

THE DESIGN AND INTERPRETATION OF CONTRACTS: WHY COMPLEXITY MATTERS

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Recent work in the law and economics of contracts suggests that contracts ought to be highly complex and “fine-tuned.” They should have many terms describing the obligations of parties across alternative future states of the world; these terms should provide for highly variable rewards for desired behavior and penalties for undesired behavior; and these rewards and penalties should bear a complex mathematical relationship to the value of the benefits produced by the different kinds of behavior. In practice, however, many contracts are quite simple. They divide the future into very crude partitions; they provide for constant or close to constant payments across different outcomes; and the terms are easy to understand. This divergence between theory and practice suggests that the assumptions underlying the economic models of contracts should be revised, and it raises basic questions of public policy of interest to lawyers. What are the advantages and disadvantages of complexity in contracts? How should courts think about the complexity of contracts? Should courts enforce complex contracts more strictly than they enforce simple contracts?

To understand why these questions are important, one might compare the idea of contractual complexity with the better developed idea of contractual completeness. Courts and contracts scholars now understand that a contract might be more or less “complete,” in the sense of describing the obligations of parties in different future states of the world. A more complete contract takes account of many future contingencies that would change the value of performance—increases in the cost of inputs, decline in demand for the product, and so on. A less complete contract might simply state the price and performance—deliver the widget on January 1, for \$X—without saying what happens if the product is destroyed in transit or similar

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events occur. Courts seem to be more willing to aggressively interpret incomplete contracts than complete contracts. Thus, completeness matters. The question is whether contractual *complexity* matters as well.

We argue that it does, and that the current tendency of scholars to focus on completeness and neglect complexity has resulted in an inadequate understanding of contracts and contract law.

One of our major themes is that complexity is predicted by models that make unrealistic assumptions about human behavior and the environment. The basic point of these models is that contracts should be complex because of pervasive uncertainty about the future. Because any of an indefinitely large set of events could influence the cost or value of the performance, a desirable contract would condition performance on all of these events. As is well understood, one reason that parties would not draft such a contract is that the drafting would be extremely costly. But there are many other reasons why parties may avoid complexity when drafting contracts, including: asymmetric information, monitoring dynamics, evolutionary pressures, conventions, reliance on trust and reputation, enforcement costs, bounded rationality, and renegotiation.⁴ To take one example, when a firm cares about its reputation, and its customers know this, they may enter into a simple contract that does not describe the firm's obligations in detail, because both sides expect the firm to act in the customer's interests when it is time to perform. Our positive arguments about contractual complexity are in principle susceptible to empirical testing and should be of interest to lawyers who draft contracts and are concerned about the appropriate level of detail.

Our other major theme is that the complexity of a contract is a relevant consideration for courts when they decide how to interpret a contract. We do not argue that simple contracts are good and complex contracts are bad, or vice versa; nor do we argue that courts should always interpret simple contracts and complex contracts differently. Our argument is more modest and subtle. It is that the relative complexity of a contract can tell a court something about the contractual goals of the parties, the process of negotiation, and the environment that the parties faced when they negotiated the contract. Under certain conditions, the degree of complexity reveals whether one party took advantage of the other party, whether negotiations were hampered by asymmetric information, whether the parties anticipated that trust or reputational concerns would resolve disputes, or whether other factors influenced the contract. Because courts care about preventing advantage-taking, overcoming problems of asymmetric information, encouraging trust, and so on, they should take account of the complexity of the contract when deciding how to interpret the contract and whether to enforce it.

A word about the methodological background of this article. There are two economic literatures on contracting. One is "law and economics;" the

⁴ Some of these same factors (e.g., asymmetric information) can push toward complexity in some circumstances as well. See *infra* Part III.

other is the "economics of contracts."⁵ Both focus on people's incentives to enter, invest in, breach, and renegotiate contracts, or broadly to engage in "contract-related behavior." The two literatures share an underlying purpose: to describe the conditions under which the value of contractual exchange is maximized. However, the law and economics literature focuses on the effects of legal rules, whereas the economics of contracts literature takes legal rules as given and examines the optimal design of contracts. Law and economics has a public orientation; it gives advice to courts and legislatures about the design of legal rules. Economics of contracts has a private orientation; it gives advice to parties entering exchange relationships about how to design their contracts.

As some authors have pointed out, the distinction between these literatures is artificial; a rapprochement is needed.⁶ Although the two literatures have different focuses, their origins and methods are quite similar, and their divergence has created two problems. First, the economics of contracts literature has made a number of methodological advances that have not yet spread to the law and economics literature. Unfortunately, these advances are often quite technical, and this has hampered the transport across disciplinary boundaries. Second, there is no reason why law and economics should ignore problems of contract design,⁷ and why economics of contracts should ignore problems of legal design. Indeed, the two subjects cannot be separated; lawyers, judges, and legislatures cannot evaluate contract rules without understanding the contracts that these rules are supposed to regulate.⁸ Yet the law review literature on contracts is almost completely devoid of the positive analysis of contracts.

This article uses insights from the economics of contracts literature to discuss both legal rules and contract design. The ideas of contractual simplicity and complexity are used to organize the discussion. The degree of complexity of a contract is one of its central features, and it is a source of concern to those who design contracts. The positive regularity that we seek to explain is the apparent use of highly simple contracts despite the complexity of the environments in which people use contracts. This is the sub-

⁵ The law and economics literature is produced mainly by law professors, including some economists who teach at law schools, and appears mainly in law reviews. The economics of contracts literature is produced mainly by economists who teach in economics departments, and appears mainly in economics journals. Citations to both literatures can be found below.

⁶ See, e.g., Ian Ayres & Robert Gertner, *Strategic Contractual Inefficiency and the Optimal Choice of Legal Rules*, 101 YALE L.J. 729, 730-31 (1992).

⁷ See Avery Katz, *Taking Private Ordering Seriously*, 144 U. PA. L. REV. 1745 (1996).

⁸ Observers sometimes wonder whether courts strike down contracts with apparently one-sided terms because they do not understand the purpose of these terms. In such cases as *Britton v. Turner*, 6 N.H. 481 (1834) (involving an employment contract that delayed pay until the end of term) and *Williams v. Walker-Thomas Furniture*, 350 F.2d 445 (D.C. Cir. 1965) (involving a consumer credit contract with a cross-collateral clause), the courts might not have understood the economic purposes behind the terms that they criticized.

ject of Parts I and II, which together discuss examples and terminology, and Part III, which explores reasons for contractual simplicity.

We also make several normative arguments in Part IV. There is a traditional law and economics approach to contract interpretation, which holds that courts should fill gaps in contracts by either supplying terms that maximize the value of the contract (the terms that the parties themselves would have chosen if transaction costs were zero) or providing correct incentives for parties to reveal information to each other. There are also more recent attempts, relying on the economics of contracts literature, to defend more formal or literal interpretation of contracts. Our focus on complexity reveals defects in both approaches. We argue that the proper interpretative strategy depends on the cause of the gap in the contract, and that the complexity or simplicity of the contract provides clues about what that cause is in any given case.

I. SOME EXAMPLES

Discussions of contractual complexity, and indeed of any kind of complexity, are fraught with difficulty because people have different intuitions about what complexity means. Some people think that all contracts are complex. They note that when parties negotiate even the most straightforward exchange of dollars and widgets, they face a future of great uncertainty, and an indefinitely large number of events could occur that might affect the value of the contract. Indeed, one might argue that the entire common law is an implicit term of every contract, but a contract that implicitly incorporates the entire common law could hardly be anything but complex! According to this view, all contracts are complex, so complexity is not an interesting phenomenon.

The "all contracts are equally complex" view is not compelling in light of the variation in complexity of real-world contracts. We present several examples in this section to emphasize that this variation requires an explanation. We will also use these examples to show why economists are puzzled by the simplicity of contracts.

Architectural services. In the architectural profession, two simple forms of contracts are common: payment based on hourly rates or payment based on a percentage of construction costs.⁹ The virtues of a nonstandard, slightly more complex contract were made evident to one of us when hiring an architect, Jim, for a major renovation. Jim offered to work on either of the two standard bases. The hourly rate contract would be at \$60. Alternatively, he offered to do the job for a fixed price contract of \$6,000, which represented a percentage of his estimate of construction costs. The architect estimated the time required to be 100 hours. The parties agreed that either

⁹ See BOSTON SOCIETY OF ARCHITECTS, OWNER, ARCHITECT, CONTRACTOR RELATIONSHIPS: A PROJECT GUIDE (1987).

an hourly contract or a fixed price contract would present perverse incentives—the first to gold plate, the second to skimp. After determining that Jim's reservation price was roughly \$45 per hour, the parties settled on an arrangement under which Jim would be paid \$1,500 plus \$45 per hour. Both parties liked the innovative contract, which paid a fixed price plus implicit marginal cost, as efficiency would require.¹⁰ The contract worked quite well, particularly when some additional tasks (e.g., putting in a kitchen fan) arose, as they almost always do. However, Jim says that he has not since then used any fixed-fee-plus-marginal-charge contract. As he explains, "it is too complicated and my clients would not understand."¹¹ Despite their efficiency benefits and use in some fields, contracts that combine a lump sum and an hourly rate seem to be virtually unknown in the design and construction field.¹²

Legal services. Lawyers generally charge clients either an hourly rate or a contingency fee. Yet an hourly rate gives the lawyer an incentive to spend too much time on a case, while a contingency fee—usually 33%—may give the lawyer an incentive to take risks that the client does not want to bear. Mixed contracts, where the lawyer charges, say, \$1000 plus \$200 per hour to draw up a will, or \$200 per hour plus 20% of any award to represent a plaintiff in litigation, are not unknown,¹³ but are much less common than economic theory would suggest. Contracts gravitate toward one of two simple extremes, rather than the complex middle.¹⁴

Health care. Health care is another arena where complex contracts might seem optimal, but simple contracts prevail. Like architecture contracts, health care contracts frequently employ two quite different simple approaches. Doctors are usually paid either on a fee-for-service basis or a

¹⁰ See *infra* subpart II.B.

¹¹ Interestingly, at the moment Jim is once again under the employ of the same author to remodel two bathrooms. But on this project he is working on an hourly basis. Implicitly, the parties have recognized the virtue of a simple contract.

¹² Bajari & Tadelis cite numerous empirical studies that confirm that simple cost-plus or fixed price contracts are prevalent in the private sector construction industry; mixed or incentive contracts are rare. Patrick Bajari & Steven Tadelis, *Incentives Versus Transaction Costs: A Theory of Procurement Contracts* (1999) (unpublished manuscript, on file with authors); see also Business Roundtable, *Contractual Arrangements, CICE Project A-7* (last modified Dec. 1987) <<http://www.brtable.org/pdf/141.pdf>>.

¹³ For example, the FDIC and Cravath, Swain and Moore's fee arrangement in connection with the Savings and Loan affair provided for payment of \$300 per hour plus an amount that was an increasing function of the damages that Cravath recovered for the FDIC. As a consequence, senior litigators could earn as much as \$600 per hour if they were successful, while their ordinary hourly rate was \$375 to \$400. See Stephen Labaton, *For F.D.I.C.'s Top Law Firm, Fees Reaching \$600 an Hour*, N.Y. TIMES, April 5, 1991, at A1.

¹⁴ Nonunion employment contracts are generally quite simple, often stating only that the employee "has a job at a particular (current) wage." Oliver Hart and Bengt Holmstrom, *The Theory of Contracts*, in *ADVANCES IN ECONOMIC THEORY 5TH WORLD CONGRESS* 71, 126 (T. Bewley ed., 1987). An empirical study of a single firm's wage policy over 20 years and involving more than 60,000 observations, found that it was "less sensitive to individual differences than typical incentive theories would prescribe." George Baker et al., *The Wage Policy of a Firm*, 109 Q.J. ECON. 921, 953 (1994).

capitation (fixed fee per person) basis. Yet standard models suggest that a mixed system, such as a flat fee per person plus additional payment for certain services, would create better incentives.¹⁵ This again illustrates that even though standard contract models suggest that a mixed system, like the one used with Jim the architect, would be preferable, real world contracts tend toward simple extremes.

Software. In the Indian software industry, contracts between clients and software firms are almost exclusively of two simple types, fixed price contracts or "time and materials" contracts.¹⁶ Like the architecture, legal, and health care contracts, the software contracts belong to one of two simple types, apparently because parties prefer an extreme but simple contract to a more complex contract that provides for more appropriate incentives and sharing of risk.

Debt. Ordinary corporate debt contracts are widely believed to be too simple. These contracts require the debtor to make fixed payments independent of verifiable information such as market conditions. Yet, except under unusual circumstances, the parties should want to give the debtor the ability to reduce payments when "bad states of the world" (such as a recession or other market downturn that can be verified by the creditor and a court) occur.¹⁷

Movie actors. Movie actor contracts, apart from those for major stars, are variable along only a few key dimensions, such as salary, guarantee, billing, and transportation payments. Generally, the casting director draws up a "deal memorandum" with the actor. The studio then completes a contract. The deal memo is typically a single page, whereas the formal signed contract may run fifteen or more pages. But these pages are boilerplate and have little influence on behavior. The basic agreement between the two parties is simple, whereas detailed contingencies are negotiated either through specialized agents such as lawyers, or relegated to the control of standard industry contracts, or both.¹⁸

¹⁵ See Joseph P. Newhouse, *Reimbursing Health Plans and Health Providers: Efficiency in Production Versus Selection*, 34 J. ECON. LIT. 1236 (1996).

¹⁶ Abhijit V. Banerjee & Esther Duflo, *Reputation Effects and the Limits of Contracting: A Study of the Indian Software Industry*, 115 Q.J. ECON. 989 (2000).

¹⁷ Franklin Allen & Douglas Gale, *Measurement Distortion and Missing Contingencies in Optimal Contracts*, 2 J. ECON. THEORY 1, 2 & n.2 (1992).

¹⁸ Discussion with Gretchen Court, casting director (November 25, 1998) and review of a number of contracts. The role of lawyers as specialized agents, and its relationship to the complexity of contracts, merits its own analysis. We note only a few important issues. The tendency of lawyers to imitate prior contracts increases the prevalence of boilerplate terms. Lawyers' professional training and experience will often make them more sensitive to the need to protect against breach of contract, and less sensitive to the need to signal trustworthiness and assure that the initial deal is signed, than are the principal contracting parties. Lawyers may view adding many contingencies to the contract as their professional and ethical responsibility, whereas the cost of such detail is of little concern to them. Indeed, financial incentives are often to increase complexity to justify more income. In these and in other ways, there will

Thus, substantial evidence indicates that contracts are simpler than what one might expect. We stress that we do not claim that they are simple in some absolute sense; only that they are *simpler* than what is predicted by economic theory and perhaps the untutored intuitions of those outside the business world. Of course, some contracts are genuinely complex, though fewer than one might expect.

Moreover, simple contracts do not necessarily imply simple behavior. Contracts that are simple may lead to quite subtle behavior, either because the contract is revised as time plays out, or because long-term relationships produce behaviors that are not primarily driven by the incentives in the contracts.¹⁹

Why do parties shy from complex contracts and embrace simple ones? To answer this question, we first develop some theoretical distinctions.

II. SOME PRELIMINARY DISTINCTIONS

A. Complexity

“Complexity” has become a hot topic across academic disciplines as diverse as biology, computer science, physics, and economics. But these discussions are hampered by the difficulty of agreeing on what complexity means. The term is subtle and ambiguous, and much ink has been spilled in quarrels over its proper definition.²⁰ What is clear is that the proper definition of complexity depends on the problem that one wants to solve.

We treat complexity as a multidimensional concept that can only be judged relative to the contracting environment. Specifically, by “complexity,” we refer to the following three dimensions of the contract: (1) the expected number of payoff-relevant contingencies specified in the contract; (2) the variance in the magnitude of the payoffs contracted to flow between the parties; and (3) the cognitive load required to understand the contract. Each component of complexity is measured along a continuum: contracts are either more or less complex.²¹

be a divergence between the incentives of the contracting principals and their specialized legal agents, with important implications for the complexity of resulting contracts.

¹⁹ Banerjee & Duflo find that despite the simplicity of the ex ante formal contracts in the Indian software industry, as the projects unfold renegotiation results in behavior that is highly contingency-specific. Banerjee & Duflo, *supra* note 16. Although the party that initially is assigned all of the cost overrun risk does end up bearing the majority of that risk, there is substantial cost sharing: “when [firms] have a fixed price contract [which assigns 100% of cost overrun risk to the firm], they bear on average 66 percent of the overrun . . . when they have a time and materials contract, they bear on average 26 percent of it.” *Id.* at 1003. Thus, relatively simple contracts may guide fairly complex transactions as the contracts are modified and renegotiated over the course of the relationship.

²⁰ See J. Barkley Rosser, Jr., *On the Complexities of Complex Economic Dynamics*, 13 J. ECON. PERSP. 169, 170 (1999).

²¹ There have been several attempts by legal scholars to analyze the complexity of laws, as opposed to the complexity of contracts. See Eric Kades, *The Laws of Complexity and the Complexity of Laws*:

A contract is complex along the first dimension if it is rich in state contingencies; that is, it assigns a *different payoff* for each of a large number of future states of the world, where those states may include the actions taken by the parties. For any given future state of the world, the contract will typically specify both the parties' obligations and their entitlements. The value of the entitlements net of obligations is a party's payoff. We exclude payoffs that are specified in the contract but are contingent on events that are not expected to occur. Thus, the relevant criterion of complexity is the *expected* number of relevant contingencies. This will be a function of the total number of contingencies and the likelihoods with which they materialize. Thus, a contract with three equally likely contingencies is more complex than one with two equally likely contingencies. And for contracts A and B, both with two contingencies, B is more complex than A if its contingencies occur with probability of 50%, and A's contingencies occur with probabilities of 90% and 10%.²²

A contract is complex along the second dimension if it results in a high degree of *variability of payments* that one party will make under different contingencies, independent of the number of contingencies. Compare two employment contracts for a salesperson, which anticipate that the employee may be able to sell a lot of widgets, or only a few, depending on the employee's level of effort and the conditions in the market. The first contract guarantees that the employee will earn between \$900 and \$1,000 per week, while the second contract guarantees that the employee will earn between \$0 and \$20,000 per week. In both cases, the actual payment depends on the number of sales, observable market conditions, and so forth. Even if each contract anticipates the same expected number of future contingencies and the same expected payoff, the second contract is more complex than the first contract, because the outcomes will be more variable, and this will generally make it worthwhile for the parties to engage in more variable behavior.²³

The Implications of Computational Complexity Theory for the Law, 49 RUTGERS L. REV. 403 (1997); Louis Kaplow, *A Model of the Optimal Complexity of Rules*, 11 J.L. ECON. & ORG. 150 (1995); Peter H. Schuck, *Legal Complexity: Some Causes, Consequences, and Cures*, 42 DUKE L.J. 1 (1992). Their definitions of complexity overlap with ours, but the focus of their arguments is very different.

²² We propose the following metric for this dimension of complexity: (1) Order the future states of the world specified in the contract according to decreasing probability of occurrence, with the most likely state labeled 1, the second most likely state labeled 2, and so on; (2) multiply the numerical label for each state by the ex ante probability of that state materializing, and sum over all states. The resulting weighted sum is a useful ordinal proxy for the complexity of the contract in terms of expected number of contingencies. To illustrate, consider contracts A and B above. A's score would be $1*(0.9) + 2*(0.1) = 1.1$, whereas B would score $1*(0.5) + 2*(0.5) = 1.5$. Contract C, with three equally likely states would score $1*(0.33) + 2*(0.33) + 3*(0.33) = 2$, and would be more complex than B. When states are equally likely to occur (as in contracts B and C), one can flip a coin to determine which is labeled "more likely"; the result will be unaffected. The complexity comparison is more challenging when the contract with more states has a less even distribution of likelihood among states. The first factor suggests it is more complex, the second factor that it is less complex. Some quantitative measure, such as our formula, must balance the two.

²³ Payment variability will have a greater impact on contract complexity when contracting parties have more discretion to change or tailor behavior in response to that variability. If risk aversion is a

A contract is complex along the third dimension if it imposes a significant *cognitive load* on the parties; that is, if it is difficult to understand. Additional contingencies raise the cognitive load. Evaluating the likelihood of different contingencies arising, or even worrying about how to determine which contingency did arise, requires mental effort. To this extent, cognitive load overlaps with the other dimensions of complexity. But cognitive load denotes something more. A detailed schedule of payment amounts (each correlated to a different state of the world) will be more difficult to understand than a simple payment formula (for example, a 25% commission). And a payment of \$X per widget will impose less cognitive load than an otherwise identical contract that bases payment on a fraction of profits, which may be difficult to calculate. Thus, apart from the number of contingencies and the variability of payoffs, the formulation of the terms may entail different levels of complexity in terms of cognitive load.²⁴

TABLE 1: DIMENSIONS OF COMPLEXITY

DIMENSION OF COMPLEXITY	EXAMPLE OF SIMPLE CONTRACT	EXAMPLE OF COMPLEX CONTRACT
Number of contingencies	"widget for \$1"	"widget for \$1 if it rains, but for \$2 if it does not rain"
Variability of payoffs	"widget for \$1 if it rains, for \$2 if it does not rain"	"widget for \$1 if it rains, for \$10 if it does not rain"
Cognitive load	"widget for ½ of your profits"	"widget for 15% of your profits beyond a normal return"

With this three-component definition (for examples, see Table 1), some contracts that appear simple are actually complex. For example, some employment contracts appear simple, because their terms are limited to wages, hours, and the like, but in fact they are complex. They are complex because they incorporate an employment manual, which contains numerous provisions that are likely to be applied to the actual relationship and are enforceable through reputation or legal sanctions that result in variable payments and that are hard to understand. On the other hand, many contracts that look complex are really simple. Many simple sales contracts include lengthy boilerplate provisions, which neither party expects to apply with

concern, variability should be measured on some scale relative to the parties' wealth, as a gauge of their concern with it.

²⁴ Of course, what person A finds cognitively challenging may seem straightforward to B, and vice versa. In some circumstances A and B may enter into a contract of such complexity that neither fully understands all of its details.

any significant probability. As a result, such boilerplate provisions do not affect payments, and no one bothers to try to understand them.

B. Completeness

It is important to understand the relationship between completeness and complexity. In the economics literature, a contract is complete when it differentiates among all relevant future states of the world, and a third party, such as a court, can verify, when necessary, which state has occurred. As a matter of theory, one can talk about contracts being fully state-contingent, allocating obligations efficiently for *every* payoff-relevant future state of the world.²⁵ We term contracts that are optimally state-contingent as “perfectly complete” or “p-complete” contracts. The analogy is to the economist’s world of perfect markets, within which information is said to be perfect or fully shared. Contracts that are not p-complete are said to be “p-incomplete.” For example, a contract is p-incomplete “if the parties would like to add contingent clauses, but are prevented from doing so by the fact that the state of nature cannot be verified (or because states are too expensive to describe *ex ante*).”²⁶ Contracts may also be p-incomplete when there is asymmetric information between the contracting parties, or when other considerations, such as maintaining trust, make fully elaborated terms undesirable.

To understand the idea of perfect completeness, imagine that a seller wishes to sell a widget to a buyer. When delivery occurs, the widget will be worth either \$80 or \$50 to the seller, the two outcomes being equally likely, and will be worth \$75 to the buyer. A p-complete contract would specify the seller’s obligations under both future states of the world: perhaps the seller would be obliged to deliver if the widget is worth \$50 to her, and to refund the buyer’s money if the widget is worth \$80 to her.²⁷ If, however, the seller’s valuation is unverifiable (for example, because neither the buyer nor any third party can directly observe and verify the seller’s valuation), then the contract would have to be p-incomplete. It might oblige the seller to deliver the widget independent of her valuation. In practice, much payoff-relevant information is unobservable to one or more parties to a transaction or, even if observable, not verifiable by a third party, such as a court. Given these informational and verifiability constraints, most, if not all, real-world contracts are p-incomplete.

²⁵ See Alan Schwartz, *Incomplete Contracts*, in 2 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 277 (Peter Newman ed., 1998) [hereinafter Schwartz, *Incomplete Contracts*]; George G. Triantis, *The Relevance of Unforeseen Contingencies in Commercial Contracting*, in THE ENCYCLOPEDIA OF LAW AND ECONOMICS (Boudewijn Bouckaert & Gerrit De Geest eds., 2000).

²⁶ Oliver Hart & John Moore, *Foundations of Incomplete Contracts*, 66 REV. ECON. STUD. 115, 134 (1999). We use the term “p-incomplete” to stress its meaning, the absence of p-completeness. The term “perfectly incomplete,” which we do not use, misleadingly suggests that the contract has no terms!

²⁷ In this paper we use “he” for party A, employers and buyers, and “she” for party B, employees and sellers.

A contract is “functionally complete,” or “f-complete” when it performs as well as it can subject to constraints on the participants’ abilities to distinguish states and the court’s ability to verify which state occurred. A state is said to be *distinguishable* when all parties can verify its occurrence. In this framework, a contract is f-complete if all distinguishable states are optimally differentiated (*i.e.*, differentiated in the way that the p-complete contract would differentiate them). Hence, only nondistinguishable states are lumped together. Perfect completeness is a subset of functional completeness; all p-complete contracts are f-complete, but not vice versa. The reverse implication is that all f-incomplete contracts are p-incomplete, but not vice versa. Functional completeness—a more inclusive, less stringent, and more real world concept than p-completeness—is closer to what most non-economists mean when they describe a contract as complete.

We illustrate our completeness concepts by considering a contract for the sale of a widget. There is a critical uncertainty about the future, *i.e.*, multiple states of the world may occur, which allows for the possibility that an incomplete contract could be drawn. The uncertainty is whether the widget is cheap or expensive to produce, which also affects the value of the widget to the buyer. If the widget proves cheap to make, it will also be cheap for the buyer’s competitors to get an equivalent widget, and will offer the buyer little competitive advantage, and vice versa if it is expensive. Either a normal or a premium widget could be produced, the latter being both more beneficial to the buyer and more costly to the seller. The costs to the seller of producing the widget and the profit gains to the buyer are shown in Table 2 below.

TABLE 2: PAYOFFS FROM DIFFERENT WIDGET TYPES, TO ILLUSTRATE P- AND F-COMPLETE CONTRACTS

STATE OF THE WORLD		WIDGET TYPE		
	Prob.		Normal	Premium
CHEAP	½	Cost to Seller	4	7
		Profit Gain to Buyer	6	8
EXPENSIVE	½	Cost to Seller	10	15
		Profit Gain to Buyer	12	20

At the time the contract is drawn, both parties think that the widget is 1/2 likely to be cheap to produce and 1/2 likely to be expensive. Unfortunately, a court would be unable to determine whether the widget was cheap or expensive. The p-complete contract, however, assumes all information is monitorable and verifiable. It simply computes the optimal decision for each state of the world. Hence, it will require a normal widget if cheap (because $6-4 > 8-7$), and a premium widget if expensive (because $20-15 > 12-10$). There is a range of prices for the p-complete contract, which allow both

parties to benefit. If prices are set to divide the net benefits, the price will be 5 for the standard widget and 17.5 for the premium widget.

The f-complete contract, unfortunately, cannot let price (or for that matter quantity) depend on whether the widget is cheap or expensive, since that information is not verifiable by the court. The cheap state of the world and the expensive state of the world are not *distinguishable*. Moreover, there is no additional price for the premium widget that will get the seller to provide it in appropriate circumstances.²⁸ The f-complete contract is computed taking account of the likelihoods that costs will be cheap or expensive. The expected costs of a standard widget will be $(1/2)4 + (1/2)10 = 7$, yielding an expected benefit of $(1/2)6 + (1/2)12 = 9$. The premium widget incurs expected costs of $(1/2)7 + (1/2)15 = 11$, and yields expected benefits of $(1/2)8 + (1/2)20 = 14$. Since $14 - 11 > 9 - 7$, the f-complete contract calls for a premium widget. The price will be somewhere between 11 and 14, so that both parties benefit. The contract is not state-contingent, *i.e.*, it does not make the seller and buyer's obligations contingent on whether the state of the world turns out to be one in which the widget is cheap or expensive.²⁹

Let us relate these results to our complexity discussion. Using our definitions of complexity and functional completeness, contracts can be divided into four categories, as illustrated in Table 3 below:

TABLE 3: COMPLEXITY AND FUNCTIONAL COMPLETENESS OF CONTRACTS

	F-COMPLETE	F-INCOMPLETE
SIMPLE	A	B
COMPLEX	C	D

A simple and functionally complete contract (A) would contain explicit terms that did not vary across many different future states, because such variation was not necessary to efficiency (perhaps because the environment was simple or most relevant distinctions between states were nonverifiable). A complex and f-complete contract (C) would contain different terms for many future states, or sets of states when they cannot be distinguished, with terms covering obligations for every distinguishable set of states that merits

²⁸ If the price difference is greater than 3, she will provide the premium widget in the cheap state. If it is less than 5, she will not provide it in the expensive state. Both of these outcomes are inefficient. Hence, the price must simultaneously be 3 or less and 5 or greater, which is impossible.

²⁹ For an example of an f-incomplete contract, imagine that there is a third state, under which both normal and premium widgets are *very* expensive, and that this state is distinguishable from the other two (nondistinguishable) states. An f-complete contract would contain different obligations for the cheap and expensive set of states, on the one hand, and for the very expensive state, on the other; an f-incomplete contract would not distinguish the very expensive state from the other two states.

distinctive treatment. A simple and f-incomplete contract (B) would contain few terms and these would fail to apply to some verifiable future states. A complex and f-incomplete contract (D) would contain many terms, but these would nonetheless fail to differentiate among some distinguishable future states that merit distinctive treatment. This shows that completeness and complexity measure separate dimensions of a contract; one is not reducible to the other.³⁰

Note that in practice one might not be sure whether a general statement was supposed to apply to any future state, to apply only to a few future states, or to exclude only a few future states. This is a recurrent problem in contractual interpretation. As a result, it may sometimes be difficult to decide whether a simple contract is f-complete (its few terms apply to all distinguishable states) or is f-incomplete (its few terms apply to only a few distinguishable states).³¹

C. Optimality

From the parties' point of view, a contract is optimal if it assigns obligations efficiently across all possible future states. Thus, in the absence of transaction costs, only a p-complete contract can be optimal; a p-incomplete contract cannot be optimal unless there are constraints on contracting. Once such constraints arise, what economists label a first-best outcome will no longer be achievable. Second-best optimality—the best that can be done subject to constraints—becomes the Holy Grail. In such circumstances, the optimality of a contract will require a balance between *transaction costs* and

³⁰ In the example given in Table 2, the p-complete contract involves more states of the world (2) than the f-complete contract (1), but has less variable net payoffs to the players, and is simpler to specify, *i.e.*, imposes less cognitive load at the drafting stage. Thus, p-complete contracts will often be more complex on our first dimension, number of relevant states, since more states can be distinguished. They will generally be less complex on our third dimension, since f-complete contracts involve consideration of the probabilities of alternative states that are nonverifiable both in drawing the contract and in deciding how to act under the contract. As more states are added, p-complete contracts remain conceptually simple; they merely compute what is best for each possible state. By contrast, f-complete contracts can become extremely complicated, possibly because each player has to draw inferences about the likelihood of alternative states from the actions of the other.

³¹ We emphasize that it is important to judge a contract relative to the contracting environment. Consider a world in which there are three Environments, 1, 2, and 3, ranked in order of increasing complexity. In Environment 1, a simple single clause in a contract will be sufficient to cover obligations efficiently 100% of the time; in Environment 2, the same contract will cover obligations 99% of the time; and in Environment 3 that contract will cover obligations only 20% of the time. A contract that includes only a single simple clause can be p-complete (and therefore f-complete) in Environment 1—*i.e.*, it would be a type "A" contract in Table 2. In the other two Environments, such a contract would necessarily be p-incomplete. Nevertheless, the single clause contract is closer to complete in Environment 2 than it is in Environment 3. A complex contract, which would add multiple clauses to the simple one, could be p-complete in any of the Environments, although the complexity would be useless in Environment 1. Thus, both completeness and complexity fall along a continuum, and for both concepts it is important to judge a contract in expected value terms (*i.e.*, weighting contingencies by their *ex ante* probabilities).

losses due to contracting inefficiency.³² For example, given the positive transaction costs of drafting complex clauses, a simple contract, rather than a complex one with many unimportant details, will be optimal in a simple environment. Reputation and trust may be efficient substitutes for the complex clauses that are valuable in more complex environments. Under these circumstances, an f-complete contract and even, we will argue, an f-incomplete contract may be optimal. Later in this paper we explore in greater detail the circumstances that can make simple contracts optimal. First we discuss why scholars have usually assumed that complex contracts are optimal.

D. The Theoretical Basis for Contractual Complexity

The puzzle that motivates this paper is that a large and sophisticated body of work, primarily produced by economists, implies that contracts should be complex, whereas in fact they are generally simple.³³ According to this literature, there are two main reasons why contracts should be complex. We discuss these reasons, then add a third of particular interest to legal audiences.

First, contracts should be complex because of uncertainty about the contractual environment.³⁴ When parties enter a contract, they allocate obligations across different possible states of the world, and the number of possible states of the world is infinite. Suppose that a seller values a widget at \$100, and the buyer values the widget at \$200. They should enter a contract to exchange the widget for some amount between \$100 and \$200. However, suppose that in one possible future state of the world the buyer values the widget at only \$50. Then the optimal contract would stipulate that the buyer does not have to buy the widget if that state occurs. If, in another possible future state of the world, the seller values the widget at \$250, in that state the seller should not have to deliver the widget. Rather than a simple contract, according to which the parties agree to exchange the widget for a sum of money, efficiency requires a complex contract that releases one or both parties from their obligations if certain future states prevail. As more possible future states get taken into account, the optimal contract becomes even more complex. For example, if one or both parties can increase the value of the contract by making certain investments or taking certain precautions, the optimal contract would stipulate that the parties must make

³² See OLIVER E. WILLIAMSON, *THE ECONOMIC INSTITUTIONS OF CAPITALISM* (1985); Ronald H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386-405 (1937). Transaction costs are frequently seen as the primary or even sole reason for contractual incompleteness. See Schwartz, *Incomplete Contracts*, *supra* note 25, at 280. To the extent that some terms may become verifiable at a given cost, whether a contract is functionally complete may also depend on transaction costs.

³³ See OLIVER HART, *FIRMS, CONTRACTS, AND FINANCIAL STRUCTURE* 5 (1995); JEAN-JACQUES LAFFONT & JEAN TIROLE, *A THEORY OF INCENTIVES IN PROCUREMENT AND REGULATION* (1993); BERNARD SALANIE, *THE ECONOMICS OF CONTRACTS* 128-29 (1997).

³⁴ A general discussion, with citations to the large literature, can be found in DAVID M. KREPS, *A COURSE IN MICROECONOMIC THEORY* ch. 16 (1990).

those investments or take those precautions in different states of the world. None of these complexities would be necessary if the parties could predict the future with certainty. The contract would simply state the appropriate allocation of obligations for the predicted future state.

Second, complexity in a contract is often an appropriate response to information asymmetry and monitoring difficulties. Suppose that an employer hires a person to sell widgets. If the employer could observe the amount of effort that the employee uses when selling widgets, an acceptable contract might be very simple: a fixed payment if the employee engages in the appropriate level of effort, and nothing otherwise. But usually the employer will not be able to observe effort directly, and the outcome of the employee's effort (the number of widgets sold) might be a product of chance as well as effort. In such a case, the optimal contract will generally specify different levels of compensation depending on the number of widgets sold.³⁵ The employer and employee might agree that if a large number of widgets is sold, the employee will receive a large sum, and if a small number of widgets is sold, the employee will receive a small sum. Thus, the optimal contract becomes more complex. If the employee is risk-averse, or has hidden characteristics that the employer wants to screen, the contract may become still more complex, as it will have to provide for risk-sharing and possibly terms that make the contract unattractive for potential employees with undesirable characteristics.³⁶

The third explanation for contractual complexity is as a response to government policy, what we will call "political economy." Parties frequently enter complex and convoluted contracts in the hope of avoiding tax liability, or other forms of liability such as responsibility for environmental harm. To ensure a profit despite interest-rate ceilings created by usury laws, lenders may require payment in the form of points or fees, or they may reconfigure contracts as leases or conditional sales. To maintain an acceptable level of risk despite restrictions on coercive remedies,³⁷ lenders may insist on a contract that specifies how the borrower operates its business or uses its assets while the loan remains unpaid. These gambits require additional terms, hence additional complexity. The common-law suspicion of arbitration may have discouraged parties from using simple contracts that use terms of art accessible to arbitrators rather than complex contracts with lengthy provisions needed to instruct courts. Still other examples of complexifying doctrines are the parol evidence rule, which bars courts from enforcing promises made during precontractual negotiations, and the plain meaning rule, which bars courts from using evidence from precontractual negotiations for the purpose of interpreting contracts. Because these rules

³⁵ See, e.g., ANDREU MAS-COLELL, ET AL., *MICROECONOMIC THEORY* ch. 14 (1995).

³⁶ See *id.*

³⁷ See, e.g., Federal Trade Commission, 16 C.F.R. § 444 (2000) (prohibiting certain contractual provisions that facilitate collection of debts).

harm parties who fail to put all terms in writing, they encourage parties to write more detailed and complex contracts.³⁸

Contract doctrines do not always push toward complexity. Certain doctrines of contract law may penalize sophisticated parties that draft complex contracts. The unconscionability doctrine and related doctrines are used to strike down contracts that are too complicated for consumers to understand.³⁹ These doctrines are also sometimes applied to contracts involving two sophisticated parties.⁴⁰ Contract drafters might respond by issuing simple contracts that are inefficiently p-incomplete but that will not provoke the ire of a court.⁴¹ Similar points can be made about other areas of the law. Labor law prevents workers from negotiating individual contracts that are different from, and possibly more complex than, the collective bargaining agreement.⁴² Employment laws governing hours, pay, and benefits reduce the dimensions along which parties can negotiate different terms. Mergers might be simplified in order to make the deals transparent to the regulators and shareholders who must approve them. Nevertheless, concerns about regulatory authorities and judicial interpretation of contracts will often produce complex contracts.

All these considerations raise the question at the heart of our inquiry: Why are contracts in general simpler than the discussion of uncertainty, asymmetry of information, and political economy above suggests they should be?

³⁸ By contrast, in areas where these rules are liberally construed, parties can enter simple contracts on the assumption that courts will complete the contract by deriving optimal terms from precontractual evidence. Of course, this assumes that the parties think that courts will do a good job. If they think courts are likely to misunderstand the precontractual negotiations, they will add merger clauses, which state that no precontractual promises are enforceable.

³⁹ The classic case is *Henningsen v. Bloomfield Motors, Inc.*, 161 A.2d 69 (N.J. 1960) (striking down a warranty disclaimer in part because it was hard to understand).

⁴⁰ See, e.g., *Gianni Sport Ltd. v. Gantos, Inc.*, 391 N.W.2d 760 (Mich. 1986) (holding unconscionable a termination clause in a contract between two merchants).

⁴¹ An expert on doing business in Argentina advises American business that "relatively sophisticated" Argentine buyers are likely to "prefer to sign complicated documents in English rather than a simple draft," because "if a detailed and complex English contract is used for a sale, the buyer can easily claim a lack of understanding of the contract," and thus be able to escape liability for breach in Argentine courts. Lewis Flax, *Handling Credit and Collection Issues When Exporting to Argentina*, in *MANAGING INTERNATIONAL CREDIT AND COLLECTIONS 1* (May 1999).

⁴² Such provisions protect the power of unions and make it difficult for employers to differentiate among employees in ways that would undermine solidarity. For example, they prevent an employer from offering the better employees a superior contract, which would reduce the bargaining power of the union for the worse employees.

III. WHY CONTRACTS ARE SIMPLE

A. Lack of Environmental Complexity

We pointed out above that environmental complexity is a main reason for contractual complexity. It follows that a simple environment will produce simple contracts. Although this may seem to be an obvious point, it has an important implication. Suppose that a court is faced with two different contracts that appear to have the same level of simplicity. If one contract emerged from a simple environment while the other contract emerged from a complex environment, then it is possible that, even though the contracts appear equally simple, the first contract is f-complete while the second contract is not. This, in turn, has implications for how the court should enforce the contract.

As an example, compare a requirements contract—a contract in which a seller promises to supply all the requirements of a buyer—with a one-time sale of goods. Both kinds of contract specify a price that the buyer must pay, and both kinds of contract provide either a quantity or a manner for determining quantity, so they may appear equally simple. But the requirements relationship is much more complex than a one-time sale. As time passes, the seller's costs and the buyer's needs change in complicated and unpredictable ways. Although a p-complete requirements contract would contain multiple terms to govern these alternative states, real requirements contracts often say nothing about them. Thus, two contracts with similar levels of simplicity may reflect different levels of completeness, the difference being attributable to the different levels of complexity in the environment.

As this example illustrates, contracts of similar complexity may be produced in environments of different complexity. But the level of environmental complexity, although important, does not by itself determine the level of complexity of a contract. To understand why contracting parties choose simpler or more complex contracts, and how the chosen contract corresponds to what would be optimal, we need to consider other factors.

B. Negotiation Costs

In the legal literature, the standard explanation for the f-incompleteness of contracts is that during negotiations parties cannot anticipate all contingencies; when they anticipate a contingency, it may be expensive to agree on the allocation of obligations if that contingency occurs; and even if they can agree, it may be difficult to formulate orally or write down a term that would properly reflect this allocation. Given these "negotiation costs," parties will rationally enter legally enforceable contracts that are full of

gaps, because the negotiation costs exceed the additional value that a more f-complete contract would confer on the parties.⁴³

This explanation for contractual gaps can be carried over to our inquiry into contractual simplicity. A contract may be simple because negotiation costs prevent parties from specifying detailed contingencies, determining an appropriate distribution of payments, or calculating difficult compensation formulas.

That negotiation costs can be an important determinant of contract form is illustrated by cases involving low-probability contingencies. Several such cases arose after an international incident resulted in the closing of the Suez Canal, which led to large, unanticipated increases in the cost of shipping goods between East Asia and the West under existing contracts.⁴⁴ The contracts did not contain clauses that allocated obligations in the case of closure of the Suez Canal because no one anticipated that the Suez Canal would be closed. It is possible, however, that if parties had invested enough money in anticipating low-probability contingencies, they would have included a clause covering this contingency. In this way negotiation costs led to contractual simplicity (as well as f-incompleteness), which in turn resulted in legal disputes.

When negotiation costs are high relative to the value of a transaction, parties will not find it worthwhile to negotiate complex terms. For idiosyncratic transactions, the resulting contracts are likely to be simple. On the other hand, when there are many parties on one side of the contract (such as consumers checking into a hotel or trying a new phone service), economies of scale and market discipline may allow complexity. The firm will invest in detailed terms because the contract governs transactions that have great value in aggregate. Although negotiation costs would preclude any one consumer from negotiating detailed terms, "the many" can take comfort from the assumption that the more assiduous among them have examined the detailed industry contract and found it acceptable.⁴⁵

Despite the importance of negotiation costs, they have a limited ability to explain contractual simplicity. Often two parties will have plenty of time and capacity to write detailed contractual terms, but choose not to do so. This has led several authors to argue that additional reasons are necessary for contractual p-incompleteness,⁴⁶ and we make the same argument about contractual simplicity.

⁴³ See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 104-05 (5th ed. 1998); Steven Shavell, *Contracts*, in 1 *THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW* 436, 438 (Peter Newman ed., 1998); Ronald A. Dye, *Costly Contract Contingencies*, 26 *INT'L ECON. REV.* 233, 234 (1985).

⁴⁴ See, e.g., *American Trading & Prod. Corp. v. Shell Int'l Marine Ltd.*, 453 F.2d 939 (2d Cir. 1972).

⁴⁵ See Alan Schwartz & Louis Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 *U. PA. L. REV.* 630 (1979).

⁴⁶ See HART, *supra* note 33, at 5; Schwartz, *Incomplete Contracts*, *supra* note 25, at 280. As a result, complex contracts should be associated with thin markets. When markets are robust, (1) parties have less uncertainty about the nature of goods and services, which are standardized; and (2) parties rely

C. Asymmetric Information

One party to a contract frequently has more information about future states of the world than does the other party. This is known as "asymmetric information." Suppose that the informed party can predict a future state, propose a jointly beneficial allocation of obligations in that future state, and reduce that proposal to a clear and coherent term in the contract at low cost. It follows that negotiation costs do not prevent the parties from adding that term to the contract. Yet the informed party might decline to add the term to the contract, with the result that the contract is simpler than it would otherwise be. There are several reasons for this behavior.

One reason is that by proposing the term the informed party might reveal information to the other party that it wants to keep secret. Consider an example based on the case of *Hadley v. Baxendale*.⁴⁷ If a shipper demands a warranty from a carrier, the carrier might realize that the shipper places a high value on the shipment. If the carrier has market power, it can charge a high price. To avoid being victimized by such price discrimination, the shipper opts for the standard contract offered by the carrier, which is simpler because it does not contain a warranty.⁴⁸ Appropriate default rules might discourage such behavior, but there is little reason to think that the behavior can be avoided altogether.⁴⁹ Simplicity, then, is the result of strategic concealment of information.⁵⁰

For another reason why an informed party might not reveal information, imagine an employer and employee trying to agree on an appropriate commission rate for sales. If the original or industry reference commission rate is 25%, then the employee might suspect that an employer proposing a 40% commission rate above some floor sales level knows that low sales are likely. Similarly, if the employer proposes to stay with the flat 25% commission rate although higher rates above a floor have been discussed or used previously, the employee may suspect that the employer expects sales to be high. The

less on each other because the market provides close substitutes, so they need not insert multiple terms in the contract in order to protect themselves against opportunism.

⁴⁷ 9 Exch. 341 (1854).

⁴⁸ But not necessarily: an apparently simple contract, with say one term, might be complex because the environment is highly variable, so payoffs vary greatly as well. It is possible (even likely) that a contract with a second term would release one party (say, the uninformed party) when that party's payoff is extremely low. If so, the two-term contract is simpler along the payoff variability dimension even if more complex along the number of terms dimension. They are "complexity non-comparable."

⁴⁹ See Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87 (1989); Lucian Arye Bebchuk & Steven Shavell, *Information and the Scope of Liability for Breach of Contract: The Rule of Hadley v. Baxendale*, 7 J.L. ECON. & ORG. 284 (1991).

⁵⁰ A similar outcome results when parties are negotiating over the sale of technological information: "merely informing a potential buyer about one's product gives away a great deal of the benefit. Hence, information is shared alongside sheaves of nondisclosure agreements, and, even then, there is selective hiding of critical components. Frequently prototypes are demonstrated, but inner workings may be hidden, much as magic stores demonstrate an illusion but not its working mechanism." R.J. Zeckhauser, *The Challenge of Contracting for Technological Information*, 93 PROC. NAT'L ACAD. SCI. U.S. 12,743, 12,744 (1996).

employee will be less suspicious if the proposed contract is a standard contract, rather than one ostensibly tailored to today's individual circumstances, because a simple standard contract, which applies to heterogeneous circumstances, is less likely to exploit individualized asymmetric information about prospective sales. Therefore, asymmetry of information may lead parties to use equivalent contracts over a broad range of circumstances, even though optimality would require heterogeneous and context-specific contracts.

Asymmetric information is also important because it causes parties to establish monitoring mechanisms and special institutional arrangements such as trust-based relationships, and these devices have an independent impact on the simplicity of contracts. We discuss them in subparts II.D and II.G, below.

D. Monitoring Dynamics

As we noted earlier, in a simple agency model with a single risk-averse agent performing a single task in a complex environment, the optimal contract is complex. However, many contracts do not fit this model. A well-known example involves an agency relationship where the agent must engage in two tasks, one of which cannot be monitored and the other of which can be monitored imperfectly. The model shows that the optimal contract might be quite simple, requiring the payment of a fixed sum to the agent upon completion of the task. "The desirability of providing incentives for any one activity decreases with the difficulty of measuring performance in any other activities that make competing demands on the agent's time and attention."⁵¹ The principal-agent model of "multitasking," therefore, illustrates how monitoring difficulties (which are the result of asymmetric information) can push toward contract simplicity.

For example, suppose that a firm hires a contractor to repair some machinery. The firm wants the machinery repaired carefully and it wants the machinery repaired quickly, but the firm can accurately monitor only the speed of repair. The problem with a complex contract that makes compensation a function of the speed of repair is that it would encourage the contractor to repair the machinery quickly but sloppily. A simpler contract that paid the contractor a fixed fee would, under certain assumptions, give the contractor better incentives.⁵² So sometimes simplicity is the best response to

⁵¹ Bengt Holmstrom & Paul Milgrom, *Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design*, 7 J.L. ECON. & ORG. 24, 26 (1991).

⁵² See *id.* Bajari and Tadelis, *supra* note 12, seek to explain the prevalence of simple cost-plus and fixed-price contracts, and the rarity of more complex incentive contracts, drawing on evidence from the private construction industry. They argue that a fixed-price contract offers the advantages of giving better incentives for cost control and not requiring the buyer to monitor costs, but has the disadvantage of leading to friction from renegotiation when changes are required. A cost-plus contract, by contrast, is advantaged for allowing smooth adjustment to changes, but disadvantaged by requiring that the buyer monitor costs and giving the seller little incentive for cost control. Given the "lumpiness" of fixed costs associated with any deviation from pure cost-plus or pure fixed-price contracts, simple extreme contracts are preferred, over a wide range of circumstances, to more complex, intermediate incentive contracts.

a complex environment with informational asymmetry. Examples include employment contracts for professors⁵³ and for many other professionals.

Monitoring dynamics might also push toward simplicity when a single principal has multiple agents. Employers often decline to offer individualized contracts to each employee, instead using general contracts that do not differ among employees as much as the standard agency model predicts. One reason that employers do this may be that when employees have different complex contracts, they have trouble determining whether the employer fulfills his promises to each employee, while the employer wants to be able to maintain a reputation for doing just that.⁵⁴ A similar argument can be made when a single *agent* (such as a real estate agent) has multiple *principals*, and fears that individualized contracts might lead principals to believe that the agent is shirking in one relationship (the sale of a cheap house) in order to devote more time to another relationship that is more lucrative (the sale of an expensive house).⁵⁵

In addition, employers may offer simple equal wage schedules, rather than the complex incentive contracts recommended by agency theory (such as pay based on comparative performance), to prevent competition among employees where it might prove detrimental. If employers do not know what level of output to expect from their workers, theory suggests it may be optimal to conduct a contest, and pay employees on a comparative performance basis.⁵⁶ This theory implicitly assumes that cooperation does not promote output. When cooperation is important, a simple wage schedule may promote it, whereas contests could even lead to sabotage. Edward Lazear argues, for example, that one reason why workers and firms agree on simple equal wage schedules, rather than highly differentiated wage contracts contingent on worker performance, is that pay inequality discourages cooperative behavior when there is an element of relative performance evaluation:

⁵³ A university and a faculty member typically do not contract on all of the verifiable aspects of their relationship, partly to induce good behavior along nonverifiable dimensions, such as faculty effort: "the extensive degree of incompleteness in the specification of the university's obligations to the faculty member (e.g., secretarial support, office location, current and future salary) arises from the need to encourage the faculty member's effort. With a complete contract, the faculty member would have recourse to the courts if the university reneged on its contractual obligations, but the university would have no recourse if the faculty member shirked [since effort is nonverifiable]. Giving the Dean discretion helps to create appropriate incentives . . . and the overall relationship works better (joint surplus is increased)." B. Douglas Bernheim & Michael D. Whinston, *Incomplete Contracts and Strategic Ambiguity*, 88 AM. ECON. REV. 902, 904 (1998).

⁵⁴ See David Kreps, *Corporate Culture and Economic Theory*, in PERSPECTIVES ON POSITIVE POLITICAL ECONOMY (J. Alt & K. Shepsle eds., 1990); for evidence, see Baker et al., *supra* note 14, at 953.

⁵⁵ See Saul Levmore, *Commissions and Conflicts in Agency Arrangements: Lawyers, Real Estate Brokers, Underwriters and Other Agents' Rewards*, 36 J.L. & ECON. 503 (1993).

⁵⁶ See J. Green & N. Stokey, *A Comparison of Tournaments and Contests*, 91 J. POL. ECON. 349 (1983); Bengt Holmstrom, *Moral Hazard in Teams*, 13 BELL J. ECON. 324 (1982); B. Nalebuff & J. Stiglitz, *Prices and Incentives: Towards a General Theory of Compensation and Competition*, 14 BELL J. ECON. 21 (1983); Mary O'Keefe et al., *Economic Contests: Comparative Reward Schemes*, 2 J. LAB. ECON. 27 (1984).

"If harmony is important, pay compression is optimal on strict efficiency grounds."⁵⁷ Since most employee compensation arrangements involve some element of comparative performance measurement, simple employment contracts should be common.

E. Evolutionary Pressures and Forms

When parties are symmetrically but poorly informed about future states of the world, they might rely on simple form contracts rather than negotiating complex contracts from scratch. The parties rely on the form contract, and do not vary it, because they assume that the form contract, even if simpler, is closer to the optimal contract than their own personalized, complex contract would be. The form contract is attractive because it reflects the accumulated wisdom of parties who have used the contract in the past. And, as discussed in subpart III.G. below, the use of the standard contract also engenders trust relative to the back-and-forth of negotiating terms favorable to one party or the other that a personalized contract would require.

But why wouldn't the form contract be complex? It might be, but there are evolutionary pressures that favor simplicity. There are two steps to the argument. First, observe that the process of agreeing to a set of contractual terms is a coordination game, in the sense that each party might be indifferent among a range of contractual terms and want only to avoid the costs from failing to agree on the same ones. For example, a seller and buyer might be indifferent between (1) a contract that has a price of \$100 and stipulates the law of state X in case of dispute, and (2) a contract that has a price of \$99 and stipulates the law of state Y in case of dispute. To avoid negotiation costs, each party may submit a form containing the terms that it favors. (Typically, the buyer will include its form with the order and the seller will include its form with the delivery.) If the forms do not match, the parties either must engage in costly negotiations to eliminate inconsistencies, or take the risk that if a dispute arises, a court would hold that the contract is invalid or enforce the other party's form. The result is a classic "Battle of the Sexes" game:

TABLE 4: COORDINATING ON FORMS
(Numbers are payoffs to Row, Column)

		COLUMN'S CHOICE	
		Row's form	Column's form
ROW'S CHOICE	Row's form	3, 2	1, 1
	Column's form	1, 1	2, 3

⁵⁷ Edward P. Lazear, *Pay Equality and Industrial Politics*, 97 J. POL. ECON. 561, 579 (1989).

The payoffs in Table 4 above assume that each party prefers its own form, but that both parties prefer coordination on a single form over a failure to coordinate.⁵⁸ Imagine that Row is one person, and Column represents any member of a group of others with whom Row does business. Row's problem is that it would like to use its own form, but it risks the worst payoff if others use their own forms when Row uses its own. And if Row adopts Column's form in the hope of avoiding the worst payoff, it might turn out that Column has chosen Row's form because it expects Row to choose its own form. Diverse solutions to this problem are available, but one clear solution is an industry standard form, which all parties would use.

The second step of the argument is to explain why this coordination game would lead to simple rather than complex standard forms. Suppose that at any particular time, many forms circulate as possible industry standards. When two merchants match up, each submits one of these forms. If the forms do not match, the parties incur a cost: either they must renegotiate or they take the risk that a court will refuse to enforce the contract, or will enforce the wrong form, if a dispute arises. Suppose further that the forms can differ along two dimensions: choice of law (X or Y), or choice of forum (A or B). A simple contract specifies only one dimension (choice of law); a complex contract specifies two. It follows that there are only two simple contracts (X or Y), while there are four complex contracts (XA, XB, YA, YB). If a merchant is not sure what forms are being used by other merchants, it may make sense to use a simple form because there are fewer degrees of freedom. If other merchants use simple forms, then the probability of coordination is reasonably high (1/2), even if both merchants choose at random. By contrast, if merchants use complex forms, the probability of coordination is low (1/4). If merchants use relatively simple forms in order to maximize the chance of coordination, then over time simple forms will prevail over complex forms. But there will be a lower limit for simplicity, below which the form will not contain enough information, or will be highly inefficient in catering to unusual circumstances. This lower limit on simplicity is likely to be stable over time.⁵⁹

Form contracts are common. Often, they are produced by trade associations; parties rely heavily on the form and make minor adjustments to suit their circumstances. At other times, a large business uses the same contractual form for multiple customers.⁶⁰ Another example of the wide reliance on

⁵⁸ Thus, we do not assume that the payoffs are necessarily symmetrical. For a discussion of the Battle of the Sexes, see ROBERT GIBBONS, *GAME THEORY FOR APPLIED ECONOMICS* 11-12 (1992).

⁵⁹ For a discussion of evolutionary arguments, see H. Peyton Young, *The Economics of Convention*, 10 J. ECON. PERSP. 105 (1996). Young argues that 50-50 division (for example, its prevalence in sharecropping contracts) can be explained by the fact that this rule is the unique *stochastically stable convention* (i.e., convention that is robust under small, persistent random shocks) under certain plausible circumstances.

⁶⁰ See Lisa Bernstein, *The Questionable Empirical Basis of Article 2's Incorporation Strategy: A Preliminary Study*, 66 U. CHI. L. REV. 710 (1999); Stewart Macaulay, *Non-Contractual Relations in Business*, 28 AM. SOC. REV. 55 (1963).

form contracts comes from oil drilling agreements. These contracts almost always involve two components: (1) a short (one to five page) deal memorandum, laying out the essential business features specific to the particular transaction; and (2) an operating agreement, modified only slightly from deal to deal, that runs twenty to thirty pages. Operating agreements come in several standard forms that differ by state (since oil laws differ among states).⁶¹

The common-law mirror image rule holds that a contract is not formed unless the offer and acceptance are identical.⁶² Section 2-207 of the U.C.C. holds that a contract is formed even if some terms differ.⁶³ Although the interpretation of these rules is shrouded in difficulties,⁶⁴ it is fair to say that courts are more likely to deny formation of a contract after an exchange of differing forms under the mirror image rule than under 2-207. This means that the cost of failure to coordinate is higher under the mirror image rule than under 2-207. Under the evolutionary story described above, the result is that parties have a weaker incentive to choose simple forms under 2-207 than under the mirror image rule, because the advantage of simple forms—that they facilitate coordination—is reduced. A testable implication is that, holding everything else equal (which may not be possible), forms used in commercial contracts are more complex (and less uniform) than forms used in noncommercial contracts.⁶⁵

F. Convention

Many nonlegal norms and conventions govern commercial life. Consider the convention of fairness. People seem to have an intuitive sense of how to divide an unexpected surplus or loss. Often, the fair result is to divide the surplus or loss in half. At other times, the fair result is to give a larger portion to one of the parties—for example, the party that contributed more, or the party that is in the more vulnerable position. Fairness conventions enable parties to rely on simpler contracts than they could in the absence of such conventions.

To understand how fairness conventions permit contractual simplicity, imagine that two parties plan to enter a long-term contractual relationship. The contractual environment is complex, and predicting certain future contingencies would be costly. When an unpredictable contingency occurs, it will generate a surplus or a loss that must be distributed in some way between the parties. If the parties gain from continuing the relationship, they

⁶¹ We are grateful to Malcolm Brachman, President, Northwest Oil Company, for this example.

⁶² See, e.g., *Langellier v. Schaefer*, 36 Minn. 361 (1887).

⁶³ U.C.C. § 2-207 (1998).

⁶⁴ See E. ALLAN FARNSWORTH, *CONTRACTS* 295-310 (1982).

⁶⁵ Another possibility is that courts do not deny formation under the mirror image rule, but instead assume that delivery is acceptance of the buyer's form, if the buyer's form differs from the seller's initial form. In this case, the choice between the rules probably does not matter at all, except that the complexity of 2-207 creates needless uncertainty.

will want to resolve the question of distribution as efficiently as possible, yet this goal is in tension with each party's desire to obtain as large a portion of the pie as possible. In the absence of a mechanism for resolving the question of distribution, the parties will waste time and money jockeying for a superior bargaining position, bluffing, and so on. One mechanism is a highly complex contract that allocates shares of the surplus or loss under as many future contingencies as can be identified and described. But the parties can avoid the costs of producing such a contract if they can rely on fairness conventions. Fairness might require that every surplus or loss should be divided in half (subject to explicit allocations in the contract). If such a convention prevails, the parties might rationally rely on the convention rather than aggressively bargain for a larger share of the distribution, because they anticipate that their fair share of the large pie will exceed any larger share of a smaller pie that they might obtain by aggressive bargaining. If this is the case, the parties can avoid the expense of a complex contract and rely on a simple contract instead.

For example, suppose that a landlord and a tenant enter a contract that provides for renegotiation of the rent after five years. At the end of those five years, the tenant is likely to value the premises more than any alternative tenant, creating the opportunity for the landlord and the tenant to divide a large surplus if they agree on a new price. The parties face the danger, however, that they will dissipate the surplus by jockeying for a superior bargaining position and delaying or threatening to end negotiations, or by failing to reach agreement so that the tenant must move. If, however, they both have a sense of what is a fair division of the surplus, this sense of fairness may provide a focal point around which they bargain, enabling them to reach agreement quickly.⁶⁶ Of course, the parties might enter negotiations with different or biased ideas of what is fair, and this would interfere with rather than promote a negotiated solution, but over time fairness conventions tend to converge.⁶⁷

G. Trust and Reputation

People almost always enter into contracts within a larger context of norms and nonlegal sanctions. Contractual relationships both reflect this larger context and independently contribute to or impede the creation of trust between the parties. For many reasons, trust and nonlegal sanctions encourage the formation of simple contracts.

One useful model of trust treats it as an attribute of relationships in which two parties in a repeated prisoner's dilemma cooperate rather than risk retaliation. These parties may share a general understanding of the obligations on both sides and the distribution of surpluses and losses, but they do not need to enter a complex contract governing these issues because they

⁶⁶ See THOMAS C. SCHELLING, *THE STRATEGY OF CONFLICT* 57 (1960) (defining focal point).

⁶⁷ See Young, *supra* note 59.

trust each other to refrain from acts that transfer value to themselves but shrink the size of the pie. They trust each other in part because they know that if one party cheats, the other party will retaliate by ending the relationship and possibly badmouthing the cheater's reputation. It is easy to see why these parties' contracts will be simple. Although there may be innumerable payoff-relevant states where an optimal contract would allocate obligations, as long as the payoffs in those states are relatively low compared to the payoff from continued cooperation, the threat of retaliation will deter opportunism, so allocations in these states need not be specified by contract. The contract need deal only with states in which the payoffs are very high, for it is in these states that the threat of retaliation may not deter a party from engaging in opportunism.⁶⁸ The shadow of the future can substitute for the fixed costs of designing complex contingent contracts. Reputational effects, combined with renegotiation as circumstances change, cannot support all efficient contracts (such as those with large up-front relationship-specific investments, which then become vulnerable to hold up), but they can go a long way toward explaining why simple contracts are not nearly as far from the optimum as standard economic models imply.⁶⁹

This point holds for multiple contracts, not just for a long-term contract. If a contractor is going to do a single job for a person, it may be important to specify what happens in a great range of contingencies. But if there are likely to be many jobs, a fixed price or hourly contract may do just fine, since a shared sense of fair play is what is likely to make the relationship go forward. If the initial round is unfair, subsequent payments may be adjusted so that both sides are happy.⁷⁰

⁶⁸ Recall also our earlier point that fairness norms or industry conventions will resolve conflicts over the distribution of surpluses as they are generated, obviating the need for complex terms that specify distributions in advance.

⁶⁹ Early work by Rubinstein and others on the simple principal-agent model showed that in the absence of discounting and with an infinite horizon to the agency relationship, a first-best solution (*i.e.*, simultaneously providing correct incentives and involving completely efficient risk sharing) is possible. Ariel Rubinstein, *An Optimal Conviction Policy for Offenses that May Have Been Committed by Accident*, in *APPLIED GAME THEORY* 406 (S. Brams et al. eds., 1979). The key insight is that with repeated outcomes, the principal can eventually infer the agent's hidden action (effort level) very closely from the average of past observations; with an infinite horizon, agent shirking will eventually be detected. Anticipating punishment when or if discovered engaging in moral hazard, the agent performs optimally from the beginning. This incentive would be lost if the relationship were based on a series of short-term contracts (for example, with different principals in each period), unless reputation effects are strong enough for the different principals all to become aware of the agent's previous behavior.

⁷⁰ For example, Director Steven Spielberg paid Tom Stoppard \$120,000 for helping to edit the screenplay for "Indiana Jones and the Last Crusade." When the film became a huge success, Spielberg sent Stoppard a \$1 million thank-you bonus. See Stephen Dubner, *Steven the Good*, *N.Y. TIMES MAG.*, February 14, 1999, at 38. Spielberg may have made the noncontracted additional payment simply because he is an honorable person, or because Stoppard is a friend; but in any case such payment helps to maintain a reputation for trustworthiness that encourages mutually beneficial long-term relationships. (Indeed, when questioned about the nature of his character, Spielberg responded by starting to recite the Boy Scout moral code: "I'm trustworthy, I'm loyal . . ." *Id.*)

For certain types of contracts that are complicated and multidimensional, such as marriages or friendships, the benefit from adding an additional term (even initially) may be extremely low or negative. It is too easy for parties to evade a specified obligation by threatening to violate an unspecified obligation that emerges postcontract and that the other party values more than any specified obligation. Because of this, there is no point in specifying the obligations in the first place. At the extreme, the terms are so low-value relative to unspecified obligations that parties do not bother to specify any term except generally that they are entering a relationship. This is common with marriages when parties forgo the option of entering a pre-nuptial contract.

Reputation and trust are important reasons why complexity of contractual form does not necessarily increase with contract duration and its associated uncertainties. Two forces may create greater complexity for medium-term contracts than for short or long. First, for one-time or short-period contracts, negotiation and drafting costs may outweigh the benefit of complexity, pushing toward simple contracts. For multiple interactions, the economic value of specifying a detailed contract will begin to outweigh the one-time drafting costs. Thus, complexity may increase in contract duration initially. Second, and cutting in the other direction, reputations and trust are acquired and maintained in relationships with repeated interactions (with one or several other parties). As the duration of interaction grows, reputational effects that govern longer-term relationships (*i.e.*, the ability to punish breach through loss of reputation) may begin to substitute for formal contractual complexity. For a given economic stake in the contract, the highest level of formal complexity will be optimal when duration is long enough for drafting costs to be quite spread out, but not long enough for reputation effects to substitute too much for formal complexity. Higher negotiation costs and faster acquisition and loss of reputations push toward simplicity.

Contracts also might be simple because parties propose simple contracts, or decline to propose additional terms to simple contracts that are on the table, in order to signal that they are trustworthy. This idea can be cashed out in many ways. Assume, for example, that there are two types of sellers in a market, "bad" types and "good" types. It costs the bad type little to distort the signal of their production costs, whereas a good type faces high costs to distort. If there is a difference in risk aversion, it would be optimal to make the price contingent on the signal of cost, but this "complex" contract may not emerge in equilibrium. "Simple" noncontingent contracts will prevail when consumers rationally anticipate that the bad-type sellers are more likely to propose a contingent contract (conditioning the sales price on the manipulated cost signal), and bad types respond by offering the same simple contract that the good types offer. Among models that detail circum-

stances under which proposing a complex contract signals lack of trustworthiness, our argument is most closely related to that of Allen and Gale.⁷¹

Simple contracts may also signal trustworthiness because simple contracts are easier to understand. When one party proposes a complex contract, the other party might fear that complexity creates loopholes that benefit the drafter. Adding language—even to protect the other against one's own opportunism—alerts the other party to bad outcomes, suggests one had thought of taking advantage, and makes the contract less advantageous for oneself. When complexity is demanded by the environment, parties may use an original simple contract as a reference point and vary its language as little as possible.

Although proposing a simple contract may engender trust, it is no guarantee that the proposing party has not optimized to see which among several simple proposals is in his or her best interest. If the simple rule proposed is an equal division, the proposer probably chose the equality to be on the dimension most favorable to him. Trust is, in effect, the dynamic counterpart of the fairness convention. Simplicity does not prevent venality (or self-interest), but the latter may be easier to detect and counter with principled argument when the original proposal was simple.⁷²

The example of Jim the Architect (see Part I) illustrates this idea. Jim feared that if he offered the complex contract to his customers not trained in economics, they might think that he is trying to hornswoggle them. They might fear that if they do not understand the contract, they will find themselves vulnerable to forms of opportunism that they do not anticipate. And they might conclude that since he must have anticipated their confusion yet nevertheless tries to force a complex contract on them, he must expect to take advantage of them. Or they might have trouble comparing Jim's idiosyncratic contract with the conventional contracts offered by other architects, and therefore assume that Jim must be trying to obfuscate.

The fact that simple contracts may engender or reflect trust has long been recognized. Macauley argues that "carefully planned arrangements may create undesirable exchange relationships Some businessmen object that in such a carefully worked out relationship, one gets performance only to the letter of the contract," whereas performing to the spirit of the contract would offer mutual expected gains.⁷³ Holmstrom and Roberts observe that the "contracts between Japanese auto makers and their suppli-

⁷¹ Allen & Gale, *supra* note 17; see also Kathryn E. Spier, *Incomplete Contracts and Signaling*, 23 RAND J. ECON. 432 (1992); discussions in Bernheim & Whinston, *supra* note 53, and Schwartz, *Incomplete Contracts*, *supra* note 25.

⁷² This argument that simple rules help in detecting self-serving behavior of others is reinforced by the results of Allison and Messick that "divisibility of a resource by six tended to make equality [of division among six people] more salient and hence acted as a restraint against taking more than an equal share." Scott T. Allison & David M. Messick, *Social Decision Heuristics in the Use of Shared Resources*, 3 J. BEHAV. DECISION MAKING 195, 210 (1990).

⁷³ Macauley, *supra* note 60, at 64.

ers are short and remarkably imprecise, essentially committing the parties only to work together to resolve difficulties as they emerge The key to making this system work is obviously the long-term, repeated nature of the interaction.”⁷⁴ Ma and McGuire⁷⁵ find a significant “reputational effect” in their analysis of the incentives in a behavioral (*i.e.*, mental health and substance abuse) health carve out⁷⁶ instituted by the Group Insurance Commission of the Commonwealth of Massachusetts. Gibbons and Murphy found that total compensation of CEOs in a sample became more responsive to their firms’ stock market performance as the CEOs approached retirement.⁷⁷ This illustrates the power of reputation and career concerns in long-term relationships to substitute for more explicit, and presumably more formulaic and complex, contracts.⁷⁸

H. Judicial Enforcement Costs

Judicial enforcement costs also are likely to influence the complexity of a contract. Some important events or actions, although readily observable to the affected parties, may be difficult or impossible to specify in the contract in such a way that a court can enforce obligations based on that information—*i.e.*, some information is observable but not verifiable. These kinds of transaction costs are closely related to writing costs, since writing enforceable contract clauses may be more costly than writing those clauses in the absence of verifiability concerns; but we will refer to this category of transaction costs as “enforcement costs.” Some important information simply may be unverifiable (*i.e.*, there are infinite enforcement costs for contracting on that information), even if mutually observable by the contracting parties. For example, a seller and buyer may be able to determine that the goods delivered by the seller are substandard, while a court might not be

⁷⁴ Bengt Holmstrom & John Roberts, *The Boundaries of the Firm Revisited*, 12 J. ECON. PERSP. 73, 81 (1998).

⁷⁵ Ching-to Albert Ma & T. G. McGuire, *Cost and Incentives in a Behavioral Health Carve Out*, 17 HEALTH AFF. 53 (1998).

⁷⁶ A “carve out” is a contractual arrangement in health care under which a particular set of services (such as mental health and substance abuse treatment) are “carved out” from the total health insurance premium and contracted out separately to a provider distinct from that insuring and providing the rest of the health services to a beneficiary population.

⁷⁷ See PAUL MILGROM & JOHN ROBERTS, *ECONOMICS, ORGANIZATION AND MANAGEMENT* 266 (1992).

⁷⁸ See also Keith J. Crocker & Kenneth J. Reynolds, *The Efficiency of Incomplete Contracts: An Empirical Analysis of Air Force Engine Procurement*, 24 RAND J. ECON. 126 (1993) (finding that contractors with better reputations are less likely to have a fixed-cost contract and more likely to have a cost-reimbursement contract). According to Bajari and Tadelis, *supra* note 12, at 30, “fixed price contracts feature high levels of design, high cost reducing incentives, and possibly large amounts of friction when changes are required. Cost plus contracts feature low levels of design, fast tracking [shorter completion time], low cost reduction incentives, and low friction for changes.” And see Banerjee and Dufllo, *supra* note 16 (finding that in the Indian software industry more established firms have simpler time-and-material contracts, while young firms have complex fixed-price contracts).

able to distinguish substandard goods from acceptable goods, say, due to lack of expertise or because the goods are perishable. These distinctions are important for understanding contracts. Contracts frequently condition obligations on verifiable information like market price, but rarely on economically relevant information that is difficult to verify, such as the buyer's demand or the seller's marginal cost.⁷⁹

Enforcement costs may push toward contract simplicity. When judicial enforcement is expensive or unreliable, parties might prefer terms that judges can easily understand, and that lawyers will not spend high-priced hours trying to manipulate or interpret to one side's benefit.⁸⁰ Each term would pick out the features of each future state that distinguish it from another future state. But these features might be so similar that a judge would think that a term applies to state X when in fact it covers state Y. Anticipating this problem, the parties use broader terms that apply to larger slices of the future. The result is that the contract has fewer terms and on this dimension is simpler.

For example, suppose that seller and buyer agree that seller should replace the goods if they break down after reasonable use by the buyer (state X) but not if the buyer's use is unreasonable (state Y). The parties know that they will be able to tell whether the buyer's use was reasonable or not, but have no confidence that a court will be able to do so. So they agree to a simpler contract that either contains a warranty for all states or no warranty at all. Another example might be the tendency of employment contracts to be either at will, in which case the employee can be terminated for virtually any reason, or for cause (such as when academic tenure is granted), in which case the employee can be terminated only in very unusual circumstances. Intermediate provisions may be uncommon because parties do not believe that the quality of the employee's work could be verified by the courts.

Unfortunately, unreliable judicial enforcement can also lead to complexity. If judicial enforcement is unreliable, parties might put in more terms in the hope of preventing a legal dispute that will lead to judicial action, and in the hope of constraining the judge if legal action becomes necessary. Parties would no longer want to rely on a simple contract with a vague "best efforts" clause, because they could not be sure that a judge would be able to determine the ex ante optimal terms.

For example, suppose the parties expect that if the contract contains a warranty, a court will decline to enforce it if the buyer misuses the product, but they fear that the court will mistakenly interpret due care as misuse, or vice versa. Rather than using a simple contract with a warranty, the parties add a number of terms that distinguish due care from misuse. Similarly, if

⁷⁹ See Alan Schwartz, *Relational Contracts and the Courts: An Analysis of Incomplete Contracts and Judicial Strategies*, 21 J. LEGAL STUD. 271 (1992) [hereinafter Schwartz, *Relational Contracts*].

⁸⁰ An arbitrator says, "It's good for my business that things are becoming more complex." Gail Diane Cox, *Arbitration Is No Simple Matter*, NAT'L L.J., June 28, 1999, at A1.

employers and employees expect judges to misinterpret the reason for terminations when a vague “just cause” term is used, they might add terms that provide greater guidance.⁸¹

An additional effect is that when judicial enforcement is expensive or unreliable, parties might substitute alternative institutional arrangements. Organizational form and governance structure are endogenously chosen according to the nature of transactions.⁸² Thus, the contracts we observe may in fact come from a truncated distribution in which the more complex contracts are not observed because transactions that would require such complex contracts are governed by internal organization rather than explicit contracting. Suppose the optimal contract for a supplier and buyer extends for many years, in order to give the supplier sufficient time to recover the costs of an investment specific to this relationship. During that time, the contract must deter the buyer from opportunistically switching to another supplier. However, courts cannot distinguish opportunistic behavior from ex ante value-maximizing behavior. Anticipating this problem, the parties might merge, and then control behavior by fiat rather than relying on courts. If this occurs, then we would observe that contracts more frequently govern simpler environments, and thus contracts are more frequently simple.

Joskow has examined the relationship between electric utilities and their coal suppliers.⁸³ He found relatively strong empirical evidence supporting the hypothesis that contracts become more complex as relationship-specific investment becomes more important. The reason is presumably that utilities that make large relationship-specific investments—at the extreme, by locating the generating plant at the mouth of the mine—are more vulnerable to threats to cut off supplies, and so must protect themselves by entering into complex contingent contracts. In the extreme case of mine-mouth plants, however, these contracts are rare because the plant and supplier usually vertically integrate.⁸⁴ The parties avoid the potentially large costs of renegotiating long-term contracts or honoring the original contract when market circumstances change, as when coal prices in the 1980s fell

⁸¹ Arbitration clauses are becoming increasingly complex because judges enforce them narrowly. For example, after a New York court held that an arbitration clause in an employment contract that applied to “all differences . . . over the application or performance of any part” of the contract did not apply to age discrimination claims, parties added age bias claims to the clause. As a result of arbitration litigation, “[a]rbitration clauses are becoming paragraphs, and paragraphs are becoming pages.” *Id.*

⁸² See OLIVER E. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* (1975); OLIVER E. WILLIAMSON, *THE MECHANISMS OF GOVERNANCE* (1996); Coase, *supra* note 32, at 386.

⁸³ Paul L. Joskow, *Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets*, 77 *AM. ECON. REV.* 168 (1987) [hereinafter Joskow, *Contract Duration*], reprinted in *CASE STUDIES IN CONTRACTING AND ORGANIZATION* 104 (Scott E. Masten ed., 1996); Paul L. Joskow, *The Performance of Long-Term Contracts: Further Evidence from Coal Markets*, 21 *RAND J. ECON.* 251 (1990); Paul L. Joskow, *Vertical Integration and Long-Term Contracts: The Case of Coal-Burning Electric Generating Plants*, 1 *J.L. ECON. & ORG.* 33 (1985) [hereinafter Joskow, *Vertical Integration*].

⁸⁴ See Joskow, *Vertical Integration*, *supra* note 83, at 55.

below those anticipated in long-term contracts written in the 1970s between utilities and coal suppliers.⁸⁵

I. *Bounded Rationality and Renegotiation*

Bounded rationality and the costs of deliberation are fundamental reasons why simple contracts prevail. Bounded rationality constrains behavior to be "*intendedly* rational, but only *limitedly* so."⁸⁶ Aside from transaction costs, bounded rationality is the most commonly cited reason in the academic literature for overly simple contracts.⁸⁷

As noted in our definition of complexity, the cognitive load required to understand a contract is an important dimension of complexity. Frequently this dimension will interact with the other dimensions of complexity, in that more contingencies and greater variability of payments require greater cognitive effort to assimilate. Even when the other factors that push toward simplicity are not significant, simplicity may nevertheless prevail because contracting parties find that fine-tuning some terms will cause other terms to become undesirable, and it is too hard to keep all such trade-offs straight in a cognitively limited mind. Taylor has suggested that people are *cognitive misers* who endeavor to simplify the world through use of cognitive shortcuts,⁸⁸ which leads them to favor simple contracts. For example, equal division may be used in many different aspects of a transaction rather than a more efficient arrangement that varies division according to contingencies, because it is too difficult to figure out different payoffs along different dimensions under many potential contingencies.

Economists have attempted to analyze formally the implications of such constraints for contractual form. Unfortunately there is no tractable, parsimonious model of bounded rationality. Lacking such a model, it is difficult to formalize the common way in which contracts appear overly simple, *i.e.*, with gaps and errors. In lieu of such analysis, some economists have resorted to modeling the effects of bounded rationality by assuming that although the contracting parties themselves are *unboundedly* rational, they are constrained by a boundedly rational third party, the courts. This modeling strategy essentially posits large enforcement costs and the inevitability of renegotiation (discussed below).⁸⁹

⁸⁵ See generally Joskow, *Contract Duration*, *supra* note 84.

⁸⁶ HERBERT SIMON, *ADMINISTRATIVE BEHAVIOR* (2d ed. 1961) quoted in WILLIAMSON, *THE MECHANISMS OF GOVERNANCE*, *supra* note 82, at 6. For an overview of this concept, see John Conlisk, *Why Bounded Rationality?* 34 J. ECON. LITERATURE 669 (1996).

⁸⁷ See HART, *supra* note 33.

⁸⁸ S.E. Taylor, *The Interface of Cognitive and Social Psychology*, in *COGNITION, SOCIAL BEHAVIOR, AND THE ENVIRONMENT* (J.H. Harvey ed., 1981).

⁸⁹ Even though p-incompleteness stemming directly from bounded rationality of the contracting parties has not been successfully modeled, "there is another sense in which one can say that a contract is incomplete: it is incomplete if the parties would like to add contingent clauses, but are prevented from doing so by the fact that the state of nature cannot be verified (or because states are too expensive to describe

Such a model—"smart" contracting parties, "dumb" courts—leads naturally to a view that courts cannot and should not attempt to complete contracts that contracting parties themselves leave p-incomplete.⁹⁰ A more general model of bounded rationality, where participants are boundedly rational as well, might endorse a more active role of the courts. We return to this issue of the appropriate level of judicial intervention in the final section of this article. For the moment we focus on the important connections among enforcement costs, bounded rationality, and renegotiation in leading to contract simplicity.

Parties who are boundedly rational will recognize that they cannot foresee all future contingencies, or contract cheaply on unlikely contingencies that are foreseen.⁹¹ For these two reasons, they value the freedom to renegotiate contracts in the future as contingencies arise. They are also likely to value legal gap-filling, if efficient and effective. Anticipating such renegotiation or gap-filling, parties can save up-front negotiation costs by entering into contracts that are simpler than would otherwise be optimal.

At the same time, the freedom to renegotiate has costs. The freedom to renegotiate can be costly because what turns out to be mutually beneficial or ex post efficient—that is, the outcome of renegotiation—is often not optimal from the ex ante point of view. For example, a commitment not to negotiate with kidnappers is ex ante efficient for deterring kidnapping, but will be effective only if the commitment is credible. Once a loved one has been kidnapped, it becomes difficult to deny the appeal of (re)negotiating for release. But if kidnappers anticipate this difficulty, one's commitment not to negotiate with kidnappers is not credible, and the ex ante efficient outcome—deterrence of kidnapping—will not be achieved. This phenomenon can be generalized. As Milgrom and Roberts note, anticipation that contracting parties will renegotiate "may deprive the original agreement of its credibility and may prevent it from guiding behavior as it should."⁹² One party will be reluctant to make efficient relationship-specific investments when renegotiation implies vulnerability to hold up by the other party. A utility, for example, will not locate a plant at the mouth of a mine if the mine is free to demand a higher price or take its business elsewhere in the future, and the utility cannot obtain an adequate remedy from a court because information is not verifiable.⁹³

ex ante). . . It is true that the parties' obligations are fully specified and that renegotiation at date 1 always 'completes' the contract (*i.e.*, makes it contingent). However, the way the contract is completed is not optimal from an *ex ante* perspective." Hart & Moore, *supra* note 26, at 134-35.

⁹⁰ See, e.g., Schwartz, *Incomplete Contracts*, *supra* note 25.

⁹¹ But only as long as their rationality is not *too* bounded. They must be sufficiently rational to realize that they cannot anticipate and understand all events.

⁹² MILGROM & ROBERTS, *supra* note 77, at 127.

⁹³ For a critique of judicial refusal to enforce no-renegotiation clauses, see Christine Jolls, *Contracts as Bilateral Commitments: A New Perspective on Contract Modification*, 26 J. LEGAL STUD. 203 (1997).

Because of these concerns, perfectly rational parties might want to enter complex contracts that forbid renegotiation or specify the boundaries of renegotiation if events change. However, if parties recognize their own cognitive limitations, and thus realize that drafting a contract anticipating almost all possible contingencies would require exorbitant time and mental effort, then they are unlikely to find complexity cost-effective.

Although under special circumstances the freedom to renegotiate might result in complexity,⁹⁴ under more ordinary circumstances it will lead to contractual simplicity. First, some contract terms can wait until later. When parties expect to renegotiate obligations under a particular state of the world, they do not need to supply terms that specify obligations under that state of the world. Fewer terms mean greater simplicity. Second, if parties acknowledge that renegotiation will be unavoidable even when one party is in a position to hold up the other, they will have to rely on trust and other nonlegal mechanisms. As discussed above, trust and the conventions on which it relies tend to enhance simplicity. Third, parties need not try to establish mechanisms to commit not to renegotiate. Since there are many ways to contract around such commitments (e.g., by side-contracting or colluding with third parties⁹⁵), commitment mechanisms often have to be complex, and their absence fosters simplicity.

Our argument parallels recent contributions to the literature on the foundations of p-incomplete contracts. Hart and Moore show that in a world in which parties are free to renegotiate their contracts, p-incomplete contracts are often optimal.⁹⁶ In effect, once parties know that the contract will be modified in the future, they may be just as well off with a p-incomplete contract as with a p-complete one that they may choose to ignore when a future state occurs. Renegotiation potential will lead to p-incomplete contracts when terms that would otherwise be desirable for preventing opportunism have no credibility since parties can renegotiate. Contracts will be simple for the same reason: additional terms, that would be desirable if sure to be followed, are instead of limited, if any, value, given that they will be obviated by renegotiation. Fewer terms will gener-

⁹⁴ Consider a contract to paint a person's portrait. The painter may fear that once the portrait is complete, the buyer can offer to pay a much lower price than originally agreed upon, knowing that few if any others will be willing to pay for a portrait of someone else. (The law allows the buyer to refuse in good faith, but lack of good faith is hard to prove.) To avoid having the painting effort held up in this way, the painter may insist upon a more complicated contract that features installment payments as the portrait progresses. Alternatively, suppose a portrait of a leader will be needed, but it is unclear at the time of contracting who the leader will be (e.g., because elections may be called to select a new leader). In this case the contract may be simple, with both parties agreeing to wait until the future is revealed to specify the portrait rather than write a complex contingent contract anticipating and describing the many possible future scenarios.

⁹⁵ See Hart & Moore, *supra* note 26, at 128-29.

⁹⁶ *Id.*

ally imply fewer contingencies, less payoff variability, and easier cognitive understanding, *i.e.*, simplicity along multiple dimensions.⁹⁷

As it turns out, even when parties believe that they would be better off under a contract that prohibits renegotiation, the law does not permit such contracts.⁹⁸ Two merchants, for example, cannot enter an enforceable contract that bars them from changing the contract if both desire to do so. Scholars in the economics of contracts literature have suggested that the reason parties support a legal system that does not enforce a mutual promise not to renegotiate is that parties recognize their own bounded rationality.⁹⁹ One might think that sophisticated contractors sufficiently self-aware about their tendency toward *ex post* opportunism to lobby for laws that restrict their own ability to (re)contract are also sufficiently self-aware of their bounded rationality to refrain from entering no-renegotiation contracts. If they suffer from lack of self-discipline, they can order their lawyers to prevent them from entering contracts that prohibit modifications. But if courts allow or force modification of initial terms when it is beneficial to *one* party (*e.g.*, because asymmetric information suggests that party was taken advantage of), then it would seem to be even more incumbent upon the courts to allow modification when *both* parties find it mutually beneficial. For example, the parties could (secretly) agree to make it appear to the court that one party was taken advantage of when agreeing to the no-renegotiation contract, therefore making modification of the contract desirable. If renegotiation is generally allowed, therefore, it is almost impossible for some parties to opt for a contractual regime that guarantees that modifications will be prohibited.

J. Summary

This Part has discussed many reasons why contracts are more complex than standard economic models predict. All of these reasons are susceptible to empirical testing. For example, one can test the influence of trust on the complexity of contracts by comparing the contracts in communities in which the level of trust is high, and the contracts in communities in which the level of trust is low, holding the economic relationship (and as much else as possible) constant.¹⁰⁰ One can test the influence of environmental complexity, such as the duration of the relationship, by comparing con-

⁹⁷ For a critique of the Hart and Moore view, see Eric Maskin & Jean Tirole, *Unforeseen Contingencies and Incomplete Contracts*, 66 REV. ECON. STUD. 83 (1999) (arguing that people would prefer a world in which they could enter renegotiation-proof contracts).

⁹⁸ See Jolls, *supra* note 93, at 208-09 (and citations therein).

⁹⁹ See ILYA SEGAL, COMPLEXITY AND RENEGOTIATION: A FOUNDATION FOR INCOMPLETE CONTRACTS (1996); Hart & Moore, *supra* note 26.

¹⁰⁰ For example, one could compare the very simple contracts governing diamond sales in the ethnically homogenous communities described in Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 115 (1992), with those used in other areas of the country or in other countries where sales occur among people who are not members of such a homogenous community.

tracts, like real property leases, that are similar in many respects but have varying duration.¹⁰¹ Some empirical work has already been done, and we have discussed some of it briefly; but more such work needs to be focused on the particular issue of the relationship between complexity and the various factors we have identified. This empirical work would be difficult but worthwhile, and we leave it for future research. For now, we turn to the normative implications of our positive analysis of contractual complexity.

IV. NORMATIVE ANALYSIS AND THE ROLE OF COURTS

One normative implication of our analysis is directed to lawyers, and this is simply that *more detail is not always good*. Lawyers tend to make contracts as detailed as possible because they want to resolve every possible future contingency in advance. But detail makes for complexity, and complexity can sow distrust, overwhelm the cognitive capacities of the parties, absorb resources, and have many other negative consequences. Complex contracts may be unnecessary when courts are sophisticated and futile when they are dull. Further research should focus on how lawyers ought to evaluate complexity when drafting contracts.¹⁰²

The main normative implication of our analysis is directed to courts and legislatures. We argue that although the simplicity of a contract is not intrinsically valuable, and there is no reason to think that courts and legislatures should encourage contracts to be simple or complex, the simplicity or complexity of a contract does have instrumental value. The degree of complexity of a contract is a clue about the circumstances under which it

¹⁰¹ Using the contracts database available at <<http://crcse.business.pitt.edu/>>, we conducted very preliminary empirical work to establish some stylized facts and test the plausibility of some of our hypotheses about the relationships among economic stake in the contract, duration, and complexity. We had 2 samples, each with 32 contracts. One sample involved land contracts; the other involved leases. In our sample of land contracts, we found that the number of lines in the contract—a crude proxy for complexity—was positively associated with the contract price ($p < 0.05$). In our sample of leases, contract duration (in years) was far more powerful than price in explaining the number of lines in the contract. This is not surprising, since as a lease stretches over many years, uncertainty—the driver of complexity—plays an increasingly important role. Considerations such as general escalation in rents, required repairs to the building, and the economic success of the lessor, all uncertain *ex ante*, will affect the contract. The positive correlation between contract length and price became statistically insignificant when controlling for contract duration. Price per year, years, and years-squared could jointly explain about one-third of the variation in “complexity” (proxied by lines) for the sample. There was also some evidence of diminishing returns to complexity as duration increased. (The estimated coefficient for years-squared was negative and statistically significant at the 5% level, controlling for price per year and years.) Unfortunately these empirical results are no more than suggestive: the proxy for complexity is crude; the samples are small; many potentially relevant independent variables were not available, etc. For example, we know nothing of the contracting environment for each contract. Nevertheless, these preliminary findings, along with other studies cited herein, indicate that the factors we discuss are of some empirical relevance. Much more work remains to be done in quantifying and explaining the simplicity and complexity of contracts.

¹⁰² The tension between lawyers and business people is part of the folklore. Lawyers complain that business people do not plan carefully enough against future contingencies; business people complain that lawyers’ caution interferes with valuable deals. See, e.g., Macaulay, *supra* note 60.

was negotiated and the characteristics of the parties. Courts should use this clue, as they use other clues such as the f-completeness of the contract, the formality of the bargaining procedure, and so on, in order to determine the best approach for interpreting and enforcing the contract.

To clarify this idea, we start by adopting Schwartz's distinction between "strict" (or "passive" or "literal" or "formalistic") interpretation of contracts and "liberal" (or "active" or "aggressive") interpretation.¹⁰³ A court engages in strict interpretation when it follows the rules of contract law in a relatively mechanical way; promises are enforced only when they are clearly included in the instrument and the contract clearly complies with the formal requirements of contract formation (offer, acceptance, writing, and so on). A court engages in liberal interpretation when it relies heavily on its judgment. Typically, a liberal court will be concerned about determining the parties' general contractual goals, and will freely "imply" (that is, insert) terms or shade stated obligations in a way that makes the outcome broadly desirable. If the liberal court wishes to maximize the value of contracting, it will interpret the contract in a way that (roughly speaking) maximizes the ex ante joint surplus of the contract.¹⁰⁴

We make two assumptions. First, we assume that the proper normative goal is to maximize the ex ante value of contractual relationships. Second, because events may be observable to the parties but not verifiable before a court, and courts may suffer from hindsight bias and other cognitive defects, we assume for purposes of discussion that: (1) the asymmetry of information and bounded rationality that hamper courts ex post is not too severe (in ways described below); and (2) courts can limit their consideration to what well-informed parties would have agreed to, rather than rely on externally derived notions of what is fair or desirable.¹⁰⁵ In general, effective aggressive contract interpretation will require a more competent court system than that required for literal enforcement.¹⁰⁶ We acknowledge that the proposals below assume highly sophisticated courts, and may have to be adjusted in order to be sensible for real courts. We will focus on arguments for and against liberal interpretation by competent courts; lack of such competence would

¹⁰³ Schwartz, *Relational Contracts*, supra note 79, at 282-83.

¹⁰⁴ Liberal interpretation is associated with Llewellyn, Corbin, and Traynor. See *Pacific Gas & Elec. Co. v. G.W. Thomas Drayage & Rigging Co.*, 442 P.2d 641 (1968) (Traynor, J.) (criticizing formalistic contractual interpretation); Arthur L. Corbin, *Mr. Justice Cardozo and the Law of Contracts*, 48 *YALE L.J.* 426 (1939) (praising Cardozo for seeing through form and enforcing the parties' intentions).

¹⁰⁵ If courts are limited in their self-control, or hindered in their decision making, aggressive interpretation can have grave negative consequences, both on the contracts that are interpreted, and through a feedback effect on the contracts that are negotiated initially. Liberal interpretation is generally less predictable than literal enforcement, encouraging attempts to renegotiate for a greater share of a surplus (or a smaller share of a loss), and rewarding socially unproductive investment in ability to predict court behavior. If these constraints are serious, literal enforcement of a contract's verifiable terms would be preferable to aggressive interpretation.

¹⁰⁶ See Eric A. Posner, *The Parol Evidence Rule, the Plain Meaning Rule, and the Principles of Contractual Interpretation*, 146 *U. PA. L. REV.* 533, 540-47 (1998).

reinforce the arguments against aggressive gap-filling but would not obviate the need for the often difficult determination of what type of contract was efficient *ex ante* and how the court should best respond *ex post*.

TABLE 5: APPROPRIATE COURT REACTIONS TO VARIOUS CAUSES OF CONTRACTUAL SIMPLICITY

CAUSE OF SIMPLICITY	APPROPRIATE REACTION	EXAMPLE
Environmental Simplicity	Enforce strictly (the contract is simple because the optimal terms happen to be simple)	One-shot sales contract (as opposed to requirements contract)
High negotiation costs	Enforce liberally (the contract is simple because the parties cannot include the complex optimal terms)	Contract between people who speak different languages
Asymmetric information (so terms are omitted by the informed party for strategic reasons)	Enforce liberally (for example, imply a warranty)	Insurance, or contracts across industries
Monitoring dynamics (e.g., multitasking)	Enforce strictly	Construction of addition to house
Forms (especially in large industry with symmetric information)	Enforce strictly (simplicity is the result of evolutionary process); or liberally (if courts can improve on or hasten evolution)	Real estate contract
Conventions	Enforce liberally (that is, treat conventions as implied terms)	Contract between members of a trade association
Trust and reputation	Enforce strictly vis-à-vis trust relations, but liberally vis-à-vis high-value opportunism	Contract between members of a trade association
High court enforcement costs (so parties rely on renegotiation rather than complex terms)	Enforce strictly (because liberal enforcement is costly and leads to error)	Contract to buy Internet startup business (where main value of business is goodwill or other unverifiable characteristic)
Bounded rationality and renegotiation	For less sophisticated, boundedly rational parties, enforce liberally and allow renegotiation; for sophisticated, unboundedly rational parties, enforce strictly and allow commitment not to renegotiate	Consumer sales contract

Suppose a legal dispute revolves around interpretation of a simple contract. What should the court do? Table 5 above summarizes normative arguments that emerge from the analysis above. They are intended to be suggestive, not conclusive, and we hope to develop them in future work. The examples are also meant to be suggestive, and not to represent the only application of the argument.

The table should be interpreted with care. As noted above, the “recommendations” are meant to be highly preliminary and suggestive. It would take many pages to defend them adequately, and to specify the conditions under which they hold.¹⁰⁷ At this point, our goal is to show ways in which the positive analysis might shed light on normative concerns, not to establish that courts should, as a general matter, adopt liberal or strict approaches to interpretation.¹⁰⁸ In particular, our goal is to show that the degree of simplicity of a contract sheds light on factors that courts care about when they resolve contract disputes.

An example will illustrate. Suppose that a seller and buyer have a dispute about a simple contract for the sale of goods. The contract contains only price and quantity terms, with no variation in the payment and no difficult formulas. According to Table 5, there may be at least nine reasons why the contract is simple. The parties might have a trust relationship, the conventions in the industry might be robust, negotiation costs might be high, and so on. Evidence will shed light on these conditions; it might establish, for example, that the parties have dealt with each other for many years and indeed have a relationship of trust. After it has examined the evidence, the court might still be unsure about only one or two of the relevant factors. At this point, the simplicity of the contract provides a clue about the background of the contract. The court might conclude, for example, that the simplicity of the contract must be due—all other reasons having been eliminated by the evidence—to asymmetric information. If the third row of the table is correct, then the court should enforce liberally. Or the court might conclude that only the simplicity of the environment can account for the simplicity of the contract. If so, then it should enforce the contract strictly.

The example assumes that in order to interpret a contract properly, a sophisticated court needs to know about negotiation costs, asymmetric information, and the other factors in the left column of the table, but rarely can these factors be established directly by evidence. The example shows that the

¹⁰⁷ For example, many will quarrel with our treatment of conventions. There are many complications; at least, (1) the conventions should arise under conditions where they are likely to be efficient, see Robert D. Cooter, *Structural Adjudication and the New Law Merchant: A Model of Decentralized Law*, 14 INT'L REV. L. & ECON. 215 (1994); (2) the conventions must be verifiable by courts rather than optimal only given nonlegal enforcement by private adjudicators, see Eric A. Posner, *The Regulation of Groups: The Influence of Legal and Nonlegal Sanctions on Collective Action*, 63 U. CHI. L. REV. 133, 158 (1996); and (3) they must be coherent and meaningful (for skepticism, see Bernstein, *supra* note 60, at 710).

¹⁰⁸ The specific recommendations are based on the positive analysis, including prior literature cited in the earlier discussions.

simplicity or complexity of the contract also sheds light on which factors played an important role in the creation of the contract. This claim is similar to, though subtler than, the view that if a contract is highly f-incomplete and overlooks obvious contingencies, or if a contract is scrawled on the back of a napkin, a court can infer something about the circumstances under which it was negotiated (for example, that the parties are unsophisticated or were in a hurry). But complexity is a more difficult concept, for as we have shown, even very sophisticated parties might prefer simple contracts.

We do not claim that the simplicity of a contract is a master key that unlocks all the mysteries of contract interpretation. Because the simplicity of a contract is always a matter of degree, and always a function of an often murky contractual environment, courts may often have difficulty determining whether a contract is simple or complex. Moreover, the relationship between some of the factors (for example, judicial enforcement costs) and the simplicity of a contract is ambiguous. Nevertheless, courts should understand that the simplicity or complexity of a contract reveals information about the contract's source, purpose, and value.

Let us put our conclusion in context. The traditional view within law and economics is that a court should fill a gap in a contract if transaction costs are high, construe the contract strictly if transactions costs are low, and, when it must fill a gap, either supply a term that the parties would have wanted or one that would give parties the proper incentives to reveal information *ex ante*.¹⁰⁹ Consider, as an example, a well-known case involving the question whether the word "chicken," which was used in a sales contract, should be interpreted strictly to include all chickens or liberally to include only broilers.¹¹⁰ The traditional view held that if the cost of negotiation was high and the amount at stake was low, the court should be more inclined to interpret the term liberally, in which case it should fill the gap with a majoritarian default (putting aside the question of information incentives). A majoritarian default is the term that the parties to the contract under dispute, or most parties who buy and sell chickens, would prefer (*ex ante*). If that term would be a definition of chicken that included only broilers, then the court should adopt such a definition.

Our analysis unpacks this traditional approach, and shows that (1) how the court should interpret a word, such as "chicken," depends on which circumstances are responsible for the contract's gap (that is, the absence of a definition of chicken), and (2) the degree of complexity of the contract may reveal whether the failure to include a more precise term reflects one circumstance rather than another. The court should begin with the observation that the chicken contract was simple, which indicates that one or more of the nine factors listed in Table 5 was at work. Evidence can then be used to

¹⁰⁹ See, e.g., Ian Ayres, *Default Rules for Incomplete Contracts*, in 1 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW, *supra* note 43, at 586-88.

¹¹⁰ See *Frigalment Importing Co. v. B.N.S. Int'l Sales Corp.*, 190 F. Supp. 116 (S.D.N.Y. 1960).

winnow down the possibilities. If the court concludes that the simplicity of the chicken contract resulted from asymmetric information rather than monitoring dynamics, or reliance on convention rather than reliance on trust-based nonlegal sanctions, it should enforce liberally. By contrast, if the contract were complex, the court might conclude that the writing reflects the best efforts of sophisticated parties to provide for all imaginable contingencies given enforcement costs, and enforce strictly. It is in this sense that the simplicity of a contract provides a clue about the contract's background, a clue that may be valuable for determining the appropriate mode of interpretation.

Now contrast our view with Schwartz's, which is that when a simple contract arises from a complex (actually, long-term) environment, the court should enforce the contract literally.¹¹¹ We claim that the complexity of the environment may be a reason for liberal interpretation, because when the environment is complex, a simple contract may be inefficient. There may be a valuable role for moderately aggressive courts in terms of filling in gaps in contracts under certain circumstances, rather than merely enforcing a contract's verifiable terms literally. This conclusion, to be sure, depends on our assumption that courts are reasonably competent, and can sort out the competing accounts offered by parties about why a contract takes the form that it did. If this assumption is incorrect, courts should adopt the more passive stance advocated by Schwartz. But it is not clear whether this assumption is correct or incorrect.¹¹²

Finally, our analysis implies that sophisticated parties should be able to opt into one of the two alternative regimes of court interpretation, strict or liberal. If parties think their contract (whether simple or complex) would be best interpreted by a strict court, then they can opt for a strict court by placing an appropriate term in the contract; alternatively, they can opt for a liberal court. Although there are already doctrinal tools available for this task,¹¹³ there would be an incremental improvement if courts systematically

¹¹¹ Schwartz offers this argument in the spirit of conjecture; in addition, he excludes from his analysis many of the factors on which we focus. See Schwartz, *Incomplete Contracts*, *supra* note 25; Schwartz, *Relational Contracts*, *supra* note 79. For other views of this subject, see Charles Goetz & Robert Scott, *Principles of Relational Contracts*, 67 VA. L. REV. 1089 (1981); Robert E. Scott, *A Relational Theory of Default Rules for Commercial Contracts*, 19 J. LEGAL STUD. 597 (1990).

¹¹² Schwartz's view itself depends on courts having a minimum level of competence. If they are too incompetent, then no information is verifiable, in which case discussion of the optimal judicial strategy is idle. See generally Eric A. Posner, *A Theory of Contract Law Under Conditions of Radical Judicial Error*, 94 NW. U. L. REV. 749 (2000). For other discussions of contract law and judicial competence, see Richard Craswell, *Property Rules and Liability Rules in Unconscionability and Related Doctrines*, 60 U. CHI. L. REV. 1, 38-41 (1993); Gillian Hadfield, *Judicial Competence and the Interpretation of Incomplete Contracts*, 23 J. LEGAL STUD. 159 (1994).

¹¹³ Parties that fear liberal interpretation can (1) include a merger clause, which directs courts not to rely on evidence of precontractual negotiations when interpreting contracts; (2) include a clause asking the court to ignore extra-contractual evidence such as course of dealing; (3) avoid clauses that invite judicial scrutiny of the contractual relationship, such as "best efforts" and "good faith" clauses; and (4) include a choice of law term that directs the adjudicating court to apply the law of a state that has strict

recognized choices about modes of interpretation—strict or liberal—made in contracts.

V. CONCLUSION

Contracts are frequently simpler than the economic theory of optimal contracting suggests is desirable. We have discussed many reasons why simple contracts prevail: simple environments, negotiation costs, asymmetric information, monitoring dynamics, evolutionary pressures, conventions, reliance on trust and reputation, judicial enforcement costs, and bounded rationality and renegotiation. These conclusions can be refined in future work through empirical testing. The conclusions also have normative implications. They highlight the costs of complexity, and suggest that when lawyers draft contracts, they should sometimes sacrifice detail for the sake of simplicity. And the conclusions suggest ways in which courts should pay attention to the complexity of contracts when interpreting them. The complexity of a contract may provide clues about the conditions under which it was negotiated, and courts typically want, and should want, to understand these conditions when deciding whether to enforce a contract.

interpretive rules. Indeed, parties routinely follow the first two strategies, and we suspect that they follow the third and fourth as well. However, there is a danger that liberal courts will interpret any of these clauses liberally, which will tend to muddy the outcome.