

PATH DEPENDENCE, INFORMATION, AND CONTRACTING IN BUSINESS LAW AND ECONOMICS

ROBERT ANDERSON IV*

Introduction.....	553
I. Drafting Practice and Path Dependence.....	557
A. Theorizing the Mechanisms of Contract Incompleteness...	557
B. The Drafting Process Leads to Path Dependence.....	562
II. The Macro Effects of Path Dependence.....	564
A. Standardization and Network Effects	564
B. Larger Implications for Incomplete Contracting	566
C. The Evolutionary Metaphor.....	568
D. Future Directions	570
Conclusion	571

INTRODUCTION

The study of contracting is one of the most well established and active research areas in law and economics scholarship. The questions raised are of immense practical importance as parties order their economic relationships. It is also of theoretical importance for how society orders its social relationships through public policy.¹ One of the important research problems in the law and economics of contract concerns the incomplete contract paradigm, which focuses on the role of transaction costs and information in contracting and their implications for business.² It is now well established that all contracts are incomplete,³ and that contractual

* Professor of Law, Pepperdine University Caruso School of Law.

1. See generally R. H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

2. Scholars have long recognized that contracts do not completely govern the business relationships of parties, and that they contain gaps both intentionally and unintentionally. An early and influential account from outside law and economics was Stewart Macaulay, *Non-Contractual Relations in Business: A Preliminary Study*, 28 AM. SOC. REV. 55, 62–67 (1963).

3. See, e.g., Robert E. Scott, *A Theory of Self-Enforcing Indefinite Agreements*, 103 COLUM. L. REV. 1641, 1641 (2003) (“All contracts are incomplete. There are infinite states of the world and the capacities of contracting parties to condition their future performance on each possible state are finite.”).

incompleteness has implications for decisions that affect economic efficiency.⁴

In legal scholarship, the incomplete contracting paradigm has given rise to an extensive literature addressing how parties respond to those problems through contract design. In an environment where contracting is costly, a central problem is how parties trade off the costs of drafting provisions *ex ante* versus the costs of disputes *ex post*.⁵ Although the *limitations* on contracting are front and center in these analyses of the law and economics of contracts, the process of contracting that leads to those limitations is not.⁶ Instead, the literature on incomplete contracts and contract design tends to abstract away from the process of how the legal terms of contracts themselves are created, treating the contracting process itself as a black box. This is odd, given that the frictions or transaction costs of that process are central in the literature on contractual incompleteness in the first place.

In recent years, however, a new literature has arisen that explicitly takes into account the contracting *process*. This literature examines how the institutional details of contracting affect the terms that result from the bargaining process.⁷ A turning point was the study of the persistence of the *pari passu* clause in sovereign bonds, a provision that was widely used but not understood by the lawyers using the clause.⁸ This early work inspired much more focus on the process of contracting with scholars examining text of transactional documents, often using computer analysis to expose the processes behind the creation of boilerplate text.⁹ This approach builds on the standard incomplete contracting framework that transaction costs prevent parties from completely anticipating all

4. Indeed, one strand of the theory of the firm, the contractarian theory, is in essence incomplete contracts. *See, e.g.*, Michael Klausner, *The Contractarian Theory of Corporate Law: A Generation Later*, 31 J. CORP. L. 779, 781 (2006).

5. *See* Ronald J. Gilson et al., *Text and Context: Contract Interpretation as Contract Design*, 100 CORNELL L. REV. 23, 55–58 (2014) (explaining that sophisticated parties trade off front-end drafting costs against back-end enforcement costs); *see also* Robert E. Scott & George G. Triantis, *Anticipating Litigation in Contract Design*, 115 YALE L.J. 814 (2006) (developing a theory of how parties design an efficient allocation between precise rules that impose costs at the *ex ante* stage and vague standards that impose costs at the *ex post* litigation phase).

6. *See* Gilson et al., *supra* note 5, at 55–58; Scott & Triantis, *supra* note 5.

7. *See, e.g.*, MITU GULATI & ROBERT E. SCOTT, *THE THREE AND A HALF MINUTE TRANSACTION: BOILERPLATE AND THE LIMITS OF CONTRACT DESIGN* (2013).

8. *See id.* (detailing how leading authorities on contract design joined the two streams together, showing how drafting practices limit the potential for contract design).

9. *See, e.g.*, Robert Anderson & Jeffrey Manns, *Boiling Down Boilerplate in M&A Contracts: A Response to Choi, Gulati, & Scott*, 67 DUKE L.J. ONLINE 221, 222 (2019) [hereinafter Anderson & Manns, *Boiling Down Boilerplate*].

contingencies and providing for them.¹⁰ But this approach goes beyond the mere incompleteness of contracts to examine the drafting heuristics that parties use to economize on transaction costs and the consequences of these heuristics for the contract terms that result.

Although this “new realism” or “new institutionalism”¹¹ in contract theory has given rise to many insights, the findings often revolve around the idea that institutions matter in a way that law and economics of contracts has so far failed to capture. In particular, a central finding is that contract terms are inexplicably “sticky,” and have an inertia that does not respond to exogenous changes as quickly as economic theory would predict.¹² Other institutional details of the drafting process also appear to matter in ways not anticipated by economic theory. For example, the party who creates the first draft of a document has a small but systematic advantage in the non-monetary terms.¹³ Similarly, perhaps because of the heavy use of templates by outside counsel, the identity of outside counsel has a substantial influence on contract provisions.¹⁴

The economic theory of incomplete contracts provides no answers as to why these institutional details should matter. For example, the first drafter shouldn’t matter,¹⁵ the identity of the law firm shouldn’t matter, and the template chosen shouldn’t matter.¹⁶ But research has shown that they do. Some explanations rely on standard economic rationales, such as network effects, but others introduce an innovation. These new papers demonstrate that it is possible to go inside the process of drafting incomplete contracts, using information about the legal institutions that produce contracts, to explain the terms of contracts more adequately. The empirical results that clearly show patterns not explained by the standard

10. It should be noted that the coherence of the incomplete contracting framework, at least within the setting of fully rational actors, has been questioned in the important work by Maskin and Tirole. See Eric Maskin & Jean Tirole, *Unforeseen Contingencies and Incomplete Contracts*, 66 REV. ECON. STUD. 83 (1999) (showing that under certain conditions parties overcome the ex ante indescribability of states that gives rise to contractual incompleteness).

11. The strand of research examining these institutional details can be thought of as part of the “new institutionalism” literature within the study of legal phenomena. Robert Scott, *The New Institutionalism in Contract Scholarship*, JOTWELL (Mar. 21, 2017), <https://contracts.jotwell.com/the-new-institutionalism-in-contract-scholarship/> [https://perma.cc/892H-3QCC] (reviewing Matthew Jennejohn, *The Private Order of Innovation Networks*, 68 STAN. L. REV. 281 (2016)).

12. See GULATI & SCOTT, *supra* note 7, at 9–17 (discussing the phenomenon of “sticky” terms in sovereign bonds).

13. Adam B. Badawi & Elisabeth de Fontenay, *Is There a First-Drafter Advantage in M&A?*, 107 CALIF. L. REV. 1119, 1166 (2019).

14. See Julian Nyarko, *Stickiness and Incomplete Contracts*, U. CHI. L. REV. (forthcoming 2020).

15. See Badawi & de Fontenay, *supra* note 13, at 1121–23.

16. See *id.*

incomplete contracting setup require theory to explain them, but the process that creates the contract text has been treated as a black box.

This Essay sketches a theory of how the institutional details of contract drafting can explain not just the terms of individual contracts, but also persistent patterns of the industry-wide standards. Leaving behind the assumptions of the standard economic model, this Essay incorporates the heuristics used by contract drafters to overcome the costs of contracting. Although there are many hypothesized reasons for contract incompleteness,¹⁷ of central importance here is the cost of anticipating and providing for all contingencies. The corresponding heuristic is the use of precedent—the copying of past transactions to economize on the cost of writing contracts, creating family trees of ancestor and descendant documents. The precedent heuristic is coupled with a second fact—that reviewing and editing contracts also has a cost,¹⁸ meaning the process of copying is itself imperfect and incomplete, leading to imperfections in the drafting process. These imperfections propagate through time, leading descendants of documents to diverge from ancestors and each other and through space as other drafters copy language from edited contracts.

The result of this imperfect copying is that the final text of any given agreement depends not only on the economic features of the transaction, but also on the ancestral path the series of precedents took to arrive at the final document. The fact that these “lineages” of ancestral language in contracts continue to influence contract language leads to a process of “speciation” in which contract terms diverge over time, not only because of changing exogenous conditions, but because of an endogenous process of drift.¹⁹ This process undermines the positive network and learning effects of standardization of important commercial documents, with implications for studying business and corporate law. These dynamic features of the drafting process also have potentially important ramifications for incomplete contract theory.

This Essay sketches the beginning of a theory of document evolutionary dynamics from micro-level drafting behavior to the macro-level effects on entire areas of contracting. Part I begins by describing how these drafting heuristics operate on individual documents and on lineages of documents—the “line of descent” from ancestor documents to descendant documents. Part II shows how the dynamics from Part I affect

17. These include “unobservability, unverifiability, second-best incentives, fear of signaling undesirable characteristics, contract-writing costs, and legal default rules,” which overlap with and are more precise than the general invocation of “transaction costs” and “bounded rationality.” See Eric Rasmusen, *Explaining Incomplete Contracts as the Result of Contract-Reading Costs*, ADVANCES IN ECON. ANALYSIS & POL’Y, Sept. 3, 2001, at 1, 3.

18. See *id.* at 3, 23.

19. See Anderson & Manns, *Boiling Down Boilerplate*, *supra* note 9, at 235, 245.

overall standardization in the marketplace, producing many varieties of text through a process of drift. This drift process undercuts the benefits of network effects that result from standardization.

I. DRAFTING PRACTICE AND PATH DEPENDENCE

The new institutional approaches to studying contracts use institutional variations as explanatory variables but do not theorize the mechanisms that produce the results from the ground up. For example, several pieces have noted that the identity of a law firm influences contract language²⁰ but do not fully explain why the law firm's identity influences the documents. This Part outlines a theory of how the actual practices of lawyers in the drafting process affect the resulting text, sketching out a preliminary theory about how drafting affects standards. Part A explains how heuristics of copying affect the text of an individual document. Part B explains how these heuristics used in drafting individual contracts create a dynamic process that extends through time, as documents are later copied and recopied. Together, the two sections show how drafting practices undermine textual integrity in individual documents, setting the stage for Part II's explanation of how those processes undermine the network effects of standardization across the market.

A. Theorizing the Mechanisms of Contract Incompleteness

The law and economics of contract is, explicitly or implicitly, dominated by questions related to contractual incompleteness.²¹ There are many reasons why contracts are incomplete, but this Essay focuses on the most obvious ones: the cost of anticipating contingencies and the cost of

20. See, e.g., Robert Anderson & Jeffery Manns, *Inefficient Evolution of Merger Agreements*, 85 GEO. WASH. L. REV. 57 (2017) [hereinafter Anderson & Manns, *Inefficient Evolution*]; Nyarko, *supra* note 14.

21. This is because most of the problems in contract theory only arise if there are limits on the ability to write complete contracts. See, e.g., Eric Maskin, *Comments on the Foundations of Incomplete Contracts*, in 2016 THE IMPACT OF INCOMPLETE CONTRACTS ON ECONOMICS 345–48 (Philippe Aghion et al. eds., 2016) (“[F]or there to be any departure at all from first-best efficiency, contracts cannot be as fully contingent on the state of the world as parties would want.”). Contracts can be incomplete in two important ways. Law and economics typically distinguishes between those that are “obligationally incomplete,” in the sense that the contract does not contain a provision to cover a particular situation, or “insufficiently state contingent,” meaning that the contract does not contain sufficient state-contingent detail to fully realize the gains from trade. See Ian Ayres & Robert Gertner, *Strategic Contractual Inefficiency and the Optimal Choice of Legal Rules*, 101 YALE L.J. 729, 729–30 (1992) (distinguishing between these two forms of incompleteness). For the purposes of this Article there is no need to distinguish between the two, because the dynamic described can result in both types of incompleteness.

providing for those contingencies in the contract.²² The fact that parties cannot condition on all relevant states of the world leads to situations where the contract is no longer optimal and must be renegotiated. The potential for this renegotiation, in turn, reduces the ability of contracting parties to realize gains from trade *ex ante*. As a result, the question of how and why contracts are incomplete goes to the core of not only contract theory as conceived by legal scholars, but to the ability of parties to make efficient economic bargains.

The law and economics literature's hypothesized costs of anticipating and providing for contingencies gloss over the process of how parties attempt to economize on the costs of drafting contracts to provide for relevant contingencies. This Essay sketches a theory of that process, specifically how heuristics used by parties drafting contracts lead to the observed incompleteness. In particular, although the incomplete contracting literature makes it clear the drafter cannot anticipate all the relevant provisions and write them down, that literature does not address the primary means that the drafter uses to overcome those limitations. This Essay incorporates those details, resting on three simple facts about the drafting process that have not yet been incorporated into incomplete contracting theory.²³

The first such fact is that in virtually all complex transactions, the drafting process begins with a precedent or template document (or in some cases, portions of several precedents), which the drafter copies and edits. The use of a precedent document helps the drafter think of provisions that belong in the document and provides a starting place for the text of those provisions, greatly reducing the time and cost of creating a contract. This Essay calls this the "precedent heuristic."

Second, there is a cost to reading, processing, and understanding the purpose and effect of the clauses used in a precedent document. In some cases, the drafter may literally not even understand the mechanics of the text,²⁴ while in other cases the drafter may understand the text but not understand its effect.²⁵ In other words, there is a cost to understanding a

22. These are also the costs most commonly invoked in the incomplete contracts literature. Other causes relate to the strategic aspects of contracting, especially asymmetric information, which are beyond the scope of this Article. *See Ayres & Gertner, supra* note 21, at 765.

23. *See, e.g., GULATI & SCOTT, supra* note 7.

24. As an example, provisions of a complex agreement often incorporate lengthy defined terms, which themselves may incorporate other defined terms. To understand a single sentence using such defined terms can require a substantial effort, and many drafters may gloss over the details.

25. As an example, even when provisions are trivial to understand textually, such as a simple choice of law provision, it is nonetheless very difficult to understand their effect. To *fully* understand the *effect* of such a clause requires a comparison of fifty state regimes. This was observed in Rasmusen, *supra* note 17, at 3 ("With the addition of the

provision in a precedent document.²⁶ The drafter would need to consult other resources to fully understand the purpose, meaning, and effect of each provision, which also has a cost. In most cases, the drafter relies on the perceived “wisdom of the crowd” embodied in a standardized document. This Essay calls this the “cognition constraint.”

Third, and related to the cognition constraint, there is a cost of searching for an appropriate precedent. It is impossible to canvass the entire universe of potential precedent documents, or even a substantial portion of the relevant ones, to find the precedent most suited to the current transaction. If reading, processing, and understanding contract text were costless, then the drafter could exhaustively review all previous contracts to find the closest fit. Such review is not costless, however, and therefore the drafter searches “local” rather than “globally” for a precedent or template document. The local search often covers only recent transactions the drafter is familiar with, such as those the drafter worked on in the past.²⁷ This Essay calls this the “local search” bias.

The precedent heuristic, together with the cognition constraint and the local search bias, create a cycle that undermines the textual integrity of individual documents, makes the resulting contract terms path dependent on the sequence of copies made, and ultimately undermines standardization across whole industries.²⁸ The cycle proceeds as follows.

The drafter begins with a precedent document, as explained in the precedent heuristic above. However, as a result of the local search bias, the document chosen will likely not be the closest to the needs of the present transaction. There may be another form that is tailored to the needs of the transaction, but the attorney uses the familiar form and adapts it. Again, as a result of the cognition constraint, there is a cost of reviewing, understanding, and editing the text in the precedent, especially in complex documents. Because the attorney does not know the purpose of each clause, not only may a drafter use the wrong precedent, but the drafter may

law’s implicit default rules, even a very short contract is extraordinarily complex in its legal implications.”). As a result, the drafter will use a heuristic such as New York or Delaware without fully understanding why.

26. The fact that parties use contractual terms they don’t understand was poignantly illustrated by Gulati and Scott. *See* GULATI & SCOTT, *supra* note 7. In later work with Stephen Choi, the authors demonstrated how this repetition of clauses nobody understands can culminate in a meaningless “black hole” provision. Stephen J. Choi, Mitu Gulati & Robert E. Scott, *The Black Hole Problem in Commercial Boilerplate*, 67 DUKE L.J. 1 (2017) (using the example of the “pari passu” provision in sovereign bonds which lawyers almost always included but did not appear to understand the meaning).

27. *See* Badawi & de Fontenay, *supra* note 13, at 1133 (listing reasons for selecting a particular precedent, most of which relate to direct or indirect familiarity with the precedent document).

28. *See infra* Part III.

also “mechanically rely on precedent,”²⁹ copying terms that shouldn’t be copied.³⁰ The drafter will also make other changes specific to the transaction at hand. The heavy edits made necessary by using a precedent that is not optimal take the text further from its original source.

The drafting process leads to a cycle that increases the cost of drafting and decreases the integrity of the final product. Local search bias leads to choosing a precedent that is not as closely adapted as would be ideal. The use of an ill-fitting precedent necessitates more edits to the document that would be required with more closely adapted precedent.³¹ Making those necessary edits, however, is constrained by the cognition constraint, leading to imperfect editing. That imperfect editing then propagates throughout the agreement, as many complex agreements display little modularity,³² meaning that changes to one portion of a document affect others, because they can’t be adjusted independently as can modular systems.³³ Without modularity, edits and errors propagate throughout the document.³⁴ That, in turn, makes the document differ substantially from the one that would have been produced had the most apt precedent been chosen.

This happens because of the cycle described above. There may be another form that is tailored to the needs of the transaction, but the attorney uses the more familiar form and adapts it. Because the attorney does not know the purpose of each clause, the attorney ends up using the wrong precedent and then relying on it too much. The heavy edits necessary from the wrong precedent further corrupt the process, as does the common practice of swapping in other clauses from other contracts.³⁵ But these edits, idiosyncrasies, and errors are not fully modular and so end up being

29. See, e.g., Michael A. Woronoff & Jonathan A. Rosen, *Understanding Anti-Dilution Provisions in Convertible Securities*, 74 *FORDHAM L. REV.* 129, 130 (2005) (explaining that lawyers who misunderstand complex provisions often “mechanically rely on precedent”).

30. For an excellent explanation of this process and the reasons for it, see Claire A. Hill, *Why Contracts Are Written in “Legalese”*, 77 *CHI.-KENT L. REV.* 59, 73–75 (2001).

31. See Anderson & Manns, *Inefficient Evolution*, *supra* note 20, at 83.

32. See, e.g., Matthew Jennejohn, *The Architecture of Contract Innovation*, 59 *B.C. L. REV.* 71, 114–31 (2018) (finding that M&A contracts resembled more of an “integrated system” than one characterized by modularity).

33. See *id.* at 77 (“Modular designs manage complexity by isolating discrete sub-systems from one another. So long as all sub-systems comply with a standard interface rule, they can be adjusted independently and asynchronously of one another, thus reducing the costs of change within the system.”).

34. Henry E. Smith, *Modularity in Contracts: Boilerplate and Information Flow*, 104 *MICH. L. REV.* 1175, 1177 (2006) (explaining how the “information hiding” aspect of modularity prevents changes to one part of the system from causing “costly ramifications elsewhere”).

35. Jennejohn, *supra* note 32, at 94.

transmitted throughout individual documents and eventually across generations of documents.³⁶

One might ask why attorneys copy provisions that they do not fully understand. Others have provided several possible explanations, many of which parallel those discussed here.³⁷ Given the constraints faced by the drafter, one of the most important reasons is that the practice of copying such provisions is a rational heuristic. Assuming the relevant text has been used many times, the drafter can rely on the perceived wisdom of the crowd, free riding on the cognitive effort of others in calibrating language over a long sequence of transactions.³⁸ A second reason is that lawyers don't want to change some things because it might make the other side suspicious that the changing party is up to something nefarious.³⁹ More formally, in the presence of asymmetric information one party, by completing the contract, could signal information about a contingency and so instead leaves the contract incomplete.⁴⁰ But this too is an example of transaction costs—the other side cannot really evaluate the contract to see if something bad is happening.

The practice of copying language is both the result of the cognition constraint and strong evidence that lawyers perceive and understand that constraint. Lawyers tend to use precedents that are more recent than those that are older,⁴¹ and they tend to use those from their own law firm more often than those from other law firms.⁴² The preference for copying a document from a more recent transaction reflects the drafter's apprehension that requirements may have changed, but also the drafter's apprehension that he does not know what has changed or how it would affect the document.⁴³ Similarly, lawyers tend to copy familiar documents (usually those from their own firms) for at least two reasons, both rooted in cognitive constraints. First, lawyers rely on their own prior precedents because they are more likely to reflect that firm's best work product than precedents from other firms. Second, they use their own work product, especially from prior transactions in which they personally participated, because they have already invested the costs necessary to understand the

36. *Id.* at 77.

37. *See, e.g.,* Hill, *supra* note 30.

38. *Id.* at 59–61 (explaining how reliance on the form leverages “the wisdom of many”).

39. I am grateful to Afra Afsharipour for drawing my attention to this point.

40. *See* Kathryn E. Spier, *Incomplete Contracts and Signaling*, 23 RAND J. ECON. 432 (1992). For a survey of the literature on stickiness of defaults in a strategic setting, see Omri Ben-Shahar & John A.E. Pottow, *On the Stickiness of Default Rules*, 33 FLA. ST. U. L. REV. 651, 656–59 (2006).

41. *See* Anderson & Manns, *Inefficient Evolution*, *supra* note 20, at 75.

42. *See id.* at 73.

43. *Id.* at 61.

document—demonstrating the drafter’s awareness that the costs of becoming familiar with a new one are high.

One result of these frictions may be that, in contrast to much of the literature on contract design, the drafters are not really thinking globally about design at all. They think locally about specific contract design problems and rely on the wisdom of the crowd for the rest, distinguishing between negotiated provisions and boilerplate. In any negotiated transaction, there will be certain carefully designed provisions, but in many cases, the contract as a whole is more accurately described as a kludge than a design. But still there are reasons why these very practices of unreflective copying may undermine the perceived wisdom of the crowd, as described below.

B. The Drafting Process Leads to Path Dependence

The discussion above shows how drafting practices can influence how an individual document is drafted. But the effects of the limitations and heuristics described above extend beyond individual documents in a dynamic process that unfolds over time. The reason is that, as noted earlier, documents are copied from one another, and therefore variations in documents tend to perpetuate themselves over time as the documents are copied in subsequent transactions, potentially accumulating more and more changes over many generations.

The dynamic could be formalized mathematically, but for the purposes of this initial discussion the process is developed verbally. In any given document there is some probability a non-standard edit will be introduced. The fact that an edit is “non-standard” does not mean it’s an error or inadvertent; it could be an entirely appropriate, negotiated provision to deal with a specific situation, but not appropriate for most other types of transactions.

Once a non-standard edit is introduced, there is some probability it will be reversed the next time the document is copied. Some edits are extremely conspicuous, such as names and dates (although even these are occasionally inadvertently copied). Other edits are less conspicuous. The more conspicuously inappropriate the edit, the more likely it will be reversed. Thus, egregious errors are less likely to be inadvertently copied than are harmless changes in wording or subtle errors. In other words, not all errors will be reversed. In particular, because omissions are generally less conspicuous than insertions, these are particularly likely to be perpetuated across generations (deleted text is less likely to be reinserted in the next generation than inserted text is to be deleted in the next generation).

On average, however, the edits that are not reversed in the first round of copying are likely less conspicuous and therefore less likely to be reversed in the next round. Edits that survive several rounds of copying

are even less likely to be reversed in subsequent generations. Such edits, if sufficiently inconspicuous, can actually become “standard” within the lineage of documents.⁴⁴ This is what allows the text to change (a mutation) in one generation and then perpetuate itself potentially indefinitely.

As mentioned in the previous subpart,⁴⁵ lawyers favor precedents that are more recent and those they are familiar with—often those from their own law firms or prior experience. These two habits make it more likely that edits will be perpetuated into later generations as the lawyers do not go back to a previous form (one prior to the new edits) as the starting place each time; instead, they use the later form that has been overlaid with edits, leading to a process Choi, Gulati, and Scott refer to as “encrustation.”⁴⁶

The result is that text will “drift” further and further away from the original version over generations of usage. The extent of this drift will likely vary depending on the circumstances. In particular, the relative probabilities of idiosyncratic edits being detected or not will determine the likely course of drift. In turn, this will determine whether the text does indeed “evolve” toward a better text in response to learning and exogenous changes, or whether it simply “drifts” in a random fashion. Whether the change of document text across generations is evolution, degradation, or simply neutral “drift” is uncertain and may depend on the context.

What is certain, however, is that the text for a transaction depends on the path the text took to get to the transaction. It is path dependent in a way that it would not be if a standard form were used. This copying and recopying in turn reinforces the need for additional edits in each iteration. There is some evidence that model standard form agreements exhibit greater modularity than negotiated agreements.⁴⁷ This provides some evidence that the modularity in a designed contract breaks down over time as agreements are recopied.

The result of the dynamic described above is, in addition to the previously documented phenomenon of text changing excessively slowly

44. In their recent work, *Sleeping Giant Contracts*, Mitu Gulati and Marcel Kahan discuss an anecdote provided by Bryan Garner, in which a line from a mortgage contract was inadvertently dropped, and subsequently was recopied (in its erroneous form) so many times as to become a local “standard.” See Mitu Gulati & Marcel Kahan, *Sleeping Giant Contracts 2* (NYU Ctr. for Law, Econ., and Org., Paper No. 19-35, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3442355 (citing Bryan Garner, *Contract “Busts”: Trying to Decipher Provisions That Literally Make No Sense*, A.B.A. J. (Dec. 1, 2018, 1:55 AM), http://www.abajournal.com/magazine/article/contract_busts_decipher_provisions [<https://perma.cc/2SE9-BZXA>]).

45. See *supra* Part II.A.

46. Choi et al., *supra* note 26, at 9.

47. This was the finding of Jennejohn in the context of M&A agreements, as he found that the ABA Model M&A agreement exhibited greater modularity than negotiated M&A agreements. See Jennejohn, *supra* note 32, at 117 n.208.

to reflect exogenous events (stickiness), contracts also change in the absence of exogenous events. The text has an endogenous life of its own over time and generations. Evidence of the effects of this dynamic is emerging from studies of document terms. An example of this is merger agreements, which form lineages that drift further and further from their ancestors.⁴⁸ Lineages then drift apart from each other, both at the entire agreement level,⁴⁹ and at the individual clause level.⁵⁰ In this sense, in addition to being sticky, just as important may be the “slippery” properties of contract terms, though this possibility has been largely overlooked. This leads to a number of systemic issues that are discussed in the next Part.

II. THE MACRO EFFECTS OF PATH DEPENDENCE

The micro-level drafting practices described in the previous part affect the textual integrity of individual documents and the lineage of documents copied from one another. The fact that documents drift away from one another over time and are then copied as patterns for subsequent documents, however, means that they also contribute to macro-level patterns. This Part outlines that process as well as some of the consequences for standardization.

A. Standardization and Network Effects

The previous Part explains how a single ancestor document can give rise to many different variants over time, as its descendants are copied and recopied. The documents drift further and further away from ancestors, because attorneys tend to copy the most recent (edited) document rather than reverting to the form by carefully studying the ancestry of the text. As a result, even if a particular text begins with a single standard version, if the text gives rise to many descendants, it will eventually “speciate” into many different variants.⁵¹

This speciation undermines the standardization of text by splitting a standard version into many different sub-versions of the text. This fragmentation reduces significant practical advantages that come from standardization in a business setting and raises significant theoretical implications for the law and economics of incomplete contracting. Standardization has significant value because there are positive network externalities associated with reusing the same terms, meaning that the

48. See Anderson & Manns, *Inefficient Evolution*, *supra* note 20, at 66.

49. See *id.*

50. See Anderson & Manns, *Boiling Down Boilerplate*, *supra* note 9.

51. Robert Anderson & Jeffrey Manns, *Engineering Greater Efficiency in Merger, and Acquisitions*, 72 *BUS. LAW.* 657, 661 (2017).

more the same terms are used, the more valuable they become.⁵² In particular, the standardization and the network effects that come along with a standardized text have been tested and interpreted by courts.⁵³

The wisdom of the crowd idea requires repeated use of the same text through an “evolutionary process.”⁵⁴ If the non-standard portions of the text are recopied enough, the crowd becomes foolish. The text may look nothing like the optimal text, hence the “inefficient evolution” that has been documented in merger agreements.⁵⁵ This results from the feedback loop between the micro-level dynamics discussed in the previous Part and the macro dynamics discussed in this Part. The drafter relies on the precedent because of the purported wisdom of the crowd, but the replication undermines that very wisdom.

On the macro level, looking across all contracts of a particular type at a particular time, we may observe text that responds too slowly or not at all to exogenous events. We also see that the text changes endogenously, or for no clear reason, simply as a result of drift. Thus, as has been well documented, contract terms can be “sticky” and not respond to exogenous shocks as quickly as would be expected.⁵⁶ The less observed phenomenon, however, is that contract text can be “slippery” as well, changing without exogenous shocks, through a process of random drift.

In complex commercial contracts, the benchmark in drafting is standardization—parties regularly attempt to conform to market standards in their drafting.⁵⁷ Part of adhering to a market standard is the use of copying. Ironically, it is the very use of copying that can undermine the standard, as discussed above. In some contexts, standardization has worked, such as home real estate sale documents and ISDA swaps, but in

52. See Michael Klausner, *Corporations, Corporate Law, and Networks of Contracts*, 81 VA. L. REV. 757, 774–75 (1995). These positive network effects come from many sources, including interpretations of the language by courts, common practices of practitioners implementing the term, and the availability of legal services for dealing with the contract language. See *id.*

53. See, e.g., *Unocal Corp. v. Mesa Petroleum Co.*, 493 A.2d 946 (Del. 1985) (interpreting the reasonableness of defensive provisions intended to resist hostile takeovers); *Reylon, Inc. v. MacAndrews & Forbes Holdings*, 506 A.2d 173 (Del. 1986) (reevaluating and refining the interpretation of defensive tactics that the court developed in *Unocal*).

54. Although he does not describe it in terms of wisdom of the crowd, an important aspect of Klausner’s “learning effects” is the wisdom of the crowd idea, that repeated use creates an “evolutionary process” that will improve the term. See Klausner, *supra* note 52, at 786–87.

55. See Anderson & Manns, *Inefficient Evolution*, *supra* note 20, at 61.

56. See, e.g., Peter B. Rutledge & Christopher R. Drahozal, “Sticky” Arbitration Clauses? *The Use of Arbitration Clauses After Concepcion and Amex*, 67 VAND. L. REV. 955, 960–65 (2014); Choi et al., *supra* note 26, at 5.

57. Choi et al., *supra* note 26, at 4–5.

most commercial settings, many versions of any given provision circulate in the wild.

B. Larger Implications for Incomplete Contracting

The standard incomplete-contracting model involves a tradeoff between front-end and back-end enforcement costs.⁵⁸ Often there is no drafting process modeled at all, but some models have tried to incorporate the process, such as one where the parties start with no terms then write down terms until the marginal cost exceeds the marginal benefit. In the most basic model, each added term introduces a cost.⁵⁹ Applying the dynamics of the institutional details described above to that static model, however, reveals that there are important pieces missing in the model.

As an example, take the basic model of drafting until the marginal cost of drafting exceeds the marginal benefit together with the reality that parties always start with a precedent document to economize on these costs and then edit the precedent. The marginal cost of thinking through and writing terms decreases over time as learning about terms occurs, especially because there will be more terms available to copy at low cost.⁶⁰ In addition, in high-stakes transactions, one of the most significant marginal costs of more drafting is delay,⁶¹ which is greatly reduced by the availability of precedent text. A question arises then: given the availability of copying, why do contracts not just grow and grow over time to become more complete? To some extent and in some contexts they do.⁶² If the cost of understanding terms is zero, contracts should continue to grow as drafters take advantage of existing drafting and add provisions to deal with contingencies not previously addressed.

The theory developed in this Essay explains why contracts do not continuously grow in length and complexity, evolving toward ever-increasing completeness. There is a cost to reviewing and understanding terms, not just writing them. As the length of the document grows, so does the cost of reviewing the terms of the precedent used. This tradeoff between copying and drafting new terms has not been explored in the

58. Robert E. Scott & George G. Triantis, *Incomplete Contracts and the Theory of Contract Design*, 56 CASE W. RES. L. REV. 187, 189–90 (2005).

59. Ronald A. Dye, *Costly Contract Contingencies*, 26 INT'L ECON. REV. 233, 236 (1985).

60. Compare *id.*, with Klausner, *supra* note 52, at 760–61.

61. Badawi & de Fontenay, *supra* note 13, at 1156, 1166.

62. See John C. Coates IV, *Why Have M&A Contracts Grown? Evidence from Twenty Years of Deals 1–2* (Harvard Law Sch. John M. Olin Ctr., Discussion Paper No. 889, 2016), <http://ssrn.com/abstract=2862019> (suggesting M&A contracts grow in response to exogenous needs). *But see* Anderson & Manns, *supra* note 20, at 75–76, 80–81 (asserting that textual drift and accumulation accounts for much of contract growth).

economics of contract. As the copying and editing of agreements doesn't fit into the incomplete-contracting model, it misses this aspect.

Equally important, a single text can give rise to many, many variants of the same provisions. This was evident in the public company merger context where despite the perception among practitioners that such documents are highly standardized, there are actually many different "forms" for each provision, as individual provisions speciate into different variants.⁶³ This feeds back into the process described in Part II.A. The fact that there are many different versions of the same provision increases the cost of reviewing and editing any given precedent document, because the drafter is unlikely to be familiar with the variant. Hence, the macro-level drift of provisions feeds back into the original problem and further exacerbates the dynamic that gave rise to that drift.

In light of the vast literature on incomplete contracting and the potential usefulness of modeling the institutional details as explanations for incompleteness, the question arises as to why a theory of drafting practices has not emerged. There is a voluminous literature examining the standard explanations for seemingly anomalous patterns in contract language, particularly that of "stickiness" or "inertia" in the face of exogenous changes.⁶⁴ But these do not focus on one of the most important, if not the most important, heuristics: the copying and reuse of prior text—in other words, the use of one or more precedent or template documents.

The likely reason for the lack of attention to the drafting process is that practice details were thought not sufficiently generalizable to generate testable theory. But the absence of focus on these ubiquitous institutional features is notable, because the precedent heuristic plays at least as important a role in the resulting contract as other contract design issues. In theory, the bargaining power and bargaining process itself, much less essentially random copying errors, should not affect the non-price terms of the agreement.⁶⁵ Yet we do observe the bargaining process affecting these terms. This Essay demonstrates how the details of contractual incompleteness affect the terms, not just the gaps.

63. See, e.g., Anderson & Manns, *Boiling Down Boilerplate*, *supra* note 9, at 245–46.

64. See Gulati & Khan, *supra* note 44, at 14–20 (describing the "standard explanations for contract inertia").

65. See Albert Choi & George Triantis, *The Effect of Bargaining Power on Contract Design*, 98 VA. L. REV. 1665, 1667–69, 1677–79 (2012) (explaining that although the conventional wisdom in law and economics is that the non-price terms should not be affected by bargaining power and other details of negotiation, it appears that such wisdom does not capture the reality of the bargaining process).

C. The Evolutionary Metaphor

One of the most important reasons why the dynamics we observe occur in contract drafting is the precedent heuristic, which itself is built on the assumption of the contract drafter that precedent document text, especially boilerplate text reused over time, has been tested in multiple transactions and has incorporated the wisdom of previous experience in responding to various pitfalls. Scholars have long argued that contract provisions have survived in an evolutionary process because they are efficient contract solutions.⁶⁶ The path-dependent processes outlined in this Essay, reflect that excessive reliance on copying creates drift over time, and that this drift is not necessarily the efficient result of an evolutionary “selection” process.

The drift model in which unintended and non-standard language propagates from generation to generation contrasts with conventional theory.⁶⁷ Conventional incomplete contract theory holds that contracts are incomplete, but that their incompleteness is the result of rational calculation.⁶⁸ Furthermore, the conventional theory predicts that when contracts change, the changes result from learning or from exogenous shocks in the external environment.⁶⁹ In other words, economic theory largely envisions contracts are incomplete but intentional. Provisions change when state-contingent payoffs change.⁷⁰

Thus, while the economic theory envisions contracts with (incomplete) provisions rationally adapted to conscious ends, the path dependency approach sees both incompleteness and vestigial terms, with “drift” rather than “design” as the driver of much of the change in transactional legal documents.⁷¹ To better understand the limitation of the contract drafting process, and therefore to better understand the limits of contracting as an economic institution, a framework like that developed in this Essay is needed for analyzing (and eventually modeling) the process of copying, editing, and recopying documents across generations.

The processes outlined above, however, have a strong analogy in an area where extensive research effort has been directed—molecular biology. Molecular biology has developed a vast literature and extensive methodological apparatus for analyzing the copying of genetic information (essentially texts) over time. There is a strong parallel between

66. Clifford W. Smith, Jr. & Jerold B. Warner, *On Financial Contracting: An Analysis of Bond Covenants*, 7 J. FIN. ECON. 117, 123 (1979).

67. *E.g.*, Scott, *supra* note 3, at 1649–50.

68. *See id.* at 1649–50, 1675–85.

69. Rutledge & Drahozal, *supra* note 56, at 960–65; Choi et al., *supra* note 26, at 5.

70. *See* Scott, *supra* note 3, at 1669–75.

71. *See, e.g.*, *supra* notes 47–49 and accompanying text.

the imperfect copying of texts with small changes and the mutations of DNA and their propagation.⁷² The genome evolves as mutations accumulate with each successive generation, not unlike a manuscript, legal document, or other text that accumulates edits as it is copied and reused in successive transactions. Although the evolutionary process in DNA results from random mutations, rather than purposeful edits, that makes little difference for understanding legal institutions as an evolutionary process, as Armen Alchian persuasively argued many decades ago.⁷³

Indeed, a debate very similar to the “contractual drift” debate exists in molecular evolution. Although selection plays a role in the evolution of genetic sequences, a debate in evolutionary biology exists over whether changes are efficient merely because they persist in an evolutionary process. One perspective on this, the “neutral theory,” contends that much of the variation is neutral, neither advantageous nor deleterious.⁷⁴ As a result, the genetic code can have significant changes as a result of the mutation rate and the size of the population. The neutral evolution model has support because there are so many functionally equivalent DNA encodings, and the same is true in legal documents.

The neutral theory that genetic variation propagates through the population unaffected by selection does not cause problems in biology because, by definition, the neutral mutations are not deleterious.⁷⁵ In legal documents, however, even neutral changes that do not jeopardize legal arrangements can undermine the benefits of standardization and increase transaction costs.⁷⁶ The more “neutral” variation in agreements, the more frictions exist in the transaction process. As a result, parties need to evaluate the various forms of text, probably edit them more heavily, and lose some benefit of judicial interpretation. These problems, in turn, feed back into the costs of evaluating the contract text, which caused the problems in the first place. As importantly, the more variation in legal boilerplate, even if neutral in its effect, the less the network effects of boilerplate can facilitate transactions. Thus, even if the “drift” theory of boilerplate does not cause interpretive problems, it is important to understand this dynamic.

72. Christopher J. Howe et al., *Manuscript Evolution*, 25 ENDEAVOUR 121, 121 (2001).

73. Armen A. Alchian, *Uncertainty, Evolution, and Economic Theory*, 58 J. POL. ECON. 211 (1950).

74. MOTOO KIMURA, *THE NEUTRAL THEORY OF MOLECULAR EVOLUTION* (1983).

75. Laurent Duret, *Neutral Theory: The Null Hypothesis of Molecular Evolution*, 1 NATURE EDUC. 218 (2008) (detailing that “neutral mutations” do not affect the fitness of individuals).

76. See *supra* Parts II.A, Part II.B.

D. Future Directions

Drift undermines standardization, imposing additional costs on the drafting process and on parties and reinforcing the dynamic described above. Scholars have worked on the puzzle of “stickiness” or “inertia,” but the stickiness or inertia likely has many of the same causal mechanisms as drift.⁷⁷ Thus, the inertia in the presence of exogenous shocks is, somewhat ironically, the same mechanism that produces change in the absence of exogenous shocks.

The next step is to formalize the dynamic described informally in this Essay, especially linking how the micro-level drafting processes lead to macro-level splintering of standardization, which feeds back into the very costs that cause the micro-level problems in the first place. This dynamic relationship between drafting costs and broader contractual standards would enhance the static (one-shot) analysis prevalent in the formal literature on incomplete contracts.⁷⁸

After that, research should focus on whether these processes of drift matter, in the sense of whether they produce lower quality texts. This is a topic for further study. The dynamics affect boilerplate more than negotiated terms, at least so far as the existing research reveals.⁷⁹ In a study of M&A contracts, the drafting process appeared to affect the non-monetizable legal terms but did not affect the monetizable “business” terms.⁸⁰ But that does not make it insignificant, either individually or collectively. In the sovereign bond context, “[a] single word in a defaulted bond contract, fifty-five pages long and twenty years old” led a nation into default.⁸¹ One challenge is that it is difficult to assess what is an “error” and what is a strategic calculation in the drafting process.

One possibility for examining these patterns empirically is to use the typographical errors in contracts, especially those that are correct in terms of spelling and grammar and therefore evade electronic detection. Such errors are more conspicuous than most edits, and therefore may set a lower bound for how often errors are copied. A possible objection is that these errors are often non-substantive and may not have significant implications.

77. See, e.g., Gulati & Kahan, *supra* note 44.

78. An especially promising avenue for integration would be the work by Jean Tirole on heuristics, cognition, and incomplete contracts. See Jean Tirole, *Cognition and Incomplete Contracts*, 99 AM. ECON. REV. 265 (2009). It would be challenging to devise a strategy for modeling the feedback process in a dynamic version of the Tirole model (which is, in a sense, a snapshot of this dynamic), but it would greatly contribute to overall understanding.

79. See *supra* Part II.C.

80. Badawi & de Fontenay, *supra* note 13, at 1155–56.

81. Anna Gelpern et al., *If Boilerplate Could Talk: The Work of Standard Terms in Sovereign Bond Contracts*, 44 LAW & SOC. INQUIRY 617, 644 (2019).

Taking this into account another potentially fruitful avenue would be to examine antidilution clauses, which are notoriously tricky for lawyers to understand and can be written incorrectly with potentially disastrous consequences.⁸² As a result of their technical and complex nature, lawyers tend to treat these provisions as boilerplate.⁸³

It is also conceivable that the speciation that results from these processes introduces improvements in contract terms. Not all beneficial innovations were “designed” purposefully.⁸⁴ Some evolved as a result of trial and error, and it’s entirely possible that innovative contract terms occasionally spontaneously appear through a process that didn’t involve purposeful design.

The implications for the “back end” or “ex post” interpretation of provisions are unclear. The path dependence and drift mechanisms clearly show that contract language is not purely a response to business needs or the identity of the parties. The details of the language used in any contract will depend in large degree on the ancestral path the language took to arrive at that transaction. Should courts take that type of evidence into account when interpreting contracts, notwithstanding the parol evidence rule? What might be the effect of considering such evidence? This Essay does not deal with the strategic or game theoretic analysis that is present in much of the literature, and the consideration of the ex post implications should take these considerations into account. This is left for future work.

CONCLUSION

The literature situated in the “new realism” in business law and economics has important implications for incomplete contracting theory and contract design. Contracts are not just incomplete because of costs of anticipating and drafting for contingencies, nor solely because of strategic considerations. They also contain mismatched text, ill-fitting terms, anachronisms, and outright errors. They are mis-calibrated, and mis-calibrated not at random, but in part because of the path dependent process used by attorneys in the creation of these legal texts. This undermines the

82. See Michael A. Woronoff & Jonathan A. Rosen, *Understanding Anti-Dilution Provisions in Convertible Securities*, 74 *FORDHAM L. REV.* 129, 155 (2005) (explaining that “even experienced practitioners often misunderstand [anti-dilution] provisions, which can have significant economic consequences”).

83. Marcel Kahan, *Anti-Dilution Provisions in Convertible Securities*, 2 *STAN. J.L. BUS. & FIN.* 147, 147 (1995) (describing anti-dilution provisions as “[t]echnical and complex” provisions that are “often misunderstood and are typically treated as boilerplate terms”).

84. Notable examples of such non-purposeful innovations include the pacemaker, the microwave oven, x-ray images, and penicillin. See Chris Weller, *16 Accidental Inventions That Changed the World*, *BUS. INSIDER* (June 22, 2016, 2:32 PM), <https://amp.businessinsider.com/accidental-inventions-that-changed-the-world-2016-6> [<https://perma.cc/NCK3-WYK3>].

development of standards and itself reinforces the pattern by feeding back into the cost of reviewing and editing texts.

The development of a theory of how this process unfolds allows the drafting process to be not just “noise” in the overall incomplete contracting literature, but one that can develop hypotheses that can inform the questions surrounding contract design. As is the case with contractual incompleteness, the path dependency in the contracting process can impact the economic arrangement, something that parties must build into the negotiation process. The contribution of this Essay is to describe the dynamic process that results from the path dependent drift of contract terms. A major reason for contract incompleteness is the cost of reviewing and understanding contractual language. The primary way of reducing this cost is standardization and the learning effects that follow from it. But the very imperfections that create the path dependency are exacerbated by the lack of standardization. This dynamic plays an important role in the formation of contracts and should inform the economic theory of contracting.