing to you (as in gift or delivery after purchase), or the transfer is to enable you to interact with the thing for some mutually understood and temporary purpose. In the latter case, we need not contract about the nature and scope of your duties to me while in possession of the thing, because they follow naturally from the baseline concepts already in use. The only thing that prevents your superseding possession from being conversion is my authorization, which means that your use of the thing has to stay within

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50. This would be more than a mere possessory right. See LUKE ROSTILL, POSSESSION, RELATIVE TITLE, AND OWNERSHIP IN ENGLISH LAW 27–36 (2021).

51. *See* RESTATEMENT (FOURTH) OF PROP. Vol. 1, Div. II, § 1.8 (AM. L. INST. Tentative Draft No. 2, May 2021); *see also* ALBERT KOCOUREK, JURAL RELATIONS 364–71 (2d ed. 1928); *see also* YUN-CHIEN CHANG, *The Economy of Concept and Possession*, *in* LAW AND ECONOMICS OF POSSESSION 103 (2015); Henry E. Smith, *The Elements of Possession*, *in* LAW AND ECONOMICS OF POSSESSION, *supra*, at 65.

bounds I have authorized. Because you are establishing an immediate possession of the thing, you are assuming the status of gatekeeper and are thus presumptively responsible for any harm that comes to the thing while you possess it. But you assume those duties only if and when you actually take exclusive control. Bailment thus functions as an application of basic in rem norms to a situation whose character is determined by an in personam transaction.[52] The parties are free to alter most of the default rules governing this relationship by means of in personam agreement, but the only crucial thing is for the bailee to know the intended purpose of the bailment.[53]

B. Managing the Control of Things in a Nonphysical World

To see how all this might or might not be extended to intangibles, we now step back and ask how possession fits into a theory of things and the delineation of rights to them. One of the key themes of the Restatement's approach to property law is that property only governs relationships between people insofar as those relationships are focused on and mediated by their desired interactions with *things*.[54] There are various ways in which we can conceptualize what we mean by a "thing" for this purpose, and which sorts of "things" can properly be made the subject of property rights (note that the following questions represent two different stages of analysis). The first question is: what sorts of phenomena, tangible or intangible, are usefully intelligible as "things" in the first place? Being intelligible as a thing is a necessary prerequisite to being a possessed or owned thing. But just because we can all recognize a particular "thing" doesn't mean that it's a good idea to recognize *property* in that thing.

At an abstract cognitive level, things can be thought of as modular collections of attributes.[55] We confer "thinghood" on particular groupings of observable attributes based on the relative density of the

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52. RESTATEMENT (FOURTH) OF PROP. Vol. 3, Div. III (AM. L. INST., Tentative Draft No. 3, 2022).

53. *See, e.g.*, Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 811–20 (2001); Christopher M. Newman, Bailment and the Property/Contract Interface (September 2, 2015) (unpublished research paper) (on file with George Mason University).

54. RESTATEMENT (FOURTH) OF PROP. Vol. 1, Div. I, § 1 (AM. L. INST. Council Draft No. 1, Sept. 2019) ("As used in this Restatement, 'property' refers to rights, obligations, and other legal relations among persons in and through a thing."); *see also* Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691 (2012).

55. Smith, *supra* note 54, at 1700–16; Henry E. Smith, *The Complex Architecture of Property Rights*, *in* HANDBOOK ON INSTITUTIONS AND COMPLEXITY (Eric Alston et al. eds., 2025); *see also* Ted Sichelman & Henry E. Smith, *A Network Model of Legal Relations*, 382 PHIL.TRANSACTIONS ROYAL SOC'Y, Feb. 26, 2024, at 11–16 (providing a network theory approach to legal modularity and applying it to Hohfeldian legal relations in property).

cognitive and functional relations between them.[56] At an operational level, the current Restatement draft defines a "thing" as "a possible subject matter of legal relations that receives treatment as a separate whole and is no more than contingently associated with any particular actor."[57] Property law works by recognizing certain classes of things, and then specifying norms to prevent value-destroying conflict with regard to their use.[58] An intangible can serve as a "thing" in all the senses described above, so long as it is well-defined enough so that its scope, and the nature of the legitimate use interests people may have in it, are socially-intelligible. If so, we can ask the next question: whether the nature of those interests, and the forms of control on which they rely, fit comfortably within an existing possession-based conceptual framework.

As we will see, the most difficult type of intangible is pure data. To decide how the concept of possession might apply to data, we first need to examine its nature and the types of interest people have in it. Data is information, specifically information that has been gathered and recorded in some form. Let us call any discrete collection of information a "file,"[59] and any physical embodiment in which the file is stored an "instance."[60] It is possible for any number of instances of the same file to be in existence simultaneously, though it may be

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56. *See supra* note 55 and sources. Alternatively, one of us has attempted to define the subset of such "things" that animate property law as those constituting "a discrete and intelligible nexus of human activity with respect to which actions by different persons are likely to come into conflict." *See* Christopher Newman, *Using Things, Defining Property*, *in* PROPERTY THEORY 69, 90 (James Penner & Michael Otsuka eds., 2018).

57. RESTATEMENT (FOURTH) OF PROP. Vol. 1, Div. I, § 2 (AM. L. INST., Council Draft No. 1, Sept. 2019); *see, e.g.*, J.E. PENNER, THE IDEA OF PROPERTY IN LAW 111 (1997); Frederick Pollock, *What Is a Thing?*, 10 L.Q. REV. 318, 318 (1894).

58. *See generally* CHRISTIAN VON BAR, FOUNDATIONS OF PROPERTY LAW: THINGS AS OBJECTS OF PROPERTY RIGHTS (Jason Grant Allen transl., 2023) (outlining framework of property as based on things and protection of owners' relation to them); J.W. HARRIS, PROPERTY AND JUSTICE 5–14 (1996) (introducing framework for analyzing property in terms of trespassory protection or assignable wealth); PENNER, *supra* note 57, at 68–152 (setting out exclusion and separation of these and discussing the duty of noninterference in property law); Smith, *supra* note 54, at 1709–16 (analyzing property as protecting against owners' interest in using things against interferences by others generally).

59. We mean this term to refer to a discrete and identifiable set of information but conceptualized in the abstract as distinct from any particular physical embodiment — just as copyright law distinguishes between a "work of authorship" and a copy. The distinction between a work and a copy is foundational to the first sale doctrine. 17 U.S.C. § 109. Works of authorship thus form a subset of the category of "files" as we are using the term while many files consist of aggregations of information that do not qualify as works of authorship.

60. Following Grimmelmann & Mulligan, supra note 6, at 831–34, 842, 845–49 (discussing the significance of data versus an instance of data and noting that "file" is used in computing to denote a collection of information). *See generally* K.K.E.C.T. (Koen) Swinnen, *Ownership of Data: Four Recommendations for Future Research*, 5 J.L. PROP. & SOC'Y 139 (2020) (setting out framework for seeking precision in both the goals and objects of data ownership). Thus, a hardbound book, as well as an eBook on a hard drive, are both instances of the "file" consisting of the informational contents of the book. Those contents may or may not qualify as a work of authorship for purposes of copyright law.

difficult to ascertain whether two different instances are indeed of the same file, without detailed examination of the data contained in them.

People get direct utility from data in two primary ways. They can use it to inform themselves (as in reading a price list, enjoying a novel, or obtaining information from an image), or they can use it as an ingredient in the production of other data (as when one dataset is combined with another in a database so as to generate new information). To engage in any of these uses, one needs access to an instance of the file. One way to acquire such access is through possession of a physical medium in which it is recorded. That is, one can take possession of a piece of paper, a tape, or a disk that contains an instance of the file. But in a digital online environment, one can also have effective access to a file via an instance in the physical possession of some remote party. When it comes to information, the internet permits people to engage in use-at-a-distance.[61] The nigh-costless ease with which files of data can be duplicated and transferred is a key feature of the digital world that differentiates "data" from tangible things. It would be surprising if this did not have implications for the functional concept of possession.

As outlined above, possession is a concept focused on preserving the relationship between a person and a thing that enables the person to make reliable use of the thing. Instances of data files are tangible things (e.g., papers, vinyl LPs, digital storage media), and to that extent they fit seamlessly within the traditional rules of possession. Yet there are key aspects of data instances that differentiate them from other tangible things. One is that the value of the data is entirely distinct from, and may be much greater than, the value of the thing itself. Indeed, a user of data is usually indifferent as to the identity of the storage medium, so long as it affords two things: (1) accessibility — the ability to readily obtain access to the data at will; and (2) integrity — the ability to rely on the data contained in the instance being an accurate representation of the desired file. Any instance that offers these qualities with equivalent reliability is fungible. Decisions as to how many instances I would like to maintain, and how and where they are stored, are purely matters of convenience and security against the possible loss of access to the data itself. Copies of this Article (a file) are currently on multiple hard drives in the control of the authors, stored multiple places in cloud storage with access to the authors, and stored variously by the various people to whom we have emailed it and those to whom they may have distributed it, etc.

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61. Of course, as a practical matter, use of remotely stored data always involves the creation of additional new instances of the dataset that are in the possession of the user, even if only transiently (e.g., RAM copies).

Nor does my interest in use of a data file have any necessary or even likely connection to exclusive control over the information contained in it.[62] As long as I have access to an instance of a file, my ability to use the data is entirely unaffected by the existence of other instances of the same data being used by other people. And conversely, my exclusive control over some instance has no impact on whether other people have access to the same data. Put simply, when I interact with an instance of a given file, nothing about that interaction permits me to infer whether any other instances of the same file exist or who has access to them. Which means that unlike the bailee of a tangible thing, the holder of a file instance cannot be charged with any default gatekeeper status of the value of the file itself.[63] The instance may be one of numerous fungible backups, or the sole existing copy of an irreplaceable dataset, and nothing about the instance itself can tell us which it is.

What, then, might it mean to "possess" or "control" a data file, as opposed to possessing or controlling an instance of it? Where possession is more than a mere signaling device, it is that relationship to a thing that enables me to make ready use of it. If so, I am in "possession" of a data file so long as there is at least one instance of it to which I have ready access. The question then becomes what it would mean to apply the doctrine of conversion to this notion of "possession," and whether the benefits of doing so outweigh the costs.

IV. CONVERSION OF INTANGIBLES

Conversion traditionally protects the right to possession of tangibles yet has long been regarded as notoriously resistant to clear definition.[64] We can begin to meet this challenge by focusing on the established remedy — as a practical matter, conversion can be described as the sort of interference with property that justifies a

62. To be sure, there are reasons why one might have an interest in exclusive control over data as such, as where one has privacy interests or wishes to control access to a work of authorship. This is the problem addressed by doctrines of privacy law or intellectual property, and it is distinct from the non-exclusive interest that people have in making their own direct uses of data files.

63. For an argument that bailment should be extended to data, see D'Onfro, *supra* note 6.

64. As John Salmond famously remarked: Forms of actions are dead, but their ghosts still haunt the precincts of the law . . . . In particular the law of trover and conversion is a region still darkened with the mists of legal formalism, through which no man will find his way by the light of nature or with any other guide save the old learning of writs and forms of action and the mysteries of pleading. J.W. Salmond, *Observations on Trover and Conversion*, 21 L.Q. REV. 43, 43 (1905); *see also* PROSSER & KEATON ON TORTS § 15, at 88 (asserting that conversion "almost defies definition"); Burroughs v. Bayne, 5 H. & N. 296, 308, 157 Eng. Rep. 1196, 1200 (1860) (Bramwell, B.) ("It seems to me, after all, no one can undertake to define what a conversion is."); Martin v. Sikes, 229 P.2d 546, 549 (Wash. 1951).

remedy of forced sale.[65] Most incidental, transient interferences with actual possession will stay within the realm of trespass. We remedy them by requiring that possession be returned to the party entitled to it, along with damages resulting from the interference. What differentiates such trespass (a property tort) from general negligence liability is that it involves intentional *possessory* acts that create strict liability for harm to the owner's *possessory* interests.[66] To rise to the level of conversion, these acts must radically harm or threaten the value of the *right* to possess itself.[67] This occurs when a person both exercises unauthorized possession, and does so in a manner that either (1) manifests deliberate denial of the owner's rights, or (2) results in the thing's loss or such alteration as to destroy the owner's interest in using it. We remedy this by requiring the converter to take and pay for full ownership of the thing, thus compensating the prior owner for loss of the right itself.[68]

The logic of conversion as applied to tangibles is based, again, on the intimate intertwining of control and exclusivity in that realm. By taking possession of your thing, I cut off your capacity to control it. If I couple this with a manifest denial (explicit or implicit) that I am bound to respect your wishes concerning the thing at all,[69] I directly usurp your socially legible status as the person *entitled* to control it. Forced sale recognizes this changed state of affairs by permitting the aggrieved owner to exit the compromised relationship to the thing and seek to replace it with another. Even absent such a manifest denial, if my wrongful possession of the car leads to it being lost or totaled, I have likewise destroyed the value of the right to possess it and can be required to pay for this. I place myself at risk for this kind of liability only by choosing to take possession of the thing in the first place, and the requirements for taking possession of a tangible thing are that I

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65. The Second Restatement of Torts builds forced sale into the definition of conversion. RESTATEMENT (SECOND) OF TORTS § 222A(1) (AM. L. INST. 1965) ("Conversion is an intentional exercise of dominion or control over a chattel which so seriously interferes with the right of another to control it that the actor may justly be required to pay the other the full value of the chattel."). Note that the Second Restatement of Torts builds the notion of possession and hence physicality into the standing rules for conversion. *Id*. §§ 224, 225.

66. ARTHUR RIPSTEIN, PRIVATE WRONGS 43–52 (2016) (distinguishing two types of wrongs in tort based on using and damaging, with conversion and negligence as prime examples, respectively).

67. *See supra* note 44 and accompanying text. Currently the draft formulation is: "An actor is subject to liability to another for conversion of an item of personal property if the actor intentionally exercises such control over the item as to deny another's superior title." RESTATEMENT (FOURTH) OF PROP. Vol. 1, Div. II, § 1.1 (AM. L. INST., Tentative Draft No. 2, 2021).

68. *See* RESTATEMENT (SECOND) OF TORTS § 222A (AM. L. INST. 1965)*; see also* RESTATEMENT (FOURTH) OF PROP. Vol. 2, Div. II, Ch. 5 (AM. L. INST. Preliminary Draft No. 4, Sept. 2018). The R4P offers a gist element of definition that refers to the forced sale and an elements definition. Currently the Draft is being revised to unify the definition without reliance on this as an element.

69. As in, for example, destroying it, receiving it from a wrongdoer, misdelivering it, denying access to it, and the like.

cannot do so without thereby having notice of my new status and potential liability.

If conversion is about harming the right to possession, and possession is about physical control, there is no room for conversion of intangibles. And yet we do have interests in the use of intangibles, and those interests can also depend both upon practical capacities for control and socially-legible entitlements to do so. As conflicts over intangibles have become more important, some courts and commentators have loosened the definition of conversion to fit them.[70] This can be done in a variety of ways.

The most radical approach would be to simply redefine possession so that it applied broadly to any form of control over any valued "thing."[71] Such a sweeping move seems surely procrustean; there is too much potential variation between types of "control," many of which, if legally protected, would impose intolerable in rem burdens.[72] Possession of tangibles works because it ratifies a readily discernible de facto state of affairs and imposes a general duty that is fairly easy to comply with. The problem here is not that the practical meaning of control has to be identical for every owned thing. The standards for effective control that underlie doctrines of original appropriation and possession have to be cashed out differently depending on whether one

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70. *See, e.g.*, Kremen v. Cohen, 337 F.3d 1024, 1030 (9th Cir. 2003) (taking California law of conversion to extend to intangibles like domain names with regard to at most a weak version of merger unlike traditional possession); Pey-Woan Lee, *Inducing Breach of Contract, Conversion and Contract as Property*, 29 OXFORD J. LEGAL STUD. 511, 529 (2009) (arguing for the extension of conversion to excludable interests other than those sounding in physical possession).

71. The New York Court of Appeals has implicitly taken this approach as a first cut. *See, e.g.*, Thyroff v. Nationwide Mut. Ins. Co., 864 N.E.2d 1272, 1278 (N.Y. 2007) ("We . . . hold that the type of data that Nationwide allegedly took possession of — electronic records that were stored on a computer and were indistinguishable from printed documents — is subject to a claim of conversion in New York."). Generally, the approaches that are more open to conversion of intangibles based on skepticism of the limits of possession do not simply redefine possession as not physical without regard to other sources of limits on what kinds of control are relevant, what kinds of things need protection, and even what kinds of resources are to be considered things. *See, e.g.*, LAW COMMISSION, DIGITAL ASSETS: FINAL REPORT (2023); SARAH GREEN & JOHN RANDALL, THE TORT OF CONVERSION 118–43 (2009); see also João Marinotti, *Possessing Intangibles*, 116 NW. U. L. REV. 1227, 1232 (2022) (arguing that possession "is the *mechanism* through which the status of *in rem* property claims is conveyed" and can be redefined in a limited way to cover nontangible things); Mysoor, *supra* note 16, at 300 (arguing for limited analogical version of possession as operative in copyright and noting that possession may be easier to establish "possibly in the context of an action akin to conversion" of digital assets).

72. A common point of comparison is the tort of tortious interference with contract. The tort protects against willful inducement of breach, without a duty to inquire about the possible presence of a contract. Richard A. Epstein, *Inducement of Breach of Contract as a Problem of Ostensible Ownership*, 16 J. LEGAL STUD. 1, 15–16 (1987). And the tort does not make one liable under the contract but only for the interference. Even expansive approaches to conversion see contract and property as falling along a spectrum in this regard. Lee, *supra* note 70, at 513, 523–25 (arguing that property is a relative concept embracing the tort of inducing breach of contract).

is dealing with land, goods, whales, foxes, fugitive mineral resources, or riparian water flows. But despite the differences, all these tangibles have in common the link between control and physical proximity, the ready visibility of de facto exercises of control, the high likelihood that attempts at simultaneous control will lead to conflict, and (to varying degrees) the fact that any control conferring the ability to use a thing makes one a presumptive causal agent in anything that happens to it. Where these similarities are relaxed or absent, the functional logic of possession-based doctrines begins to unravel. If control is not readily visible because it is not based on physical proximity, how do I know whether I or others have established it, or when someone else may be engaged in adverse possession? If simultaneous control is possible, then even observable acts of control don't necessarily imply wrongful interference with "possession." If there is no clear analog to exclusive control, then it is difficult to know what duties are imposed by the right to possession or what it would mean to destroy the value of that right and commit conversion.

Intellectual property regimes do not work by identifying the valued thing and simply applying trespass or conversion doctrine; they work by identifying specific categories of action that are both likely to harm the IP owner's legitimate interest in the thing, and narrow enough to avoid causing protection of them to place intolerable burdens on duty bearers' interests in their own productive and competitive activities. This doesn't take such regimes outside the conceptual realm of "property": it merely highlights that property law doesn't attempt to solve every problem through strict exclusion from things.[73] The exclusive rights created by IP law all use defined "things" (inventions, works of authorship) as their focal point and identify as infringing certain categories of activities directed *at those things*. It is just that the activities in question are defined at a more granular level than "usurpation of control."

A small step toward conversion liability for intangibles is to allow it in the case of indispensable documents. If an intangible is evidenced by a tangible document and holding the document is necessary to exercise the rights, then possession of the document is an effective proxy for control of the intangible.[74] It should be a straightforward matter to conceive of the intangible as a thing having value that is distinct from that of the document itself, but that can be effectively possessed (and hence converted) by means of possessing the document, just as one can take effective possession of a car by confiscating the keys.

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73. *See* Newman, *supra* note 56.

74. *See, e.g.*, Quantlab Techs. Ltd. (BVI) v. Godlevsky, 719 F. Supp. 2d 766, 778 (S.D. Tex. 2010) (discussing doctrine).

Similarly, there are some intangible assets, such as domain names, whose control and use depend on being designated as the asset's owner in some form of online registry. In this realm the distinction between possession as a practical matter and formal recording of one's *right* to possession may collapse entirely. To make use of a domain name — i.e., as a means of directing internet traffic to one's website — one must be designated as its owner in the relevant DNS registry, so that queries using it will resolve to the desired IP address.[75] Such a relationship is by nature both exclusive and readily observable, and there is no other practical means of establishing control of a domain name. Actions wrongfully tampering with one's listing in the registry can thus deprive one of control in a manner closely analogous to losing possession of a physical resource, making this a fairly easy case for application of conversion liability.[76]

Blockchain has attributes that may permit similar reasoning by analogy. Blockchain works by creating publicly visible ledgers that record ownership claims to various assets in a manner resistant to falsification.[77] If the underlying asset is tangible, holding blockchain title does not of itself confer possession any more than holding record title confers actual possession of land. But as in the case of a land registry, it would be possible to treat blockchain as an authoritative record of enforceable rights under conversion. Blockchain can be used to tokenize an intangible asset, thereby making it "unique." Commentators who are not inclined to extend conversion nevertheless find some crypto assets, and especially those based on blockchain, more amenable to conversion liability despite their intangibility, because their treatment gives rise to a defined set of control-like activities that can be usefully protected in this fashion.[78] Prominent

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75. *See, e.g.*, Marinotti, *supra* note 71, at 1277–78.

76. *See, e.g.*, CRS Recovery, Inc. v. Laxton, 600 F.3d 1138, 1144–47 (9th Cir. 2010) (applying California law to allow a conversion claim when an actor uses forged records to change domain registry); Eysoldt v. ProScan Imaging, 957 N.E.2d 780, 786 (Ohio Ct. App. 2011) (permitting jury to consider conversion claim when an actor changed domain registry records to prevent owner's access); Kremen v. Cohen, 337 F.3d 1024, 1033–36 (9th Cir. 2003) (applying California law to allow conversion claim when an actor uses forged records to change a domain registry). *But see* Famology.com Inc. v. Perot Sys. Corp., 158 F. Supp. 2d 589, 591 (E.D. Pa. 2001) (holding that under Pennsylvania law domain names cannot be converted).

77. Not totally resistant. Commanding 51 percent of computing power is not always required, and under some circumstances can be achieved anyway. *See, e.g.*, Kelvin F.K. Low, *Confronting Cryptomania: Can Equity Tame the Blockchain?*, 14 J. EQUITY 240, 249–50 (2020).

78. They may count as choses in action, see Kelvin F.K. Low, *Cryptoassets and the Renaissance of the* Tertium Quid*?*, *in* RESEARCH HANDBOOK ON PROPERTY LAW AND THEORY (Chris Bevan ed., 2024), or they may be a right to a registry entry, see Kelvin F.K. Low & Ernie G.S. Teo, *Bitcoins and Other Cryptocurrencies as Property?*, 9 L., INNOVATION, & TECH. 235, 252–54 (2017). The "thing" may be a transactional ability, see

among assets associated with blockchain are non-fungible tokens ("NFTs"), which generally confer a status of "ownership" with regard to intangible digital assets (e.g., an image), without any pretense of conferring actual control over the asset's use.[79] Because this relationship to the asset is unique and observable, somehow depriving an NFT owner of their blockchain designation as such could be treated as conversion without much difficulty.[80] And establishing conversion liability for tokens themselves does nothing to ensure that such liability would protect ownership of any other external asset (e.g., land, a work of art, a bottle of wine, etc.) "associated" with the token; that link would depend on the surrounding legal infrastructure, not the ledger technology itself.[81]

Back to data files. People routinely generate, acquire, and wish to store data files for a variety of purposes. The information in such files varies widely, but it can have great personal or commercial value and be very costly to reconstruct in case of loss.[82] Most people store their files, at least in part, on tangible storage media within their possession, and to that extent their possessory rights to those tangible objects serve also to protect the data instanced therein. But while this protection may deter theft and aid in the recovery of, say, a stolen hard drive, it is not clear to what extent tampering with the information on that hard drive would constitute a property tort. If the tampering involves possessory interference with the drive, it presumably falls within trespass to personal property, but absent damage to the drive itself, it is not clear to what extent loss of data is compensable as damages for the trespass. Moreover, in a world where devices are interlinked electronically, it is possible to tamper with files remotely, without taking physical possession of the drive. We are thus left asking whether unauthorized remote access should be analogized to trespass.[83] There is a fairly good

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Timothy Chan, *The Nature of Cryptoassets*, 43 LEGAL STUD. 480, 485–88 (2023). For an argument that because they are not physical things and are of dubious social value, crypto assets should not be treated as property in the absence of legislation, see Stevens, *supra* note 11.

79. *See* Timothy Chan & Kelvin F.K. Low, *Blockchain Tokenisation: 'NFTy' Trick or Griftonomics?*, *in* FRAUD AND RISK IN COMMERCIAL LAW 102, 102–06 (Paul S. Davies & Hans Tjio eds., 2024) (discussing tokenization).

80. Not all NFTs may be equally ready to subject to the law of conversion, and much turns on the social practices surrounding them. For an argument that CryptoKitties would have boundaries of use liberties and noninterference duties that would be too indiscernible for these NFTs to count as legal things, see Marinotti, *supra* note 11, at 728–34 (2021).

81. *See, e.g.*, Benito Arruñada, *Prospects of Blockchain in Contract and Property*, 8 EUR. PROP. L.J. 231, 239–42 (2019); Timothy Chan & Kelvin F.K. Low, *Blockchain Tokenisation: 'NFTy' Trick or Griftonomics?*, (May 26, 2023), https://ssrn.com/abstract=4459873.

82. Data loss is a kind of cyber loss, for which insurance has been developed. Erik S. Knutsen & Jeffrey W. Stempel, *The Techno-Neutrality Solution to Navigating Insurance Coverage for Cyber Losses*, 122 PA. ST. L. REV. 645, 648 (2018).

83. *See, e.g.*, Orin S. Kerr, *Norms of Computer Trespass*, 116 COLUM. L. REV. 1143, 1153–61 (2016).

case that it should, because such access does involve rival acts of control and manipulation of the useful physical attributes of the drive, but this still leaves the question of whether destruction of data is compensable in an action for trespass to an unharmed drive.

Even if the scope of liability for trespass to personal property were fully clarified to encompass damage to data, treating the data as merely a protected attribute of the tangible medium would fail to capture the ways in which people actually think about their relationship to data files. People are often in the position of using digital devices owned by employers or others, sometimes under circumstances where convenience and social practice make it foreseeable that personal files will be incidentally stored there, much as people tend to have items of personal property stored in their offices.[84] In the tangible realm, we understand clearly that while my employer may fire me and exclude me from their office space, I am entitled to regain possession of my personal property though retrieval or delivery.[85] Absent some notion of a right to possess data files themselves, exercising a superior right to take possession of the storage medium comes without any in rem obligation to preserve or provide a prior possessor the chance to retrieve any files stored on it. Similarly, most of us use cloud services to store data. Absent some notion of files as possessed things, our relationship to cloud storage providers is entirely based on contract.[86] Which may be just fine, but some people are wary of allowing such businesses to escape the baseline duties that are understood to bind bailees even without (and to some extent, in spite of) actual agreement.[87]

If we are going to impose in rem liability on people for depriving others of "possession" of their files, we need a notion of control that gives people clear notice when they are in danger of bringing about this result. And if we are going to impose bailee duties on people who come into "possession" of files, we need to know what sorts of actions, when deliberately taken, create this relationship and are needed to maintain it.[88] In this realm, the sets of actions having the former effect may not

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84. This is the scenario that led the New York Court of Appeals to allow conversion to extend to data files. *See* Thyroff v. Nationwide Mut. Ins. Co., 864 N.E.2d 1272, 1278 (N.Y. 2007). For a discussion of how conversion is both technical (unlike assault and battery, or, it might be added, trespass) and yet intuitive ("stealing") and how cases like *Thyroff* highlight these aspects of conversion, see JOHN C.P. GOLDBERG & BENJAMIN C. ZIPURSKY, THE OXFORD INTRODUCTIONS TO U.S. LAW: TORTS (2010).

85. Lisa K. Berg, *Indispensable Termination Checklist*, Employment Law Update, SB004 ALI-CLE 329 (2019) (discussing inter alia issues of personal belongings of terminated employees).

86. For an argument that much of the law of intangibles can be handled by the law of contract, see Crawford, *supra* note 11.

87. D'Onfro, *supra* note 6.

88. They are not always identical in tangible property either. I can convert your car by blowing it up without establishing my possession. But in the vast majority of cases, it is my act of taking possession that deprives you of yours.

be identical to those having the latter. To the extent that the only practical way for the needed information to be obtained is through direct communication between the two parties involved, this should raise severe doubts about whether property concepts such as possession or their analogues are appropriate. The whole point of in rem norms is that they enable people to understand and comply with their duties simply by applying background knowledge to readily observable facts about things at large.[89]

The problem with data files is that the relevant facts needed to apply in rem norms are not readily observable. When I take possession of a computer, I know exactly what my relationship to the physical device is, and what effects my actions will have on the interests of others in accessing and using it. But the existence and identity of any particular files that may be stored on that computer are far less readily discernible. Even if I know of a file's existence, I have no way of knowing — absent personal communication — what role that instance plays in maintaining anyone's else's capacity to access and use the information it embodies. Depending on the circumstances, a saved file could be one of many fungible copies, or something unique and irreplaceable. Certainly, actions that deliberately disrupt or destroy the ability of another person to access and use valued data seem normatively comparable to conversion. But the strict conversion liability that applies to unauthorized possession of tangibles — even by parties who innocently come into downstream possession — seems unjustifiably draconian in a realm where my mere possession of a copy of a file may have no effect whatsoever on your interest in accessing and using the same information.[90] In this realm, it seems that charging me with "possession" of a data file should require more than my mere physical possession of a storage medium containing it, and that charging me with "conversion" of data should require a knowing and intentional interference with your relationship to that data, not merely a possessory interaction with some given copy of it.

Given these difficulties with data files, it is perhaps easier to say what should not count as conversion than what should. Whether by legislation or judicial decision, conversion should be extended cautiously, if at all. Redefining possession would be far too sweeping for all the reasons we have covered. Perhaps conversion could be extended in the case of data files to denial of all access: one would be a converter only if one denied all access to its current holder, as by

89. *See supra* note 55–58 and accompanying text; *see also* PENNER, *supra* note 57, at 75–76; Robert C. Ellickson, *The Inevitable Trend Toward Universally Recognizable Signals of Property Claims: An Essay for Carol Rose*, 19 WM. & MARY BILL RTS. J. 1015, 1022–32 (2011).

90. For discussion, see Tatiana Cutts, Possessable Digital Assets, LSE Policy Briefing No. 47 (July 28, 2021) (unpublished research paper) (on file with London School of Economics).

deleting what one knows is the only copy. Limiting conversion in this way would be particularly important for someone down the line who comes into contact with a file. The idea of courts or law reformers extending liability in such a way that one can unwittingly become a converter just by dealing with a file should give one pause, especially as practice is evolving in this area.[91]

V. THE CO-EVOLUTION OF TECHNOLOGY AND THE LAW

Conversion of intangibles is a challenge that exemplifies important features of the common law as a loose system. Since at least the days of legal realism, technological and social changes are rightly seen as a challenge to existing legal rules and even legal concepts. However, it does not follow (as it is often said to) that the law must become more complex or reflect in a one-to-one fashion the ever-changing mosaic of reality. Nor does it follow that in order to be responsive the law must eschew reliance on a system of concepts ("conceptualism") and generally allow policy analysis to feature directly at the point of application of the law. As we saw in Part III, new values conflicts may call for policy-driven reconfigurations of a fairly robust — but loosely connected — system. In this Part, we draw out some implications for property law and for private law theory.

Intangibles are a laboratory for property law in action. New technologies raise questions simply not addressed by the focus on tangibility in the law.[92] One response would be to say that property is a bundle of rights, and each stick is justified on its own, as between pairs of people. On this view, not only possession but thinghood are neither here nor there.[93]

We argue that generally possession is best left somewhat abstract and open-ended in order to accommodate change both in the social and legal systems which it connects. On the one hand, possession in law would be in constant turmoil if it needed to be redefined with each

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91. RESTATEMENT (FOURTH) OF PROPERTY Vol. 2, Div. I, § 5.2, cmt. g (AM. L. INST., Preliminary Draft No. 4, Sept. 2018) (conversion of intangibles). *Compare* Shmueli v. Corcoran Grp., 802 N.Y.S.2d 871, 875 (N.Y. Sup. Ct. 2005) (finding conversion where only copy of file copied and original deleted), *with* Miller v. Hehlen, 104 P.3d 193, 203 (Ariz. Ct. App. 2005) (finding no liability for conversion where actor did not take the only copy of customer list but merely took a copy). Even in New York, unauthorized copying of a file by itself is not conversion. Fischkoff v. Iovance Biotherapeutics, Inc., 339 F. Supp. 3d. 408, 414 (S.D.N.Y. 2018) (holding that pure copying of digital files without denial of access is not conversion).

92. *See* Marinotti, *supra* note 11. For a dramatic example for nuisance, light projections, *see* Maureen E. Brady, *Property and Projection*, 133 HARV. L. REV. 1143, 1166–70, 1193–201 (2019).

93. For a classic statement, see generally Thomas C. Grey, *The Disintegration of Property*, 22 NOMOS: AM. SOC'Y POL. LEGAL PHIL. 69 (J. Roland Pennock & John W. Chapman eds., 1980).

change in technology. Even more pressingly for a Restatement, changes in the basic idea of possession are likely to have implications far beyond those in view when making such changes.[94] The need for a stable but not overly ambitious notion of possession still tied to tangibility can be illustrated in a range of areas that are being impacted by the rise of new intangibles made possible by innovative technologies.

More generally, these encounters of property law with new technology highlight the strengths and limits of the system in the law. We think they illustrate well the desirability of "architectural fit."[95] In contrast to accounts of the law that simply generate the right result regardless of the structure of the system that produces them, we think that the problem of intangibles highlights how the set of concepts and their interrelation can adapt as a system to change. Although that adaptation is not a matter of deduction, the structures of property law manage what otherwise would be overwhelming complexity costs. The evolutionary dynamic built into law's system accommodates change. And to the extent that the concepts it employs correspond to everyday ontology and morality, it is more likely to be all the more accessible to the people who inhabit it.[96]

VI. CONCLUSION

Seeing an architecture in property does not force us to ignore change in the world. Quite the contrary. Property's architecture allows for needed change with a degree of continuity and intuitiveness that make the law more accessible to those it binds. Property can contribute to meeting the challenge of the new intangibles.

94. Possession is a classic "interconnected" aspect of the law that is more resistant to change and shows the divergence of legal systems that have different starting points. *See* Yun-chien Chang & Henry E. Smith, *Convergence and Divergence in Systems of Property Law: Theoretical and Empirical Analyses*, 92 S. CAL. L. REV. 785, 789 (2019).

95. Andrew S. Gold & Henry E. Smith, *Restatements and the Common Law*, *in* THE AMERICAN LAW INSTITUTE: A CENTENNIAL HISTORY 441, 457–61 (Andrew S. Gold & Robert W. Gordon eds., Oxford Univ. Press 2023).

96. Newman, *supra* note 53; see also Henry E. Smith, *Modularity and Morality in the Law of Torts*, 4 J. TORT L., Sept. 1, 2011, at 29–31.