Is Electronic Contracting Different?
Contract Law in the Information Age

Avery Wiener Katz*

Abstract: In response to recent and anticipated future growth in long-distance commerce using electronic media such as the Internet, some commentators have suggested that legal and economic institutions will have to change substantially in response to new technologies of trade, in the same way that they did in response to the major technological and organizational innovations of the 18th and 19th centuries. Others have taken a more skeptical position, arguing that recent developments are better viewed as changes of degree rather than of kind, and that they can be accommodated by extending and modifying existing arrangements in a more evolutionary fashion. This paper takes an intermediate position, arguing that the growth of electronic commerce reflects changes in the relative importance of various institutional transaction costs such as the costs of information and of searching for contractual partners. Accordingly, arrangements that were optimal or at least reasonably satisfactory under previous configurations of transaction costs may no longer be so under those configurations that will develop in the future. This essay, accordingly, sketches out some of the ways in which the doctrines and regulations of contract law might need to change in an electronic setting, and offers an economic framework for evaluating such changes.

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1 Introduction

In response to recent and anticipated future growth in long-distance commerce using electronic media such as the Internet, some commentators have suggested that legal and economic institutions will have to change substantially in response to new technologies of trade, in the same way that they did in response to the major technological and organizational innovations of the 18th and 19th centuries.[1] Others have taken a more skeptical position, arguing that recent developments are better viewed as changes of degree rather than of kind, and that they can be accommodated by extending and modifying existing arrangements in a more evolutionary fashion.[2]

This paper takes an intermediate position in this debate, adopting as its starting point the observation that the growth of electronic commerce reflects changes in the relative importance of various institutional transaction costs, such as the costs of information and of searching for contractual partners. Accordingly, arrangements that were optimal or at least satisfactory under previous configurations of transaction costs may no longer be so under configurations that will develop in the future. Such cost changes may or may not require adjustment of legal doctrine or statutory provisions, which in most cases merely set default rules around which contracting parties negotiate, but they will at least require adjustments

1. See, e.g., David R. Johnson and David G. Post, Law and Borders — The Rise of Law in Cyberspace, 48 Stan. L. Rev. 1367 (1996).

2. See, e.g., Frank H. Easterbrook, Cyberspace and the Law of the Horse, 1996 U. Chi. Legal F. 207.

in the content of any private arrangements that are thus reached. The significance of such adjustments can already be seen in the appearance of substantial scholarly works on electronic contracting aimed at student and at practitioner audiences[3], in the amount of legislative and proposed legislative activity in the area, and in the evident effort that many businesses are putting into re-ordering their transactional arrangements, as can be seen daily on the Internet and in trade journals devoted to current business developments.

The title of this paper promises an economic approach to these questions, but there are two alternative perspectives such an approach might take. The first is a regulatory perspective that asks what rules the state should set to regulate private contracting. The second perspective, which I have advocated taking in some recent papers,[4] focuses on transactional planning; it asks how private parties should exercise the contractual freedom granted to them within the bounds of state regulation in order to maximize the value of their business arrangements. This paper takes the former perspective; it sets out some of the main ways in which the doctrines and regulations of contract law might need to change in an electronic setting, and offers an economic framework for evaluating such changes. Its overall goal is not to provide a complete survey of the different problems that may arise in this area, but rather to identify the distinctive transactional features of this new medium and to set an agenda for further research.

The organization of the paper proceeds as follows: section 2 considers issues of freedom of contract, and asks how the electronic context of a contract relates to the

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3. Recent important volumes include `Margaret Jane Radin, John A. Rothchild, Gregory M. Silverman., Internet commerce : the emerging legal framework: cases and materials (2002); Ronald J. Mann and Jane K. Winn, Electronic Commerce (2002); Jane K. Winn and Benjamin Wright, The Law Of Electronic Commerce (4th ed. . 2001)

4. See Avery W. Katz, Taking Private Ordering Seriously, University of Pennsylvania Law Review, 144(5), May 1996, pp. 1745-1763 ; Avery W. Katz, An Economic Analysis of the Guaranty Contract. University of Chicago Law Review, 66(1), Winter 1999, pp. 47-116; Avery W. Katz, The Economics of Form and Substance in Contract Interpretation. Columbia Law Review, 103(2), March 2004, pp. 496-538.

question of what formal or substantive limits on contracting should be imposed. Section 3 discusses economic problems arising out of the formation and interpretation of contracts: it asks whether we have the same concerns for efficient pre-contractual behavior and negotiation in the electronic setting as we do in traditional settings. Finally, section 4 sketches how the framework of the prior sections can be applied to other contract law issues such as remedies for breach, compares the implications of the economic approach to contracting to those that might be drawn from non-economic perspectives on contract law, and draws some general conclusions.

One last comment on scope is in order at the outset. In this paper, my primary attention will be devoted to substantive issues rather than procedural or jurisdictional ones — that is, I will whether and how should contracts be regulated, rather than which public legal institutions should be responsible for regulating them. Thus I will not discuss issues of choice of law, jurisdiction, etc., except insofar as these issues pose risks that can be allocated by the parties' contract. But as I suggest in my concluding discussion, procedural institutions may become relatively more important in the electronic setting, because of the relatively high costs of disputing as opposed to forming contractual relations. This shift will likely result in increased substantive attention to contractual rules that affect choice of law, choice of venue, and the like.

2 Limitations on freedom of contract

The threshold issue of any discussion of contract law is freedom of contract, because this issue defines the scope of the subject and marks the boundaries between public and private lawmaking. As a preliminary matter, however, it is worth distinguishing between mandatory contract terms, which the parties are not free to change at all, and default terms, which govern the contract only to the extent the parties are silent. Because it is costly to

write complete contracts, all systems of contract law must provide default terms to fill the gaps the parties leave behind, and in this regard freedom of contract can never be complete. The regulatory effect of default terms, however, are bounded by the costs of contracting around them. As a result, it may be reasonable to ignore such effects in many instances, especially in the commercial setting where parties are primarily motivated by economic gain and have access to sophisticated legal assistance. In some cases, however, as with some of the formal and writing requirements discussed in section 3 below, contracting costs may be substantial and default rules will have the effect of privileging one substantive outcome rather than others. Because of heterogenous tastes, this will necessarily have a distributional impact, but one that cannot be avoided. From an economic viewpoint it must be made on the same criteria that generally govern our attitudes toward such distributional effects.

In this section, then, we consider the standard justifications for regulating freedom of contract, and ask whether they play out differently in the electronic setting. If so, it may be appropriate to impose additional formal or substantive limits on contracting, or conversely, to excuse or loosen restrictions on contracting that are generally imposed in the traditional case. We first review the standard economic argument for contractual freedom and the standard list of exceptions to that argument, then turn to a survey of legal doctrines in the area, and finally consider how the standard framework of welfare economics plays out in the electronic context.

2.1 Economic arguments for and against freedom of contract

In general, the economic approach to law favors freedom of contract. While this conclusion is a familiar one, it is worth briefly reviewing its underlying logic. The fundamental theorem of welfare economics holds that if all market actors are informed and all commodities are allocated thru competitive markets, then the outcome of decentralized market exchange will be Pareto efficient. Conversely, if we also assume that there are diminishing returns to production and consumption, the second fundamental theorem of

welfare economics holds that any efficient outcome can be implemented through a market institution, subject to suitable ex ante redistribution of entitlements.[5]

Since the assumptions underlying the welfare theorems are very strong ones, most economic writing on freedom of contract has been devoted to whether and when they can be relaxed without sacrificing the efficiency conclusions. In this regard, Coase famously argued that even without competitive markets, the potential for mutual gain will lead rational parties to contract to an efficient outcome, except to the extent that transaction costs prevent bargaining.[6] The so-called "Coase theorem," however, is subject to well-known limitations: its central concept of transaction costs is not clearly specified, it is not founded on any underlying account of rational private bargaining, and it abstracts from the problem of how the parties can agree on one out of multiple possible allocations, all of which are equally efficient.[7]

Standard welfare economics thus offers several canonical justifications for interfering with contractual freedom on efficiency grounds; these justifications correspond to violations of the standard assumptions of the fundamental theorems. Beyond these standard justifications, Coase's transaction-cost perspective suggests some additional ways in which public regulation can improve the efficiency of private contracting. And finally, to the extent that economic welfare is viewed as encompassing some aspect of distributive equity and the costless redistribution assumed by the second welfare theorem is not practically available,

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5. See Andreu Mas-Colell, Michael Whinston, and Jerry Green (1995). Microeconomic Theory. New York: Oxford University Press., chapter 16.

6. Ronald Coase, The Problem of Social Cost, 3 Journal of Law and Economics 1 (1960)

7. Hermalin and Katz have shown, for instance, that this last problem is soluble so long as the parties have full information about each others' preferences and are bargaining according to a well-defined procedure; in that the equilibrium outcome results in immediate agreement, but were not able to extend the argument beyond those assumptions. Benjamin E. Hermalin and Michael L. Katz, Judicial Modification of Contracts Between Sophisticated Parties: A More Complete View of Incomplete Contracts and Their Breach," Journal of Law, Economics, and Organization, Fall 1993, 9 (2), 230–255.

distributional considerations might justify restrictions on freedom of contract, although the connection between such restrictions and changes in distributional outcomes is not straightforward. A brief word on each of these arguments is in order before considering their implications for legal doctrine.

Externalities. — The fundamental welfare theorems assume that all economic goods are allocated on markets; the Coase theorem assumes that all goods are the subject of arms-length bargaining. Absent markets or bargaining, however, the parties to the contract will lack proper incentives to take into account the interests of non-parties, such as competitors or other persons who may be injured by the contractual allocation of risks. For example, the parties might agree to an exclusive dealing arrangement or to restraints on alienation that have the effect of increasing the parties' wealth at the expense of a later entrant to the market; more generally, they may contract to engage in an antisocial activity such as the unsafe dumping of hazardous waste.

The externality problem will be more severe if other fields of law such as tort or antitrust do not adequately provide liability, or if there is some probability that one or both parties will be insolvent and thus escape liability ex post. The extent to which contract law can fill in for the failures of tort and other public regulation, on the other hand, is unclear. To the extent that the costs of externalities are suffered by third parties, it will not generally be in the interests of the parties to assert claims and defenses under doctrines intended to protect outsiders to the contract, except haphazardly in the event that the contract turns out to be one that one of them wishes to escape. Even so, they may manage to enforce their arrangements privately even if they are not enforceable in the public courts.

Another type of externality can arise from network effects in the use of standard forms and terms. As Klausner and Kahan have argued in the context of discussing corporate charters, the less familiar a contractual term, the harder it is to predict how courts and third parties will interpret and react to it, not to mention how the contracting parties themselves

will understand it.[8] Accordingly, rational contracting parties have an incentive to adopt customary forms in order to save on costs of legal advice, accounting services, and the like. Anyone who chooses a familiar form, or who invests in expertise relating to its use, thus confers a positive benefit on others who use that form and a negative externality on those who use competing forms.

Asymmetric information. — As a general matter, Coase's prediction of an efficient bargaining outcome does not hold under conditions of imperfect information.[9] The same is true in market settings. In particular, if the parties are differentially informed about the value of the exchange, then there can be adverse selection — that is, a lemons problem.[10] (This can be understood as a type of externality but is usefully classified separately because the appropriate legal and institutional responses are often different.) In settings of asymmetric information, furthermore, there will often be private incentives for the parties to invest in signaling activities of various sort. Such activities can be welfare-improving to the extent that they lead to more efficient allocation of resources, but to the extent their ex post effects are primarily redistributional , they are a net waste from a social viewpoint.[11] Of course, in order for state intervention to improve matters, the regulatory actors must be in a superior informational position to the parties, else they will not know when to intervene. Especially in commercial settings where the contract governs specialized business matters, regulators

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8. Marcel Kahan and Michael Klausner , Standardization and Innovation in Corporate Contracting (Or 'The Economics of Boilerplate'), 83 Virginia Law Review 117 (1997).

9. Joseph Farrell,1987. Information and the Coase theorem. Journal of Economic Perspectives 1: 113–129; Urs Schweizer, Externalities and the Coase theorem: hypothesis or result? Journal of Institutional and Theoretical Economics 144: 245–266.

10. George A. Akerlof, "The Market for `Lemons': Quality Uncertainty and the Market Mechanism." Quarterly Journal of Economics, 84(3), pp. 488-500, 1970.

11. See, e.g., Spence, A Michael, 1973. "Job Market Signaling," Quarterly Journal of Economics, MIT Press, vol. 87(3), pages 355-74.

may not be able to obtain such information at reasonable cost, with the result that their interventions may simply create additional uncertainty for the parties.

Market power. — Monopoly is conventionally cited as a standard reason for interfering with contractual freedom; it is worth noting, however, that from a contract theory perspective the problem of monopoly can be usefully assimilated to other market failures. Market power exercised at the expense of third-parties, such as the exclusive dealing example mentioned above, is a sort of externality; while market power exercised between the parties to a contract is really a problem of asymmetric information, since if a party with unilateral market power had full information about his counterparty's willingness to enter into trade, he could engage in perfect price discrimination with no efficiency loss. Similarly, as we have seen, if two parties with bilateral market power have full information about each others' preferences and are rationally far-sighted, they should be able to reach agreement without delay.

Legal scholars have often assumed that market power will lead to contracts containing suboptimal terms, on a supposed analogy to above-competitive pricing, but this analogy is not well founded.[12] The reason a monopolist finds it profitable to produce an inefficiently low quantity of goods is that by doing so, it forces consumers to compete against each other for the reduced supply, bidding up the price. If the monopolist tries to reduce quality, in contrast, whether of contract terms or of the underlying goods, it lowers the amount consumers are willing to pay. As Spence demonstrated, a profit–seeking monopolist will thus want to choose the level of product quality that best suits the preferences of the marginal consumer, for this maximizes the markup he can charge.[13] If all consumers have the same willingness to pay for quality, the monopolist will do best to provide a product

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12. See, e.g., Friedrich Kessler, Contracts of Adhesion - Some Thoughts About Freedom of Contract, 43 Column. L. Rev. 629 (1943).

13. Spence, A.M. 1975. Monopoly, Quality, and Regulation. Bell Journal of Economics 6: 407–14.

with socially optimal quality and to extract available profits through a high price. Only if the tastes of the marginal consumer are unrepresentative of others who buy will suboptimal quality be offered.

Capacity and bounded rationality. — If one or both parties do not accurately evaluate the expected costs or benefits of contracting, there is little reason to think that the outcome will be efficient. Much evidence deriving from laboratory experiments by psychologists and economists, and arguably some market evidence, suggests that people often systematically ignore certain types of information, or used biased heuristics when evaluating it. This problem has received a great deal of attention in US scholarship in recent years, under the label of "behavioral law and economics."[14]

The problem of bounded rationality can in principle justify state restriction of contractual terms, especially in consumer or employment settings where the individual participants have limited opportunity to learn through repeated experience or through adopting their own administrative arrangements to correct such biases. In order from such restrictions to be justified in practice, however, we need to be able to develop some practical guidelines identifying when biases are likely to be most serious and in which direction they tend; and so far the theoretical literature has not yet yielded much in the way of such guidelines.[15] More importantly, we also need to address the problem of bounded rationality by political actors and institutions, who may overestimate the value of their

14. See Christine Jolls et al., A Behavioral Approach to Law and Economics, 50 Stan. L. Rev. 1471 (1998); Samuel Issacharoff, Can There Be a Behavioral Law and Economics? 51 Vand. L. Rev. 1729 (1998); Colin Camerer et al., Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism," 151 U. Pa. L. Rev. 1211 (2003).

15. But see Issacharoff et al, supra note 14, who argue that the state of knowledge is sufficient to justify the setting of default rules.

interventions and who may see irrational ex ante decisionmaking when in fact there has only been an unlucky but psychologically salient ex post outcome.[16]

Economizing on contracting costs. — The standard model of competitive markets abstracts from the cost of entering into contractual relations; to the extent that state regulation reduces such costs, it can be welfare-enhancing. Most default rules fall into this category, insofar as they relieve parties from the need to spend resources describing and categorizing unlikely states of the world or detailed specifications of terms. For instance, if these terms are ones that most people would want, the state can adopt them as an interpretative default rule, in which case only the minority of parties that have a different preference will have to bear the costs of contracting around the law.

In general, such cost savings can be achieved without restricting contractual freedom entirely, but there may be situations in which prohibiting certain contracts eliminates incentives for rent-seeking. For example, refusing to enforce excessively one-sided contracts or contracts signed under duress may cause efficiency losses in some cases, but it may also deter efforts to engage in or defend against coercion or fraud, such as sneaking burdensome terms into the fine print of a contract.[17] If the frequency of coercion or fraud is high and the parties cannot otherwise commit not to engage in it, the efficiency loss from lost transactions may be outweighed by the gain in avoided rent-seeking. Similarly, if the parties are inclined to waste resources haggling over the distribution of a contractual surplus, eliminating extreme outcomes (and in some cases, even dictating a specific division) may reduce the incentive for haggling and lead to a mutually preferable result.

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16. See Jeffrey J. Rachlinski, A Positive Psychological Theory of Judging in Hindsight, 65 U Chi L Rev 2 (1998); . Kahneman, D., Schkade, D., & Sunstein, C. Shared outrage and erratic awards: The psychology of punitive damages. Journal of Risk and Uncertainty, 16, 1998, 49-86.

17. See generally Robert Cooter, The cost of Coase. Journal of Legal Studies 11: 1–29. (1982); Avery Katz, Your Terms or Mine: The Duty to Read the Fine Print in Contracts. Rand Journal of Economics 21: 518–537(1990); Hermalin and Katz, supra note 7.

Distributional fairness. — We have focused so far solely on efficiency concerns; but many commentators, especially in the US, have taken the view that legal rules should also be used as a tool to achieve distributional justice. In the contractual setting, this may mean restricting terms in order to achieve a preferable distribution between the parties (on whatever theory one uses to determine such a preference). While this goal could theoretically provide justification for contractual restrictions under some circumstances, the case for such restrictions is much more limited that many non-economically trained commentators have assumed, because the voluntary nature of most contracting makes it difficult to use contract law as a distributional tool. In general, parties will adjust nonregulated terms (such as price) to make up for regulatory mandated changes in other terms (such as quality), and always have the option to abstain from contracting altogether. Thus it is quite difficult to use contract regulation to redistribute welfare from consumers to producers or vice versa, although it may be possible, if parties have heterogeneous preferences, to redistribute welfare between different types of consumers or between different types of producers.[18] For instance, if consumers differ in their willingness to pay for product quality or for insurance against product failure, state regulations requiring enhanced quality (which has the effect of bundling mandatory insurance into the price of the product) will benefit those with relatively higher willingness to pay, while hurting those with relatively lesser willingness to pay.

How such regulations fit in with overall goals of social justice and fair distribution, however, is a complicated question. Following with the product quality example, if we make the usual assumption that willingness to pay for quality is positively associated with income or wealth, such a policy would have a distributionally regressive effect; it would tax the poor to pay for the quality demands of the rich. On the other hand, if willingness to pay is associated with information or beliefs about quality, and the poor have access to lower

18. See generally A.M. Spence, supra, note 13; Richard Craswell, Passing on the Costs of Legal Rules: Efficiency and Distribution in Buyer–seller Relationships. Stanford Law Review 43: 361–398 (1989).

quality information than the rich or are more subject to bounded rationality, then quality regulation could redistribute from the rich, who are not particularly in need of protection from low-quality products, to the poor, who are.

2.2 Legal doctrines regulating freedom of contract

To a considerable extent, legal doctrines regarding freedom of contract can be defended in economic terms, in that most doctrinal restrictions on contracting roughly correspond to situations of market failure or high transaction cost, although the correspondence is not exact. A few illustrations will make the point clear. (Here my discussion will be based almost entirely on common law systems, although the analogy to the rules of validity under other legal systems should be straightforward.)

Formal requirements. — There are many doctrines under which the parties must undertake costly formal efforts in order to make their agreements enforceable at law. For instance, writing requirements and the common-law doctrine of consideration would fall into this category, to the extent they are intended to deter socially marginal transactions or to put parties on guard against entering into certain kinds of suspect transactions. Some of the rules of contract formation, such as rules requiring that the offer and acceptance match up or provide a certain level of detail, also fall into this category.

Such doctrines are often justified on interpretative grounds, as explained in section 3 below, but they also play an important role in regulating freedom of contract. In particular, formal requirements may be justifiable on grounds of bounded rationality to the extent that they operate as a warning system or that they require parties to go to some deliberate trouble to overcome their restrictions. They may also be used in cases of externality, as a sort of tax on contracting that discourages socially costly transactions that have only marginal advantage for the contracting parties, or that promotes contractual terms and forms that carry positive network externalities. It should be noted, however, that such

formal restrictions are likely to be an inefficient way to regulate major externalities because they can easily be overcome with sufficient planning, and, in contrast to taxes, they impose a real resource cost on those who comply with them. Accordingly, they are probably best confined to cases of mild externalities, imperfect information, or bounded rationality.

Fraud and mistake. — All legal systems refuse to enforce certain contracts that are based on incorrect or significantly asymmetric information; and enforcement is especially disfavored when one party to the exchange has caused the other to become misinformed. The common-law doctrines of fraud and unilateral mistake illustrate the point; their goal is not just to deter the inefficient exchanges that can take place under conditions of imperfect information, but also to discourage rent-seeking behavior in the form of undertaking expenditures to deceive others or to avoid being deceived. In order for such doctrines to be welfare-improving in practice, however, courts or other enforcing institutions must have a reliable way to distinguish between asymmetric information on the one hand, and conscious risk-taking in the setting of incomplete but symmetric information on the other, otherwise too many legitimate transactions will be avoided. In this area, accordingly, there is potential for divergence between what the law provides and what would be most efficient from a second-best perspective, In general, however, the common-law courts have been sensitive to such concerns and have limited the reach of these doctrines to fairly significant imbalances of information (and in the case of fraud, special requirements of proof and pleading are also in force.)

Duress, undue influence, and unconscionability. — These doctrines allow parties to avoid transactions entered into under conditions of asymmetric information or rent-seeking. The effect is to reduce incentives for socially wasteful expenditures on fraud or coercion, as well as to deny enforcement to a class of bargain that are disproportionately likely to be ex post inefficient. The main differences among them under the common law have to do with the specific factual situations in which they are used: duress tends to be reserved for cases of outright coercion; undue influence for abuse of a position of trust (as with a physician

contracting with a patient under her care); and unconscionability covers situations that do not seem clearly characterized by duress or fraud but in which the nature of the parties and the transaction suggests a high probability of such behavior, or of an inefficient ex post exchange. The unconscionability doctrine is also sometimes rationalized on redistributive grounds, and it may well have distributive effects in particular cases ex post, but as we have seen above, there is reason to doubt that it can have any redistributive effect over the run of cases, absent some informational or strategic market failure.

Contracts against public policy. — In US contract law this doctrine primarily regulates externality-producing contracts, such as contracts to engage in ostensibly antisocial activities such as gambling, when those activities are not already prohibited by effective criminal statute or social regulation. Like unconscionability, it serves as a backstop for transactions that seem to be inefficient or socially undesirable, but that do not clearly fall within the specific definition of other regulatory doctrines. Because of its vague boundaries, accordingly, it can also be used on an ad hoc basis to implement the particular policy preferences of the court, such as distribution ex post.

2.3 Freedom of contract in electronic settings

We now consider whether, in light of the foregoing list of market failures — or redistribution to the extent it is a feasible or desirable goal to pursue in private law adjudication — the case for freedom of contract is strengthened or weakened in the electronic setting, and if so, what alteration of legal doctrine might be an appropriate response to technological developments.

Externalities. — It is not clear why there should be any additional externalities from contracting in the electronic setting compared to the traditional setting, so long as we hold the geographical locus of the contract constant, and assume that parties are appropriately charged for access to communication media and their use of software and other intellectual

property with public-good characteristics. However, these things cannot be held constant; and in particular, electronic contracting may significantly exacerbate inter-jurisdictional externalities.

For example, consider an activity that is prohibited due to perceived externalities in a certain location (such as drug use or gambling, because it encourages personal insolvency and social dependency). If one jurisdiction can deregulate the activity while selling to customers in other jurisdictions, the negative effects may be experienced in those other jurisdictions. Here the problem may be more one of choice of law (i.e., private international law) than contract; if the rules of the jurisdiction suffering the ill effects can be applied to the transaction, the externality may be internalized. On the other hand, as observed above, merely denying contract enforcement is a weak regulatory instrument for regulating such externalities; they may occasionally be helpful in enabling the parties to get out of their deal after the fact, something more is needed. It may instead be necessary to prohibit or tax such transactions, or to regulate them using third-party modes of enforcement law such as tort law; though of course the cooperation of the rival jurisdictions involved will remain necessary.

Perhaps more importantly, the greater size of the market and greater access to others' contractual forms that are characteristic of the electronic setting are likely to increase the importance of network externalities. Given the fixed costs of setting up technological and communication standards and learning how to use them, cross-system compatibility is a primary concern for electronic contractors. Such network effects may justify increased state and transnational intervention through competition policy, as well as increased cooperative efforts toward international standard-setting. Increased formal requirements and increased penalties for those who do not follow the prescribed forms may also be in order. In this regard, however, regulators should keep in mind that technologies change over time and that it may turn out to be easier to overcome technical compatibility problems than to amend outdated legal arrangements that fix in place an obsolete technological standard.

Asymmetric information. — With regard to this particular market failure, there is a greater difference between the electronic and traditional settings. In principle, the growth of electronic media should mitigate the problem of imperfect information in contracting by reducing the relative costs of acquiring and processing such information. For instance, parties who might previously have lacked the time or inclination to investigate a counterparty's reputation or the terms of the specific contract will now be able to do so at lower cost, and will be better able to shop comparatively for price and other terms. In the consumer area, price comparison portals such as MySimon and Froogle are already widely used and should become equally widespread in the business setting as markets become thicker.

The electronic setting is also likely to mitigate informational limitations at the point where parties negotiate and enter into contracts. It is easier and cheaper to look into the details of contractual language when one has access to electronic text and can use software search algorithms to discover critical or difficult terms. Such developments should lower the relative disadvantage faced by less informed parties, in the long run reducing the need for protective interpretive doctrines such as *contra proferendum* (construing the contract against the drafter), as well as information-forcing doctrines such as unilateral mistake. That is not to say that such doctrines should be eliminated entirely, but the occasions on which they need to be invoked will be fewer; and so the evidentiary threshold necessary to invoke them can be tightened.

Two exceptions to this generalization are worth mentioning, however. First, as we saw just above in our discussion of externality, compatibility problems between communication technology systems may interfere with their users access to other traders and to their contracts, as users sort themselves into separate networks. Second, consumers' higher information costs and relative unfamiliarity with the new technology arguably raise the importance of consumer protection. For example, courts in the US are struggling with the questions of whether businesses can bind consumers with standard form language and which

types of terms will be permissible in long-distance situations. It should be observed, however, that to the extent that this is a problem of information as opposed to bounded rationality, the case for restrictions on contractual freedom is rather stronger in the short run, when the necessary information regarding how to use the new technologies has not yet been fully distributed, than in the long run when consumer familiarity with electronic contracting will surely increase.

Market power. — As we saw above, it is not clear what implications market power has for freedom of contract to begin with. Whatever conclusions one reaches on that issue, though, the growth of electronic media is likely to reduce the importance of market power in most industries, as parties gain access to a larger number of potential trading partners, both within and across national boundaries. Thus, the occasions for policing such power through doctrines such as unconscionability should become less frequent. Two countervailing factors should be kept in mind in this regard, however. First, increased economies of scale deriving from the expansion of distributional and communication networks may reduce the number of sellers able to operate in the market, as illustrated by the phenomenon where Amazon.com has driven many small "brick-and-mortar" booksellers out of business. (Note that if such developments turn out to lower the market price on balance, the outcome may be second-best efficient; and the problem is likely to be most severe in the market for electronic communication and technology, as opposed to consumer markets generally.) Second and relatedly, as mentioned earlier, compatibility problems may restrict dealing across incompatible networks, and for that reason some sellers may pursue incompatible strategies with the goal of market division. So long as regulators responsible for antitrust and competition policy monitor such problems effectively, however, they will probably remain a secondary concern for the doctrines of contract law.

Bounded rationality. — While information technology helps lower the cost of acquiring information it does not assure that people will know how to use such information properly. Many consumers, as well as smaller business that subcontract their technology

requirements to small third-party specialists, may not understand the new risks of fraud and error associated with using electronic media, including software and hardware malfunction and security risks such as virus infection or theft of proprietary information. Consumers in particular may not understand the communicative conventions in force in electronic media, and so may enter into contracts without intending to (for instance, by accidentally clicking on the wrong button on a web page, or by employing a "web accelerator" program that is intended to reduce waiting time while browsing, but that does so by following linked pages and loading them into background memory.) This problem will be exacerbated to the extent that parties rely on rules of thumb that are well established in traditional settings but not followed online. Enhanced requirements of form, such as elaborated writing and disclosure requirements, might well be justified in this regard to protect such inexperienced parties, though as before, it is possible that this would make more sense as a short-run temporary measure than as a long-run permanent one.

Contracting costs. — Here the case for regulation of freedom of contract is more complicated, and depends on the kind of costs that are most important to the specific transaction at issue. With respect to the straightforward costs that arise from the need to write and negotiate contracts and to communicate their content, electronic technology should lower the cost of contracting, thus reducing the justification for state regulation on this ground. The situation with respect to costs arising from rent-seeking, however, may be different. In traditional exchange contexts, the parties may be tempted to devote efforts to tilt the terms of trade in their favor by strategic delay, haggling, and the like; these direct costs are likely to be lessened in the electronic setting because of the increased possibility of turning to other contractual partners. Similarly, to the extent that rent-seeking takes the form of sneaking terms into the fine print of contracts, the introduction of contract-reading software will lower the incentives for and cost of such behavior. On the other hand, if rent-seeking takes the form of devising game-theoretic bargaining strategies and embedding them into the coded instructions given to electronic agents, contracting costs could rise.

The interplay between such strategies may defeat agreements that should take place, and the cost of creating and implementing them may reduce the gains from trade in contracts that are completed. It might be possible to improve parties' welfare by refusing to give effect to some terms concluded in this way, or by imposing special liability on parties who are responsible for writing contracting software, in the same way that current law imposes special obligations on the creators of standard form contracts.

Distribution. — For the reasons indicated above, the doctrinal rules of contract law are unlikely to have significant distributional effects between buyers and sellers. They can, however, have such effects among different types of buyers and also among different types of sellers, if they promote terms that are favored by some parties and disfavored by others. In this regard, access to electronic media is likely to be correlated with wealth or income, with the wealthy being disproportionately likely to own computers and to have the education and social sophistication necessary to use them effectively. Sophistication in the use of electronic media is also likely to be negatively correlated with age. In the US, this differential access to new technology has been labeled the "digital divide."

In an era of increased electronic contracting, greater access to the electronic media will lead to greater access to distant markets, enhanced product competition, and better information about product quality and seller reliability. Those with such access will thus pay lower prices and enjoy higher product quality; and they may also find it easier to evade excise taxes.[19] Sellers may also make use of electronic retail outlets to engage in price discrimination between electronic and traditional customers, reflecting the relatively higher price elasticity attaching to the former. Such effects threaten to reinforce existing social and economic equalities, in the same way that suburbanization in the US has had the effect of

19. In the US, Internet sales are currently exempt from local taxation so long as the buyer and seller reside in different states; this rule, carried over from traditional policies toward mail-order merchandising, has likely distorted locational decisions on the margin, leading retailers who would otherwise have opted for a national distribution system to concentrate their warehouse facilities in a few jurisdictions to maximize the value of the interstate tax exemption.

cutting many central-city residents off from suburban commercial and employment opportunities. As such, they may justify public expenditures or regulatory cross-subsidies on behalf of those who otherwise would lack access to the new electronic media.

3 Formation and interpretation of contracts

Freedom of contract does not ensure that people enter into contracts; it only ensures that they are not prohibited from doing so. In order to contract, rather, one must follow the legally prescribed procedures. Such procedures are often discussed from a perspective that takes them as conventional; on this view, formation and interpretation rules primarily serve to help individual parties negotiate by ensuring that they both attach the same meaning to their objective manifestations.[20] In this traditional view, contract formation rules are primarily social conventions that serve to help contracting parties coordinate their agreements, by ensuring that the parties attach the same meaning to their objective manifestations and that their meaning will be understood by third parties called upon to enforce the agreement. Such rules also have important regulatory effects, however, arising from the fact that they attach material consequences to the potential acts and omissions that individual parties must choose from when looking to contract. Doctrines governing contract formation, for instance, affect the parties' incentives to make and to respond to offers, to delay, to bluff, and to communicate with one another in the first place. Interpretive doctrines, which determine the substantive consequences of using particular modes of expression, affect the costs of bargaining into and around particular contract terms. Both sets of rules thus determine which contracts get formed and the terms on which they get formed, and so have both efficiency and distributional consequences.

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20. See Avery Katz, *The Strategic Structure of Offer and Acceptance: Game Theory and the Law of Contract Formation*, 89 MICH. L. REV. 215, 216–223 (1990).

In this section, accordingly, we consider the major doctrinal rules of contract formation and interpretation and the incentives such rules provide for pre-contractual behavior. Because the nature of the analysis here is similar to that presented in the previous section, the discussion will be somewhat more condensed, but its organization will be the same. First, we review the economic considerations relevant to this area of the law, then evaluate the main doctrines in light of the economic considerations, and finally identify how the analysis might differ under the different transaction costs that are characteristic of electronic settings. We begin by identifying the various margins along which legal rules can make a behavioral difference.

3.1 Economic aspects of contract formation and interpretation

Before the parties ever meet, they face several decisions that affect the expected value of any exchange into which they may subsequently enter. These include: the decision to search for contractual partners or to invest in information about the value of exchange, the decision how to negotiate once a potential trading partner is found, and the decision to engage in pre-contractual investment.

Pre-contractual search and investigation. — In order for the parties to be in a position to enter into exchange, they must find each other. This means that they must undertake the expense of traveling to or corresponding with an established market, or searching out possible trading partners on their own. Once they find each other, they must determine whether there is room for exchange; this determination requires further efforts such as inspection or disclosure. The fact that one potential partner has been found does not imply, furthermore, that a better match might not be available. Accordingly, each party must to weigh the costs of additional search against the expected gains from a marginal improvement in the bargain. Since the value of additional search lessens as the quality of the bargain in hand increases, parties will in general find it optimal to search up to some level of

satisfaction and then stop.[21] The level of search that is privately profitable, however, is not the same as the level that would be socially optimal, for two reasons. First, in a thin market, one person's search efforts provide a network externality that reduces the search costs of others. Second, to the extent that there are economic rents associated with trading (i.e., parties buy or sell at prices that diverge from their reservation prices), some amount of search is motivated by the desire to find a better distributional outcome. Since these effects work in opposite directions (network externalities suggest too little search, while search for the purpose of rent-seeking suggests too much), it is difficult to know what policies state actors should pursue in this area, but in general it is at least possible that enlightened regulatory intervention could improve social welfare.

Contract bargaining — Once the parties have settled on each other as potential contracting parties, in all but the simplest transactions they must still engage in some negotiation. At this point, they face various practical decisions, including whether to make and respond to offers, whether to disclose information in negotiation, and how systematically to express in their formal agreement the terms on which they have agreed. Here there are many opportunities for the parties to act inefficiently or strategically. For instance, withholding offers or making inflexible take–it–or–leave–it offers can be a way of exercising market power. Disclosing more information helps to identify a more efficient bargain, but may disadvantage the disclosing party by revealing his reservation price and subjecting him to hold-up.

Once they have reached a basic agreement, furthermore, they must decide how extensively to work it out: whether to specify directions for all foreseeable circumstances or merely the mostly likely ones, and whether to hire legal professionals to draft specific terms for the occasion as opposed to just reusing or adapting a standard form or one used in a previous exchange. Reusing old forms and leaving gaps or ambiguous passages in the

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21. Martin Weitzman. Optimal Search for the Best Alternative. Econometrica, 47(3):641-654, May 1979.

formal agreement can save time and lawyering costs, but also creates incentives for rent-seeking ex ante through opportunistic drafting and ex post through litigation over the meaning of terms. For these reasons, there are many potential occasions for legal intervention to improve the bargaining process, but effective intervention requires some knowledge about what terms and contracts are efficient — knowledge that may depend on information revealed by the parties in negotiation or in litigation. Thus, regulatory interventions may themselves be subject to gaming by the parties.

Investment. — In most exchanges, parties have opportunities to make investments that can make the bargain more valuable, and such investments are cheaper and more productive when made in advance. For instance, suppliers of goods with advance notice of an exchange can lower their production costs by buying materials when the prices are low or by doing work when business is slow. Buyers can invest in specialized storage facilities or worker training, or can search for resale customers. All these investments are at least partially relational; that is, the parties would not make them apart from the particular underlying exchange.

That such investments are relational, however, leaves them vulnerable to expropriation by the investor's counterparty in subsequent contractual negotiations. For instance, an opportunistic partner may demand a unilaterally favorable modification at the last minute, knowing that the sunk nature of the investment ties the investor to the deal. The prospect of such opportunism can create significant ex post costs as parties jockey for negotiating advantage; perhaps more importantly, it can deter efficient investment ex ante. A party who anticipates such behavior will be less likely to make investments, since he will be less able to capture the incremental gains from investment but still bears the downside risk.

3.2 Legal doctrines addressing contract formation and interpretation.

The rules of contract law regulate the formation and interpretative process in numerous ways. While a complete survey of such rules would take us well beyond the scope of this paper, we illustrate the economic effects they can have by discussing three major doctrinal clusters: offer and acceptance, pre-contractual liability, and the various rules that govern the relative importance of formal and substantive considerations in contract interpretation.

Offer and acceptance. — Various rules of contract formation have the effect of making it harder or easier to enter into contracts. For example, consider the common–law doctrine that, absent special circumstances, an offeree's silence in the face of an offer does not constitute assent.[22] Since responding to offers is costly, the common–law rule requiring an affirmative response raises the expense of forming an agreement. A negative–option rule requiring the recipient to respond in order to avoid entering a contract, conversely, makes it more costly to reject offers and increases the number of exchanges.

Notwithstanding the silent-acceptance doctrine, there are many American contract law doctrines that have the effect of accelerating the parties' negotiations and binding them to a bargain at the earliest possible moment. A prominent example is the so-called "mailbox rule," which creates an enforceable contract at the moment that an offeree dispatches an acceptance. (The analogous civil law rule creates a contract at the moment that the acceptance is received by the offeror, allowing the additional time required by transit of the message for the parties to withdraw from the bargain.) Another series of examples can be found in the law of sales, where various provisions of the Uniform Commercial Code have the effect of reducing formal requirements and favoring the finding of a contract when the

22. See RESTATEMENT OF CONTRACTS (SECOND), §69. In exceptional circumstances, however, such an inference is justified, as when there has been a course of dealing that leads the offeror to expect a response. Id., §69(1)(c).

situation is otherwise ambiguous.[23] More generally, the trend in common-law doctrine over the past hundred years has been to view offers as creating a binding options in the offeree, unless the right to revoke is clearly stated.[24]

On the margin, rules of contract formation have both efficiency and distributional effects. The negative–option rule, for instance, economizes on the costs of sending communications, but sometimes leads to inefficient contracts (although the inefficiency is bounded by the cost of sending a rejection.) It also is distributionally more favorable to the offeror; under the common-law regime, an offeror must lower the offer price on the margin in order to induce the offeree to bear the cost of a response, while under a negative-option regime, the offeror can raise the offer price up to the point where the offeree's loss from the bargain is less than the cost of sending a rejection.[25]

Additionally, such rules affect incentives to engage in pre-contractual search. A party who can be sure that she has a commitment to a contract or unilateral option to contract can afford to reduce her expenditures on further search; and a party who is bound to such an option will experience a reduced value from search because even if he finds a better bargain, he will still be liable for damages on the existing one. This suggests that the modern doctrines reduce the level of search. But this potential effect must be weighed against long-run dynamic considerations, as parties may be more willing to undertake the costs of search

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23. See, e.g., UCC "2-305, 2-308, 2-309, 2-310 (providing off-the-rack terms to fill the gaps in agreements that would have been too indefinite to enforce at common law); "2-204. 2-206 (eliminating formal requirements for contract formation); 2-207 (abolishing the common-law "mirror image rule"); '2-201 (restricting the Statute of Frauds).

24. See, e.g., Avery W. Katz, When Should an Offer Stick? The Economics of Promissory Estoppel in Preliminary Negotiations, 105 Yale Law Journal 1249 (1996). Avery W. Katz, The Option Element in Contracts, to appear in Virginia Law Review, Vol. 90 (2004).

25. For a more complete analysis, see Avery Katz, Transaction Costs and the Legal Mechanics of Exchange: When Should Silence in the Face of an Offer be Construed as Acceptance?, 9 J. Law Econ. & Org. 77 (1993).

in the first place if they can be assured that any trading partners they manage to find will stick with their deal, as opposed to engaging in continual repeated effort to locate an improved deal.

Pre-contractual liability. — Even if no offer is on the table, negotiating parties may still be held liable for their counterparts' reasonable expenditures made in reasonable expectation of contracting and in reliance on statements made in the course of negotiation. Such liability is imposed under the common law under the doctrine of promissory estoppel, and under analogous doctrines such as *culpa in contrahendo* in civil law systems.

As I have argued, elsewhere, the efficiency of promissory estoppel depends, *inter alia,* on which party holds the greater bargaining power ex post. The underlying reasoning is straightforward: economic efficiency requires that the benefits of reliance and the risk that it will be wasted be balanced against each other on the margin. The party who holds the ex post bargaining power is more likely to enjoy the upside gains that come from reliance investments; accordingly, it makes sense for that party to suffer the downside risk in the event that the negotiation fails and the investment is wasted. Estoppel and *culpa in contrahendo* are most necessary, accordingly, when it is important to motivate investment by those whose bargaining power is otherwise weak.

Formality in interpretation. — Many rules of contract law have the effect of privileging or emphasizing certain types of potentially relevant interpretive materials, and discounting or excluding others. Such rules are often termed "formal" because they confine the interpreter's attention to a subset of materials that may or may not accurately reflect or give rise to the same inferences as would the universe of materials as a whole. A more substantive approach to contract interpretation, in contrast, would attempt to come to a more all-things-considered understanding, based on all the materials reasonably available. For instance, the common-law parol evidence rule provides that a written document that integrates the parties' agreement may not be contradicted or varied by evidence of prior or

contemporaneous oral understandings; this rule elevates the form of the written text over the substance of the parties' business and negotiating context. The common–law Statute of Frauds, which requires that certain agreements be expressed in writing before they can be enforced, has similar effects.

This choice between formal and substantive modes of interpretation has a number of important economic effects.[26] One obvious effect is on the level of direct transaction costs used in negotiation and interpretation. A tribunal that bases its decisions on a smaller set of interpretive materials should require less time and effort to carry out its task, so formal modes of interpretation will be appropriate whenever the ex post costs of time and effort are especially large. On the other hand, the ex post cost of interpretation needs to be weighed against increased contract-writing costs ex ante; for if the parties anticipate that formal decision procedures will be applied at the performance and enforcement stages, they will be induced to put greater effort into specifying additional terms or supplying additional interpretive materials at the contract-writing stage.

A second important consideration is the relative cost of rent-seeking. Under a regime of substantive interpretation, parties may be tempted to invest substantial resources in ex post litigation; such behavior is wasteful except to the extent that it improves incentives for primary behavior. Additionally, formal interpretation tends to restrict attention to publicly available information, thus reducing the variations of litigants' expectations and encouraging settlement. On the other hand, rent-seeking can take place at the contract-writing stage as well, parties try to conceal one-sided terms in the fine print. Even if parties do examine the standard forms of their contractual partners to guard against such terms, such an examination is costly; and in many cases non-drafting parties will just assume that such terms have been included and discount the price they are willing to pay. In such settings, the

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26. For a more extensive discussion of these effects, see Avery W. Katz, The Economics of Form and Substance in Contract Interpretation, supra, note x.

parties may find it useful to have a way of committing to abstain from such behavior, and an interpretive regime that de-emphasizes the text of the agreement in favor of less manipulable considerations such as market expectations may provide such a commitment device.

A third reason for favoring substantive over formal modes of interpretation is that the contracting parties may use agents whose representations and promises may differ from those intended by their principals. Merger clauses, for example, can be used to take the power to create warranties away from sales agents, and to consolidate it in the managers and legal professionals who control the official texts of company documents. On the other hand, managers and lawyers are not perfect agents either; a lawyer charged with drafting terms in a standard form is more likely to be punished for omitting a term that turns out to lead in some remote contingency to a loss for the firm, than he or she is to be rewarded for the time saved by the omission in the far more probable event that the term is unnecessary. Thus, formal methods of interpretation may be more efficient in cases where the relevant principals have established relatively efficient incentive structures for controlling the behavior of their lawyer agents, and substantive methods more efficient in cases where they have established relatively efficient incentive structures for controlling the behavior of its non-lawyer agents.

3.3 Formation and interpretation in electronic settings

As indicated above, it is difficult to assess what legal rules are efficient in the formation and interpretation context, since the answer turns on a balancing of a number of competing and hard-to-measure effects. For the purposes of our inquiry here, however, we do not need to provide an absolute answer to this question, only a relative one. By focusing on the economic differences between electronic and traditional contexts, we may be able to draw comparative conclusions about whether such doctrines are better suited to one or another setting.

Offer and acceptance. — In the context of contract formation, the potential for ex ante rent-seeking depends on the costs of reading and responding to offers of contract. If rejecting an unfavorable offer were costless, for instance, there would be no incentive to undertake the costs of making one. Other things being equal, accordingly, the need for regulation in this area should depend on the relative costs of making offers, acceptances, and rejections. More specifically, the rents that are available from making opportunistic offers will fall with the cost of information processing, but the costs of making such offers will also fall. So long as the cost of making offers is less than the cost of responding to them, rent-seeking will remain an efficiency and distributional problem.

Recent controversies over the regulation of "spam," or unsolicited electronic mail, illustrate the point. The no-silent-acceptance rule applies to spam just as it does to any other offer, but there is still a cost to recipients of filtering out the spam messages from legitimate mail (or of losing legitimate mail to overzealous filtering programs). This cost is small, but the cost of sending spam is smaller yet, especially under current Internet pricing systems that allow mail to be sent at no out-of-pocket cost. The example shows that reduction in communication costs does not necessarily remove the need for regulatory intervention.

Analogous considerations apply to the issue of what effect to give to terms found in fine-print contracts. On this issue, however, it may make sense to apply a different rule in the electronic setting in the long run, since the growth of information technology should reduce the cost differential between writing and reading contracts, reducing the incentive for opportunistic drafting. An offeree in possession of a good search engine, for instance, should be able to check a contract or multiple contracts for unfavorable terms much more easily than in the traditional setting, so long as the terms follow a standard format. Such formats such as XML (extended markup language, an extension of the HTML language) will provide such a standard so long as they are widely adopted. In such circumstances, the

main role for government regulators will be assuring that standards are established and made widely available.

Pre-contractual liability. — Here it is less clear that the electronic setting will make a difference to optimal policy, but any difference should work in the direction of lessened protection for reliance expenditures. To the extent that reliance takes the form of investigating a potential contractual partner, its cost will fall with the cost of information. The same is true when reliance takes the form of turning down alternative offers, because the reduced costs of search means that the cost of replacing those offers will fall. More speculatively, the prospect of speedier and more reliable communication may allow parties to enter into contracts with shorter lead time before performance. This compressed lead time will lessen the need for advance reliance and may lessen the chances that reliance investments will be wasted. These effects should be reinforced by the increased competition and market size for electronic commerce, which will reduce the potential for contractual hold-up ex post.

As with the problems of rent-seeking and information exchange discussed above, however, the main sticking point is network compatibility. If contracting parties can only communicate with a subset of potential trading partners, reliance costs and the potential for hold-up will remain high. It seems likely that the number of potential partners will still rise in the age of electronic contracting, but antitrust and standard-setting policies will have an important effect on how fast and how much that happens.

Formality. — To the extent that substantive modes of interpretation are justified by the costs of contract writing and negotiation ex ante, this justification will probably be lessened in an electronic setting. Another way of saying this is that with the growth of information technology, the relative costs of learning about and searching text will fall relative to the costs of learning about and searching context, thus rendering text a cheaper medium for conveying information. This cost advantage, furthermore, is not confined to the

parties themselves; rather, an equally important value of formality derives from the way in which it enhances complementary third-party contributions to contractual surplus. Such contributions are often valuable even in traditional settings; for example, a buyer of commercial machinery may need to borrow funds to pay for its purchase, and will usually be able to borrow at a lower rate if it pledges the acquired machinery as collateral. Similarly, a buyer might purchase two specialized pieces of equipment from two different suppliers; if the items are intended to be used together, the terms of the buyer's arrangement with one supplier (such as terms granting the supplier the discretion to alter the specifications) will affect the terms it can get from the other.

In such cases, the third party's ability to provide complementary services at low cost will depend on how easily it can observe and verify the terms of the contract that its services are supporting. If a factor has to worry about an account debtor asserting defenses when it comes time to collect on the account, for instance, the amount it is willing to lend against the account will be reduced accordingly. If the factor can effectively assess the risk of such defenses from a simple examination of the underlying contract's text, however, it can price the risk out, hold back an amount in reserve that corresponds to the expected value of uncollectible accounts, and lend the balance. If the existence of such defenses depends upon more contextual factors, however, such as oral communications between the account debtor and the seller's sales agents, the factor will need to be more conservative and will not be able to lend at the same rate or in the same amount. It is likely that innovations in information technology will reduce the cost to third parties of verifying the text of the parties' contract relative to the cost of verifying context. Just as formality is more valuable in the context of negotiable instruments and letters of credit, where interested parties deal at a distance and lack access to local information, it is likely to be more valuable when new markets allow distant suppliers and investors to supply factors of production.

A related factor is reduced agency costs. With advances in information technology, however, the principals are likely to have better control over and information about the

statements and actions of their agents. This improvement in agency control may allow a return to more formal methods of interpretation, on an analogy to the more formal methods that prevailed at the beginning of the previous century, before commerce came to be so dominated by large organizations dependent on agent decisionmaking for their operation. The main countervailing argument in favor of substantive interpretation in the electronic setting, however, is that many contracting parties will not fully understand the technology they are using, and will contract out for informational and technological services to specialized subcontractors who are themselves imperfect agents. To the extent that the users of electronic contracts are unable to supervise the activities of their programmers and systems designers, some form of substantive interpretative doctrines will remain necessary to serve as a backstop.

4 Extensions and conclusions

The foregoing catalog of legal doctrines and associated functional justifications for those doctrines is admittedly incomplete. In this paper, we have focused only on legal issues relevant to state regulation, as opposed to those relevant to transactional planning. Additionally, we have conducted our discussion at a general level and have omitted to discuss many important individual doctrines, including most importantly those dealing with remedies for breach of contract. Finally, we have not discussed any other traditional or non-economic approaches to the law of contracts, or what implications these other approaches might have for electronic contracting. A discussion of transactional issues in electronic contracting will have to wait for another occasion, but it is possible to sketch out here the main issues that are likely to arise with regard to contract enforcement and the main implications of the non-economic theories of contract law.

Credibility of contract enforcement. — All the effects of legal doctrine discussed in previous sections of the paper depend on the assumption that contracts will actually be enforced. In practice, of course, enforcement is costly, so contract breach often leads to ex post rent-seeking or renegotiation. In the electronic setting, the relative cost of enforcement is likelier to be higher because parties are likelier to transact at a distance and to reside in different jurisdictions. (Another way to say this is that the cost of making contracts falls relative to the cost of enforcing them.) As a result, litigation-financing and procedural institutions may be as important in the electronic setting as substantive ones, and it may be necessary to devote relatively more resources and attention to procedural innovations such as online arbitration and remote electronic submission of evidence and legal arguments.

Private versus public enforcement. — Second, the relative importance of private enforcement institutions may rise in the electronic setting.[27] Private enforcement is of course already widely used in ordinary settings, as the anticipated profits from future dealings between contracting parties and referrals to others in the same market operate as a bond to discourage breach. To the extent that innovations in technology reduce the cost of sharing information about experience with contracting partners, the value of these reputation bonds will increase. At the same time, however, commercial reputations will become more vulnerable to the dissemination of inaccurate information, so the role of public non-contractual bodies of law such as defamation and unfair competition will increase in importance relative to public contract law.

Choice of remedies for breach. — Third and finally, the optimal remedies for breach may change, independent of whether public or private institutions are used for enforcement. In modern common-law systems the usual remedy for breach is substitutional monetary

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27. See David D. Friedman, Contracts in Cyberspace [online draft]; Clayton P. Gillette, Reputation and Intermediaries in Electronic Commerce, Louisiana Law Review, Vol. 63 (2002); Henry H. Perritt, Jr., Dispute Resolution in Cyberspace: Demand for New Forms of ADR, 15 Ohio St. J of Disp. Resol 675 (2000).

relief, though the case reports suggest that specific performance is increasingly available and the remaining preference for money damages has come under increasing criticism from economically oriented scholars in recent years.[28] In civil law systems, the default remedy is usually said to be specific performance, although there remain questions about how often this default is actually imposed in practice.[29] The optimal choice between these remedies, however, turns on the relative cost of going back into the market following breach. If market substitutes are available, the institutional costs of directing specific performance are unwarranted; while if they are not, specific relief may be the only means of protecting the aggrieved party's lost expectation.

In this regard, the same informational changes that make it easier to search for and evaluate contractual partners ex ante should also make it easier and cheaper to arrange for backup plans and cover and resale ex post. Thus, in electronic settings, we should expect to see less use of specific relief, and more use of market-oriented remedies such as cover and difference-in-value.

Comparison with non-economic approaches. — As for non-economic approaches to contract law, these are also beyond the scope of this paper, but in order to facilitate comparison with the economic approach, however, it is worth briefly mentioning three of these competing approaches. The first of these is a corrective justice approach, which holds that public legal institutions should concentrate on redressing unjust or wrongful situations. (In the contractual setting this would include restitution of unjustly received benefits or compensation for a broken promise.) Because this approach seeks the restoration of some past state of affairs, it stands in obvious tension with the economic approach to law, which

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28. See, e.g., Aaron S. Edlin and Alan Schwartz, Optimal Penalties in Contracts, 78 Chicago-Kent L. Rev. 33 (2003); Robert Scott and George Triantis, Embedded Options and the Case Against Compensation in Contract Law . 104 Columbia Law Review ___ (2004).

29. See Lando, Henrik and Rose, Caspar, The Myth of Specific Performance in Civil Law Countries (November 21, 2003). Lefic Working Paper No. 2003-14. http://ssrn.com/abstract=462700

regards past gains and losses as sunk and emphasizes incentives for future behavior. It is unclear, however, whether the corrective justice approach has any clear implications for the future direction of the law of electronic contracting, since it focuses on ex ante rather than ex post analysis of legal problems.

Second, a liberal autonomy perspective emphasizes the importance of the individual as opposed to the collective interest, and argues that individual rights should take priority over more general concerns of social welfare. In general, libertarians have tended to approve of the rise of the Internet and related forms of electronic communication because it has appeared to offer a deregulated arena free from governmental interference and that allows citizens of different jurisdictions to deal with each other directly. Whether this approval is warranted depends on whether the conditions of free choice are present in the electronic setting and whether governments continue to stay out, neither of which is assured in the future.

Third, a social constructivist perspective takes the position that the normative goals of society can only be determined by collective and ongoing deliberation among its citizens, and that a major main goal of legal institutions should be to provide adequate opportunity for such decisionmaking. This approach is inconsistent with the economic approach in that it would deny the coherence of the social welfare function concept, although some of the concerns expressed by scholars in this tradition can be translated into economic terminology as sociological externalities. Social constructivists have expressed mixed views on the rise of the Internet and related informational media: some have worried that the filtering capacity of such media will isolate citizens by making it easier for them to avoid exposure to others' views and practices; on this view it is all the more important that the state take an interest in the operation of new media.[30] Others have argued that the new media both lower the cost of acquiring information about other views, and encourage the formation of new

30. See generally Cass R. Sunstein, Republic.com (Princeton : Princeton University Press, 2001).

"virtual" communities can cut across traditional social and national boundaries. We have discussed such factors in terms of how they reduce the costs of search and thus enable greater specialization in trade and enable commercial interaction between persons at a greater physical distance, but it should be recognized that they also may have important political economic consequences.

Conclusions. In conclusion, however, our discussion in this paper has been sufficient to demonstrate two main lessons. First, the basic economic analysis of contract law can be extended in fairly straightforward fashion to the problems of electronic commerce. In this regard, our discussion lends support to those commentators who have argued that the rise of electronic commerce poses few new conceptual challenges to existing legal analysis. But second, the relative costs of particular precautions and expenditures are different in electronic settings than in traditional ones, and this difference in relative cost suggest that the balancing of policy considerations may well come out differently, justifying changes at the level of application of law if not at the level of theory. The rise of the new electronic media thus portends much new work for legal scholars, and for economic scholars of law as well.