

Covenant of Good Faith & The Economics of Contracts

Contract Theory and Law Colloquium, April 25, 2019

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Attached to this cover are three short excerpts that will serve as background for some of my thoughts and likely comments regarding the implied covenant of good faith in contractual performance.¹ These excerpts are presented in order of publication and reflect a trend in the manner that economists have approached questions of good faith performance under written contracts. All three go beyond the traditional approach to written contracts in economic models, which largely take written terms as simply court-verifiable proxies for creating optimal performance incentives.

In “Why Hold-Ups Occur” Klein (1996) complicates the traditional account by suggesting that writings come at a cost rarely acknowledged. Beyond the “ink” and other transaction costs of rendering an agreement to a writing, written contracts impose costs by providing occasions for opportunism. Relaying the much-discussed account of the events leading to the General Motors-Fisher Body merger in 1926—an account popularized by him—Klein argues that written contracts that courts enforce to the letter are a key source of holdups or, in other words, bad faith performance.²

This does not mean that writing down contract terms is not beneficial to transactors. Writing down binding contract terms has the obvious benefit that the court can be used to enforce performance. The idea that court enforcement of explicit contracts may be the mechanism by which a transactor engages in a hold-up merely recognizes that contractual specification not only has benefits but also has associated costs. (Klein, 448)

Whether and to what extent the implied covenant of good faith in performance can address these problems of holdup and opportunism (as suggested by Burton among others)³ are questions that I anticipate the Colloquium conversation will address.

¹Benjamin Klein, “Why Hold-Ups Occur: The Self-Enforcing Range of Contractual Relationships,” *Economic Inquiry*, XXXIV: 444–463 (1996); Oliver Hart and John Moore, “Contracts as Reference Points,” *Quarterly Journal of Economics*, CXXIII(1): 1–48 (2008); Patrick Bolton and Antoine FaureGrimaud, “Satisficing Contracts,” *Review of Economic Studies*, 77(3): 937–971 (2010).

²“I am assuming in this discussion that the court only enforces written terms and does not enforce unwritten terms. This is, of course, an oversimplification. Courts interpret both written and unwritten terms when enforcing contractual agreements. However, we can assume that the amount of discretion exercised by the court with regard to unambiguous written terms is limited, and that as transactors add additional things to their contracts the likelihood that the court will effectuate a hold-up by rigidly enforcing these imperfect contract terms increases.” Klein at 448.

³See e.g., Steven J. Burton, “Breach of Contract and the Common Law Duty to Perform in Good Faith,” 94 *Harv. L. Rev.* 369 (1980); Richard A. Posner, “Let Us Never Blame a Contract Breaker,” 107 *Mich L. Rev.* 1349 (2009).

In the second excerpt, “Contracts as Reference Points,” Oliver Hart and John Moore observe *inter alia* that the very act writing down an agreement may constitute a distinct sense of obligation and expectation: “the solemnity that accompanies the writing of a legally binding contract may help to give weight to the expectations and entitlements embodied in that contract.” Moreover, the written terms themselves may engender “feelings of entitlement,” thereby impacting any performance that “depends on whether the party gets what he is entitled to relative to the outcomes permitted by the contract.” For the most part, Hart and Moore see these expectations and entitlements as arising from the contract itself (i.e., it is in this sense that contracts serve as reference points). However, they also briefly address the possibility of “external” (which is to say, outside of the written agreement) reference points in Part V of their article. Where should we look for these reference points? This question triggers two competing readings of the implied duty of good faith that may be labeled *consensual rationality* and *contractual morality*.⁴ I would expect this issue to be a central topic of discussion in the Colloquium conversation.

Third, there is an excerpt of my article, “Satisficing Contracts,” co-authored with Antoine Faure-Grimaud, wherein we model equilibrium contracting between two “boundedly rational” agents deciding when to “finalize” their written agreement. They would like to think through all the relevant contingencies, but thinking takes time and delay is often costly. Agents will not waste time resolving relevant contingencies (even those they might reasonably anticipate with additional deliberation) when they can instead sensibly leave decisions to be determined later. In particular, our model suggests that agents can optimally assign “control rights,” giving one party or the other sole discretion—a right, privilege or power—to unilaterally determine some element of performance. How might the doctrine of good faith impact the equilibrium behavior of these parties? Which reading of the doctrine (*consensual rationality* or *contractual morality*) would rational or boundedly rational or other types of agents prefer or choose? Answers to these questions are not provided in any of the excerpts that follow, but again, I anticipate these questions as matters for discussion in Colloquium conversation.

Thank you. I look forward to the discussion. —P. Bolton

⁴Good faith always assumes cooperative norms between the parties. On the one hand, *consensual rationality* adopts a narrow perspective on the doctrine, restricting good faith to expectations derived from the parties’ agreement. Cooperative norms here are internal to the agreement, based solely on that to which the parties themselves have or would have rationality consented. On the other hand *contractual morality* expands the legal bounds of good faith to include external standards and norms established outside of any actual or rationally constructed agreement of the parties. See e.g., Restatement (Second) of Contracts §205, cmt a (good faith “excludes a variety of types of conduct [that] violate community standards of decency, fairness or reasonableness”) and U.C.C. §1-201 (associating good faith with to external standards, such as “the observance of reasonable commercial standards of fair dealing”).

WHY HOLD-UPS OCCUR: THE SELF-ENFORCING RANGE OF CONTRACTUAL RELATIONSHIPS

BENJAMIN KLEIN*

Court enforcement and private enforcement are not alternative contract enforcement mechanisms, but are used jointly by transactors to define the self-enforcing range of a contractual relationship. Within this framework contract terms economize on the limited amounts of private enforcement capital possessed by transactors, either by directly controlling transactor behavior or by shifting private enforcement capital between transactors to coincide with likely future market conditions. Hold-ups occur when market conditions change sufficiently to place the relationship outside the self-enforcing range. This probabilistic view of hold-ups is contrasted with opportunism more generally and with moral hazard behavior.

One of my most enjoyable intellectual experiences was working with Armen Alchian on the Klein, Crawford and Alchian [1978] hold-up paper. In this paper I extend the basic framework presented in that paper, pointing out what I now consider to be its shortcomings and providing insights into the nature of hold-ups and the form of contracts chosen by transactors to avoid hold-ups. The major analytical extension entails combining hold-up analysis with my work on private enforcement. Because private enforcement capital is limited and written contract terms are necessarily imperfect, transactors must optimally combine court-enforced written terms together with privately enforced unwritten terms to define what I call the self-enforcing range of their contractual relationship. Hold-ups occur when unanticipated events place the contractual relationship outside the self-enforcing range. This probabilistic framework, where transactors enter contractual rela-

tionships knowing that a hold-up may take place (but believing that the expected gains from trade outweigh the expected rent-dissipating costs associated with the hold-up risk), is shown to have important implications for understanding the structure of contracts adopted by transactors in the marketplace.

I. WHY DO HOLD-UPS OCCUR?

I begin with a simple example that illustrates the basic economic forces involved in a hold-up. Assume that a builder constructs a house on a piece of land the builder does not own but, rather, only leases short-term. After the initial land lease expires, the landowner could hold up the builder by raising the land rent to reflect the costs of moving the house to another lot. This example illustrates all the hold-up factors emphasized in Klein, Crawford and Alchian—(a) the builder has made an investment that is highly specific to a particular piece of land and (b) the landowner has taken advantage of the incompleteness of the contract that governs the relationship (in particular, the fact that the lease does not cover future years) to (c) expropriate the quasi-

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rents on the builder's specific investment. The obvious question is why anything like this would ever occur; that is, why would someone be so naive as to build a house on land for which they had only a short-term lease?

Our primary goal in Klein, Crawford and Alchian was not to explain the existence of hold-ups, but rather the institutions adopted by transactors to avoid hold-ups. For example, we would expect that builders, anticipating a potential hold-up problem, would decide to purchase the land or at least to sign a long-term ground lease before starting construction. However, we do present some examples in the paper of hold-ups that actually occurred. The implicit reason we give for the occurrence of these hold-ups is transactor ignorance. Apparently, transactors are not always smart enough to choose the contractual arrangement that would eliminate the hold-up problem.

Oliver Williamson provides a similar, but much more explicit answer to the question of why hold-ups occur. When defining "opportunism" he states:

By opportunism I mean self-interest seeking with guile. This includes but is scarcely limited to more blatant forms, such as lying, stealing and cheating. Opportunism more often involves subtle forms of deceit. ...More generally, opportunism refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, obfuscate, or otherwise confuse.¹

For example, the hold-up may have occurred in our illustrative house construction example because the landowner deceived the builder with a low up-front land rental price and vague promises about the future.

Relying on the ability of one transactor to take advantage of the naivete or ignorance of another transactor is a highly

unsatisfactory way to explain the incidence of hold-ups. Simple examples of deception, such as a builder constructing a house on land that is only rented short-term, rarely, if ever, occur. More complicated and less obvious examples of hold-ups may sometimes involve the deception of an imperfectly informed transactor. However, explanations of hold-up behavior based upon transactor deception are often either not refutable or clearly inconsistent with the facts. For example, the most extensively cited hold-up example presented in Klein, Crawford and Alchian is the Fisher Body-General Motors case, a transaction between two large, sophisticated business firms with no evidence of any pre-contract deception on either transactor's part.

The Fisher Body-General Motors case concerned a contract signed by General Motors and Fisher Body in 1919 for the supply of automobile bodies by Fisher to General Motors.² Fisher Body, in order to produce the automobile bodies, had to make an investment in stamping machines and dies that was highly specific to General Motors. As a result, a significant potential was created for General Motors to hold up Fisher. After Fisher Body made the specific investment, General Motors could have threatened to reduce its demand for Fisher-produced bodies, or even to terminate its relationship with Fisher completely, unless Fisher reduced its prices.

The Fisher Body-General Motors case appears analogous to our naive house construction on rented land example. However, contrary to our house construction example, the transactors in the Fisher-General Motors case clearly recognized

1. Williamson [1985, 47]. Also see Williamson [1979, 234, n. 3].

2. The description of the Fisher-General Motors contract is taken from Klein et al. [1978, 308-10]. The contractual agreement between Fisher Body and General Motors can be found in the minutes of the Board of Directors of Fisher Body Corporation for November 7, 1919.

the hold-up potential and attempted to take account of it in their contract terms before any specific investments were made. In particular, to prevent General Motors from appropriating the quasi-rents from the Fisher investment by threatening to reduce its purchases from Fisher, the contract included a ten-year exclusive dealing clause. This clause required General Motors to buy all of its closed metal automobile bodies from Fisher for a period of ten years.

Obviously, such a contract had to set the price at which Fisher would supply bodies to General Motors. The transactors agreed upon a formula where the price was set equal to Fisher's "variable cost" plus 17.6 percent. An upcharge over variable costs, rather than a formula based on Fisher's total cost, was probably used because Fisher was selling automobile bodies to many different companies and it was difficult to isolate and measure the capital and overhead costs associated with General Motors shipments. The 17.6 percent upcharge presumably was designed to cover Fisher's anticipated capital and overhead costs.

The Fisher-General Motors contract, therefore, was not totally unsophisticated, as was the short-term land-lease contract in our hypothetical example. However, the Fisher-General Motors contract, as it turned out, was similarly inadequate in preventing a hold-up, albeit to the advantage of Fisher rather than General Motors. After the contract was signed, the demand for automobiles rose substantially. Fisher took advantage of the contract in the face of this large demand increase to adopt an inefficient, highly labor-intensive production process and to locate its body-producing plants far away from the General Motors assembly plant. From Fisher's point of view there was no economic reason to make capital investments when, according to the contract, they could instead hire a worker and put a 17.6 percent upcharge on the worker's wage. In addition, there

was no economic reason for Fisher to locate their plant close to the General Motors assembly plant when, according to the contract, they could profit by locating their plant far away from the General Motors plant and put a 17.6 percent upcharge on their transportation costs. The result was automobile bodies that were very costly for General Motors to purchase and highly profitable for Fisher to produce.³

The Fisher-General Motors case illustrates why transactors are concerned about hold-ups. When automobile bodies are produced and sold inefficiently, as they were by Fisher, the total gains from trade are reduced. We can expect in such cases that ex post renegotiation of the contract will occur so that, after a lump sum is paid to the transactor engaging in the hold-up, price and cost will return to the efficient level. In the Fisher-General Motors case the contract renegotiation took the form of a General Motors' side payment to the Fisher brothers along with purchase of the Fisher Body company.

Since the probability of such ex post lump-sum transfers will be taken into account by transactors in their ex ante contract terms, these hold-up lump-sum transfers may appear to be of no significance if transactors are risk neutral. However, as the Fisher-General Motors case vividly illustrates, the transactor placed at a disadvantage during a hold-up does not immediately costlessly renegotiate the contract and make a lump-sum payment to the transactor engaging in the hold-up. Real resources are wasted during the hold-up process, as transactors attempt to convince their transacting partners that a hold-up potential does exist and of its magnitude. It is these dissipative, purely redistributive costs associated with hold-up behavior, not the lump-sum transfer

3. See deposition testimony of Alfred P. Sloan, Jr. in *United States v. Dupont & Co.*, 366 U.S. 316 (1961), 186-90 (April 28, 1952) and 2908-14 (March 14, 1953).

itself, that are wasteful. Because of these costs it is efficient for transactors to design contractual relationships that reduce the likelihood of a hold-up occurring.

The obvious question in the Fisher-General Motors case is why a hold-up occurred—that is, why did General Motors use such an imperfect or incomplete contract which placed it in a position where it could be held-up by Fisher in the way it was? It is much too unlikely an explanation to rely on General Motors' naivete or on Fisher's deception. General Motors and Fisher Body were aware of the hold-up problems inherent in their relationship, and both Fisher and General Motors had to have been aware that the contract they adopted to solve their hold-up problem was "defective" in the sense that it contained obvious malincentives. Yet General Motors and Fisher adopted this incomplete and imperfect contract because they believed it would have been more costly to write a more complete and perfect contract.

II. THE USE OF INCOMPLETE CONTRACTS

General Motors and Fisher knowingly entered into their incomplete contract because they believed that this contract, while imperfect, was optimally designed to minimize the probability of a hold-up occurring. Unfortunately, conditions developed that permitted Fisher to use the contract to hold up General Motors. If General Motors and Fisher had known ahead of time what was to happen, no doubt they would have written their contract to take account of the problems that developed. In that sense the Fisher hold-up of General Motors was unanticipated. However, in an uncertain world where complete contractual specification is costly, transactors use incomplete contracts that deliberately do not take account of every contingency. As a result, transactors knowingly leave themselves open to the possibility of hold-ups.

The costs associated with contractual specification that lead transactors to use incomplete and imperfect contracts involve much more than the narrow transaction costs of writing down responses to additional contingencies. In addition to these extra "ink costs," complete contractual specification entails wasteful search and negotiation costs associated with discovering and negotiating prespecified contractual responses to all potential contingencies. Because most future events can be accommodated at lower cost after the relevant information is revealed, much of this activity involves largely redistributive rent dissipation with little or no allocative benefit. Transactors are merely attempting to obtain an informational advantage over their transacting partners, hoping to place themselves in a position where they will be more likely to collect on (and less likely to pay for) hold-ups.⁴ Therefore, rather than attempting to determine all of the many events that might occur during the life of a contractual relationship and writing a prespecified response to each, the gains from exchange are increased by the use of incomplete contracts.

Transactors also use incomplete contracts because writing something down to be enforced by the court creates rigidity. Since contract terms are necessarily imperfect, once something is written down transactors can engage in a hold-up by rigidly enforcing these imperfect contract terms, even if the literal terms are contrary to the intent of the contracting parties. This is what occurred in the Fisher-General Motors case, where the written contract terms that were meant to prevent General Motors from holding up Fisher were actually used by Fisher to create a much greater hold-up of General Motors.

4. These rent dissipating costs during the contract negotiation process are analogous to the costs associated with the purely redistributive oversearching for an informational advantage analyzed in Kenney and Klein [1983].

It may appear that this type of hold-up, where a transacting party uses the court and the threat of litigation to enforce an imperfect contract term that is contrary to the intent of the contracting parties, is different from the type of hold-up that occurred in our house construction example, where the landowner took advantage of the absence of a contract to hold up the builder after the short-term land lease expired. We may wish to think of the court as unable to protect the builder in the house construction case, whereas actually the court is effectuating the hold-up by strictly enforcing the written contract terms in the Fisher-General Motors case. However, although this distinction may be important for contract law, the hold-ups are analytically similar. Both hold-ups are caused by a transactor using the court to take advantage of an imperfection in the contract that governs an economic relationship. In the Fisher Body-General Motors case, court enforcement of the imperfect cost-plus contract sanctions Fisher's attempt to charge General Motors arbitrarily high prices. Similarly, in the house construction case, court enforcement of the obvious imperfection in the contract (namely, that the contract only covers the short term) sanctions the landowner's attempt to charge the builder an arbitrarily high price after the short-term land lease expires.

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This does not mean that writing down contract terms is not beneficial to transactors. Writing down binding contract terms has the obvious benefit that the court can be used to enforce performance. The idea that court enforcement of explicit contracts may be the mechanism by which a transactor engages in a hold-up merely recognizes that contractual specification not only has benefits but also has associated costs. For some elements of performance there may be no trade-off in terms of added rigidity associated with writing down contract terms. For example, contractual specification is costless when desired performance is measured accurately by the contractually specified term and the term is costlessly observable by the court. However, when transactors must use a less than perfect proxy for performance in a contract there is a trade-off. Including the proxy in the contract not only may help in enforcing the understanding but also may do harm by making the contractual arrangement more rigid.

It is the very benefit of contract specification, i.e., that transactors' hands can be tied with respect to certain variables that might otherwise be used to effectuate a hold-up, that creates the harm of contractual rigidity. As the Fisher-General Motors case illustrates, once an agreement is formalized in a written contract, it cannot cheaply be breached if unanticipated changes occur in the market. The only limit on the cost to General Motors of not performing to the literal terms of the imperfect contract when market conditions deviated substantially from ex ante expectations was essentially General Motors' declaration of bankruptcy.

If, on the other hand, a contractual understanding is not formalized in a written contract, transactors can more cheaply opt out of the agreement if subsequent market conditions deviate substantially from expectations. The understanding is much more flexible because, without the

court forcing transactors to perform to the literal terms of the contract, transactors can renege and only lose the value of whatever transactor-specific investments are present in the relationship. Therefore, at some point transactors may decide to avoid the rigidity associated with court enforcement of written contract terms by intentionally leaving many elements of intended performance unspecified and enforcing these terms instead by a private enforcement mechanism.⁵

III. THE SELF-ENFORCING RANGE OF CONTRACTUAL RELATIONSHIPS

The privately imposed sanction that permits transactors to enforce the unwritten terms of their contracts can be thought of as consisting of two parts. One part is the future loss that can be imposed directly on the transactor if the relationship is terminated. Given the presence of non-salvageable transactor-specific investments, the threat of termination of the relationship implies a potential capital loss equal to the discounted value of the quasi-rents from these investments. For example, if General Motors had terminated (or failed to renew) its relationship with Fisher, they could have imposed a capital cost on Fisher for non-performance equal to the specific investments made by Fisher in the General Motors specific tools and dies.

The other part of the private sanction that is imposed on a transactor who is engaging in the hold-up is the damage to the transactor's reputation in the marketplace. If the violation of the contractual understanding is taken account of by

other transactors in their dealings with this transactor, the transactor engaging in the hold-up will face increased costs of doing business in the future. Potential trading partners will become less willing to rely upon the transactor's promises and demand more favorable and/or more explicit contract terms. For example, if General Motors had held-up Fisher and this was communicated in the marketplace, General Motors would have found it more expensive to purchase inputs in the future.

Each transacting party compares the potential hold-up gain from breaching the contractual understanding with the capital loss from the private sanction. If the hold-up gain is less than the capital cost, then the transactor cannot credibly threaten breach of the contractual understanding. Therefore, although transactors could take advantage of the fact that all the elements of a contractual understanding are not perfectly specified in the written contract, they will not do so and will instead perform in a manner that is consistent with the mutually understood contractual intent.

The magnitude of the private sanctions that can be imposed on each transactor who attempts a hold-up defines what can be called the self-enforcing range of the contractual relationship. The self-enforcing range measures the extent to which market conditions can change without precipitating a hold-up by either party. Changes in market conditions may alter the value of specific investments and, therefore, the hold-up potential, yet as long as the relationship remains within the self-enforcing range where each transactor's hold-up potential gain is less than the private sanction, a hold-up will not take place. Only when changes in market conditions move transactors outside the self-enforcing range so that the one-time gain from breach exceeds the private sanction will the hold-up threat, i.e., the threat of breach of the contractual understanding, become credible. When

5. The private enforcement mechanism upon which the following analysis is based is presented in Klein and Leffler [1981]. Lott [1988] extends the Klein and Leffler model in the spirit of the present paper by introducing random changes in cost or demand which alter the incentive of transactors to perform. A firm's decision to cheat is also considered to be stochastic in Darby and Karni [1973] and Karpoff and Lott [1993].

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CONTRACTS AS REFERENCE POINTS*

OLIVER HART AND JOHN MOORE

We argue that a contract provides a reference point for a trading relationship: more precisely, for parties' feelings of entitlement. A party's *ex post* performance depends on whether he gets what he is entitled to relative to outcomes permitted by the contract. A party who is shortchanged shades on performance. A flexible contract allows parties to adjust their outcomes to uncertainty but causes inefficient shading. Our analysis provides a basis for long-term contracts in the absence of noncontractible investments and elucidates why "employment" contracts, which fix wages in advance and allow the employer to choose the task, can be optimal.

I. INTRODUCTION

What is a contract? Why do people write (long-term) contracts? The classical view held by economists and lawyers is that a contract provides parties with a set of rights and obligations,

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and that these rights and obligations are useful, among other things, to encourage long-term investments.¹ In this paper we present an alternative and complementary view. We argue that a contract provides a reference point for the parties' trading relationship: more precisely for their feelings of entitlement. We develop a model in which a party's *ex post* performance depends on whether the party gets what he is entitled to relative to the outcomes permitted by the contract. A party who is shortchanged shades on performance, which causes a deadweight loss. One way the parties can reduce this deadweight loss is for them to write an *ex ante* contract that pins down future outcomes very precisely, and that therefore leaves little room for disagreement and aggrievement. The drawback of such a contract is that it does not allow the parties to adjust the outcome to the state of the world. We study the trade-off between rigidity and flexibility. Our analysis provides a basis for long-term contracts in the absence of noncontractible relationship-specific investments and throws light on why simple "employment" contracts can be optimal.

To motivate our work, it is useful to relate it to the literature on incomplete contracts. A typical model in that literature goes as follows. A buyer and seller meet initially. Because the future is hard to anticipate, they write an incomplete contract. As time passes and uncertainty is resolved, the parties can and do renegotiate their contract, in a Coasian fashion, to generate an *ex post* efficient outcome. However, as a consequence of this renegotiation, each party shares some of the benefits of prior (noncontractible) relationship-specific investments with the other party. Recognizing this, each party underinvests *ex ante*. The literature studies how the allocation of asset ownership and formal control rights can reduce this underinvestment.²

Although the above literature has generated some useful insights about firm boundaries, it has some shortcomings.³ Three that seem particularly important to us are the following. First, the emphasis on noncontractible *ex ante* investments seems overplayed: although such investments are surely important, it is hard to believe that they are the sole drivers of organizational form. Second, and related, the approach is ill suited to studying the internal organization of firms, a topic of great interest and importance. The

1. For up-to-date syntheses of the classical view, see Bolton and Dewatripont (2005) and Shavell (2004).

2. See, for example, Grossman and Hart (1986) and Hart and Moore (1990).

3. For a discussion, see Holmstrom (1999).

reason is that the Coasian renegotiation perspective suggests that the relevant parties will sit down together *ex post* and bargain to an efficient outcome using side payments: given this, it is hard to see why authority, hierarchy, delegation, or indeed anything apart from asset ownership matters. Finally, the approach has some foundational weaknesses.⁴

We believe that to develop more general and compelling theories of contracts and organizational form it is essential to depart from a world in which Coasian renegotiation always leads to *ex post* efficiency.⁵ The purpose of our paper is to move in this direction. To achieve this goal, we depart from the existing literature in two key ways. First, we drop the assumption made in almost all of the literature that *ex post* trade is perfectly contractible. Instead, we suppose that trade is only partially contractible.⁶ Specifically, we distinguish between perfunctory performance and consummate performance, that is, performance within the letter of the contract and performance within the spirit of the contract.⁷ Perfunctory performance can be judicially enforced, whereas consummate performance cannot.⁸ Second, we introduce some important behavioral elements. We suppose that a party is happy to provide consummate performance if he feels that he is getting what he is entitled to, but will withhold some part of consummate performance if he is shortchanged—we refer to this as “shading.” An important assumption we will make (for most of the paper) is that a party’s sense of entitlement is determined by the contract he has written. This is the sense in which a contract is a “reference point.” A companion assumption, also significant, is that the contract in question is negotiated under relatively competitive conditions. A final element of the story is that there is no reason that parties’ feelings of entitlement should be consistent. In particular, when the contract permits more than one outcome, each party may feel entitled to a different outcome.

4. See, for example, Maskin and Tirole (1999) and the response in Hart and Moore (1999).

5. One obvious possibility is to introduce asymmetric information. To date such an approach has not been very fruitful in the theory of the firm. But see Matouschek (2004).

6. We do not go as far as some of the recent incomplete contracting literature that supposes that *ex post* trade is not contractible at all (see, e.g., Baker, Gibbons, and Murphy [2006]). One problem with supposing that *ex post* trade is noncontractible is that it is unclear how one party gets an action carried out except by doing it himself. As will be seen, our approach does not suffer from this difficulty.

7. The perfunctory and consummate language is taken from Williamson (1975, p. 69).

8. For a discussion and examples, see Goldberg and Erickson (1987, p. 388).

These ingredients yield the above-described trade-off between flexibility and rigidity. A flexible contract has the advantage that parties can adjust the outcome to the state of the world, but the disadvantage that any outcome selected will typically cause at least one party to feel aggrieved and shortchanged, which leads to a loss of surplus from shading. An optimal contract trades off these two effects. Our theory explains not only why parties will write somewhat rigid contracts, but also the nature of the rigidity. The parties are more likely to put restrictions on variables over which there is an extreme conflict of interest, such as price, than on variables over which conflict is less extreme, such as the nature or characteristics of the good to be traded. Among other things, our model shows why simple employment contracts, which fix price (wage) in advance and allow the employer to choose the task, can be optimal. (More generally, the model explains why the wage should vary with the task if some tasks are systematically costlier than others.)

For most of the paper we suppose that parties' feelings of entitlement are controlled entirely by the contracts they have written. In reality, other influences on entitlements are sometimes important. For example, parties may look to related transactions to determine whether they are being fairly treated. This consideration allows a rich new set of possibilities; we examine these briefly in Section V. Although our analysis is preliminary, we show that external measures of entitlement can interfere with an *ex ante* contract and that it may therefore be optimal for the parties to postpone contracting; that is, the optimal *ex ante* contract may be "no contract."

The behavioral assumptions on which our analysis is based are undoubtedly strong, and although they are broadly consistent with a number of ideas in the literature, there is no single model or experiment that we can appeal to that supports precisely what we do. In future work it would therefore be highly desirable to see whether our assumptions can be validated by experiment. At the same time, we should make it clear that we are not wedded to a particular set of behavioral assumptions. In addition, and relatedly, we see the behavioral approach adopted here as something of a means to an end; the end is the development of a tractable model of contracts and organizational form that exhibits *ex post* inefficiency and that can explain simple contracts observed in reality, such as the employment contract. From this perspective, the costs of flexibility that we focus on—shading costs—can be viewed

as a shorthand for other kinds of transaction costs, such as rent-seeking, influence, and haggling costs. We return to this theme in the conclusions.

The paper is organized as follows. Section II presents the model, discusses our key assumptions, and lays out a simple example. In Section III we analyze a case where there is uncertainty about value and cost but not about the type of good to be traded. In Section IV we consider a second case where there is uncertainty about the nature of the good. This section also discusses the employment relationship. Section V allows for the possibility of influences on entitlements other than the initial contract. In Section VI we discuss renegotiation. Finally, Section VII concludes. The Appendix considers a more general class of contracts than those studied in the text and includes proofs of propositions.

II. THE MODEL

We consider a buyer *B* and a seller *S* who are engaged in a long-term relationship. The parties meet at date 0 and can trade at date 1. We assume a perfectly competitive market for buyers and sellers at date 0, but that competition is much reduced at date 1: in fact, for the most part we suppose that *B* and *S* face bilateral monopoly at date 1. In other words, there is a “fundamental transformation” in the sense of Williamson (1985).

We do not model why this fundamental transformation occurs. It could be because the parties make relationship-specific investments, but there may be other, more prosaic reasons. For example, imagine that *B* is organizing a wedding for his daughter. *S* might be a caterer. Six months before the wedding, say, there may be many caterers that *B* can approach and many weddings that *S* can cater. But it may be very hard for *B* or *S* to find alternative partners a week before the wedding. Although there are no very obvious relationship-specific investments here, the fundamental transformation seems realistic, and the model applies.

It would be easy to fit relationship-specific investments explicitly into the analysis, but we would then suppose that these investments were contractible. That is, an important feature of our model is that it does not rely on noncontractible investments.

We make some standard assumptions. Any uncertainty at date 0 is resolved at date 1. There is symmetric information throughout, and the parties are risk-neutral and face no wealth constraints.

Although these results are in the spirit of Coase and Simon, they differ from Simon's formal argument in important ways. Simon would also argue that B should choose the composer if B cares more about the composer than S. However, in Simon's model it is not clear why an *ex ante* contract is needed at all. Because his model has neither aggrievement nor noncontractible investment, the parties can rely on Coasian bargaining at date 1. Also, a contract that achieves the first-best in Simon's model is one where B has the right to make a take-it-or-leave-it offer to S; that is, B proposes a price-composer pair, and S can accept or reject it. In other words, in Simon's model there are many optimal contracts (a continuum, in fact), of which the employment contract is just one.

This is not true in our model. For example, consider the contract in which B offers a price-composer pair. B will suggest price equal to cost, and there will be aggrievement and shading in all states because S will feel entitled to price equal to value. Thus this contract performs strictly worse than the employment contract.

In other words a virtue of our model is that it can explain why, given $\theta > 0$, the employment contract is uniquely optimal when $\Delta > \delta$ and θ is small; why independent contracting is uniquely optimal when $\Delta < \delta$ and θ is small; and why in all the cases considered in this section it makes sense (in the absence of systematic cost differences across composers or tasks) for the parties to fix price *ex ante*, that is, to take price off the table.

V. EXTERNAL REFERENCE POINTS

So far we have assumed that a prior contract is the only reference point for the transaction at date 1. In this section we relax this assumption. Our analysis is preliminary and speculative.

It is not difficult to think of situations where parties look outside a contract to determine whether they are being treated fairly. A familiar case is where someone is hired as an employee at a particular wage, and sometime later someone else with comparable or even inferior skills is hired by the same employer at a higher wage, perhaps because market conditions have changed. The first person will almost certainly feel unhappy about this even though his or her wage was determined fairly and competitively at the time.³³

33. For an interesting discussion of this kind of phenomenon and its implications for labor market practices, see Akerlof and Yellen (1990). For evidence on the

One way to capture the idea of “external” reference points is as follows. Return to the model of Section III, where the parties trade a standard good, but there is uncertainty about v and c . Suppose that in each state of the world there is a range of “reasonable” prices for the good, determined exogenously, and given by $[p_{\min}, p_{\max}]$. The interpretation is that this range is based on comparable transactions: trades in other markets at date 1, prices of previous transactions, prices embodied in new contracts written between dates 0 and 1, etc. Any price between p_{\min} and p_{\max} can be justified to outsiders as being reasonable, whereas other prices cannot.³⁴

In order to simplify matters, we will assume that the $[c, v]$ and $[p_{\min}, p_{\max}]$ intervals always intersect; that is, whenever $v \geq c$, $v \geq p_{\min}$ and $c \leq p_{\max}$. This assumption captures the idea that external reference points and internal value and cost are never too far apart.

The $[p_{\min}, p_{\max}]$ range plays two roles. First, the range may affect entitlements in the *presence* of a contract. Second, the range may affect bargaining in the *absence* of a contract. Consider the first role. Suppose that the parties’ date 0 contract specifies the range of trading prices $[\underline{p}, \bar{p}]$. We saw in Section III that, on the basis of this, S feels entitled to receive $\text{Min}(v, \bar{p})$ and B to pay $\text{Max}(c, \underline{p})$. We assume that the external reference points $[p_{\min}, p_{\max}]$ modify these entitlements only if (i) $p_{\min} > \text{Min}(v, \bar{p})$ or (ii) $\text{Max}(c, \underline{p}) > p_{\max}$. In the first case the price S feels entitled to receive is raised to $p_{\min} (\leq v)$, whereas in the second case the price B feels entitled to pay is lowered to $p_{\max} (\geq c)$.

In other words, S feels entitled to receive more than $\text{Min}(v, \bar{p})$ if (and only if) all external prices lie above $\text{Min}(v, \bar{p})$, that is, everybody else in the market is receiving more, and B feels entitled to pay less than $\text{Max}(c, \underline{p})$ if (and only if) all external prices lie below $\text{Max}(c, \underline{p})$, that is, everybody else in the market is paying less. Note that this formulation gives precedence to an existing contract in the sense that external reference points come into play only when contract prices are far apart from what’s going on elsewhere. In future work it would be interesting to explore alternative ways of modeling the interaction between external reference points and prior contracts.

importance of external reference points and their effects on “shading” behavior by employees, see Babcock, Wang, and Loewenstein (1996).

34. We do not suppose that the $[p_{\min}, p_{\max}]$ range is verifiable, however; hence it cannot be made part of an enforceable contract.

Satisficing Contracts

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We propose a model of equilibrium contracting between two agents who are “boundedly rational” in the sense that they face time costs of deliberating current and future transactions. We show that equilibrium contracts may be incomplete and assign control rights: they may leave some enforceable future transactions unspecified and instead specify which agent has the right to decide these transactions. Control rights allow the controlling agent to defer time-consuming deliberations on those transactions to a later date, making her less inclined to prolong negotiations over an initial incomplete contract. Still, agents tend to resolve conflicts up-front by writing more complete initial contracts. A more complete contract can take the form of either a finer adaptation to future contingencies, or greater coarseness. Either way, conflicts among contracting agents tend to result in excessively complete contracts in the sense that the maximization of joint payoffs would result in less complete contracts.

1. INTRODUCTION

This paper analyses a contracting model with two agents, each facing thinking costs, in which equilibrium incomplete contracts arise endogenously. The basic situation we model is an investment in a partnership or an ongoing new venture. The contract the agents write specifies in a more or less complete manner what action plan they agree to undertake initially, and how the proceeds from the venture are to be shared. In any given state of nature, both agents face costs in thinking through optimal decisions in that state. Therefore an optimal contract that maximizes gains from trade net of thinking costs is generally incomplete in the sense that it is not based on all the information potentially available to agents in all states of nature. By introducing positive thinking or deliberation costs into an otherwise standard contracting framework, it is thus possible to formulate a theory of endogenously incomplete contracts.

We build on a model of decision making with *time-costs* in deliberating decisions developed in Bolton and Faure-Grimaud (2008). In this model the decision maker has a prior estimate of her best course of action in every state of nature. However, the decision maker also knows that her prior estimate may not be based on much information and that she can improve her decisions by thinking further about her choices in any given state of nature. Thinking is modelled as a thought-experimentation process which allows the decision maker to obtain a more accurate estimate of her payoffs from different choices. At any moment the decision maker faces the problem of whether to think further or make a decision based on what she has learnt. As thinking takes time, the decision maker optimally decides to not think about all future

decisions at once, and to postpone thinking about decisions that she is unlikely to ever face or that may arise in the distant future.¹ In this paper we consider a contracting problem between two agents that face such time-costs of deliberating future transactions under a contract. As will become clear in the formal analysis below, even such a minimal departure to an otherwise standard bilateral contracting problem introduces major new conceptual issues. Yet in spite of these complications our quasi-rational contracting model captures several important features of incomplete contracting observed in practice.

One first basic result is that boundedly rational agents write what we call *satisficing contracts*, which do not fully exploit all gains from trade that would be available to agents who face no deliberation costs.² In equilibrium, agents do not waste time resolving all future transactions and instead leave many decisions to be determined later. Agents will tend to settle on more incomplete action plans when they have broadly aligned interests, and when they all expect to benefit substantially from the deal. Note, in particular, that boundedly rational agents choose to leave transactions unresolved in perfectly foreseeable, describable and enforceable contingencies, if these contingencies are sufficiently unlikely or distant, or if they do not affect expected payoffs much. In addition, contracts become more and more detailed over time, as agents complete the contract in light of new information.

We refer to such contracts as *incomplete contracts* to the extent that they do not involve complete *ex ante* information acquisition on payoffs of all transactions in all states, and they do not just specify state-contingent transactions based only on the information agents have acquired *ex ante*. Contracts can always be made contingent on all the information available to the contracting parties and in that sense contracts can always be complete. That said, when agents choose to defer information acquisition on certain transactions to when a given state of nature arises, they may as well write what is more commonly referred to as an incomplete contract, namely a contract where the ultimate transaction to be undertaken in that state is left unspecified and where a controlling agent has the right to determine the transaction should that state of nature arise (see Grossman and Hart, 1986; Hart and Moore, 1988; Hart, 1995). Such an incomplete contract would often yield the same expected payoff as an optimal contract that is based on all the information agents choose to acquire in a particular state, and would be a lot simpler to write.

The main results from our analysis are as follows. First, incomplete contracts specifying *control rights* may emerge in equilibrium (when such contracts are not strictly dominated by a complete contract with the same equilibrium information acquisition). The rationale for control rights in our model—defined as rights to decide between different transactions in contingencies left out of the initial contract—is that the holder of these rights benefits by having *the option to defer thinking* about future decisions. Second, control rights tend to be allocated to the more cautious party. Indeed, the more cautious party is then more willing to close the deal quickly, even though it has not had the time to think through all contingencies, in the knowledge that thanks to its control rights it can impose its most favoured decision in the unexplored contingencies.

Third, the sharp distinction between a first contract negotiation phase followed by a phase of execution of the contract usually made in the contract theory literature is no longer justified in

1. Our model builds on earlier work on decision making with deliberation costs by Simon (1955) and Conlisk (1980, 1988, 1996) among others, and on the literature on multi-armed bandits by Gittins and Jones (1974), Rothschild (1974), Gittins (1979), Berry and Fristedt (1985) and Whittle (1980, 1982).

2. We borrow Simon's notion of *satisficing* for decision problems of boundedly rational agents to describe a contracting problem between such agents (see Simon, 1955; Radner, 1975; Radner and Rothschild, 1975). Interestingly, although satisficing behaviour has been explored extensively in decision problems it has not, to our knowledge, been extended to a contracting problem.

our setup. Contracts are completed over time and negotiations about aspects that have been left out initially can be ongoing. In particular, the contracting agents may choose to begin negotiations by writing a *preliminary contract* specifying the broad outlines of a deal and committing the agents to the deal. The agents then continue with a further exploration phase (which may be thought of as a form of *due diligence*) before deciding whether to go ahead with the venture and agreeing to a detailed contract. Interestingly, a party with all the bargaining power may choose to leave rents to the other party, so as to meet its *prior aspiration level*—that is, the level before it has had time to think through all contingencies—and thus persuade it to sign on more quickly.

Fourth, when agents' objectives conflict more, equilibrium contracts are more complete. The main reason is that each agent may be concerned about the detrimental exercise of control by the other agent. In such situations, the exercise of control may have to be circumscribed contractually by writing more complete contracts. Another reason is that when agents have conflicting goals they are less willing to truthfully share their thoughts, so that the net benefit of leaving transactions to be fine-tuned later is reduced.

This analysis thus provides new foundations for incomplete contracts and the role of control rights. In our model equilibrium contracts may be incomplete even though more complete contracts (relying on more information acquisition) are enforceable. Similarly, contractual completeness increases over time even though enforceability remains unchanged. This is in our view a critical difference with first-generation models of incomplete contracts. Two important implications immediately follow. First, our framework allows for contractual innovation by the contracting agents independently of any changes in legal enforcement. Second, changes in legal enforcement may have no effect on equilibrium contracts if enforcement constraints were not binding in the first place.

There can be substantial contractual innovation unprompted by changes in legal enforcement as, Kaplan, Martel and Stromberg (2007) have strikingly documented. In their study they track the evolution of venture capital (VC) contracts in over 20 countries outside the United States and compare them to US VC contracts. A key finding is that although contracts differ across jurisdictions, and thus seem at first sight to be constrained by local legal enforcement, the more experienced VCs end up writing the same US-style contracts independently of the local legal environment. Bienz and Walz (2008) provide other empirical support and find that exit rights for VCs are generally only written into the contract at later financing rounds, consistent with our hypothesis that VCs focus on exit rights only once exit issues become more pressing. They also find that older, hence more experienced, VCs write more complete contracts by including more control rights clauses into contracts. Another common VC contracting practice they highlight is the use of "term sheets", a form of preliminary contract containing general clauses of the form "other terms and conditions customary to VC financing will apply".

In the first-generation models of incomplete contracting theories à la Grossman and Hart (1986) and Hart and Moore (1988), agents are fully rational but unable to contractually specify transactions in some states of nature due to *exogenous* verifiability or describability constraints. Being fully rational, agents will always write the most complete contract they can, and contractual efficiency is always constrained by enforcement effectiveness. Moreover, since contract incompleteness is entirely driven by exogenous enforcement constraints, the contracting agents are unable to limit discretion contractually and are reduced to only determining optimal control allocations over decisions that cannot be written into the contract. Except that, as Maskin and Tirole (1999) have observed, rational agents may actually be able to write complete contracts by circumventing enforcement constraints through sophisticated Maskin (revelation) schemes.

Our analysis of incomplete contracts is related to the early work of Dye (1985), and a second generation of incomplete contracting theories, which includes Anderlini and Felli (1994, 1999, 2001), Al Najjar, Anderlini and Felli (2006), MacLeod (2000), Battigalli and Maggi (2002),

Bajari and Tadelis (2001) and Hart and Moore (2008). These studies also provide theories of endogenous contractual incompleteness, but based on transaction costs such as the costs of writing detailed contracts or limits on language in describing certain transactions or contingencies.

In closely related independent work, Tirole (2009) also considers contracting between two boundedly rational agents. Contracts in his setup always specify a given action to be taken, but they are less likely to be renegotiated (more complete) when contracting agents have incurred larger cognitive costs. Although the basic setup he considers is quite different from ours, similar themes and results emerge, such as the endogenous incompleteness of contracts and the excessive completeness of equilibrium contracts. Unlike in our model, Tirole only allows for “effort costs of cognition” and does not explore the dynamics of contractual completion when agents face time-costs of deliberating transactions. He focuses on a hold-up problem and the value of exerting cognition effort in his model comes from the greater likelihood of solving a hold-up problem contractually up-front. Incurring cognition effort is valuable primarily to the agent making sunk investments and is otherwise of no social value. This is the main reason why contracts tend to be excessively complete in his setup. Some of our results on excessive completeness, however, differ conceptually from Tirole (2009) in that the excessive completeness is due to equilibrium underinvestment (rather than an over investment) in cognition. That is, in our setup the contracting parties may devote insufficient time learning about future payoffs because the potential conflicts they may have about future decisions reduce the value of information for each party.

Finally, our model and the second-generation theories can be seen as attempts to formalize different aspects of Williamson’s (1979, 1985) transactions costs theory. As Williamson has forcefully argued, contracts in reality are likely to be incomplete primarily due to the costs of specifying transactions on paper and due to the bounded rationality of contracting agents. Interestingly, a major theme in Williamson’s theory is that a key role of organizations is to move enforcement away from courts and inside firms, thereby dampening potential conflicts between agents and thus increasing the efficiency of incomplete contracts.

The paper proceeds as follows. Section 2 presents our model of contracting between two boundedly rational agents. Section 3 characterizes satisficing contracts when the parties have congruent underlying payoffs, and under the assumptions of (i) non-transferable utility and (ii) communication of hard information. Section 4 considers satisficing contracts when the parties have conflicting objectives, under the same assumptions of non-transferable utility, and communication of hard information. Section 5 considers extensions to communication of soft information and transferable utility. Section 6 concludes and an appendix contains the more involved proofs.

2. THE MODEL

Two infinitely lived agents, A and B , can join forces to undertake a new venture at time $t = 0$. The venture requires initial funding $I > 0$ from each agent. If investments are sunk at date $t \geq 0$, then at date $t + 1$ the venture ends up in one of two equally likely states: $\theta \in \{\theta_1, \theta_2\}$. In state θ_1 the two agents get the same known payoff $\pi \geq 0$. In state θ_2 , the two agents face the collective decision of choosing between a *safe* and a *risky* action. The *safe* action yields known payoffs S_A and S_B , while the *risky* action yields either $(\underline{R}_A, \underline{R}_B)$ or (\bar{R}_A, \bar{R}_B) . To make the problem non-trivial, we assume

$$\bar{R} \equiv \bar{R}_A + \bar{R}_B > S \equiv S_A + S_B > \underline{R} \equiv \underline{R}_A + \underline{R}_B.$$

Thus the only uncertainty in the model is which state of nature will occur and the payoff of the risky action in state θ_2 .

6. CONCLUSION

We have proposed and explored a first contracting model between two agents facing time-deliberation costs. In this model, equilibrium contracts may be endogenously incomplete. Control rights assigned to one of the parties allow the controlling agent to defer time-consuming deliberations to a later date without exposing her to too much uncertainty. As she will be in charge of the decisions most critical to her, she need not worry too much and unduly prolong negotiations at the initial contracting stage.

However, when agents face potentially major conflicts, they tend to resolve these upfront, by writing more complete initial contracts. This more complete contract may be either a more state-contingent or a coarser contract. Thus conflicts among contracting agents tend to result in excessively complete contracts from the perspective of joint payoff maximization.

Equilibrium contracts in our model are incomplete for two reasons: *first*, the costs of thinking about how to complete them may exceed the expected benefits; and *second*, the costs of thinking about how to outwit the other agent also exceed the expected benefits. In contrast to first-generation incomplete contracting models, contracts are not incomplete due to exogenously given enforcement constraints. Indeed, we have assumed that all state-contingent transactions are fully enforceable. Instead, contractual incompleteness is due to the limited cognition of the contracting agents.

APPENDIX A

Proof of Proposition 3. We first establish a series of preliminary results that simplify the argument.

Claim 1. Let U_{\min}^{RFI} be the lowest guaranteed payoff of the receiver in any subgame under complete information. Then, either the proposer implements his most preferred contract or the receiver gets exactly U_{\min}^{RFI} .

Proof. Observe first that $U_{\min}^{\text{RFI}} = 0$ in the absence of a pre-existing contractual agreement. Suppose now that the claim is not true and that there exists a subgame perfect Nash equilibrium where, under full information, the receiver gets some payoff $\widehat{U} > U_{\min}^{\text{RFI}}$, and the proposer is not offering his most preferred plan of action. For this to be true, it must be that the receiver rejects any offer that gives her less than \widehat{U} . But, given that the proposer is not making his most preferred offer, it must then be the case that the receiver is just indifferent between accepting and rejecting the offer giving her \widehat{U} . Otherwise, the proposer could offer a lottery that would put some weight ε on his most preferred contract and $(1 - \varepsilon)$ on the offer of \widehat{U} to the receiver. Therefore it must be the case that along the equilibrium path in such an equilibrium, at any date t , $\widehat{U}_t = \delta \widehat{U}_{t+1}$. Iteration of this argument requires $\widehat{U}_{t+\tau}$ to go to infinity as τ goes to infinity, which is impossible. ||

Claim 2. Denote by U^{RFI} the unique subgame perfect equilibrium payoff that the receiver obtains in any subgame under complete information. Then, in any subgame where the payoffs of the risky action are unknown, either the proposer offers her most preferred contract, or the receiver gets $U_{\min}^{\text{R}} = \widehat{\Lambda} U^{\text{RFI}}$.

Proof. Suppose again this is not true. As in the proof of Claim 1, it then follows that the receiver must be indifferent at any date t between accepting or rejecting the offer that gives the receiver some utility level $\widetilde{U}_t^{\text{R}} > U_{\min}^{\text{R}}$. In particular, it then must be the case that

$$\widetilde{U}_t^{\text{R}} = \Lambda U^{\text{RFI}} + (1 - \Lambda) \delta \widetilde{U}_{t+1}^{\text{R}}.$$

And, if $\widetilde{U}_t^{\text{R}} = \widetilde{U}_{t+1}^{\text{R}}$, then $\widetilde{U}_t^{\text{R}} = \frac{\Lambda}{1 - (1 - \Lambda)\delta} U^{\text{RFI}} = \widehat{\Lambda} U^{\text{RFI}}$, a contradiction. Alternatively, iterating the same argument, we would find that

$$\widetilde{U}_{t+\tau}^{\text{R}} = \frac{\widetilde{U}_t^{\text{R}}}{(1 - \Lambda)^\tau \delta^\tau} - \widehat{\Lambda} U^{\text{RFI}} \frac{1 - (1 - \Lambda)^\tau \delta^\tau}{(1 - \Lambda)^\tau \delta^\tau}$$