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Systemic Risk of Contract

Tal Kastner*

Complexity and uncertainty define our world, now more than ever. Scholars and practitioners have celebrated modular contract design as an especially effective tool to manage these challenges. Modularity divides complex structures into relatively discrete, independent components with simple connections. The benefits of this fundamental drafting approach are intuitive. Lawyers divide contracts into sections and provisions to make them easier to understand and reduce uncertainty. Dealmakers constructing complex transactions use portable agreements as building blocks to reduce drafting costs and enable innovation. Little attention, however, has been paid to the risks introduced by modularity in contracts.

This Article demonstrates how this touted and now-ingrained drafting approach introduces new forms of the very costs it seeks to minimize. The Article is the first to identify the types of risks introduced by modularity at the intra-contract level, among provisions, and the inter-contract level, among agreements that constitute deals. The Article groups these risks into three

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categories: First, “intertextualism,” which occurs when the operation of a discrete, or even standard, provision seems clear in isolation but is made uncertain by the presence of other discrete terms. Second, “modular drift,” which occurs when drafters transplant provisions specific to one transactional context into another transactional context, introducing uncertainty. Third, “latent triggers,” which occur when compartmentalization invites error or obscures a nuance in the interaction among discrete provisions.

The Article urges courts to articulate distinctions between contract types and offers tools to contract drafters to mitigate uncertainty. It also makes a theoretical contribution with implications for contract doctrine and contract innovation. It shows how modularity can disrupt seemingly stable, standardized provisions, diminishing their certainty and imposing information costs on future drafters who seek to rely on precedent provisions or agreements. It thereby identifies a critical dimension of contract risk that complicates the balancing of standardization and private choice in contracts.

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INTRODUCTION

Transactions and the contracts that make them possible have become increasingly complex, compounding challenges for contract design and doctrine.¹ Contract law is premised on the belief that private ordering is the best way for parties to actualize their preferences² and contract doctrine is geared toward effectuating parties’ manifested intent.³ But as private ordering itself increases in complexity, the agreements that put complex deals and instruments into effect also become harder to communicate and understand. The \$13.7 billion acquisition of Whole Foods by Amazon, for example, involved an over 70-page Merger Agreement, in addition to investment vehicles, employment arrangements, financing agreements, and regulatory approvals, to name just a few aspects of the deal.⁴ And, to manage the added

1. See Cathy Hwang & Matthew Jennejohn, *The New Research on Contractual Complexity*, 14 CAP. MKTS. L.J. 381, 381–88 (2019) (outlining dimensions of increasing contract complexity, including the degree of interaction among parts).

2. See Alan Schwartz & Robert E. Scott, *Contract Theory and the Limits of Contract Law*, 113 YALE L.J. 541, 544 (2003) (“[C]ontract law should facilitate the efforts of contracting parties to maximize the joint gains (the ‘contractual surplus’) from transactions.”). Contract thinkers have presented different theories of contract to support different values served by contract, but these largely hinge on courts facilitating the intended terms and relationship between the parties. See, e.g., HANOCH DAGAN & MICHAEL HELLER, *THE CHOICE THEORY OF CONTRACTS* 3 (2017) (advocating for different contract types to further autonomy); CHARLES FRIED, *CONTRACT AS PROMISE: A THEORY OF CONTRACTUAL OBLIGATION* 1 (1981) (identifying promise principle “by which persons may impose on themselves obligations where none existed before” as central to contract law).

3. See, e.g., *Hartford Cas. Ins. Co. v. Swift Distrib., Inc.*, 326 P.3d 253, 288 (Cal. 2014); *Greenfield v. Philles Recs., Inc.*, 780 N.E.2d 166, 170 (N.Y. 2002); see also John F. Coyle, *Interpreting Forum Selection Clauses*, 104 IOWA L. REV. 1791, 1794 (2019) [hereinafter Coyle, *Forum Selection*] (“The goal of contract interpretation, generally speaking, is to give effect to the ‘intent’ of the parties. The best evidence of this intent, in turn, is said to be the language of the agreement.”) (footnote omitted).

4. See Amazon.com, Inc., Agreement and Plan of Merger by and Among Amazon.com, Inc., Walnut Merger Sub, Inc. and Whole Foods Market, Inc. (Form 8-K) (June 15, 2017). The transaction structure that prevailed in this deal reflected just one approach among several proposals. Business Insider, *7 Potential Bidders, a Call to Amazon, and an Ultimatum: How the Whole Foods Deal Went Down*, BUS. INSIDER (Dec. 29, 2017, 11:57 AM), <https://www.businessinsider.com/breaking-it-down-amazon-tough-negotiations-how-the-whole-foods-deal-went-down-2017-12>.

uncertainty resulting from newly salient risks, such as a global pandemic, deals are likely to include even more provisions.⁵ In the face of such complexity, scholars have identified modular design as an important tool to deal with the contemporary challenges of private ordering.⁶

Like Lego blocks that easily mix and match, modular design breaks complex systems down into relatively discrete components with simple connections.⁷ The benefits of this approach to contract drafting are intuitive and have long been a part of drafting practices employed at major law firms around the world. Just about every lawyer expects to see a contract divided into sections and facially discrete provisions, such as arbitration, forum-selection, and choice-of-law clauses, which make documents easier to understand and manage.⁸ Complex deals, moreover, typically include a

5. Christina M. Sautter, *Transaction Cost Economics & MAEs: The Dealmaker's Crystal Ball*, 89 *FORDHAM L. REV. ONLINE* 41, 43 (2020).

6. See Robert Anderson & Jeffrey Manns, *Engineering Greater Efficiency in Mergers and Acquisitions*, 72 *BUS. LAW.* 657, 693 (2017) [hereinafter Anderson & Manns, *Engineering Greater Efficiency*] (identifying modularity as a way to enable the incorporation of innovations in merger agreements); Cathy Hwang, *Unbundled Bargains: Multi-Agreement Dealmaking in Complex Mergers and Acquisitions*, 164 *U. PA. L. REV.* 1403, 1417–18 (2016) (identifying the benefits of modular provisions and the use of discrete deal documents in complex transactions); Cathy Hwang & Matthew Jennejohn, *Deal Structure*, 113 *NW. U. L. REV.* 279 (2018) (suggesting that modular design has implications for the interpretive approach used by courts) [hereinafter Hwang & Jennejohn, *Deal Structure*]; Henry E. Smith, *Modularity in Contracts: Boilerplate and Information Flow*, 104 *MICH. L. REV.* 1175, 1176, 1186–96 (2006) (identifying the portability modularity offers as enabling benefits of standardization and managing complexity) [hereinafter Smith, *Modularity in Contracts*]; George G. Triantis, *Improving Contract Quality: Modularity, Technology, and Innovation in Contract Design*, 18 *STAN. J.L. BUS. & FIN.* 177 (2013) (suggesting a model of contract development using modularity and open-source peer production); see also Harry Surden, *Computable Contracts*, 46 *U.C. DAVIS L. REV.* 629, 649–50 (2012) (discussing the possibility of representing certain contract terms in a defined form to enable the encoding and the extraction of the data); ISDA LINKLATORS, WHITEPAPER: SMART CONTRACTS AND DISTRIBUTED LEDGER—A LEGAL PERSPECTIVE 22 (2017) [hereinafter ISDA LINKLATORS, WHITEPAPER], <https://www.isda.org/a/6EKDE/smart-contracts-and-distributed-ledger-a-legal-perspective.pdf> (identifying the potential benefits of modular definitions in the derivatives market to facilitate the use of new technologies).

7. See 1 CARLISS Y. BALDWIN & KIM B. CLARK, *DESIGN RULES: THE POWER OF MODULARITY* 63 n.1 (2000) [hereinafter BALDWIN & CLARK, *DESIGN RULES*] (noting the positive impact of modular design on a range of fields that engage complex systems “from brain science and psychology, to robotics, artificial intelligence and industrial engineering”); Smith, *Modularity in Contracts*, *supra* note 6, at 1186; Christopher S. Yoo, *Modularity Theory and Internet Regulation*, 2016 *U. ILL. L. REV.* 1, 4 (2016).

8. Even though modularity is always “a matter of degree” and much of contract drafting involves deliberate interconnection between parts, best practices of contract drafting

number of relatively independent agreements, such as equity and debt commitment letters, management employment agreements, escrow agreements, and side letters in a private equity or other merger and acquisition (M&A) deal.⁹ Even an employment arrangement between a company and an employee may involve an employment agreement, stock and other incentive agreements, and restrictive covenant agreements, among other agreements.¹⁰ Scholars of late have therefore celebrated how modular contract design can break these transactions and agreements into component parts that are easier to manage, reducing drafting costs and uncertainty and thereby enabling innovation.¹¹ And, given the increasing complexity of contemporary transactions and developing technologies of transacting and drafting contracts, the use of compartmentalized contract design will likely persist, if not increase.¹²

However, little attention has been paid to the risks *introduced* by modular design in contract.

have long reinforced aspects of modular design. Smith, *Modularity in Contracts*, *supra* note 6, at 1186–96 (noting defined terms and severability provisions as examples of modular contract design); Triantis, *supra* note 6, at 181 (identifying closing conditions, representations and warranties, covenants, termination rights, indemnification, and dispute resolution provisions as relatively modular); *see also* Hwang & Jennejohn, *supra* note 1, at 285 (noting the range of interdependencies that exist in contract); Matthew Jennejohn, *The Architecture of Contract Innovation*, 59 B.C. L. REV. 71, 76 (2018). Provisions and agreements comprised of language are at best relatively discrete. Recognizing this, this Article refers to contracts and provisions that are relatively facially context independent and/or encapsulated in form as discrete.

9. Hwang, *supra* note 6, at 1417–18.

10. *See, e.g.*, Willis Re Inc. v. Herriott, No. 21-CV-487 (JMF), 2021 WL 3204764 (S.D.N.Y. July 22, 2021).

11. *See* Hwang, *supra* note 6, at 1417–18; Smith, *Modularity in Contracts*, *supra* note 6, at 1186–96; Triantis, *supra* note 6, at 204–08; Spencer Williams, *Contracts as Systems*, 45 DEL. J. CORP. L. 219 (2021) [hereinafter Williams, *Contracts as Systems*].

12. *See, e.g.*, ISDA LINKLATORS, WHITEPAPER, *supra* note 6, at 22 (anticipating a move toward a modular approach to the ISDA library of definitions to facilitate smart contract implementation); Triantis, *supra* note 6, at 191 (identifying “[t]he modularity of contracts [as] essential to . . . emerging technologies.”); *see also* Joshua Fairfield, *The Cost of Consent: Optimal Standardization in the Law of Contract*, 58 EMORY L.J. 1401, 1453 (2009) (“Contracts have become increasingly modularized.”); Smith, *Modularity in Contracts*, *supra* note 6, at 1179 (“[E]volution—even evolution not directed by a central intelligence—often gravitates towards modular systems because of their ability to adapt to new conditions. . . . [S]o, the evolution of contract law and of privately circulating forms of boilerplate can be explained as the product of a similar evolutionary logic.”) (footnote omitted); *cf.* Jennejohn, *supra* note 8, at 78 (identifying features of “flexible specialization” in addition to modularity in complex contracts).

This Article is the first to identify and categorize the risks introduced by modular design at both the intra-contract level, among provisions, and the inter-contract level, among discrete agreements that constitute complex transactions. It analyzes the largely overlooked qualities of natural language and doctrine that impact how contracts are understood by parties and courts. In doing so, the Article demonstrates how this fundamental drafting approach, celebrated for minimizing uncertainty and drafting costs, can also introduce new forms of these very risks.

This Article thereby makes a theoretical contribution with implications for contract innovation and contract doctrine. It shows how the innovation enabled by modularity can diminish the certainty of seemingly stable, even standardized, provisions and contract forms. The porting of provisions into new contexts where they may operate differently imposes information costs on other drafters who seek to mix and match precedent provisions and agreements. And, when the operation of a modular provision in one contract gets called into question, this can also impact the operation of similar provisions in other contexts, thereby degrading the effective operation of the current system of contract generally. In light of the dynamics it identifies, the Article offers tools for courts and contract drafters to mitigate the risks modularity can introduce. In doing so, it also highlights the costs of choice in contract and intervenes to complicate the discussion around the optimal balance of standardization and private choice in contracts.

The Article proceeds as follows.

Part I outlines the benefits associated with modular design in contracts and examines the extent to which contract doctrine allows for effective modular design. As the thinking goes, compartmentalization makes learning and drafting easier by allowing contract drafters to work on one part of a complex agreement without introducing a cascade of changes in other parts of the document.¹³ Compartmentalization also facilitates innovation by enabling drafters to develop different parts of the deal documentation simultaneously and allowing specialists to focus on their area of expertise.¹⁴ And, compartmentalization makes it easier for a drafter to plug in or “port” a relatively

13. Hwang, *supra* note 6, at 1417–18.

14. *Id.* at 1419.

independent provision to a new context, creating new configurations of provisions.¹⁵ The ability to mix and match provisions across transactional contexts, which can have differing approaches and goals, offers additional opportunities for choice and private ordering.¹⁶ Modularity, therefore, “is said to create options” in an increasingly complex world, while it also “allows a system to manage uncertainty.”¹⁷

The successful operation of modular design, however, depends on stable rules and building blocks. The interaction among contract doctrine that aims to treat different contract types differently, maxims of interpretation, and discrete contract provisions can lead to competing default rules that increase uncertainty.¹⁸ Most basically, the interaction of discrete provisions and agreements can, at times, suggest to courts more than one intended operation of a provision.

Considering this, Part II analyzes the types of contingencies introduced by modularity in contracts. The Article groups these contingencies into three categories: First, “intertextualism,” which occurs when the operation of a discrete, and even standard, provision seems clear in isolation but is made uncertain by the

15. See Smith, *Modularity in Contracts*, *supra* note 6, at 1198 (“Porting is one of the chief virtues of boilerplate”); Triantis, *supra* note 6, at 204–08 (“[M]odular solutions developed in one context may be valuable in others.”); see also Afra Afsharipour, *Transforming the Allocation of Deal Risk Through Reverse Termination Fees*, 63 VAND. L. REV. 1161, 1164 (2010) (noting the increasing prevalence of reverse termination fee provisions and describing their development, which epitomizes the process of innovation through modularity).

16. See, e.g., DAGAN & HELLER, *supra* note 2, at 3, 8 (identifying the “choice among (contract) types” as “the mainstay of present-day contracting”); Daniel Markovits, *Contract and Collaboration*, 113 YALE L.J. 1417, 1419–20 (2004); Schwartz & Scott, *supra* note 2, at 543–44 (identifying different transaction categories precipitating different contractual approaches); see also ERIN A. O’HARA & LARRY E. RIBSTEIN, *THE LAW MARKET* 8 (2009) (noting the need to “distinguish business-to-business from business-to-consumer contracts” in analyzing choice-of-law policy); Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Text and Context: Contract Interpretation as Contract Design*, 100 CORNELL L. REV. 23, 42 (2014) (critiquing the “presumption of the unitary nature of contract law” in light of the varied modes of contract practice); Ethan J. Leib, *On Collaboration, Organizations, and Conciliation in the General Theory of Contract*, 24 QLR 1 (2005).

17. Smith, *Modularity in Contracts*, *supra* note 6, at 1177 (“[B]ecause each module can function and develop in relative isolation, these processes can occur without the need to resolve uncertainty elsewhere in the system.”); see also Hwang & Jennejohn, *Deal Structure*, *supra* note 6, at 280; see generally, Steven L. Schwarcz, *Disclosure’s Failure in the Subprime Mortgage Crisis*, 2008 UTAH L. REV. 1109, 1110 (2008) (describing complexity of market).

18. See Tal Kastner & Ethan Leib, *Contract Creep*, 107 GEO. L.J. 1277, 1310–12 (2019) (discussing the creep of doctrine across transaction types).

presence of other discrete provisions in the same agreement or another related agreement. Second, “modular drift,” which occurs when drafters transplant provisions specific to one transactional context into a different type of transaction, introducing uncertainty. Third, “latent triggers,” which occur when compartmentalization invites error or obscures a nuance introduced by the interaction among different discrete provisions. As the Article demonstrates, these types of risk can also exacerbate one another.

Part III identifies the implications of these risks for courts, drafters, and contract theory. It urges courts to strengthen existing doctrinal tools to lessen uncertainty and it offers practice tools to drafters to mitigate the risks. This Part also illustrates the potential costs of modular choice to third parties who seek to use existing provisions or precedents. As facially context-independent provisions in the market are deployed in new configurations and in different transaction types, these variations can introduce information costs and uncertainty as to a provision’s meaning in each context. This Part thereby identifies an underappreciated dimension of contract incompleteness¹⁹—the contingency of discrete provisions in relation to each other and to other agreements—a dimension that must be addressed in developing applications of complex systems theory and artificial intelligence to contracts.²⁰ The Article demonstrates the diminished benefits of standard provisions for future contracting parties in a world lacking doctrinal boundaries where portable provisions can be mixed and matched—a source of risk for the system of contracts overall.

Part IV concludes.

I. THE BENEFITS OF MODULARITY

Modular design has been recognized to confer benefits in myriad aspects of our world, from organization design to

19. For an overview of scholarship on contract incompleteness, see Robert Anderson IV, *Path Dependence, Information, and Contracting in Business Law and Economics*, 2020 WIS. L. REV. 553, 553–54.

20. A developing body of scholarship has come to recognize that contract provisions operate as part of a greater whole in complex transactions, but it has generally treated contract modules as stable building blocks. See Hwang, *supra* note 6; Smith, *Modularity in Contracts*, *supra* note 6; Williams, *Contracts as Systems*, *supra* note 11 (surveying this scholarly turn).

engineering to psychology²¹—and, of late, to law. Applying modular design, scholars have offered fresh approaches to property,²² environmental law,²³ torts,²⁴ production and firm organization,²⁵ antitrust,²⁶ telecommunications and internet regulation,²⁷ the creation of capital,²⁸ and the relation between public and private law.²⁹ The practices of swapping out provisions by different parties in international treaty negotiation,³⁰ the mixing and matching of forms and optional provisions in insurance

21. See BALDWIN & CLARK, *DESIGN RULES*, *supra* note 7, at 63 n.1 (noting the positive impact of modular design on a range of fields that engage complex systems “from brain science and psychology, to robotics, artificial intelligence and industrial engineering”); Smith, *Modularity in Contracts*, *supra* note 6, at 1177 ([M]odularity is increasingly employed in areas ranging from biological evolution to organizational design . . .); Yoo, *supra* note 7, at 4.

22. See, e.g., Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1693, 1700–23 (2012) (identifying property law as a modular system encapsulating “lumpy packages of legal relations” and describing the role of modules in property law in containing third-party information costs, managing the complexity of land use interactions, and making property more useful) [hereinafter Smith, *Law of Things*]; see also Thomas W. Merrill, *Property as Modularity*, 125 HARV. L. REV. 151, 151 (2012) (acknowledging modularity as a functional account of important features of property system); Richard N. Langlois, *Modularity in Technology and Organization*, 49 J. ECON. BEHAV. & ORG. 19, 19 (2002) (analyzing the modularity of property and the firm).

23. See Jody Freeman & Daniel A. Farber, *Modular Environmental Regulation*, 54 DUKE L.J. 795 (2005) (outlining a “modular ideal” in proposing a conception of environmental regulation and resource management to address multiple and seemingly incompatible long-term demands).

24. See Henry E. Smith, *Modularity and Morality in the Law of Torts*, 4 J. TORT L. 1 (2011) (arguing that tort law mobilizes modules to manage complex interactions between parties).

25. Margaret M. Blair, Erin O’Hara O’Connor & Gregg Kirchhoefer, *Outsourcing, Modularity, and the Theory of the Firm*, 2011 BYU L. REV. 263, 265 (2011) (identifying the modularization of production processes as illuminating outsourcing relationships); Langlois, *supra* note 22.

26. Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 89 (2003) (advocating for a model of platform regulation that accounts for modular operation).

27. See Yoo, *supra* note 7, at 40–42.

28. See KATHARINA PISTOR, *THE CODE OF CAPITAL: HOW THE LAW CREATES WEALTH AND INEQUALITY* 3 (2019) (identifying “contract law, property rights, collateral law, trust, corporate, and bankruptcy law” as “the modules from which capital is coded”).

29. See Smith, *Law of Things*, *supra* note 22, at 1723–25; Andrew S. Gold & Henry E. Smith, *Sizing Up Private Law*, 70 UNIV. TORONTO L.J. 489, 489 (2020).

30. See Kenneth J. Vandavelde, *The Bilateral Investment Treaty Program of the United States*, 21 CORNELL INT’L L.J. 201, 211 (1988) (describing treaty negotiations proceeding from model form of which discrete provisions would be modified).

policies³¹ and in construction contracts³² illustrate applications of modular contract design. Even more starkly, the structure of over-the-counter (OTC) derivatives contracts³³ and the developing field of computable contract terms³⁴ reflect modular contract design structures.

This Article does not dispute the potential benefits of modular design. But, given the use of compartmentalization as a longstanding drafting tool, this Article highlights the underappreciated limitations and tradeoffs of its use in contracts, especially considering developing technologies and an increasingly complex landscape. Before doing so, this Part outlines the benefits attributed to modular contract design and the doctrinal context in which it operates.

A. Limiting Costs and Enabling Innovation Through Modular Design

Human beings are known to be “limited in their ability to learn, think, and act,” especially when facing complex issues involving many interacting parts.³⁵ Complexity makes it hard to understand any aspect of a system because of interdependencies of parts. The presence of many interconnections can also make it difficult to work on a complex structure because a change to one part prompts

31. See, e.g., *Ramara, Inc. v. Westfield Ins. Co.*, 814 F.3d 660 (3d Cir. 2016) (construing meaning of terms considering ambiguity caused by interaction of master insurance agreement and “endorsements,” or supplemental modular provisions taken from models developed in different years); see generally KENNETH S. ABRAHAM & DANIEL SCHWARCZ, *INSURANCE LAW AND REGULATION: CASES AND MATERIALS* 37 (6th ed. 2015).

32. See, e.g., *Robinhorne Constr. Corp. v. Snyder*, 265 N.E.2d 670 (Ill. 1970) (considering intended meaning of contract constituted by American Institute of Architects form contract and attached riders and conditions); see also Carl J. Circo, *Building a Better Construction and Design Contract (with Sample Provisions)*, 46 PRAC. LAW 21 (2000).

33. See Norman Menachem Feder, *Market in the Remaking: Over-the-Counter Derivatives in a New Age*, 11 VA. L. & BUS. REV. 309, 341–42 (2017) (describing the “modular” “architecture” developed for the over-the-counter derivatives market by the International Swaps and Derivatives Association (ISDA) involving a standard-form master agreement governing all trades between signatory parties, which can be modified and “import by reference other publications released by ISDA”).

34. See ISDA LINKLATORS, WHITEPAPER, *supra* note 6, at 22 (envisioning a modular ISDA library of individual definitions concerning the growing range of derivatives, which could be combined for an individual transaction).

35. BALDWIN & CLARK, *DESIGN RULES*, *supra* note 7, at 5. A complex system is “characterized by a large number of internal interactions . . .” See Smith, *Modularity in Contracts*, *supra* note 6, at 1180; HERBERT A. SIMON, *THE SCIENCES OF THE ARTIFICIAL* 183–84 (3d ed. 1996).

cascading changes throughout the system. As one evocative description of modularity put it, “breaking up a complex system into discrete pieces” that interact with each other in standardized ways in a standardized framework serves to “eliminate what would otherwise be an unmanageable spaghetti tangle of systemic interconnections.”³⁶

To illustrate the benefits of modular design, Herbert Simon, a Nobel Prize winning economist and pioneer in the study of complexity, offered a “parable” of modularity.³⁷ He described two watchmakers whose intricate products consist of about 1,000 parts and are in high demand. One watchmaker succeeds in managing increasing orders by constructing the watches out of stable “subassemblies of about ten elements each.”³⁸ This way, when callers placing orders for more watches interrupt the watchmaker mid-assembly, the work does not entirely fall to pieces.³⁹ In contrast, a competitor watchmaker’s business is failing. The struggling watchmaker’s watch is made of wholly interconnected pieces. Each time this watchmaker is interrupted by an order for another watch, the work falls apart, and the watchmaker must start from scratch.⁴⁰

As the parable illustrates, modular design reduces complexity by containing intense interdependencies within a module and creating limited connections between modules.⁴¹ This design feature thereby enables mastery of components that can be comprehended and assembled in chunks. Simple visible connections between components facilitate production and understanding of the whole. Moreover, compartmentalization enables specialization and the development of components, which in turn, further innovation.⁴²

36. Langlois, *supra* note 22, at 19.

37. SIMON, *supra* note 35, at 188; *see also* Smith, *Modularity in Contracts*, *supra* note 6, at 1180 (citing Simon’s example).

38. SIMON, *supra* note 35, at 188.

39. *Id.*

40. *Id.*; *see also* Langlois, *supra* note 22, at 21 (noting that in a “decomposable system,” “the proper working of a given part will depend . . . on the characteristics of the other parts within its subassembly . . . [but less so on those] outside of that subassembly. . . . [So it] may be able to limp along even if some subsystems are damaged or incomplete.”).

41. *See* Smith, *Modularity in Contracts*, *supra* note 6, at 1182–84.

42. SIMON, *supra* note 35, at 188–89.

Scholars have applied the metaphor of the watchmaker to view common “boilerplate” provisions as exemplifying the potential for contract terms to be encapsulated so that they can be easily moved or altered.⁴³ Other scholarship points to “modules of terms,” such as closing conditions and dispute resolution provisions present in “[m]any business contracts,” as potentially conferring the benefits of modular design.⁴⁴

Most basically, scholars have suggested that hiving off parts in self-contained sections can reduce reading and learning costs. Encapsulation can reduce drafting costs by enabling a modular provision to be easily “ported” in, swapped out, or altered without precipitating a cascade of changes in the documentation. Encapsulation also has the potential to promote standardization and with it network and learning benefits. As a term is used over time and proliferates, the thinking goes, uncertainty about its meaning and operation can be diminished through interpretive precedent and refinement.⁴⁵ Thus, facially discrete provisions can, though they need not, become standardized, or boilerplate, terms just as Lego parts can take the form of either standard or idiosyncratic building blocks that connect with others through a standardized visible mode of interaction.⁴⁶

A number of drafting conventions promote modular contract design. The avoidance of cross references, a “cardinal rule[]” of

43. Smith, *Modularity in Contracts*, *supra* note 6, at 1191 (characterizing common “provisions that typically are found at the end of a contract and deal with recurring matters like assignment and delegation, successors and assigns, third-party beneficiaries, governing law and forum selection, waiver of jury trial, arbitration, remedies, indemnities, force majeure, transaction costs, confidentiality, announcements and notices, amendment and waiver, severability, merger, and captions” as reflecting “a high degree of modularity”); *see also* Margaret Jane Radin, *Boilerplate Today: The Rise of Modularity and the Waning of Consent*, 104 MICH. L. REV. 1223, 1224 (2006) (identifying standard portable terms as building blocks that can be used to customize a more complex system).

44. Triantis, *supra* note 6, at 181.

45. *See* Marcel Kahan & Michael Klausner, *Standardization and Innovation in Corporate Contracting* (Or “*The Economics of Boilerplate*”), 83 VA. L. REV. 713, 719–20, 730–34 (1997). Learning benefits result over time, while network benefits result from broad usage at a point in time. *See id.*

46. *See, e.g.,* *Chicago Bridge & Iron Co. N.V. v. Westinghouse Elec. Co.*, 166 A.3d 912 (Del. 2017) (examining the interaction of a tailored arbitration provision with an indemnification provision); *see also* Robert Anderson & Jeffrey Manns, *Boiling Down Boilerplate in M&A Agreements: A Response to Choi, Gulati, & Scott*, 67 DUKE L.J. ONLINE 219, 230 (2019) [hereinafter Anderson & Manns, *Boiling Down Boilerplate*] (analyzing distinctions in boilerplate M&A provisions).

contract drafting, reflects an intuitive recognition of the design benefit of a modular structure.⁴⁷ Severability clauses provide that, in the event a provision is invalidated or unenforceable, the remaining terms constitute the contract.⁴⁸ They thereby suggest that provisions can be swapped out without undoing the structure as a whole.⁴⁹ Defined terms also enable modular design within an agreement. They contain the meaning of recurring terms so that changes can be made to a definition without necessarily prompting the reworking of the contract.⁵⁰ Definitions thereby prove invaluable in facilitating drafting and negotiation. Moreover, by limiting an agreement's dependence on context, definitions enable the agreement to function as a modular component in a transaction.⁵¹

Thus, scholars have noted benefits of compartmentalization not only at the level of the provision, but also at the level of discrete agreements that serve as building blocks of a complex deal.⁵² For example, complex M&A transactions typically involve not only an acquisition agreement, governing the terms of an asset purchase, stock purchase, or merger, but also a number of additional "ancillary" deal documents.⁵³ Separate documented agreements can facilitate deal design, much in the way that discrete provisions can—by promoting division of labor⁵⁴ and an increased rate of learning and innovation.⁵⁵ To the extent that agreements or provisions are modular—so that most of the interconnection among provisions is contained within them—they allow specialists in certain areas, such as employment, tax, or antitrust, to focus on those areas of the deal documents that pertain to their area of expertise. Discrete agreements can also reduce unnecessary interdependencies by separating parties involved in different

47. Smith, *Modularity in Contract*, *supra* note 6, at 1189.

48. See 15 SAMUEL WILLISTON & RICHARD A. LORD, A TREATISE ON THE LAW OF CONTRACTS § 45:6 (4th ed. 2021).

49. But see Jennejohn, *supra* note 8, at 129–30 (highlighting the difficulty of hiving off a provision without altering the contract as suggested by the wording of severability clauses).

50. See Smith, *Modularity in Contracts*, *supra* note 6, at 1190.

51. *Id.*

52. See Hwang, *supra* note 6, at 1424–25.

53. *Id.* at 1425.

54. See Yoo, *supra* note 7, at 20.

55. See Carliss Y. Baldwin & Kim B. Clark, *Managing in an Age of Modularity*, HARV. BUS. REV. (Sept.–Oct. 1997), <https://hbr.org/1997/09/managing-in-an-age-of-modularity>.

aspects of a deal or carving out risk, among other ways.⁵⁶ And, in a deal built out of discrete related agreements, parties must only review and sign on to the aspects of a transaction in which they are involved.⁵⁷ Firms thereby implement modular contract design to maximize practitioner knowledge and cost savings for the client.⁵⁸

In light of all this, modularity has been seen as a way to avoid the tradeoff between the learning and network benefits of standardization, on one hand, and standardization's chilling effect on innovation, on the other.⁵⁹ Relatively self-contained modules, scholars suggest, not only make possible a "decentralized, parallel and asynchronous" process of development,⁶⁰ but create opportunities for the relocation of terms into new contexts and thus possibilities for innovation.⁶¹ Thus, modularity has been touted for "reduc[ing] the costs of reading and understanding" terms, which "thereby facilitates the adoption of a novel provision because it can be incorporated in documents without disturbing the other provisions."⁶²

Pointing to these benefits, scholars regularly analogize to computer programming and coding as a framework for contract design.⁶³ Technology is advancing to bring more aspects of contracting within the reach of automation,⁶⁴ and machine

56. See Hwang, *supra* note 6, at 1427–32. Opinion letters on the fairness or anticipated regulatory treatment of the deal or voting agreements to support the deal are other examples. See *id.* at 1416.

57. See *id.*

58. See *id.* at 1419.

59. See Triantis, *supra* note 6, at 182.

60. *Id.* at 204.

61. See BALDWIN & CLARK, DESIGN RULES, *supra* note 7, at 140.

62. Triantis, *supra* note 6, at 191.

63. See, e.g., Erik F. Gerding, *Contract as Pattern Language*, 88 WASH. L. REV. 1323, 1323–25 (2013) (discussing the intersection of two dominant metaphorical frameworks for contract—architecture and computer code and identifying "pattern language," as an "encapsulated abstract or conceptual solution to a recurring design problem[]" as a link between the two); see also Hwang, *supra* note 6, at 1422; Smith, *Modularity in Contracts*, *supra* note 6, at 1177 (drawing "an analogy between writing contracts and writing computer programs"); Triantis, *supra* note 6, at 204–05; Spencer Williams, *Predictive Contracting*, 2019 COLUM. BUS. L. REV. 621 [hereinafter Williams, *Predictive Contracting*]. But see Anderson, *supra* note 19, at 566–68 (suggesting an "evolutionary metaphor").

64. See, e.g., Williams, *Predictive Contracting*, *supra* note 63, at 629–30 (considering how machine learning could enable parties to predict likely outcomes from contract terms to facilitate the balancing of front and back-end costs).

learning offers opportunities to better understand and develop complex systems.⁶⁵

At present, however, a significant gap remains between what computer language and contract documents can yet accomplish.⁶⁶ For example, electronic forms do not allow for strategic vagueness or enforcement discretion, which can create significant efficiencies in the process of contracting.⁶⁷ Not only do some types of clauses “prove more resistant to automation,” others precipitate complex analysis such that, in these cases, “it is never efficient or desirable to automate these parts of the contract, even if it were technically possible”⁶⁸ Modular terms and automatable terms are not necessarily coextensive categories. And even relatively modular automatable terms, including those in blockchain-enabled transactions, depend on natural language to establish their contractual framework.⁶⁹ In addition, contracts, of course, are not entirely modular, and the degree of modularity of subparts may vary.⁷⁰

Nonetheless, the concept of modular design has proved significant to the design and management of complex structures. And, while natural language is not the same as computer code, parties to and drafters of contracts often aim to achieve the benefits of compartmentalization.

65. See Williams, *Contracts as Systems*, *supra* note 11, at 234.

66. See Surden, *supra* note 6, at 640; see also Frank Pasquale, *A Rule of Persons, Not Machines: The Limits of Legal Automation*, 87 GEO. WASH. L. REV. 1, 23–25 (2019) (noting the benefits of code-based transactions in simple supply chain contracts but also the “formidable” design costs of programming fair dispute resolutions and verifications of factual predicates for automated contracts); Kevin Werbach & Nicolas Cornell, *Contracts Ex Machina*, 67 DUKE L.J. 313, 365 (2017) (acknowledging the limits of machine readable code to “subjects and activities that can readily be specified,” as opposed to legal or industry standards like “best efforts” and identifying the ways in which “smart contracts” fail to displace a number of functions of contract law).

67. See Jeremy M. Sklaroff, *Smart Contracts and the Cost of Inflexibility*, 166 U. PA L. REV. 263, 291–300 (2016); see also Albert Choi & George Triantis, *Strategic Vagueness in Contract Design: The Case of Corporate Acquisitions*, 119 YALE L.J. 848 (2010) (analyzing the value of the screening function of vague material adverse change terms).

68. ISDA LEGAL GUIDELINES FOR SMART DERIVATIVES CONTRACTS: INTRODUCTION 10-12 (2019), <https://www.isda.org/a/MhgME/Legal-Guidelines-for-Smart-Derivatives-Contracts-Introduction.pdf>; see also Pasquale, *supra* note 66, at 25–27 (describing complaints by banks about the costliness of translating asset-backed securities into code).

69. See Shaanan Cohney & David A. Hoffman, *Transactional Scripts in Contract Stacks*, 105 MINN. L. REV. 319, 385 (2020).

70. See Jennejohn, *supra* note 8, at 73 (identifying more “infra-transactional complexity” than expected in merger agreements).

The successful operation of modular design, however, depends on stable rules. As the next section briefly outlines, the interaction among contract doctrine, principles of construction, and facially context-independent contract provisions and agreements can lead to competing default rules—or a lack of default rule—thereby introducing uncertainty.

B. Rules Governing Contract Inputs and Interactions of Parts

To operate predictably, a modular system ideally involves the establishment of certain types of reliable rules. These include rules identifying the bounds of the system and boundaries between parts, or what design theorists call the *architecture*; and rules as to how the parts will plug in or interact with each other, or *interfaces*.⁷¹

As part of the architecture and interfaces of contracts, contract doctrine aims to provide predictable rules. It does so because, for the most part, contract doctrine seeks to privilege the expressed intentions of the parties,⁷² viewing the parties as best suited to determine their welfare-enhancing arrangements.⁷³

To maintain predictability at the level of the text, contracts are subject to principles of contract construction. These “oft cited standards of interpretation” include the maxims that “the specific controls the general; the contract is to be considered as a whole; if possible, all the provisions of the contract should be given effect.”⁷⁴ Yet contract scholars question the reliability of these principles in practice.⁷⁵ Moreover, the application of each principle can hinge not only on other principles but on the interaction of contract provisions with each other, with context, and with the doctrine.

More basically, by virtue of the “infinite number of possible future states,” contracts are recognized as inevitably incomplete.⁷⁶ Thus, by engaging a medium of contractual expression, whether a handshake arrangement or a document, parties and drafters invoke

71. BALDWIN & CLARK, *DESIGN RULES*, *supra* note 7, at 77.

72. *Hartford Cas. Ins. Co. v. Swift Distrib., Inc.*, 326 P.3d 253, 259 (Cal. 2014); *Greenfield v. Philles Recs., Inc.*, 780 N.E.2d 166, 170 (N.Y. 2002).

73. See Schwartz & Scott, *supra* note 2, at 618.

74. *J.E. Faltin Motor Transp., Inc. v. Eazor Express, Inc.*, 273 F.2d 444, 445 (3d Cir. 1959) (footnotes omitted).

75. See E. ALLAN FARNSWORTH ET AL., *CONTRACTS CASES AND MATERIALS* 529 (9th ed. 2019).

76. Schwartz & Scott, *supra* note 2, at 594–95.

a larger structure of contract law.⁷⁷ Courts must revert to the background of mandatory and default rules when a contract is silent.⁷⁸ The way in which courts do so, however, depends on their assessment of the appropriate doctrinal regime and interpretive framework.⁷⁹

The determination of the appropriate doctrinal regime can at times itself be open to question. Courts tend to apply certain rules, such as the parol evidence rule, differently depending on the transaction type.⁸⁰ However, the boundaries between types of transactions are not always clear. For example, scholars disagree on, and courts have yet to articulate criteria by which to define the category of sophisticated parties, on which the question of transaction type turns.⁸¹

Moreover, doctrine designed for one transaction type tends to “creep” or migrate across already blurry boundaries, at times undermining the predictability of background rules.⁸² As a recent study demonstrates, “doctrine that looks bespoke for one contractual context often ends up as general contract law—and terms built for specialized transaction types can also jump off track and into less appropriate transactional environments.”⁸³

And, of course, the parties’ manifested intent in the form of explicit contract provisions also impacts the application of default rules. Thus, the architecture of a contract is to some extent embedded in its parts as well as a court’s determination of context. Similarly, interfaces—the rules governing the relation between parts—not only can be found in contract provisions but can be shaped by the context of a transaction and the background rules.

77. Randy E. Barnett, *Consenting to Form Contracts*, 71 *FORDHAM L. REV.* 627, 644 (2002) (arguing that contract law operates as “one big form contract” in the background governing transactions between parties); see also Charles J. Goetz & Robert E. Scott, *The Limits of Expanded Choice: An Analysis of the Interactions Between Express and Implied Contract Terms*, 73 *CALIF. L. REV.* 261, 261 (1985) (“[T]he state’s general rules of contract provide a set of standard gap-filling assumptions or implied terms . . .”).

78. See Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 *YALE L.J.* 87, 87 (1989).

79. See Gilson et al., *supra* note 16, at 28 (noting a wide range of interpretive regimes that would best determine the “mix of text and context in the particular case”).

80. See *id.* at 26–27 (describing the conventional understanding of two approaches to the rule, each of which posits a different prototypical transaction type).

81. Meredith R. Miller, *Contract Law, Party Sophistication and the New Formalism*, 75 *MO. L. REV.* 493, 519–26 (2010) [hereinafter Miller, *Party Sophistication*].

82. Kastner & Leib, *supra* note 18, 1304–10 (discussing “category instability”).

83. *Id.* at 1280.

At the very least, though not always perfectly predictable, a number of doctrinal principles attend to the relationship among parts *within* a given agreement. However, as things get a bit more complex, few explicit rules govern the interaction of separate agreements and provisions.

One exception, a recent proposal, recognizes the need to account for the ways parties use modularity—or fail to—in their deal design.⁸⁴ This approach suggests that courts should conduct a “first-step inquiry” of whether a deal’s structure is “modular, integrated, or a hybrid mixture” and treat modular contract structures with a textualist approach, focusing on the plain meaning of the terms.⁸⁵ Along similar lines, recent scholarship advocates for the application of systems theory to complex contracts to lend additional granularity to a map of a deal’s structure.⁸⁶ Notwithstanding the importance of these insights, as the discussion in the next Part suggests, a basic interpretive question remains—how the contractual building blocks in the form of discrete agreements and provisions can at times, by virtue of their context independence, invite more than one understanding of the deal structure intended by parties.⁸⁷ To the extent that the contract text is silent about how provisions are intended to relate to each other, this could also complicate the application of machine learning to predict intent. As such, even a textualist approach can lead to uncertainty and, at times, modular contractual arrangements invite ambiguity. In addition, as discussed in the next Part, in discerning the transaction structure, courts sometimes

84. Hwang & Jennejohn, *Deal Structure*, *supra* note 6, at 292–97.

85. *Id.* at 325–30.

86. See Williams, *Contracts as Systems*, *supra* note 11.

87. A Delaware Court of Chancery case, *CA, Inc. v. Ingres Corp.*, No. 4300-VCS, 2009 WL 4575009 (Del. Ch. 2009), discussed in Hwang & Jennejohn, *Deal Structure*, *supra* note 6, at 326, illustrates potential limitations of modular design in helping parties avoid courts’ refashioning the terms of a deal. This case involved a spinoff of Ingres Corp. from CA Inc. governed by several agreements, which prompted the question of whether a later contract had renegotiated the terms of an earlier one. *Id.* at *29–33. The earlier agreement contained a forum selection provision and a New York choice-of-law provision, but a later agreement was silent on forum selection with a California choice-of-law provision. *Id.* at *46. Given the ambiguous relation of the parts, the competing configurations suggested by these modular provisions and agreements only further invited extrinsic evidence. See *id.* at *46–47. Thus, while the interconnected structure contributed to the introduction of extrinsic evidence, the interaction of relatively discrete building blocks furthered the ambiguity rather than mitigated it. See *id.* at *46 (noting that the forum selection issue implicated the scope of the integration clause in the later agreement).

consider a number of deal documents. A court's view of the interaction of provisions can be shaped by its understanding of the substantive goals of a deal. This approach leaves this determination to courts, who might not be best situated to discern intent from the text alone, especially in cases of complex or innovative transactions.

This Part has presented the benefits attributed to modular design and the contingency of the framework in which modular contract design operates. Through case studies, the next Part identifies categories of risk introduced by modular contract design against the backdrop of existing contract doctrine.

II. MODULAR CONTRACT RISKS

As discussed in the preceding Part, the building blocks of a contract exhibit some characteristics of other forms of modular design. However, contract doctrine at times fails to establish reliable rules governing the architecture of a transaction, relevant inputs, and the interrelation of contract parts. This Part shows how modular design in contract—a product of language, operating in a context of sometimes unstable rules—can introduce additional dimensions of contingency and undermine the goal of effectuating private ordering.

Fundamentally, while modularity in the realm of computer and product design has been recognized to “yield[] substantial benefits,” it is also recognized as “one of the chief villains in attempting to obtain good performance.”⁸⁸ Implicit tradeoffs of modularity include significant up-front costs of design, which can reify structures and impinge on choice and tailoring in the long term. In addition, modular design invites a lack of coordination between encapsulated parts, suppresses details, and introduces costs to overall precision resulting from a focus on components rather than the whole.⁸⁹

Considering these tradeoffs and the operation of contract terms in practice, this Part identifies three related and mutually exacerbating categories of modular design risk in contracts. First, it identifies *intertextualism*, which occurs when the operation of a discrete, and even standard, provision seems clear in isolation but

88. Yoo, *supra* note 7, at 25 (quoting David D. Clark, *Modularity and Efficiency in Protocol Implementation* 1 (Request for Comments 817, July 1982)).

89. *Id.* at 25.

is made uncertain by the presence of other discrete provisions in the same agreement or another related agreement. Second, *modular drift*, which occurs when drafters transplant provisions specific to one transactional context into a different type of contract or transaction, introducing uncertainty. And third, *latent triggers*, which occur when compartmentalization invites error or obscures a nuance introduced by the interaction among discrete provisions.

A. Intertextualism

Modular design aims to enable the management of complexity by “splitting a system into relatively autonomous components.”⁹⁰ It involves an upfront investment in design choices, including determining the overall architecture and the fault lines between parts.⁹¹ This precondition is implicit in the parable of the watchmaker, which takes for granted that everyone recognizes that it is a watch being constructed, and that the parts effectively break down into subsections and “siz[e] up” again into a watch.⁹² Moreover, modular design envisions stable parts operating predictably in relation to other parts.

As this section illustrates, however, when contracts are drafted using discrete provisions, they can at times plausibly be read to relate to each other in more than one way.⁹³ Some courts invoke the “one contract” principle to construe contemporaneous agreements together. As the following discussion shows, this principle as currently applied leaves open questions about the intended structure and meaning of the terms.

1. One contract or more? Finding the fault lines

For contracts to operate effectively, courts and parties must be able to reliably identify the intended relationship of the parts: “The

90. Smith, *Modularity in Contracts*, *supra* note 6, at 1196.

91. See BALDWIN & CLARK, *DESIGN RULES*, *supra* note 7, at 22.

92. See Gold & Smith, *supra* note 29, at 501–02 (exploring modularity in private law theory to account for the “sizing up” of the micro level of individual interaction to the macro level of society).

93. Cf. Akhil Reed Amar, *Intratextualism*, 112 HARV. L. REV. 747 (1999) (proposing intratextualism as an interpretive approach through which words in the Constitution are interpreted considering their operation elsewhere within the document); see generally WILLIAM N. ESKRIDGE JR., *INTERPRETING LAW* 85–138 (2016) (discussing harmonization of meaning within a statute as a canon of statutory interpretation).

trick is to find the natural fault lines in a problem.”⁹⁴ However, at times, once the contract is drafted, the relationship between parts can suggest more than one possible set of fault lines. The fact that, even minutes after being executed, contracts can be susceptible to different interpretations is not news for contract theory or practice. Just as language cannot make unequivocally plain its relation to itself,⁹⁵ in contracts, the intended relation between parts and dividing lines can at times remain uncertain.⁹⁶

Compartmentalization and limited connections between contract parts—a feature of modular design—can precipitate questions about the intended interaction of parts. Thus, identifying the intended fault lines is not necessarily a simple undertaking, especially in complex configurations. Moreover, as noted in Part I.B, the boundaries between doctrinal regimes for different contract types do not always prove stable or entirely predictable, complicating matters when the transaction type is not clear and/or the default rules and principles of construction differ depending on the type.⁹⁷ Modular contract design does not necessarily manifest to drafters and courts the rules that govern how the parts of deal should connect and which inputs should be considered. In fact, it can prompt these questions, especially as things get more complex.

By way of a simple example, consider a case in which a person buys a car from a car dealership by signing an installment contract that includes a merger provision that “this writing” is the “complete and exclusive statement of the agreement of the parties” with respect to financing.⁹⁸ At the same time, the purchaser is also handed a “pile of documents” to sign, which includes an agreement

94. Smith, *Modularity in Contracts*, *supra* note 6, at 1196.

95. See WILLIAM EMPSON, *SEVEN TYPES OF AMBIGUITY* 5 (1947); LUDWIG WITTGENSTEIN, *PHILOSOPHICAL INVESTIGATIONS* (G.E.M. Anscombe trans., Basil Blackwell Ltd. 1953).

96. See Hwang, *supra* note 6, at 1409 (“Both courts and parties routinely underestimate the boundaries of deals”).

97. Kastner & Leib, *supra* note 18, at 1287–1303.

98. See *Johnson ex rel. Johnson v. JF Enters., LLC*, 400 S.W.3d 763, 765 (Mo. 2013). In this case, the provision stated, “To protect you (borrower(s)) and us (creditor) from misunderstanding or disappointment, any agreements we reach covering [the sale and financing] are contained in this writing, which is the complete and exclusive statement of the agreement between us, except as we may later agree in writing to modify it.” *Id.* The purchaser claimed to have acted on reassurances that she could rely on advertising promising that most of the loan amount on a new vehicle would be paid by the dealership but was ultimately told she was responsible for the entire loan amount. *Id.*

to arbitrate disputes between the parties.⁹⁹ When a dispute arises about the terms of the financing under the installment contract, how do courts discern the terms of the installment agreement between the parties? Specifically, how do courts view the relationship between the merger provision in the installment contract, on one hand, and the other agreements, on the other?

In such a case, courts go back and forth mobilizing different principles of construction that key off the significance of these apparently modular forms—at the levels of both the agreement and the provision. In holding that the separate arbitration agreement governed the transaction as a whole, the Missouri Supreme Court privileged a “one contract” rule, according to which instruments related to the same subject executed at the same time “*will be construed together*, even in the absence of explicit incorporation, unless ‘the realities of the situation’ indicate that the parties did not so intend.”¹⁰⁰ In doing so, the Missouri Supreme Court reversed the lower court and abrogated precedent, which had held the same merger provision to preclude enforcement of a separate arbitration addendum.¹⁰¹ The Missouri Supreme Court viewed the fact that “[t]he installment contract does not refer to . . . any of [the] other documents[,]” which included the arbitration agreement, a sales agreement, and legally required disclosures, to indicate incorporation of the additional documents.¹⁰²

Notably, the Missouri Supreme Court pointed to the *same* modular configuration as the lower court in justifying the *opposite* outcome. Precisely because the installment agreement did “not refer to or incorporate the arbitration agreement and contains a merger clause stating that it contains the parties’ entire agreement as to financing,” the lower court held the agreements were to be

99. *See id.*

100. *Id.* at 767 (quoting *Martin v. U.S. Fid. Corp.*, 996 S.W.2d 506, 510–11 (Mo. 1999) (en banc)); *see Wells Fargo Bank Minn. v. CD Video, Inc.*, No. 603790–2002, 6 Misc. 2d 1003(A) at *6 (N.Y. Sup. Ct. 2004) (noting that “the rule . . . applies where one contract does not refer in terms to the other, or even where in one of the contracts it [states] that there are no other contracts between the parties”).

101. *Johnson*, 400 S.W.3d at 764, 766 (abrogating *Krueger v. Heartland Chevrolet, Inc.*, 289 S.W.3d 637 (Mo. Ct. App. 2009)).

102. *Id.* at 767.

understood as separate.¹⁰³ To the extent courts establish a particular fact-based approach, the absence of an articulated rule that accounts for the relation between discrete contract parts, including discrete but related agreements, leaves open the question of where courts would look for guidance as they view other or more complex deals.

In addition, this case illustrates how the question of doctrinal regime can come into play in determining the intended relation of the modular parts. The dissenting opinion to the Missouri Supreme Court's holding in this case is shaped by the judges' view of the transaction type. Viewing the transaction as a purchase involving a consumer and a car dealer offering take-it-or-leave-it terms, the dissenting judges apply doctrine associated with contracts of adhesion. In this light, the dissenting judges see a conflict between the provisions as an ambiguity that must be construed against the drafter.¹⁰⁴ Thus, when there is a question of which doctrinal regime governs a transaction (here, for example, should the transaction be treated as a consumer contract of adhesion or an ordinary business deal?), this uncertainty can invite competing default rules about the relationship between discrete provisions or agreements.

Even when there is no question of the appropriate doctrinal regime, courts do not articulate consistent rules about the relation of discrete contractual parts. The "one contract" rule discussed above in which courts consider "all writings forming part of the same transaction"¹⁰⁵ invites courts to surmise the nature of the transaction. One court described the application of this principle under New York law, a textualist jurisdiction that aims to apply a strict parol evidence rule, as follows:

103. *Id.* at 764; *cf.* *Sullivan v. Protex Weatherproofing, Inc.*, 913 So. 2d 256, 261 (Miss. 2005) (holding that sale of assets under Purchase Agreement and separate Employment Agreement constituted one "global transaction" despite lack of integration provision that explicitly incorporated both documents into a single agreement); *Sullivan v. Protex Weatherproofing, Inc.*, 913 So. 2d 256, 261 (Miss. 2005) (Randolph, J., dissenting) (pointing to "clear and unambiguous entire agreement clauses that . . . fail to refer to or incorporate any other agreement" among other provisions as indications that the agreements were intended as separate).

104. *Johnson*, 400 S.W.3d at 769–70 (Teitelman, C.J., dissenting); *see also* Kastner & Leib, *supra* note 18, at 1298–02 (outlining the history and application of the principle of *contra proferentem*).

105. *Arizona Structures Worldwide, LLC v. Glob. Blue Techs.-Cameron, LLC*, 481 S.W.3d 542, 547 (Mo. Ct. App. 2015) (quoting *Osage Water Co. v. Golden Glade Land Owners Ass'n*, 270 S.W.3d 459, 463 (Mo. Ct. App. 2008)).

This principle [that all writings that form part of a single transaction may be read together] allows courts to read several contracts together, even when they do not refer to each other and are between different parties. However, the ability of courts to broadly read contracts together is always conditioned upon the intent of the contracting parties

New York courts look to many factors, including the form of the contracts, the parties' behavior, and the effect of each contract on the other when determining whether the separate documents should be read together.¹⁰⁶

Courts vary in how they apply the "one contract" principle.¹⁰⁷ The benefits of a strict textualist rule hinging, for example, on the parties to the transaction would be somewhat akin to those touted in connection with a strict parol evidence rule. Even if courts do not get a rule exactly right, some argue, a reliable rule enables sophisticated parties to weigh the costs of expressing their intentions.¹⁰⁸

A strict textualist approach, however, still leaves it up to courts to determine the nature of the transaction and how the components were intended to relate.¹⁰⁹ At times, when deals are structured to take advantage of the very benefits of modular design by including different parties as signatories to different aspects of the deal,¹¹⁰ judges split on which modular features reflect the intended agreement and how.¹¹¹

106. *Grandis Fam. P'ship v. Hess Corp.*, 588 F. Supp. 2d 1319, 1332–33 (S.D. Fla. 2008) (citations omitted).

107. See *Applehead Pictures LLC v. Perelman*, 80 A.D.3d 181, 188–89 (N.Y. App. Div. 2010) (finding operating agreement and separation agreement entered into on the same day by different parties not intended to be interdependent); *Kramer v. William F. Murphy Self-Declaration of Tr.*, 816 N.W.2d 813, 815 (S.D. 2012) (construing disbursement agreement, loan agreement, and promissory notes as a single contract despite the parties to each not being identical).

108. See *Gilson et al.*, *supra* note 16, at 27–28 (describing the textualist approach).

109. See *Applehead Pictures*, 80 A.D.3d at 189 ("[S]eparate written agreements involving different parties, serving different purposes and not referring to each other are not intended to be interdependent or somehow combined to form a unitary contract . . . in the absence of some clear indication that the parties had a contrary intention, contracts manifesting separate assents to be bound are generally presumed to be separable.").

110. See *Hwang*, *supra* note 6, at 1428 ("Parties may prefer using separate ancillary agreements for party-specific issues to reduce both front- and back-end deal costs.").

111. See, e.g., *Kramer* 816 N.W.2d at 814 (holding that a loan agreement with promissory notes containing forum selection provisions and a concurrently executed disbursement

Not only can discrete forms suggest more than one intended relation among provisions and agreements, but they can also signal meaning to judges in ways that are attenuated from their substantive operation. Take, for example, a case involving a common transactional arrangement in which the Seventh Circuit Court of Appeals, applying Illinois law, inferred meaning from the presence of peripherally related discrete provisions.

In *Rosenblum v. Travelbyus.com Ltd.*, Michael Rosenblum sold his travel-related business and magazine to Travelbyus.com pursuant to an Acquisition Agreement.¹¹² On the same day that the parties entered into the Acquisition Agreement, they also entered into an Employment Agreement whereby Rosenblum would continue to work and develop content for the magazine.¹¹³ In this way, the parties effectuated the deal using modular design—an Acquisition Agreement governed the terms of the sale of the business from Rosenblum to Travelbyus.com, and an Employment Agreement governed the terms of Rosenblum's employment by the company.

These agreements, as is common, also contained a number of discrete provisions. Each agreement contained a noncompete provision restricting Rosenblum from working with a competitor of the company for a period following the sale.¹¹⁴ In addition, the Employment Agreement contained a broadly drafted arbitration provision subjecting "any matter in dispute under or relating to this Agreement" to binding arbitration.¹¹⁵

When a dispute arose between the parties concerning the payment of the purchase price by Travelbyus.com to Rosenblum

agreement between some but not all the same parties constituted a single contract so that the forum selection clause governed the disbursement agreement involving other parties). *But see id.* at 817–19 (Zinter, J., dissenting) (pointing to the lack of forum selection provision in the disbursement agreement to "support" the view that the "contract involved independent obligations and rights" such that "each party was not subject to each term of each agreement").

112. *Rosenblum v. Travelbyus.com Ltd.*, 299 F.3d 657, 659–60 (7th Cir. 2002).

113. *Id.* at 660.

114. *Id.* at 663.

115. Min. Order at 2, *Rosenblum v. Travelbyus, Ltd.*, No. 01 C 6441, 2002 WL 31487823, at *1 (N.D. Ill. Nov. 15, 2001), ECF No. 17 [hereinafter *Rosenblum Order*]. This formulation itself operates as a module, containing meaning, as it has been construed by courts as "extremely broad and capable of an expansive reach." *See Kiefer Specialty Flooring, Inc. v. Tarkett, Inc.*, 174 F.3d 907, 909 (7th Cir. 1999) (construing language providing that any claims "arising out of or relating to" the agreements between the parties would be settled by arbitration as broad).

pursuant to the Acquisition Agreement, Rosenblum sued. Travelbyus.com then moved to dismiss, citing the arbitration provision in the Employment Agreement.¹¹⁶

To determine whether the arbitration provision in the Employment Agreement was intended to relate only to the terms of employment or, alternatively, to the broader transaction, including the acquisition, judges viewed the relationship of the components of the transaction in different ways. Indeed, even seemingly unrelated provisions figured into the analysis of the parties' intentions.

In this case, the district court viewed the transaction as contemplating a capacious arbitration provision. It read the broad formulation of the arbitration provision in the Employment Agreement to suggest an intent by the parties that the provision apply to the entire transaction.¹¹⁷ The court viewed other modular features, such as the merger provision in the Acquisition Agreement, as consistent with the intent by the parties to enter a single global transaction.¹¹⁸

In contrast, the court of appeals looked at the contractual building blocks constituting the transaction and reversed. It held that the arbitration provision in the Employment Agreement was not intended to extend to the Acquisition Agreement. Notably, the court of appeals remarked the inclusion of "substantially similar" non-compete provisions in each agreement.¹¹⁹ It read the presence of these building blocks to indicate an intent by the parties to enter into two "separate, free-standing contracts."¹²⁰ Though these discrete provisions were not directly related to the question of dispute resolution at issue, the inclusion of a similar discrete provision in each agreement, according to the court, reflected a parallel "internal structure" and, thus, an intent by the parties that

116. Rosenblum Order, *supra* note 115.

117. *Id.*

118. *Id.* The district court noted the inclusion of the Employment Agreement in the "Conditions Precedent" to the Acquisition Agreement and read the merger provision in the Acquisition Agreement that referred to "agreements and documents to be delivered pursuant to" the Acquisition Agreement as "constitut[ing] the entire agreement . . . pertaining to the subject matter," to express the parties' intent that the two contracts together constitute the "Entire Agreement." *Rosenblum v. Travelbyus.com, Ltd.*, 299 F.3d at 660.

119. *Id.* at 663.

120. *Id.*

each contract be “complete on [its] own.”¹²¹ In this light, the court of appeals read the arbitration and merger provisions narrowly, rejecting the significance attributed to the provisions by the lower court.¹²²

Thus, rather than clarify the intended relationship between discrete provisions and related agreements, as this case illustrates, the presence of discrete provisions and agreements—even those not substantively related to the question at hand—can introduce new dimensions of uncertainty about the intended operation of other discrete provisions. In this way, absent an architecture that accounts for such interactions, modular design can introduce uncertainty about the operation of even standard provisions.

To a large extent, portable provisions and agreements serve as valuable manifestations of the parties’ intentions. Yet, discrete provisions and agreements can together—by virtue of their “context independent” structures¹²³—invite questions as to both their intended relation as well as the relevant doctrinal context. As these examples suggest, the deployment of discrete parts does not necessarily lead to reliable outputs. Instead, when contracts involve different levels of discrete parts, these modules can invite more than one understanding of the whole. Moreover, they can shape the possible operation of various parts in ways that might not be predictable or apparent to drafters as they seek to mobilize discrete forms *ex ante*.

Courts appear to look ultimately to the substance of the transaction as they perceive it, an approach that is likely to be most effective when the parties follow a familiar transaction structure—though, as *Rosenblum* and similar cases suggest, even then, the presence of discrete provisions can contribute to uncertainty. To reliably discern the parties’ intentions about deal design, judges may need to draw on extrinsic evidence. Thus, in general, leaving

121. *Id.*

122. *Id.* at 664–65. The court emphasized the application of the arbitration provision by “its terms, to ‘any matter in dispute under or relating to *this* Agreement.’” *Id.* at 664. Other courts split on this fact pattern as well, reversing themselves in different ways. *See, e.g., Sullivan v. Mounger*, 882 So. 2d 129, 135 (Miss. 2004) (reversing lower court to construe agreements together).

123. Smith, *Modularity in Contract*, *supra* note 6, at 1190.

the determination of parties' intentions in complex or innovative cases at the discretion of textualist courts can invite uncertainty.

2. Interacting terms, hidden rules, and changing meanings

In addition to inviting questions about the intended configuration of a transaction, the interaction of discrete provisions can invite questions as to their intended meaning even within a document. For example, a study of forum selection clauses demonstrates how interactions among highly modular provisions can change the meaning ascribed to them by courts in ways not necessarily intended by sophisticated parties.¹²⁴ While courts tend to apply forum selection clauses to "closely related" affiliates who are not signatories to a contract,¹²⁵ at times courts read the presence of another highly modular provision, a no-third-party-beneficiary clause, as precluding the application of the forum selection clause to these affiliates.¹²⁶

Although this approach by courts reflects the plain language reading of the clauses together, the study expresses skepticism "that the parties foresaw this issue at the time of contracting and consciously drafted this [no-third-party-beneficiary] clause to limit the ability of non-signatories to partake of the contract's forum selection clause."¹²⁷ Instead, this might be best viewed as an unanticipated interdependency prompted by the inclusion of two discrete standard provisions.

Depending on how you look at it, in these cases the interface that governs the relation between the parts is hidden either to the parties or to the courts. The outputs of the modules can thereby be

124. Coyle, *Forum Selection*, *supra* note 3, at 1823–26.

125. *Id.* at 1821–26.

126. *See, e.g.,* Casville Invs., Ltd. v. Kates, No. 12 Civ. 6968 RA, 2013 WL 3465816, at *6 (S.D.N.Y. July 8, 2013); Pinto Tech. Ventures, L.P. v. Sheldon, 526 S.W.3d 438, 445 (Tex. 2017); Coyle, *Forum Selection*, *supra* note 3, at 1825.

127. Coyle, *Forum Selection*, *supra* note 3, at 1826. A related phenomenon can be seen within modular provisions—as is the case of a choice-of-law provision that establishes that an agreement "shall be governed by the laws of" a certain state. Depending on the state specified, courts will understand the intended breadth of the clause differently. Compare *Knieriemen v. Bache Halsey Stuart Shields, Inc.*, 74 A.D.2d 290, 292–94 (N.Y. App. Div. 1980) (construing standard choice-of-law provision choosing New York law to apply only to contract claims) and *Nedlloyd Lines B.V. v. Superior Ct.*, 834 P.2d 1148 (Cal. 1992) (construing standard choice-of-law provision choosing California law to apply to tort and statutory claims as well); *see generally* John F. Coyle, *The Canons of Construction for Choice-of-Law Clauses*, 92 WASH. L. REV. 631, 666–77 (2017).

impacted in unforeseen ways by the presence of other clauses. In other words, the presence of other discrete—and thus easily imported—provisions threaten to alter the operation of another discrete provision. This dynamic thereby introduces uncertainty as to the operation of discrete, and even standard, provisions.¹²⁸

In a related vein, the next section examines the uncertainty introduced by the portability of terms to different transactional contexts in which they might or might not be construed differently.

B. Modular Drift

This section explores the uncertainty that results from portability—another fundamental feature of modular design. Boilerplate need not be modular, and a modular contractual term can be bespoke, but when a term is relatively discrete and somewhat standardized, it can become portable. It can migrate to new contexts—in which the law and/or transaction type might differ. In this way, portability can facilitate innovation, whether by introducing a provision whose operation is intended to remain the same or by introducing a provision that parties intend to operate differently in a new context. Yet, portable provisions designed to anticipate future states and allocate risk and responsibility in one transaction type might not account for the dynamics of a different transactional context. Alternatively, an intended change in the operation of a provision in a new context might remain invisible to courts. The discussion below outlines the potential for uncertainty that transplanting terms can invite for current and future parties, especially if doctrinal boundaries are not clear.

1. Like terms in different contexts

Standardized terms can impart value, not least as a result of learning and network effects.¹²⁹ Terms that are refined over time and used broadly have been said to bring with them the benefits of more certain meaning, “independent of any particular contractual

128. For an analogous way discrete terms introduce uncertainty in jury instructions, see Shari Seidman Diamond, Beth Murphy & Mary R. Rose, *The “Kettleful of Law” in Real Jury Deliberations: Successes, Failures, and Next Steps*, 106 NW. UNIV. L. REV. 1537, 1564–65 (2012) (showing how juries get confused by discrete instructions that do not on their face explain their intended connection, if any, to one another). I thank Valerie Hans for calling this to my attention.

129. See generally Kahan & Klausner, *supra* note 45.

context” or specific intentions of the parties.¹³⁰ Along these lines, for example, standard provisions in debt agreements, which are used by “parties in heterogeneous environments who wish to communicate a shared intent,” have been seen to “embody that intent in a fixed and reliable formulation whose meaning does not vary with the nature of the contract or its context.”¹³¹ To the extent the meaning of terms can remain fixed across context, these terms resemble the building blocks of modular design.

Courts and scholars have acknowledged, however, that different doctrinal approaches best serve different contract types.¹³² The effective operation of standard terms thus depends on the application of appropriate doctrinal principles, which in turn hinges on the accurate recognition by courts of the transactional context. This can become an issue when standardized terms are also modular. Design theorists explain, “porting . . . is invisible. The architects of the system and designers of other modules do not have to know that a port has taken place.”¹³³ But effective operation of the module presupposes it will be imported into a suitable context and operate as intended.

In the context of comparative law, scholars have critiqued the possibility of transplanting legal rules from one legal context to another.¹³⁴ In this view, although language can migrate, the meaning of a rule depends on an understanding of the context from which it arises.¹³⁵ In contracts, for the most part, drafters and interpreters begin with the opposite presumption—language can

130. Stephen J. Choi, Mitu Gulati & Robert E. Scott, *The Black Hole Problem in Commercial Boilerplate*, 67 DUKE L.J. 1, 4 (2017) [hereinafter Choi, Gulati & Scott, *The Black Hole Problem*].

131. *Id.* at 4–5; see also *Sharon Steel Corp. v. Chase Manhattan Bank, N.A.*, 691 F.2d 1039, 1048 (2d Cir. 1982); *Broad v. Rockwell Int’l Corp.*, 642 F.2d 929, 943 (5th Cir. 1981) (“A large degree of uniformity in the language of debenture indentures is essential to the effective functioning of the financial markets . . .”).

132. See, e.g., *29 Holding Corp. v. Diaz*, 775 N.Y.S.2d 807, 817 (N.Y. Sup. Ct. 2004) (“It is almost axiomatic that commercial leases may and should be governed by a different rule than residential leases.”); DAGAN & HELLER, *supra* note 2, at xii (“[E]xisting contract law . . . offers types that vary widely in their normative structures . . .”); Gilson et al., *supra* note 16, at 76 (advocating distinct interpretive approaches to different transaction types); Schwartz & Scott, *supra* note 2, at 543 (referencing the “heterogeneity of contractual contexts” that prompt differing normative approaches).

133. BALDWIN & CLARK, *DESIGN RULES*, *supra* note 4, at 140.

134. See Pierre Legrand, *The Impossibility of “Legal Transplants,”* 4 MAASTRICHT J. EUR. & COMP. L. 111, 122 (1997).

135. *Id.* at 114.

be imported, if with care. Modular design, it has been argued, can “facilitate[] the adoption of a novel provision” when the provision is easily plugged in without disrupting other parts of the contract.¹³⁶ Yet, at times, similar provisions in different contexts operate differently or may be intended to be used in different ways. By virtue of a provision’s portability, however, distinctions as to how the same provision might be construed or intended to operate in a new context are not necessarily evident to parties and courts.

Scholars have established the downsides of courts treating like terms alike across contexts, including the way that this can undermine the goals of a particular transaction type. For example, scholars have discussed in depth the development of inapposite doctrine concerning arbitration provisions, a paradigmatically modular form.¹³⁷ Arbitration provisions establish that parties agree to submit all or certain disputes to arbitration rather than judicial review.¹³⁸ As scholars have outlined, these provisions present distinctive structural and cognitive challenges for individual parties in contracting contexts beyond the merchant-to-merchant realm envisioned by the Federal Arbitration Act (FAA).¹³⁹ But the portability of arbitration provisions has facilitated treatment of like terms similarly across contexts,¹⁴⁰ resulting at times in the failure to

136. Triantis, *supra* note 6, at 191.

137. See, e.g., MARGARET JANE RADIN, *BOILERPLATE: THE FINE PRINT, VANISHING RIGHTS, AND THE RULE OF LAW* (2012); Judith Resnik, *Diffusing Disputes: The Public in the Private of Arbitration, the Private in Courts, and the Erasure of Rights*, 124 YALE L.J. 2804 (2015).

138. See Smith, *Modularity in Contracts*, *supra* note 6, at 1191 (identifying arbitration as an example of a contractual provision “characterized by a high degree of modularity”).

139. Federal Arbitration Act, Pub. L. No. 68-401, 43 Stat. 883 (1925) (codified as amended at 9 U.S.C. §§ 1–14 (2012)); see, e.g., Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211, 258 (1995); Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203, 1217, 1225–27 (2003). For a summary of the challenges posed by arbitration provisions for individual consumers, see Tal Kastner, “I’m Just Some Guy”: *Positing and Leveraging Legal Subjectivities in Consumer Contracts and the Global Market*, 23 IND. J. GLOB. L. STUD. 531, 537 (2016).

140. Recent jurisprudence has eroded the doctrinal distinction between transaction types. See *Moses H. Cone Mem’l Hosp. v. Mercury Constr. Corp.*, 460 U.S. 1, 24 (1983) (pronouncing a “liberal federal policy favoring arbitration agreements . . .”); *Mitsubishi Motors Corp. v. Soler Chrysler-Plymouth, Inc.*, 473 U.S. 614, 628–29 (1985) (enforcing arbitration provisions against consumers bringing antitrust claims); *Rodriguez de Quijas v. Shearson/Am. Express, Inc.*, 490 U.S. 477, 481 (1989) (enforcing arbitration provisions against investors making securities laws claims); *Gilmer v. Interstate/Johnson Lane Corp.*, 500 U.S. 20, 29 (1991) (enforcing arbitration provisions against employees claiming violations of federal anti-discrimination statutes); *CompuCredit Corp. v. Greenwood*, 132 S. Ct. 665, 669–

facilitate parties' intent and undermining the effective functioning of consumer contracts.¹⁴¹

The infelicity of treating like terms similarly in different contexts when doing so undermines the goals of a contract type is not the only cost of modular drift.¹⁴² At times, courts recognize contextual distinctions that would lead to different treatment of similar forms. Even when courts do so, however, there might not be visible rules or interfaces to make the intended context clear and predictable.

By way of illustration, a recent notable Delaware Court of Chancery decision concerning the construction of material adverse effect (MAE) provisions in a merger agreement suggests two possible interpretive frameworks.¹⁴³ The distinct doctrinal approaches depend on the intended context of the clause, thereby inviting uncertainty.

MAE provisions are standard tools to protect parties from a significant diminishment in the value to be conveyed between signing and closing the deal.¹⁴⁴ Though heavily negotiated, MAE provisions are typical modules within the structure of a merger agreement and as such can invite a uniform doctrinal approach.

That said, in *Akorn v. Fresenius*,¹⁴⁵ the Delaware Chancery Court referenced a suggestion by scholars that courts distinguish between strategic and financial transactions in assessing the duration of harm triggering an MAE.¹⁴⁶ In doing so, the court acknowledged the different goals of different types of deals. Strategic transactions

71 (2012) (expanding the FAA to presume all claims arbitrable unless expressly provided otherwise by Congress).

141. The failure of arbitration provisions to reflect employees' and consumers' intent due to the uniform application of doctrine suggests a market failure in these contexts.

142. I borrow from JL AUSTIN, HOW TO DO THINGS WITH WORDS 16 (2d. ed., 1955) (labelling an utterance a "misfire" when "the procedure which we purport to invoke is disallowed or is botched" and labelling an utterance an "abuse" when the conventional result of the utterance "is achieved, although to achieve it in [the] circumstances" is not an appropriate application of the procedure).

143. See *Akorn, Inc. v. Fresenius Kabi AG*, No. 2018-0300-JTL, 2018 WL 4719347, at *1 (Del. Ch. Oct. 1, 2018), *aff'd*, 198 A.3d 724 (Del. 2018).

144. See ABA, MERGERS & ACQUISITIONS COMM., MODEL MERGER AGREEMENT FOR THE ACQUISITION OF A PUBLIC COMPANY 223 (2011) [hereinafter ABA, MODEL MERGER AGREEMENT].

145. *Akorn, Inc.*, 2018 WL 4719347, at *1. This case received widespread attention due to the Delaware Chancery Court's holding that the target had suffered an MAE. See *id.* at *52-53, *57.

146. *Id.* at *53 n.551 (citing Choi & Triantis, *supra* note 67, at 877).

involve operating synergies between the buyer and seller, and thus arguably contemplate a longer timeframe, which the Delaware Chancery Court suggested should be taken into account when assessing the materiality of an adverse effect.¹⁴⁷ In contrast, scholars propose that financial transactions, in which buyers use debt financing to purchase a company with the aim of reselling it, prompt a shorter timeline for the assessment of the materiality of an adverse effect.¹⁴⁸ This reasoning is compelling if courts know the intended transaction type.

Yet, after the fact, a merger agreement might not make clear which transaction type it was intended for and, in practice, the boundaries between transaction types might not be evident. Most basically, innovative transactions do not necessarily fit neatly into one category. Strategic acquisitions, for example, regularly make use of debt financing in the structure of the transaction. On the other end of the spectrum, a private equity firm could acquire a company that has strategic synergies with a company already in its portfolio. To the extent that the MAE provisions ought to prompt different approaches by courts depending on the goals of the parties, which might be costly or difficult to establish *ex post*,¹⁴⁹ this significant context-independent module invites the risk of misinterpretation or opportunism.

Parties might mitigate these risks by signaling the distinctiveness of a contractual regime and thereby prompt courts to apply different rules for different transaction types. However, the development of appropriate interfaces demands a nuanced approach and is not without its own learning and drafting costs. Thus, the use of portable terms in new contexts, or the distinction among contexts, as with the MAE provision, invites new forms of uncertainty as well as learning and drafting costs.

More fundamentally, even when courts identify differences in contract types, they often struggle to define and maintain the boundaries between doctrinal tracks—making the boundaries

147. *Id.* For a discussion of the distinction between strategic and financial buyers, see Afsharipour, *supra* note 15, at 1169–70.

148. See Choi & Triantis, *supra* note 67, at 877.

149. Whether this approach leads to optimal choices by parties *ex ante* is also a question. I thank Cathy Hwang for this insight.

somewhat uncertain for drafters.¹⁵⁰ A recent study illustrates how courts fail to define the characteristics of transaction types and of party types leading to blurring doctrinal boundaries and questions as to which doctrinal approach will apply.¹⁵¹ Indeed, the boundaries between doctrinal approaches are not always clear even in cases involving what we might think of as clearly distinct types, such as consumer contracts as opposed to contracts between sophisticated parties. As noted, the doctrine developed for one transaction type can creep beyond the transaction type for which it was designed.¹⁵² As a result, the transplantation of a provision into a new context, especially when the distinctions in context are not explicitly defined, brings with it the question of how the provision is intended to operate in the new context. And, to the extent that courts recognize a distinctive operation of a provision in a new context, in the absence of established doctrinal boundaries, this can, in turn, compromise the certainty of the same provision in the original and other contexts.

2. Stickiness: Exacerbating the costs of portability

The discussion above illustrated some of the uncertainty and costs of portability of provisions from one context to another. On the one hand, courts might not accurately effectuate private ordering when they treat like terms similarly across different transaction contexts. On the other hand, as the preceding section illustrates, a rule that aims to treat similar provisions differently can invite uncertainty because the boundaries between transaction types are not necessarily clear, especially in innovative contexts. This section briefly connects the phenomenon of “stickiness” to the

150. Discussion among practitioners about the significance of MAE provisions in loan agreements given the negative impact on cash flows resulting from COVID-19 illustrates the uncertainty of doctrinal boundary drawing. Since most case law concerning MAE provisions involves M&A transactions governed by Delaware law, practitioners speculate about the extent this doctrinal treatment extends to MAE provisions in loan agreements, which tend to be governed by New York law and negotiated and drafted differently due to their distinct goals. See *MAE in Loan Agreements: A Framework for Lenders and Borrowers During the Current Crisis*, AKIN GUMP STRAUSS HAUER & FELD LLP (Mar. 19, 2020), <https://www.akingump.com/en/news-insights/mae-in-loan-agreements-a-framework-for-lenders-and-borrowers-during-the-current-crisis.html>.

151. Kastner & Leib, *supra* note 16, at 1304–10.

152. *Id.* at 1287–97.

downsides of portability. It thereby identifies a factor that further exacerbates modular design risk.

Specifically, scholars have noted a tendency of sophisticated parties to revise standard provisions to correct for mistaken interpretations more slowly than theories would predict.¹⁵³ This so-called stickiness thus exacerbates costs of misinterpretation precipitated by portable terms.

The much-discussed case of the *pari passu* clause, “a standard provision in sovereign debt contracts that almost no one seems to understand,”¹⁵⁴ illustrates the risks of portability and the added costs that can result from stickiness of terms.¹⁵⁵ This provision, which might have “migrated from cross-border corporate documents” into sovereign debt contracts by being “copied by the lawyers . . . who had not realized that such a clause was meaningless in the sovereign context,”¹⁵⁶ invited mistaken interpretation by courts.

Prior to litigation around the term, the conventional wisdom in the market was that the clause had no technical operative meaning for sophisticated sovereign creditors, though it might have served a communicative purpose.¹⁵⁷ In any case, it was widely understood

153. See MITU GULATI & ROBERT E. SCOTT, *THE THREE AND A HALF MINUTE TRANSACTION: BOILERPLATE AND THE LIMITS OF CONTRACT DESIGN* 5, 11 (2013) (“[B]oilerplate clauses are sticky: They seem resistant to amendment even when amendment seems desirable.”); Kahan & Klausner, *supra* note 45, at 728; Peter B. Rutledge & Christopher R. Drahozal, “Sticky” Arbitration Clauses? *The Use of Arbitration Clauses After Concepcion and Amex*, 67 VAND. L. REV. 955 (2014); Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130, at 4.

154. Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130, at 1.

155. See, e.g., GULATI & SCOTT, *supra* note 153; Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130; Stephen J. Choi, Mitu Gulati & Robert E. Scott, *Variation in Boilerplate: Rational Design or Random Mutation*, 20 AM. L. & ECON. REV. 1 (2018); Mark Weidemaier, Robert Scott & Mitu Gulati, *Origin Myths, Contracts, and the Hunt for Pari Passu*, 38 LAW & SOC. INQUIRY 72 (2013). For a discussion in connection with portability see Kastner & Leib, *supra* note 16.

156. GULATI & SCOTT, *supra* note 153, at 14 (citing PHILIP WOOD, *THE LAW AND PRACTICE OF INTERNATIONAL FINANCE* 6–23 (1984)); Lee C. Buchheit & Jeremiah Pam, *The Pari Passu Clause in Sovereign Debt Instruments*, 53 EMORY L.J. 869 (2004).

157. See Anna Gelpern, G. Mitu Gulati & Jeromin Zettelmeyer, *If Boilerplate Could Talk: The Work of Standard Terms in Sovereign Bond Contracts*, 44 L. & SOC. INQUIRY 617 (2019). For a discussion of the interpretation of the *pari passu* provision in connection with first debt issued by the Republic of Peru and then by the Republic of Argentina, see Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130, at 18–24; see also GULATI & SCOTT, *supra* note 153, at 3, 51–52, 109–18 (discussing a lack of understanding of the meaning of the term by sovereign bond market participants).

not to grant investors a holdout right.¹⁵⁸ However, in a series of decisions, courts in Brussels and New York interpreted the clause to preclude payouts under a restructuring agreement in the absence of payment in full to holdout creditors.¹⁵⁹ In doing so, the courts failed to apply what the market considered the appropriate interface in this context—an understanding of this standardized term as not conferring a holdout right. Instead, the courts mistakenly looked at the language through the framework of the general contract presumption that all clauses have technical meaning.¹⁶⁰ This doctrinal approach ultimately contributed to triggering the Republic of Argentina’s default on \$29 billion of debt.¹⁶¹ To the extent provisions are portable but not clear to drafters, as in the case of *pari passu*, they can invite opportunistic exploitation by a “contractual arbitrageur.”¹⁶²

More troubling to scholars, the market failed for a time to revise a provision that introduced a known risk.¹⁶³ Thus, a provision that appears portable and facially context independent invites the risk of being included in an inapposite context. Moreover, once there, the provision might prove resistant to removal. The fact that markets may be slow to correct court error further contributes to the risk that an unsuitable facially context independent term can pose.¹⁶⁴

158. See Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130, at 18–24; see also GULATI & SCOTT, *supra* note 153, at 3, 51–52, 109–18.

159. See Joint Appendix at A-1356, *NML Capital, Ltd. v. Republic of Argentina*, 699 F.3d 246 (2d Cir. 2012) (No. 12-105(L)) for an English translation of the Brussels case first interpreting the *pari passu* clause in a Peruvian sovereign debt contract (cited in Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130, at 6 n.11). See *NML Capital, Ltd. v. Republic of Argentina*, No. 08 Civ. 6978, 2011 WL 9522565, at *2–3 (S.D.N.Y. Dec. 7, 2011); *NML Capital, Ltd. v. Republic of Argentina*, 699 F.3d 246 (2d Cir. 2012); *NML Capital, Ltd. v. Republic of Argentina*, 727 F.3d 230 (2d Cir. 2013) (affirming the same interpretation in a case against the Republic of Argentina). See generally GULATI & SCOTT, *supra* note 153.

160. GULATI & SCOTT, *supra* note 153, at 14.

161. Kathy Gilsinan, *65 Words Just Caused Argentina’s \$29-Billion Default*, ATLANTIC (July 31, 2014), <https://www.theatlantic.com/international/archive/2014/07/65-words-just-caused-argentinas-29-billion-default/375368/>.

162. See Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130, at 72.

163. GULATI & SCOTT, *supra* note 153, at 5.

164. See Choi, Gulati & Scott, *The Black Hole Problem*, *supra* note 130, at 2 (noting markets may be slow to correct court error, which in the case of the Argentinian sovereign debt they characterize as a “systemic problem that caused substantial costs”).

Scholars have identified this risk in connection with provisions emptied of meaning.¹⁶⁵ And one study suggests that even in the context of private equity, where contract drafters innovate more readily than in the sovereign bond context, drafters tend to add but not delete provisions.¹⁶⁶ Thus, portable provisions can invite uncertainty in subtle ways, even when they seem to retain their meaning. To the extent this uncertainty results in misinterpretation, the resulting costs can be exacerbated by the phenomenon of stickiness.

The discussion above identified diminished efficacy of provisions and interpretive uncertainty prompted by modular treatment of provisions and agreements in the current doctrinal landscape. Some of the examples also suggest a third category of risk.

The final category of modular contract risk that this Article considers is latent triggers. The following section focuses on the downsides of specialization, suppression of detail, and decentralization enabled by compartmentalizing parts of a contract. Overlooked interdependencies and drafting errors that result from these features of modularity further complicate courts' job of discerning the intentions of the parties.

C. Latent Triggers

The above discussion teased out dynamics that result from the instability of design rules governing inputs and interactions in contract. This section identifies a third category of risk, stemming from the tradeoffs of modularity, which can further exacerbate the challenge for courts of discerning intended meaning.

As modular design theorists note, a focus on developing efficient parts does not necessarily result in overall precision.¹⁶⁷ Compartmentalization can facilitate learning and the efficient use of specialists' expertise. To do so, it also invites decentralization in the system and the suppression of nuance. Thus, nuances in

165. *Id.* at 3–4.

166. Stephen J. Choi, Mitu Gulati & Robert E. Scott, *Innovation Versus Encrustation: Agency Costs in Contract Reproduction* (Columbia L. Sch. Scholarship Archive, Working Paper No. 2668, 2020), https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=3672&context=faculty_scholarship.

167. Yoo, *supra* note 7, at 25–26.

discrete sections and their implications can go overlooked in a decentralized structure. As a result, design experts conclude that there are greater risks from having too many modules rather than from having too few.¹⁶⁸

For this reason, in addition to rules governing the architecture of a system and its interfaces, modular design theory identifies the importance of standards of testing.¹⁶⁹ Described as “the Achilles’ heel of modular design,”¹⁷⁰ testing costs increase as modules are added. In part, this reflects the tradeoffs between encapsulation and the containment of nuance (or so-called “information hiding”) within components, on one hand, and decentralization and unintended interdependencies between parts, on the other.¹⁷¹

Applying design theory to contracts in practice, this section explains how compartmentalization and specialization can invite drafting errors that exacerbate the uncertainty introduced by the categories of risk discussed above. A recent M&A transaction serves as an illustrative case study of how these dynamics together can introduce costs. The dynamics it suggests, however, are not limited to M&A, and they impact a range of transactions enabled by modular provisions and agreements, including international business, construction, and insurance deals, to name just a few.

Before turning to a case study of how modular design invites drafting errors, the discussion below briefly considers the forms of testing that exist with respect to contracts.

1. Standards of testing in contract

In addition to reliable rules governing the inputs and interaction of parts, design theory envisions testing as a precondition for effective modular design. This section considers the ways that contracts undergo testing in practice.

In modular design, testing usually happens at the end of a design process, when the architecture and the interdependencies between parts are known to the designers.¹⁷² In the case of computer software, programs typically undergo user-acceptance

168. *Id.*

169. See BALDWIN & CLARK, DESIGN RULES *supra* note 7, at 77.

170. *Id.* at 272.

171. See Yoo, *supra* note 7, at 27.

172. BALDWIN & CLARK, DESIGN RULES *supra* note 7, at 76.

testing to see how the program works in practice and to identify bugs in the system.

In the case of contracts, precedential forms, such as standardized terms, already reflect collective learning. However, recent scholarship demonstrates how precedential forms can themselves “drift” over time as they incorporate language changes specific to a particular negotiation and thus degrade as effective models.¹⁷³ In addition, modes of testing contracts can be arbitrary and high stakes. Scholars commonly refer to system “shocks” or exogenous changes—in the form of an unexpected interpretation or shifts in the market, for example—as instances that prompt design change.¹⁷⁴ On a deal-specific level, a change in circumstances can prompt a test of the integrity and functioning of the interdependencies of a particular set of deal documents.¹⁷⁵ These types of shocks test existing contracts after the fact and might prompt systemic reconsideration. However, in the front-end drafting process, the burden remains on the practitioner to identify the effectiveness of the interdependencies of the documentation or transaction at hand.

Seasoned practitioners look out for pitfalls as they draft and presumably weigh drafting costs against the probability of a contingency arising as they revise.¹⁷⁶ A lead lawyer on a complex transaction is typically responsible for reading through all the documentation, while others could be charged with owning certain documents or parts of a transaction. However, a senior lawyer’s time is also costly, and practitioners involved in a deal can be subject to cognitive limitations as a result of the salient aspects of their negotiation. Some may follow a formalized checklist to identify “bugs” or unforeseen interdependencies but, as contracts

173. See Anderson, *supra* note 19; Anderson & Manns, *Boiling Down Boilerplate*, *supra* note 46.

174. See Choi & Triantis, *supra* note 67, at 851 (examining transaction design in the wake of “unprecedented and unanticipated economic and financial shocks of the past couple of years”); Stephen J. Choi & G. Mitu Gulati, *An Empirical Study of Securities Disclosure Practice*, 80 TUL. L. REV. 1023, 1023 (2006).

175. See Jeffrey M. Lipshaw, *Lexical Opportunism and the Limits of Contract Theory*, 84 U. CIN. L. REV. 217, 219 (2016) (noting that in practice parties will frame the meaning of a contract opportunistically); see also *Martin Marietta Materials, Inc. v. Vulcan Materials Co.*, 56 A.3d 1072, 1075 (Del. Ch. 2012) (considering the parties’ intent concerning an NDA lacking a “standstill” provision when the intended target of a proposed merger undertook a hostile takeover of the presumed acquiror following a stock price change).

176. Choi & Triantis, *supra* note 67, at 853.

become more complex, these too are necessarily incomplete. The specialized structure of law firms, in which transactional lawyers and litigators have separate areas of expertise—with transactional lawyers steeped in market norms and litigators more attuned to how terms may be viewed in litigation—further suggests limits to this form of testing.¹⁷⁷

Generally, litigation can be relatively rare but deals that “die” or “blow up” involve significant stakes. The complex case study below, involving a failed merger, illustrates the limitations of shock testing for practitioners and parties.

2. *Complex case study: Latent triggers*

The following case study illustrates how modular contract design can not only enable the potential progress of a deal but also introduce possibilities for error.

This case study involves an M&A transaction that used modular agreements to facilitate regulatory approval of a merger. M&A agreements commonly address the risk of failing to obtain necessary regulatory approvals such as antitrust clearance.¹⁷⁸ Indeed, modular design can facilitate the resolution of regulatory-related issues. For example, antitrust is an area of specialization in which scholars have identified the potential benefits of using a separate agreement to facilitate a complex transaction.¹⁷⁹ As the case study below demonstrates, however, discrete agreements can invite errors—such as unanticipated interdependencies or a failure to synchronize parts—that go unnoticed in drafting. Moreover, this case study illustrates the ways in which drafting errors can compound and be compounded by intertextualism and modular drift, especially as transactions become more complex.

177. See GULATI & SCOTT, *supra* note 153.

178. ABA, MERGERS & ACQUISITIONS COMM., MODEL MERGER AGREEMENT FOR THE ACQUISITION OF A PUBLIC COMPANY 245 (2011).

179. See Hwang, *supra* note 6, at 1421.

Chemtrade Electrochem Inc. v. Jones Day,¹⁸⁰ a recent malpractice suit by a chemical company against seasoned antitrust counsel,¹⁸¹ grew out of a proposed acquisition that ultimately failed to obtain regulatory approval. The target company, Canexus,¹⁸² hired counsel to advise the company on U.S. antitrust matters in connection with a potential merger with Superior, another chemical company.¹⁸³ Both companies had operations in the United States and Canada.¹⁸⁴ To effectuate the merger, the parties entered into an Acquisition Agreement that contained a “reverse termination fee” provision (RTF). Here, the RTF was intended to require the acquiror to pay the target company a fee in the event certain regulatory approvals were not obtained before a date set by the parties.¹⁸⁵

RTFs serve as prime examples of contract innovation through modularity. In general, termination fees enable parties to allocate and mitigate deal risk, including the risks related to factors that could delay or preclude the closing of an announced acquisition deal.¹⁸⁶ It has long been common for M&A agreements to include a standard termination fee provision obligating the target to pay the acquiror in the event the deal fails to close in certain agreed

180. Complaint, *Chemtrade Electrochem Inc. v. Jones Day*, No. 2018-L-006388 (Ill. Cir. Ct. June 20, 2018) [hereinafter *Chemtrade Complaint*].

181. Jones Day has been recognized as a leading firm in the area of antitrust law, see *US News Best Lawyers Best Law Firms*, U.S. NEWS & WORLD REPORT <https://bestlawfirms.usnews.com/profile/jones-day/overview/2104> (last visited Oct. 29, 2021), and the lead partner representing Canexus with respect to antitrust issues, Pamela Taylor, had over twenty years’ experience in antitrust and competition law, including serving as a staff attorney at the FTC in the Mergers I Division. *Pamela L. Taylor (Pam) Of Counsel*, JONES DAY, <https://www.jonesday.com/ptaylor/> (last visited Oct. 29, 2021).

182. Chemtrade, the plaintiff in the malpractice suit, was Canexus’s successor. *Chemtrade Complaint*, *supra* note 180, at 1.

183. See *Engagement Letter Regarding Potential Transaction from Pamela L. Taylor, Jones Day to Ross Wonnick, Vice President, General Counsel and Corporate Secretary, Canexus Corporation* (Sept. 24, 2015), *Chemtrade Complaint*, *supra* note 180, Ex. A (specifying engagement by company of Jones Day as antitrust counsel and confirming that the retainer does cover securities laws representation).

184. *Chemtrade Complaint*, *supra* note 180, at 1.

185. See *Arrangement Agreement Between Canexus Corp. and Superior Plus Corp.* (Oct. 5, 2015), *Chemtrade Compl.*, Ex. B, *Chemtrade Electrochem Inc. v. Jones Day*, No. 2018-L-006388 (Ill. Cir. Ct. June 20, 2018) [hereinafter *Canexus Arrangement Agreement*]. The fee amount was denominated in Canadian dollars. *Id.*

186. Afsharipour, *supra* note 15, at 1163, n.1 (citing Robert T. Miller, *The Economics of Deal Risk: Allocating Risk Through MAC Clauses in Business Combination Agreements*, 50 WM. & MARY L. REV. 2007, 2015–34 (2009)).

circumstances.¹⁸⁷ Such a provision is intended to protect against the target seeking a better deal from a third-party bidder.¹⁸⁸ More recently, parties have devised RTFs involving a payment by the acquiror to the target in the event the deal fails to close in certain agreed circumstances, such as the failure of the buyer to obtain regulatory approval.¹⁸⁹ RTF provisions can take different forms and degrees of encapsulation to reflect the specific risk allocation between parties.¹⁹⁰ In addition, RTFs function as part of an acquisition agreement that itself may be seen as one complex module in a complex transaction involving other complex agreements.

In addition to provisions such as the RTF, the details of the process of antitrust regulatory approval demonstrates the level of specialization required in some aspects of a complex deal. Before certain mergers or acquisitions can be completed, the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended (HSR Act)¹⁹¹ requires parties to file for review with the Federal Trade Commission (FTC) and the Department of Justice. The typical timeline for HSR review involves a thirty-day statutory waiting period, after which, if the parties do not hear from a regulator, they

187. Afsharipour, *supra* note 15, at 1163–64.

188. *Id.*

189. *See id.* at 1167, 1207 (identifying the growing significance of reverse termination fee provisions following aggressive private equity investment in 2005–2007); Howard J. Rosenoff, Warren Silversmith & Tania Djerrahian, *Reverse Breakup Fees as a Remedy for Failed Financing in M&A Transactions*, STIKEMAN ELLIOT (Sept. 29, 2016), <https://www.stikeman.com/en-ca/kh/canadian-ma-law/reverse-breakup-fees-as-a-remedy-for-failed-financing-in-m-a-transactions>. Traditionally used to allocate risk related to regulatory approval in strategic acquisitions involving synergies between companies or an aggregation of market power, RTFs have become more common in private equity. Afsharipour, *supra* note 15, at 1169, 1181, 1183. Demonstrating how portable terms enable innovation, changes to RTFs in private equity transactions because of innovations have, in turn, been incorporated into strategic acquisitions. *See id.* at 1165–67, 1219.

190. M&A lawyers distinguish between financing and regulatory RTFs, depending on whether the deal is contingent on financing or regulatory approval. *See, e.g.*, Networks PTE Ltd., BBX Main Inc., BBX Inc., Host Merger Sub Inc., and Black Box Corporation, Agreement and Plan of Merger (Form 8-K) (Nov. 11, 2018) (including a reverse termination fee triggered by failure of acquiror to obtain financing); Amended and Restated Agreement and Plan of Merger by and Between HD Supply Holdings LLC, HD Supply GP & Management, Inc., HD Supply Waterworks Group, Inc., HD Supply Waterworks, Ltd., HD Supply Inc. CD&R Plumb Buyer, LLC. CD&R Waterworks Merger Sub, LLC, CD&R WW LLC & CD&R Merger Sub LLC (July 14, 2017) (including a reverse termination fee triggered by failure to close by drop dead date).

191. 15 U.S.C. § 18a (2018).

may consummate the transaction.¹⁹² However, a regulator may request more information from the parties (a “Second Request”), prompting a more onerous process of review. The Second Request typically creates another waiting period of thirty days.¹⁹³

Given the “extremely burdensome” nature of Second Requests,¹⁹⁴ parties often enter into another agreement with the regulator—a “Timing Agreement”—to extend the timing and establish the scope of regulatory review.¹⁹⁵ Itself a modular innovation, a Timing Agreement with the FTC typically follows a standard model¹⁹⁶ and offers many of the benefits of modular ancillary agreements discussed above. The agreement between the parties and the regulator concerns solely antitrust review to facilitate the process of obtaining regulatory approval.¹⁹⁷ The agreement enables the parties to manage the scope of the regulatory review and possibly limit certain regulatory requests. A Timing Agreement is also believed to lessen the likelihood that regulators will reject a proposed transaction.¹⁹⁸

192. *Id.*

193. *Id.*

194. FRANCO CASTELLI & CATHLEEN PETERSON, THE NUTS AND BOLTS OF SECOND REQUEST COMPLIANCE 6 (2016), <https://nysba.org/app/uploads/2019/02/NYSBA-Second-Request-Nuts-and-Bolts-20161128-v5-JMC.pdf>.

195. Premerger Notification Office Staff, Bureau of Competition, *Getting in Sync with HSR Timing Considerations*, FED. TRADE COMM’N (Aug. 31, 2017, 8:57 AM), [hereinafter FTC, *Getting in Sync*] <https://www.ftc.gov/news-events/blogs/competition-matters/2017/08/getting-sync-hsr-timing-considerations>; see Bruce Hoffman, *Timing is Everything: The Model Timing Agreement*, FED. TRADE COMM’N, (Aug. 7, 2018, 3:04 PM), <https://www.ftc.gov/news-events/blogs/competition-matters/2018/08/timing-everything-model-timing-agreement> (“Merger investigations commonly involve timing agreements, which—among other things—provide an agreed-upon framework for the timing of certain steps in the investigation.”).

196. See *FTC Model Timing Agreement*, FTC (Feb. 27, 2019), https://www.ftc.gov/system/files/attachments/merger-review/ftc_model_timing_agreement_8-22-18.pdf; CASTELLI & PETERSON, *supra* note 194, at 11 (describing FTC timing agreements as “bare bones”).

197. See Hwang, *supra* note 6, at 1427–33 (discussing the ways that discrete agreements can facilitate party, issue and risk specificity and can add value by enabling the possible development of a deal).

198. See CASTELLI & PETERSON, *supra* note 194, at 11 (asserting that in practice agencies are “less likely to ‘bounce’ a Second Request” when a timing agreement has been signed); Gregory E. Heltzer & Matt Evola, *The Latest: DOJ Announces New Model Timing Agreement for Merger Investigations*, MCDERMOTT WILL & EMERY (Dec. 4, 2018) <https://www.antitrustalert.com/2018/12/articles/doj-developments/the-latest-doj-announces-new-model-timing-agreement-for-merger-investigations/> (“While the use of timing agreements are [sic] not mandatory, practically speaking, an attempt to avoid such an agreement may encourage [regulators] to adopt a litigation stance . . .”).

In the case of Canexus and Superior, when issued a Second Request by the FTC, the parties entered into a Timing Agreement with the FTC to extend the period of antitrust review.¹⁹⁹ Pursuant to the Timing Agreement with the FTC, Canexus and Superior agreed not to complete the proposed acquisition for at least an additional sixty days—thereby extending the period in which the parties could not proceed with the transaction. The agreement did not, however, explicitly extend the second thirty-day default waiting period under the HSR Act.²⁰⁰

Unfortunately for Canexus and Superior, the FTC ultimately proved unsatisfied and sued to enjoin the deal.²⁰¹ As it happened, the FTC obtained a temporary restraining order enjoining the transaction only *after* the second thirty-day statutory default period had run, but *before* the end date specified in the Acquisition Agreement and within the period of review under the Timing Agreement.²⁰²

This failure to obtain regulatory approval was an anticipated risk against which the RTF was intended to protect Canexus. In this case, however, Superior challenged its obligation to pay Canexus under the terms of the RTF, claiming the provision did not cover the period for review added by the Timing Agreement. Put simply, the discrete provisions and documents did not sync up.

Specifically, Superior argued that under the Acquisition Agreement it was obligated to pay the RTF only if the parties failed to obtain “HSR Approval” prior to the specified end date.²⁰³ Tracking the statutory language, the Acquisition Agreement defined “HSR Approval” as “the expiration or early termination of any waiting period, and any extension thereof.”²⁰⁴ Technically speaking, the regulatory waiting period had expired by lapsing, resulting in “HSR Approval” being obtained according to the literal terms of the definition in the Agreement²⁰⁵—even though approval

199. Chemtrade Complaint., *supra* note 180, at 6–7 ¶¶ 30–33.

200. 15 U.S.C. § 18a (2018).

201. Chemtrade Complaint., *supra* note 180, at 7 ¶ 36.

202. *Id.* at 7 ¶ 6.

203. *Id.* at 6–7 ¶¶ 25–32; Canexus Arrangement Agreement, *supra* note 185, § 8.3 (Reverse Termination Fee).

204. Canexus Arrangement Agreement, *supra* note 185, § 1.1 (Defined Terms).

205. As the FTC now advises, “Timing agreements do not extend or otherwise toll the waiting period provided by the HSR Act.” FTC, *Getting in Sync*, *supra* note 195 (emphasis added).

by the regulator had in fact been denied. Superior thus disputed its obligation to pay under the plain meaning of the provision.

This case illustrates a drafting error invited by the decentralization of modular design. Also, reflecting the limits of testing, the form of acquisition agreement used in this case was not unique to these parties.²⁰⁶ The lawyers appear to have chosen a precedent that had been used in the past for transactions involving Canadian entities to benefit from the nuances and refinements particular to that contract architecture. However, ordinary practice had not tested this agreement to uncover this latent trigger in relation to a Timing Agreement, and perhaps not even in relation to an enjoined deal.

Given the reputational costs and potential malpractice exposure for such an apparent error, it is hard to argue that this was a considered risk that the drafters chose not to invest in fixing. More compellingly, this error reflects the costs of existing modes of testing and deal design that can be exacerbated by modular structures, especially in a dynamic setting in which parties may be negotiating and revising different parts of a deal under time pressure.²⁰⁷

This case thereby demonstrates the risks of decentralization that accompany the benefits of modularization.²⁰⁸ At the level of the provision, a defined term such as “HSR Approval” serves to encapsulate information for ease of use. In containing information, however, a discrete provision can also obscure nuance. In this case, the defined term “HSR Approval” hid the nuances of timing and of the process of antitrust approval that escaped the notice of even a sophisticated practitioner in the drafting process. Moreover, the introduction of a second discrete agreement—the Timing Agreement—further complicated the process and added to the challenge of anticipating this bug.

This case also illustrates the risks of portability in connection with innovation in complex transactions. The definition of “HSR Approval” as “the expiration or early termination of any waiting

206. See, e.g., Emergent Biosolutions Inc., Arrangement Agreement between Emergent BioSolutions Inc., Ontario Inc., Cangene Corp. (Form 8-K) (Dec. 12, 2013).

207. See Langlois, *supra* note 22, at 24–25.

208. The use of this model acquisition agreement was not unique to these parties. See, e.g., Emergent Biosolutions Inc., Arrangement Agreement between Emergent BioSolutions Inc., Ontario Inc., Cangene Corp. (Form 8-K) (Dec. 12, 2013).

period, and any extension thereof” in this case appears to have been ported from another context. This provision follows a common formulation routinely used in other aspects of M&A agreements. Specifically, the phrasing of the definition of “HSR Approval” used in the Canexus-Superior agreement typically appears in the “Conditions Precedent,” the section of merger agreements that outlines preconditions for the consummation of a transaction.²⁰⁹

Notably, a review of the development over time of Conditions Precedent in merger agreements reveals refinements through modular design of this particular provision, which seem to have contributed to this drafting mistake. Some merger agreements entered into over a decade ago include a formulation of a Condition Precedent that refers to the need for affirmative approval from regulators to close the deal.²¹⁰ Over time, however, drafters tended to drop this language by way of clarification, reflecting the fact that antitrust approvals can take the form of the expiration of a waiting period rather than affirmative authorization.²¹¹ Yet, Conditions Precedent to the parties’ obligation under the agreement will typically also contain—albeit in a separately numbered clause—a

209. See, e.g., Integrated Silicon Solution, Inc., Agreement and Plan of Merger by and Between Uphill Investment Co. and Integrated Silicon Solution, Inc., (Form 8-K) § 7.1(b) (Mar. 12, 2015) (including similar language in Conditions Precedent for closing) (“Any waiting period (and extensions any extension thereof) applicable to the transactions contemplated by this Agreement Merger under the HSR Act shall have expired or been terminated”); compare Ezcorp Inc., Merger Agreement between Ezcorp, Inc., Value Merger Sub, Inc., and Value Financial Services, Inc., (Form 8-K) § 8.3 (June 5, 2008) (Conditions Precedent to Merger Subs and Ezcorps Obligation to Close; Hart-Scott-Rodino) (“All applicable waiting periods (and any extensions thereof) under the Hart-Scott-Rodino Act shall have expired or otherwise been terminated and the Merger Sub, EZCORP and the Company shall have received all authorizations, consents, and approvals of governments and governmental agencies.”); EMC Corp., Agreement and Plan of Merger among Denali Holding Inc., Dell Inc., Universal Acquisition Co. & EMC Corp. (Form 8-K) § 3.01(e) (Oct. 12, 2015) (Representations; Noncontravention) (referring to the need to file “with respect to, and the receipt, termination or expiration, as applicable, of approvals or waiting periods as may be required under” the applicable antitrust law).

210. See, e.g., EZCORP, Value Merger Sub, Inc., and Value Fin. Servs., Inc., Ex. 10.2 Merger Agreement § 8.3 (Conditions Precedent to Merger Sub’s and EZCORP’s Obligation to Close; Hart-Scott-Rodino) (June 5, 2008) (defining HSR Approval as “[a]ll applicable waiting periods (and any extensions thereof) under the Hart-Scott-Rodino Act shall have expired or otherwise been terminated and the [parties] shall have received all authorizations, consents, and approvals of governments and governmental agencies”) (emphasis added).

211. See ABA, MODEL MERGER AGREEMENT, *supra* note 144, at 245 (“The waiting period applicable to the consummation of the Merger under the HSR Act shall have expired or been terminated, . . . and any Consent required under any applicable foreign antitrust law or regulation shall have been obtained.”).

provision requiring that no legal restraints or injunctions, or threatened legal proceedings exist.²¹²

This evolution of the Conditions Precedent to compartmentalized subsections that separately account for (1) the regulatory waiting period process, and (2) the possibility of an injunction, reflects an effective use of modular design. However, by compartmentalizing and then porting provisions to new contexts, even within an agreement, drafters introduce the potential for error. Thus, in the precedent used for the Canexus-Superior Acquisition Agreement, a drafter seems to have picked up only the lapse of waiting period from the Conditions Precedent. In importing the provision to the RTF, the drafter failed to contemplate the regulatory dynamic that could involve approval or an injunction, given a Timing Agreement with a regulator. Thus, when transplanted into a new context and utilized in relation to another relatively discrete form, the refined provision opened the door for uncertainty.

As this example shows, complex modules in the form of agreements, such as Timing Agreements, as well as provisions, such as RTFs, can facilitate a transaction and aid in documenting a deal. However, modular structures can also contribute to decentralization and suppression of nuance. These dynamics can involve the unanticipated relationships among provisions and across agreements. This, in turn, puts pressure on the drafters responsible for identifying and anticipating how the pieces work together. This case study also points to the information costs that are imposed on drafters as a result of the ability to mix and match modular provisions and agreements to document transactions innovatively.

The phenomenon of unanticipated interdependencies from drafter error is not limited to such complex transactions as the *Chemtrade* case discussed above, though, naturally, it becomes more likely as deals become more involved. In simpler transactions, possible interdependencies from latent triggers can also raise questions about the intent of the parties. Take, for example, the case of *Houston Exploration Co. v. Wellington Underwriting Agencies*,

212. See *id.* at 247–49 (including model closing condition provisions that provide that there are no legal restraints or litigation to block the transaction).

concerning the intended scope of coverage manifested by an insurance form.²¹³

This case involved the question of whether a policy would cover costs to a builder of an offshore platform resulting from weather-related delays.²¹⁴ The policy provided coverage for “all risks” of physical loss and damage to property “[s]ubject to the [policy’s] terms[.]”²¹⁵ It indemnified for costs of repair or replacement of damaged property, and a discrete provision covering weather-related standby charges had been stricken by the parties from the form.²¹⁶

Reading the broad risk and indemnity provisions in the insurance form to cover weather-related standby charges, the dissenting judges of the Texas Supreme Court pointed to another discrete provision in the agreement that provided for a deductible coverage for standby charges. They read this provision to suggest an intent to include coverage for standby charges.²¹⁷ Another plausible explanation for the inclusion of this clause, implicitly adopted by the majority opinion, is that this clause, which appeared in “another part of the printed form” escaped notice when the parties marked up the document.²¹⁸

Thus, even in a relatively simple form, the presence of discrete sections focusing on different parts of the deal can introduce uncertainty when all the parts have not been synched. Although ex-ante investments in the structure of the form could mitigate these risks, the nature of contract negotiation and revision in real time puts pressure on practitioners’ ability to identify all the interdependencies that can inadvertently signal intent to a court. As such, this dynamic can exacerbate the existing uncertainty that intertextualism and modular drift can introduce. On the other hand, to the extent ex-ante investments in form eliminate these risks, they can also suppress innovation due to the stickiness of form and the costliness of developing effective modular design.

213. *Hous. Expl. Co. v. Wellington Underwriting Agencies, Ltd.*, 352 S.W.3d 462, 462 (Tex. 2011).

214. *Id.*

215. *Id.* at 466 (second alternation in original) (quoting insurance form).

216. *Id.* at 466–67.

217. *Id.* at 476 (Jefferson, C.J., dissenting).

218. *See id.* at 473–74. (“The insuring portions of the policy did not provide coverage for such charges even though the deductible clause was not stricken.”) (Johnson, J., concurring).

This Part has identified three mutually exacerbating categories of risk that can result from modular contract design. The next Part identifies some of the systemic implications of these downsides of modularity in contracts.

III. IMPLICATIONS OF THE DOWNSIDES OF MODULAR CONTRACT DESIGN

The discussion in Part II identified three related categories of risk that ought to be considered in weighing the benefits and costs of modular design—the interaction of discrete parts, the issue of context, and the invitation of drafter error through decentralization. This Part offers a preliminary analysis of some of the implications of these dynamics.

Uncertainty in contracts can result when parties and courts fail to follow the same interpretive approach—or in modular design terms, when they presume different interfaces or architecture. The discussion below identifies tradeoffs and makes preliminary suggestions to courts and drafters to mitigate downsides of modular contract design. In addition, it outlines implications for contract theory and invites further scholarship.

A. Implications for Courts and Contract Doctrine

Most basically, as the preceding analysis demonstrates, the use of modular design to manage the costs and risks of complexity introduces additional dimensions of drafting costs and uncertainty. Natural language resists compartmentalization, as the case studies above demonstrate. To the extent that parties seek to use discrete provisions to create more predictable outcomes, courts ought to develop more predictable doctrine by explicitly considering the implications of the interaction of facially discrete forms.

Thus, as a starting point for more predictable doctrine, courts should focus on articulating relevant distinctions between transaction types in the development of distinct doctrinal approaches to different types of contracts—including, most basically, consumer as opposed to sophisticated party contracts.²¹⁹

219. See Miller, *Party Sophistication*, *supra* note 81, at 536 (“[T]he benefits of defining sophistication are far outweighed by the costs of doing so.”).

In doing so, judges must also remain sensitive to the porousness of doctrinal boundaries and the potential for doctrine to creep and lead to inapposite applications.²²⁰

In the same vein, it is important for judges to articulate their reasons for discerning interactions among agreements and provisions to enable predictable development of contract doctrine. A consistent “one contract” rule that establishes the factors that courts will consider with specificity and consistency—*e.g.*, do all parties to all the agreements have to be identical? must the agreements be signed on the same day?—could facilitate a degree of predictability. In developing the one contract rule, courts ought also to consider the broad category of contract type to develop an approach that serves its goals.

That said, the one contract rule on its own does not necessarily determine the nature of the relationship between provisions. Courts tend to privilege the substance of the transaction as they perceive it. However, in cases involving innovation by the parties, leaving the determination of the structure of the transaction to courts can add to the costs of innovation given the potential uncertainty discrete provisions can introduce. For this reason, in sophisticated party transactions, as discussed in Part I, a textualist approach on the part of courts might not solve the question of the intended transaction structure and can invite opportunism. Perhaps counterintuitively, the introduction of extrinsic evidence to determine the intended interaction of highly discrete parts in a complex or innovative structure could better serve the goals of sophisticated party contracts. A contextualist default rule with respect to the intended architecture when the architecture or structure of the transaction is ambiguous could, at the very least, incentivize drafters to include operative provisions that make the intended transaction structure plain.²²¹

Along these lines, the likelihood of error and latent triggers introduced by the drafting process in certain transaction types involving time pressure and complexity, such as M&A agreements, suggests the benefit of applying a mutual mistake doctrine to

220. For a discussion of the benefits of defined doctrinal categories and the challenges, see Kastner & Leib, *supra* note 18, at 1316–21.

221. For a discussion of how the design of some complex transactions suggests the interdependency of textualist and contextualist approaches, see Jennejohn, *supra* note 8, at 132–37.

drafters' errors.²²² This approach runs counter to the prevailing scholarly consensus that the goals of sophisticated party contracts are best served by a textualist doctrinal regime but is one that courts at times follow in practice.²²³ At the very least, the analysis of modular risk types invites further discussion of a contextual approach in different transactional contexts.

B. Implications for Drafting and Practice

As drafters innovate, changes to discrete terms can inadvertently implicate other provisions. For example, parties entering into deals during the COVID-19 pandemic may seek to mitigate the heightened uncertainty by adding RTFs or new provisions allowing them to renegotiate terms.²²⁴ While drafters are focused on mitigating salient pandemic-related risks, they must also remain attuned to the ways these discrete provisions invite unintended interdependencies.²²⁵ The preceding discussion demonstrates the need for drafters to attend to the interconnections that modular contract design can introduce.

Most basically, within an agreement or a transaction structure, drafters can use discrete provisions to clarify the intended relationship between provisions or agreements. At times, drafters

222. See *Mathis v. Wendling*, 962 P.2d 160, 165 (Wyo. 1998) (affirming a reformation to a contract to correct a mathematical error to reflect the parties' intent that a debt be fully paid); see also David A. Hoffman & Cathy Hwang, *The Social Cost of Contract*, 121 COLUM. L. REV. 979, 995 (noting that, while "reformation has a bad reputation" in contract doctrine, "courts have readily reformed contracts where there was mutual mistake."); cf. Jesse M. Cross, *The Staffer's Error Doctrine*, 56 HARV. J. LEGIS. 83, 115-17 (2019) (advocating for interpretive doctrine that recognizes compartmentalization and delegation in drafting complex statutes, and the resulting possibility of error).

223. See *Mathis v. Wendling*, *supra* note 222, at 165; see also *Robinhorne Const. Corp. v. Snyder*, 265 N.E.2d 670, 671-72, 674-75 (Ill. 1970) (gesturing toward the record of negotiations to determine parties' intent in construction contract comprised of American Institute of Architects form contract to which riders and conditions were appended creating modular ambiguity).

224. Sautter, *supra* note 5, at 43.

225. The changed context of the COVID-19 pandemic also triggers unforeseen interdependencies among provisions. For example, recent cases prompted by COVID-19 have revealed a previously unremarked interrelationship between two typical merger agreement provisions: the MAE closing condition and a target's covenant to operate in the "ordinary course of business" between signing and closing. See Gail Weinstein & David A. Cooperstein, *Redrafting the Standard 'Ordinary Course Covenant' in Light of Extraordinary Events Such as Pandemics*, 266 N.Y. L.J. 75 (2021) (discussing the decisions in *AB Stable v. MAPS Hotels and Resorts One* (Nov.30, 2020) and *Snow Phipps v. KCake* (Apr. 20, 2021) issued by the Delaware Court of Chancery).

relegate context to the recitals, the introductory provisions of a contract, which are not necessarily binding on parties.²²⁶ Instead, operative provisions can be used to express intended configurations. For example, explicit operative provisions may specify the intended architecture of related agreements or which of two distinct agreements will govern in the event of conflict between terms. To the extent drafters invest in drafting such operative provisions, their efforts could lead to the development of a more stable documentation structure for a given type of deal.

More generally, the preceding analysis highlights pitfalls of specialization and the cognitive limitations that preclude effective testing while drafting. Only a fraction of contract terms is litigated, and to the extent that practitioners informally stress test as they draft, they can be influenced by the negotiations and circumstances of the moment. The particular context of a deal makes some risks and interdependencies more salient to drafters, while obscuring others.²²⁷ This perspective increases the difficulty drafters face in identifying other unintended ambiguities or interactions in the terms. Moreover, the practice of exchanging documents with “tracked” or “redlined” changes, coupled with the human tendency toward confirmation bias, further exacerbates the challenge for drafters.²²⁸

Practitioners therefore rely heavily on recent familiar precedents. Yet this too has been shown as a further source of “bugs” in complex transactions.²²⁹ As a result of the degradation of standard terms and contract forms in the drafting and negotiation process, these precedents can introduce latent triggers for future drafters. Scholars have therefore advocated for the upfront development and use of model forms, which could reflect an effective modular structure.²³⁰ This approach, which acknowledges

226. See *Fugate v. Town of Payson*, 791 P.2d 1092, 1094 (Ariz. Ct. App. 1990) (stating that a recital “is not strictly part of the contract”); TINA L. STARK, *DRAFTING CONTRACTS: HOW AND WHY LAWYERS DO WHAT THEY DO* 82 (2014).

227. See DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* 247–48 (2011) (discussing the faulty heuristics of “WYSIATI” (what you see is all there is) and an “insider view” that benchmarks based on immediate perspective rather than a broader view).

228. See *id.* (discussing the human tendency to favor data and views compatible with existing beliefs).

229. See Anderson, *supra* note 19, at 557–58; see also Anderson & Manns, *Boiling Down Boilerplate*, *supra* note 46, at 223.

230. Anderson & Manns, *Engineering Greater Efficiency*, *supra* note 6, at 689–97.

potential interdependencies among provisions within a single document, however, stops short of acknowledging the additional dimension of contingency introduced by the interaction among *documents* in a complex transaction. Given the use of multiple documents and agreements as building blocks in complex deals, the development of model forms for practice ought to take this additional dimension into account.

To the extent that machine learning might mitigate costs of testing and developing compartmentalized documentation,²³¹ it also requires a significant upfront investment in establishing the system and gathering the inputs to do so—another recognized tradeoff of modular design.²³² And, in turn, these investments could also diminish the incentives for certain forms of innovation that involve redesigning the architecture of a particular transaction type. Indeed, as with other forms of standardization, the upfront costs of developing and refining modular deal documents and transaction structures can hinder competition and innovation in these very forms.

The case of OTC trading documentation, a developed complex modular framework, illustrates these tradeoffs.

The OTC derivatives market, “a rather exotic species of contract” used by sophisticated parties to hedge risk, involves a developed complex system of related modular contracts and provisions.²³³ Parties structure transactions around a standard Master Agreement designed by the International Swaps and Derivatives Association (ISDA), which serves as “the central interface” against which parties can customize their deal through subsidiary agreements.²³⁴ The Master Agreement contemplates elections, modifications, and the importing of other terms by the parties through schedules and reference to other ISDA prepared forms and documents.²³⁵

231. See Williams, *Predictive Contracting*, *supra* note 63, at 634–39 (discussing developing machine learning contract drafting technologies).

232. Yoo, *supra* note 6, at 25. Moreover, recent scholarship underscores the enduring significance of natural language in transactions containing relatively modular machine-readable code. See Cohnsey & Hoffman, *supra* note 69, at 326–27, 85.

233. Hwang & Jennejohn, *Deal Structure*, *supra* note 6, at 307–08.

234. *Id.* at 308–09.

235. Feder, *supra* note 33, at 341.

Because of the highly distinctive transaction type they engage, ISDA documents prompt less doctrinal uncertainty. ISDA currently produces definitional booklets to enable parties to benefit from the standardization and compartmentalization of defined terms. Yet, as noted in an industry whitepaper on developing OTC technologies, this approach also prompts the publication of annexes “containing often disparate updates to certain definitions.”²³⁶ Considering a more modular approach, the industry whitepaper proposes replacing “separate ISDA definitional booklets for different types of derivatives with a modular ISDA library of individual definitions,” which could be combined for an individual transaction.²³⁷ This could also mean an added design cost to the industry of checking for unintended interdependencies across types.

The ISDA forms demonstrate the tradeoffs of modular design. Carefully developed so that the parts sync up for use by particular sophisticated parties, highly specialized ISDA documentation can prove hard to understand for many. In addition, the upfront costs of establishing this OTC trading framework discourage competition. As such, a highly modular transaction type with a developed coherent architecture reveals the way investment in modular design can potentially entrench a structure and thus limit possibilities for contract choice.²³⁸

Different types of contracts and different modular structures precipitate different kinds of costs and solutions, an area that invites further scholarly attention considering the risk categories identified in this Article. Thus for example, unlike the OTC derivative framework, in which the overall architecture of the transactions has been established, other transaction types, such as construction deals, regularly make use of modular models in complex arrangements that mix and match existing forms.²³⁹ In transactions involving repeat players with shared norms, an agreement to resolve disputes through arbitration could enable arbitrators familiar with industry norms to mitigate the impact of unintended interdependencies and drafting errors for the parties.

236. ISDA LINKLATORS, WHITEPAPER, *supra* note 6, at 22.

237. *Id.*

238. See Kahan & Klausner, *supra* note 45, at 727 (“When internal learning or network benefits are present, they result in ‘switching costs’ . . .”).

239. See, e.g., *Robinhorne Const. Corp. v. Snyder*, 265 N.E.2d 670 (Ill. 1970); see Circo, *supra* note 33.

In addition, disputes resolved through arbitration do not create precedent for judges who are at risk of analogizing from these specialized contexts to other contract types where the approach might prove inapposite.

Property and liability insurance similarly makes use of modular forms but does so in another distinctive doctrinal regime. Highly standardized, insurance contracts reflect customization incrementally through “endorsements” or off-the-rack amendments to industry forms.²⁴⁰ Yet, endorsements are drafted in relation to the model agreement in any given year such that the mixing and matching of older and newer templates can introduce uncertainty or ambiguity. This, in turn, invites courts to construe resulting ambiguity against the drafter,²⁴¹ following a “first principle of insurance law”²⁴² — suggesting another potential cost of the mixing and matching of forms, which in contexts like insurance, might be passed along to a consumer.

Thus, the optimal tradeoffs and dynamics of modular contract design vary among transaction types. The above discussion suggests factors practitioners and drafters ought to consider and offers preliminary suggestions of ways to mitigate some downsides of modular contract design. It offers a framework of risk categories to invite future study of the dynamics of compartmentalization and the use of facially discrete provisions in particular transaction types as well as in the use of technology and machine learning to mitigate risk.

As the above discussion suggests, however, the challenges posed by the application of modularity in contract may not be so easily avoided or overcome, not least because of inherent characteristics of natural language as well as the basic tradeoffs of modular design generally.

C. Implications for Contract Theory and Scholarship

In addition to implications for courts and practitioners, this Article invites further consideration of the systemic risks and costs of innovation through portable contract provisions in the context of

240. ABRAHAM & SCHWARCZ, *supra* note 31, at 37.

241. See, e.g., *Ramara, Inc. v. Westfield Ins. Co.*, 814 F.3d at 660 (3d Cir. 2016).

242. Kenneth S. Abraham, *A Theory of Insurance Policy Interpretation*, 95 MICH. L. REV. 531, 531 (1996); see also ABRAHAM & SCHWARCZ, *supra* note 31, at 37.

a fractured doctrine. It identifies an underappreciated risk that results from increasing complexity and the portability of provisions across contractual contexts, especially in the absence of articulated doctrinal boundaries. Because the operation of contract language is shaped by context, the porting of provisions into new contract regimes and new configurations of terms can render those transactions less certain. In addition, the use of provisions in new contexts can call into question the operation of similar terms in other contexts, thereby impacting the certainty and stability of provisions in other contracts and across transaction types. In this way, the mixing and matching of discrete contract building blocks can not only introduce uncertainty into contracts for the parties to a particular transaction, but also can potentially render even standard terms less reliable for future drafters and parties to other transactions.

Traditionally, “[f]reedom of contract” has been recognized “as close to a universal positive principle as is accepted in contract law.”²⁴³ Contract has thus been contrasted with property in which there are “a limited number of standard forms” to control the information costs to third parties who seek to acquire rights or avoid liability.²⁴⁴ According to this line of thinking, parties that create an idiosyncratic property right create externalities in the market by raising the costs to third parties of gathering information as a result of the presence of these idiosyncratic rights.²⁴⁵

Yet, information costs with respect to a contract impact parties in the market as well. Standardization lowers information costs and thus the costs of consent.²⁴⁶ Following this reasoning, a change to a standard term—customization—threatens to increase the

243. Fairfield, *supra* note 12, at 1439; see also Henry Hansmann & Reinier Kraakman, *Property, Contract, and Verification: The Numerus Clausus Problem and the Divisibility of Rights*, 31 J. LEGAL STUD. S373, S380 (2002) (“[T]he utility of standard contractual terms and forms is evidently not frustrated by the continuing availability of an infinite variety of nonstandard contractual rights with unconventional and perhaps hard-to-measure characteristics”).

244. Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 8, 26 (2000).

245. *Id.* at 27–33. For an illustrative hypothetical about the impact of the creation of idiosyncratic rights on the market, see *id.* Others have critiqued this understanding but nonetheless contrast contracts with property, in which they see “third-party information costs [as] central to the . . . regulation of . . . rights.” Hansmann & Kraakman, *supra* note 243, at 374–75.

246. Fairfield, *supra* note 12, at 1403.

information costs.²⁴⁷ Scholars have begun to recognize the information costs of creating more types of contracts, largely with respect to consumer contracts,²⁴⁸ and in identifying the “speciation” of standard provisions through “drift.”²⁴⁹

However, the preceding discussion illustrates an additional source of information costs through choice. It shows how standardized provisions, even when they do not degrade, can migrate to different doctrinal contexts, or be used in new configurations or combinations that impact their meaning and introduce uncertainty. The dynamics of modular contract design thereby suggest that in certain cases, standardization is “open-ended.”²⁵⁰ In other words, while some attributes have been standardized, other features such the particular operation of a provision in context, which might be more costly to discern, have not.²⁵¹ Portability of a term into a new context enables the introduction of additional characteristics – whether resulting from interdependencies between provisions or agreements or from a distinction in transaction type that invites a different doctrinal regime. And, the uncertainty that an innovative use of provision introduces not only impacts the parties to that particular transaction but can make the same provision less certain for other parties who seek to rely on it in other contexts.

Put another way, the preceding discussion complicates our understanding of standard provisions. Whereas commonly-used provisions have been understood to confer the learning benefits of reduced uncertainty and error costs,²⁵² modular design threatens to

247. *Id.* at 1405.

248. *See id.* (discussing information costs in “mass-market, high-volume, low-value transactions”); Oren Bar-Gill & Clayton P. Gillette, *On the Optimal Number of Contract Types*, 20 THEORETICAL INQUIRIES L. 487, 491, 498 (2019) (implicitly recognizing the costs of creating contract types with a focus on consumer contracts, such as mortgages and credit card agreements).

249. Anderson, *supra* note 19, at 564 (quoting Anderson & Manns, *Boiling Down*, *supra* note 46, at 245).

250. *See* Kenneth Ayotte & Patrick Bolton, *Covenant Lite Lending, Liquidity, and Standardization of Financial Contracts*, in RESEARCH HANDBOOK ON THE ECONOMICS OF PROPERTY LAW 174 (Kenneth Ayotte & Henry E. Smith eds., 2011) (describing the use of a set of loan characteristics that “do not provide a complete description of the rights and obligations in each loan contract” to create standard securities backed by somewhat idiosyncratic loans).

251. *See id.*

252. Kahan & Klausner, *supra* note 45, at 719–20.

undo these benefits by enabling the introduction of error and diminishing the certainty of a provision's operation. And, while widespread use of a provision has been shown to provide network benefits through the increased certainty of the meaning and operation of a provision,²⁵³ the possibility of distinct operations of the same provision threatens to introduce uncertainty into the network of users.

In highlighting the implications of modular contract design for drafters and parties broadly, this Article borrows the notion of systemic risk in markets, and particularly the possibility of a failure that undermines the market's purpose and operation.²⁵⁴ While the notion of systemic risk has been developed in connection with the hidden risks of complex financial systems, this Article analogizes to this concept to highlight the risks that complexity can impose on the operation of contracts. Just as financial systems generally involve a series of interconnected markets and institutions that serve to move capital to productive uses, so too the regime of contracts involves interconnected transactional forms, structures, and rules that aim to allocate responsibility and risk generatively to the benefit of parties. In financial markets, hidden interdependencies can enable a "trigger event [to] cause[] a chain of bad . . . consequences."²⁵⁵ As this Article explores, given the complexity of transaction types, doctrinal regimes, and forms of contracts—to name a few aspects of the system of contracts—a shock or failure in the interpretation or operation of one contract provision threatens to undermine the certainty of provisions not only in contracts for a particular transaction but also across transactions that seek to make use of similar provisions in different contexts. More subtly, even in the absence of a pronounced shock, these dynamics can degrade the operation of contract provisions across contexts.

Thus, a modular approach to complexity, while a significant tool in general, threatens in contract design to diminish the efficacy

253. *Id.* at 726–27.

254. See Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 204 (2008) [hereinafter Schwarcz, *Systemic Risk*] (defining systemic risk in terms of the possibility of a shock or failure that triggers a chain of losses that impacts the availability of capital). More generally, scholars discuss "complex patterns of systemic fragility" that result from "the high degree of interconnectedness among financial institutions." See Saule T. Omarova, *The Merchants of Wall Street: Banking, Commerce, and Commodities*, 98 MINN. L. REV. 265, 270–71 (2013).

255. Schwarcz, *Systemic Risk*, *supra* note 254, at 198.

of provisions and undermine their ability to facilitate the goals of private ordering in different types of contracts and throughout the system. As the Article suggests, without the establishment of a coherent transactional architecture and doctrinal boundaries—which potentially limit innovation at another level—innovation through modular design can threaten to undermine the certainty of provisions across contracts.

This theoretical contribution thereby suggests the need for further study of how to mitigate the risks of modular contract design and balance the costs of contract choice to other drafters and across the doctrine. As scholars today are engaging the idea of the optimizing the “number of contract types,”²⁵⁶ we must account for the ways modular design can potentially limit the competition for deal documentation and design, on one hand, and diminish the efficacy of different contract types, on the other.

Sharing qualities with modular design, analogy involves a degree of abstraction. It can thus expose not only similarities but also points of distinction.²⁵⁷ By applying the analogy of modular computer program and product design to contracts, the discussion above highlights the ways that natural language and contract doctrine resist compartmentalization.

CONCLUSION

Building on existing literature considering the potential benefits of modular design to manage complexity and enable innovation, this Article makes a necessary intervention by calling attention to the costs introduced by modularity in contract. The Article outlines the limits of modular contract design, which stem both from the downsides of modular design generally as well as from the limitations of the applicability of the idea of modular product design to contract language in particular. In doing so, it identifies the impact of a fractured doctrine, in which different kinds of contracts are treated differently, and of the possibility of easily configuring agreements through new combinations of discrete provisions. It shows how these choices can diminish the efficacy and reliability of even standardized provisions.

256. See Bar-Gill and Gillette, *supra* note 248; see also DAGAN & HELLER, *supra* note 2.

257. Along similar lines, “the act of metaphor” has been provocatively described as “a thrust at truth and a lie.” See THOMAS PYNCHON, *THE CRYING OF LOT 49*, at 105 (1965).

Given the aim of contract to facilitate private ordering, legal thinkers have long recognized the challenge posed by language, which is necessarily contextual. Modular design in contract does not dispose of the challenge. As such, the discussion above invites further consideration of the dynamics of modular contract design, not only at the intra-contract level, between provisions, but also at the inter-contract level, between portable agreements that enable complex transactions, especially as they play out in different structures of contract against a backdrop of fractured doctrine.

As this Article shows, like the operation of natural language, there is a limit to the extent to which contract language can be said to remain between the parties. Just as language exists in context, even discrete, otherwise effective, terms can become ambiguous. Thus, as parties draw on existing models or seek the benefits of standardization, variations through new configurations or transaction contexts can introduce costs into the market. And, at the same time, designing stable frameworks of terms can be costly and inhibit innovation. We must therefore recognize and contend with the risks of modular contract design as we consider the benefits and modes of enabling contract choice in our increasingly complex world.