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Interpreting Boilerplate

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Abstract

This paper analyses the merits of alternative ways of interpreting contractual documents taking into account the fact that contracting parties often draft contracts using boilerplate documents rather than starting from scratch. Legal practices such as gap-filling, the use of extrinsic evidence, uniform laws, and allowing parties to choose the method used to interpret their documents are examined. One notable finding is that it is not necessarily desirable to allow parties to choose the method of interpretation. The analysis highlights the potential importance of the stock of boilerplate available to contracting parties as a factor that determines the impact of contract law.

JEL Codes: K12, L14.

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1. Introduction

This article is about the methods that adjudicators—judges, juries, arbitrators etc.—use to interpret contractual documents. The objective is to show how alternative methods of interpretation can help parties to minimize the costs of producing contracts. To put it more crudely, the idea is to show that applying an appropriate method of interpretation can allow parties to get the best possible legal results using the cheapest possible documents.

Economists often presume that the costs of drafting contracts are directly related to the ‘completeness’ of the contracts in question. This may be a reasonable presumption when contractual documents are drafted from scratch. But anyone who has drafted a contract knows that it is typically much easier to proceed by finding and copying an existing widely used document (“boilerplate”), even one that generates a very detailed contract, than to draft from scratch. This observation has important implications for debates about the optimal method of interpretation.

When parties draft contractual documents from scratch it is reasonable to presume that minimizing drafting costs mainly entails permitting parties to use documents that appear on their face to be relatively simple to create relatively ‘complete’ contracts. The debate is over how to accomplish this goal. Some argue that it means interpreting contractual documents literally. Others suggest that it might sometimes be useful to deviate from non-literal interpretation by engaging in gap-filling, which means helping to complete documents that are incomplete when read literally. Much of the debate is carried on as though one method or the other is universally optimal. Recently though, it has been argued that a truly optimal legal regime will permit contracting parties to choose the method of interpretation applicable to their documents. This might, for example, involve giving full effect to choice of law provisions.

There are a number of reasons why the outcomes of this debate might change when contracting parties have access to boilerplate. First, in principle, minimizing drafting costs might entail an approach that differs from either literal interpretation or gap-filling. For instance, it may be optimal to treat the provisions of detailed standard form documents as “mere boilerplate” and decline to interpret them literally. Second, since the costs of drafting any given contractual document will depend upon which documents have been produced in the past and how accessible they are to the relevant parties, the optimal method of interpretation will be path dependent and will vary depending on the timeframe being analyzed. Third, building on this idea, the optimal method of interpretation for any given society will depend in part upon its historical circumstances. Fourth, granting contracting parties freedom to choose their preferred method of interpretation may not be desirable. The concern here stems from the fact that the method of interpretation parties choose will influence their decisions about which contractual documents to draft which will in turn influence other parties’ drafting costs in subsequent periods.

The general approach in this paper follows Shavell (2006), but because of the emphasis on situations involving boilerplate several of the conclusions are very different. The conclusion that there may be dangers associated with allowing parties to choose their preferred method of interpretation is also inconsistent with Schwartz and Scott (2003: 569) and Katz (2004: 535). The idea that features of the ‘language’ parties must use to communicate with adjudicators can be an important determinant of the level of detail with which parties specify their contractual obligations is discussed by Battigalli and Maggi (2002: 812-3), but they do not examine how to go about choosing the optimal language. Sussman (1998) identifies all of the key economic implications of the existence of boilerplate noted above and discusses whether the state should encourage or discourage creation of standardized documents but does not analyze the merits of alternative methods of interpreting contractual documents.¹ The notion that contracting parties minimize their drafting costs by relying on boilerplate is well-recognized in the legal literature and the analysis here is generally consistent with less formal analyses presented by Goetz and Scott (1985) and other legal scholars (e.g. Kahan and Klausner 1997; Choi and Gulati 2004). However, these scholars they do not address whether parties should be free to choose their method of interpretation.

Section 2 provides simple illustrations of the main points. Sections 3 and 4 introduce a formal model inspired by Shavell (2006) and use the model to identify some basic characteristics of the optimal method of interpretation. Section 5 uses the model to analyze the relative merits of literal interpretation, as opposed to ‘gap-filling’ and other non-literal methods of interpretation. Section 6 extends the model to consider the case in which there are multiple periods of contracting so that the stock of existing documents becomes endogenous to the method of interpretation applied in earlier periods. Section 7 uses the extended model to analyze whether contracting parties should be granted the freedom to choose the method of interpretation that will be applied to their contractual documents. Section 8 concludes by discussing the validity of some of the model’s underlying assumptions.

2. Illustrations

Suppose that you have to hire a plumber to provide plumbing for your new house. There are two alternative ways to perform this contract, by using steel or using copper. There are also several possible contingencies that might arise. For instance, it might turn out to be the case that steel pipe is significantly more expensive than copper pipe. Or steel pipe may be unavailable for the next six months. Now suppose that the contract can be embodied in one of the three following documents. One document simply says, “Provide pipe.” Another document says, “Use steel pipe.” The third document says,

¹ In Sussman’s model the meaning of each word is determined entirely by the way it was used in the past (Sussman 1998: 387) thereby ruling out the possibility of having the meaning determined by anything akin to law. Consequently, his model is not well suited to analyzing the consequences of adopting alternative methods of interpretation. However, near the end of the article there is a historical illustration in which he mentions in passing that the methods of interpretation used by English courts made it very difficult for parties to create limited liability companies (Sussman 1998: 400).

“Use steel pipe unless steel pipe cannot be obtained in a timely fashion in which case use copper pipe.”

Suppose that an adjudicator is asked to interpret the first document, that is to say, to determine what actions qualify as performance of the contract evidenced by the document. One interpretation, the one we shall call the literal interpretation of the document, seems to permit the plumber to perform by using either steel or copper pipe, regardless of what contingency arises. Of course there are other methods of interpretation. For instance, one can imagine a court interpreting a document that says “provide pipe” to mean “use steel pipe.” Or it might interpret the document to mean “use steel pipe unless it is unavailable.”

For present purposes let us presume that social welfare is determined by some combination of the gains that parties obtain from contracting, which are in turn determined by whether their contract contains optimal terms, less the drafting costs that parties incur in the process of contracting. The next question to ask is: Which method of interpretation is likely to be socially optimal?

As is now well recognized, the right answer to the question need not be the literal method of interpretation. Suppose that most contracting parties want a contract that requires steel pipe to be used so long as it is available. Suppose however, that is relatively costly to draft a document that, if interpreted literally, generates such a contract, perhaps because the draftsman is being paid by the word. Under these circumstances, most contracting parties will prefer that adjudicators abandon the literal method of interpretation in favor of a non-literal method of interpretation in which the relatively cheap document that says “provide pipe” is interpreted to mean “use steel pipe so long as it can be obtained in a timely fashion etc.” Under these conditions, the non-literal method of interpretation allows most parties to get the contract they want by adopting a document that is cheap to draft compared to the document they would have to use under the literal method of interpretation to get the same legal result. This method of interpretation will, however, impose some costs, in the form of either thwarted purposes or additional drafting costs, upon the minority who want contracts that grant plumbers more discretion. (Of course, the situation would be different if the distribution of contracting parties were to change so that most of them come to prefer a contract that grants plumbers discretion over which pipe is used.)

Notice though how this argument in favor of non-literal interpretation depends upon our assumptions about the costs of drafting the various documents. Those assumptions need not hold. Imagine, for example, the case in which the relevant parties have access to a standard form of agreement for plumbers which contains a provision stating that steel pipe should be used unless it is unavailable. Let us assume that, as is typically the case, it is cheaper to adopt the standard form than to draft a document from scratch, even if the customized document simply states “provide pipe.” Under these circumstances, literal interpretation will allow most parties to get the contract they want by adopting a relatively cheap document. A non-literal interpretation of the standard form would either frustrate the purposes of most parties or force them to draft a

customized document that, under the non-literal method of interpretation, achieves the same effect as a literal interpretation of the standard form.

Of course the situation would be different again if the demand for contracts was different. For instance, let us continue to assume that the standard form represents the cheapest available document but now suppose that most parties' preferred contract is one that gives the plumber unfettered discretion to select pipes. Under these circumstances, the optimal method of interpretation will be a non-literal one that interprets the standard form so that it has the same effect as a literal interpretation of the document that says "provide pipe."

It is also worth noting that drafting costs can vary over time and, moreover, are likely to change in response to the method of interpretation selected by adjudicators. For example, suppose that we return to our initial scenario in which there is no standard form and a majority of parties want contracts that require steel pipe to be used unless it is unavailable while the minority prefers that plumbers enjoy discretion. However, let us expand our illustration to encompass two periods of contracting. Under these conditions, in the first period, examined in isolation, adopting the literal method of interpretation may be sub-optimal because it will encourage a large number of parties to incur the relatively high costs of drafting documents that say "use steel pipe unless it is unavailable..." However, before rejecting this interpretive approach out of hand, it is important to notice that the documents it induces parties to draft in the first period may become standard forms in the second period, forms that if interpreted literally will allow the majority to contract on their preferred terms at a relatively low cost. This gives rise to the possibility that over the two periods the literal method of interpretation will be optimal. Thus, when drafting costs are allowed to vary over time (and in fact are treated as endogenous) the method of interpretation that is optimal in the short run may not be optimal over the longer run.

This last point also implies that it may not be optimal over the long run to allow parties to choose their method of interpretation. To see this, continue to imagine that there are two periods of contracting but add the assumption that none of the parties expects to contract in both periods. Under these circumstances, if given the choice, in the first period the majority of contracting parties might well choose a non-literal method of interpretation. They may even be willing to accept a sub-optimal non-literal method of interpretation that interprets "provide pipe" as an unconditional obligation to "provide steel pipe." As a consequence they would fail to create a standard form document that would ultimately serve to reduce drafting costs in the second period. Simply put, the standard form is a positive externality that parties who contract in the first period can generate for parties who contract in the second period and as such is something that the parties in period one have little incentive to create. In this example, limiting parties' ability to opt out of the literal method of interpretation would force them to create the positive externality and so would be socially optimal.

The following sections present a model that defends these claims in a more formal and general fashion.

3. A model of contractual interpretation

This model treats a contract as a set of mutual contingent legal obligations derived from a particular document using a particular method of interpretation.² It is assumed that each pair of contracting parties (a “contracting pair”), drawn from a heterogeneous population of contracting pairs, jointly chooses the document in which to embody its legal relationship in light of the method of interpretation selected by a lawmaker. The building blocks of the model are as follows:

a is an *action* where $a \in A$, the universe of possible actions. Since the relevant actors are contracting pairs this can be interpreted as a vector with elements consisting of sets of alternative modes of performance that might be undertaken by each of the contracting parties;

ω_i is a *contingency*, where $\omega_i \in \Omega$, the set of n possible contingencies;

E_m is an *event*, which is a subset of the contingencies in Ω ;

O_m is an *obligation*, which is a function that maps sets of actions in A onto the set of possible legal consequences, J , such as, $J = \{\text{breach, no breach}\}$. In other words, it is a partition of the action space into sets with distinct legal consequences.³

A *contract*, K , is a correspondence between a list of m events and m obligations. Therefore, for a given set of contingencies (e.g., steel pipe is unavailable) the contract defines sets of actions (e.g., install copper pipe) that will lead to particular legal consequences (such as ‘no breach of contract’). Each element of this correspondence is a *term* of the contract.

$$K = \{(E_1, O_1), \dots, (E_m, O_m)\}$$

What we have said so far implies that contracts in this model may demonstrate varying degrees of what is sometimes called “incompleteness.” In the economics literature contracts are said to be incomplete when they are “less detailed than might be desirable for the parties” (Shavell 2006: 295n). Used in this way the term “incomplete contract” seems to capture two distinct concepts. First, a relatively incomplete contract may be one that in any given contingency associates the same legal consequences with a relatively large number of actions. For example, supplying either copper or steel pipe may lead to the same legal consequences. The greater the number of actions associated

² Although this model is inspired by Shavell (2006) it differs from the model presented there in two significant respects. First, it draws a distinction between the legal obligations that comprise a “contract” and the “document” from which those obligations are derived. This distinction is crucial to the aim of analyzing the effects of varying the costs producing documents. Second, this model embodies a richer conception of a contractual obligation. Not only does it encompass obligations backed by different sorts of legal consequences, it also contemplates obligations that parties can satisfy in a number of different ways.

³ Specifying a richer set of possible legal consequences, such as {certain breach, 51% chance of breach, no breach}, would not affect any of the conclusions that follow.

with a particular contingency the more *flexible* the term. As a practical matter, every contract seems likely to incorporate a certain amount of flexibility.⁴ In the extreme case the contract can contain what may be called an *open term* which says that if a particular event occurs the entire universe of actions will lead to the same legal consequences. So, for example, a document that says “use steel pipe so long as it is available,” might be interpreted to mean that the plumber has unfettered discretion if steel pipe is not available. A second sense in which a contract may be incomplete is if it associates a single set of obligations with a relatively large number of contingencies. For example, steel pipe may be required to avoid breach regardless of the relative price of copper pipe. The greater the number of contingencies associated with a given obligation the more *general* (as opposed to *specific*) the term. In common parlance an incomplete contract seems to be one that contains a relatively large number of terms that embody large amounts of flexibility and generality.⁵

A contract is derived from a *contractual document*, d , $d \in I$ (the set of feasible documents) using a *method of interpretation*, which is a function $M(d)$ that maps the document onto a particular contract. Thus,

$$K = M(d).$$

For present purposes we shall set aside a number of potential obstacles to useful interpretation of contractual documents by assuming the following:

Assumption 1: The method of interpretation is always known to the parties with certainty. This means that once a method of interpretation has been selected for any given contractual document the parties will be able to predict the legal consequences (which may, however, be uncertain) associated with any given action in any given contingency with perfect accuracy.

Assumption 2: The set of feasible contracts is identical regardless of the method of interpretation.

It is worth noting that the concept of a contractual document can be defined broadly to incorporate both final written agreements and other ‘extrinsic’ evidence. In this broad conceptualization, doctrines that exclude extrinsic evidence can be represented as methods of interpretation that automatically ignore certain portions of the ‘document’ created by the parties.

Following Shavell (2006), we shall focus on the effects of contracting on the joint utility of the contracting pair, ignoring the details of the process by which the benefits

⁴ For further discussion see Battigalli and Maggi (2002) as well as Kornhauser and MacLeod (2006). The modeling strategy used here also resembles Hart and Moore’s (2004) suggestion that contracts can be described as either ruling out or ruling in certain actions. However, Hart and Moore’s contracts determine the actions that are ruled in or ruled out as a matter of fact, whereas the contracts in this paper only determine what actions are ruled in or ruled out as a matter of law. What is permitted by law may diverge from what in fact occurs because legal obligations can be breached or renegotiated.

⁵ Battigalli and Maggi (2002).

and costs of contracting are allocated between the parties. We shall also ignore the details of the process by which the contracting pair's contractual obligations are translated into individual parties' decisions to perform, breach, litigate, settle, or renegotiate, with their associated costs and benefits. Instead we shall assume that the expected payoffs from adopting a given contract vary only depending on the contracting pairs' type, t , where,

$t \in T$, the population of types;

$F(t)$ is the probability distribution of type t ;

$V(K, t)$ or, equivalently, $V(M(d), d, t)$ is the expected payoff of being subject to K to a pair of type t .

We shall call the costs of adopting a particular contractual document *drafting costs*, which are represented by $\alpha(d, t)$. These include all of the costs associated with expressing the parties' preferred contract in recorded form, including the costs of copying or purchasing standard form documents as well as costs associated with negotiating over the appropriate manner of expression and physically producing the contractual document. Consequently, the (expected) value to any given contracting pair from adopting a particular contractual document, given the prevailing method of interpretation, is,

$$W(M, d, t) = V(M(d), t) - \alpha(d, t) \quad (1)$$

Each round of contracting (initially we shall assume there is only one round) involves two stages. First, the lawmaker selects a method of interpretation. Second, each contracting pair selects a document. We shall assume that the contracting pair – who, to reiterate, act jointly – choose d to maximize (1). In other words,

Assumption 3: The pair chooses $d = D(M) = \operatorname{argmax}_d W(M, d, t)$.

In light of this assumption, going forward we can write the expected value any given contracting pair derives from contracting as a function of the method of interpretation selected by the lawmaker.

The final component of the model is a social welfare function. We shall presume that social welfare is determined solely by the aggregate value of contracts entered into by the population of contracting pairs,

$$S(M) = \int_T W(M, t) dF(t) \quad (2)$$

Implicit in this definition of social welfare is an assumption that any costs associated with the process of interpreting contracts are immaterial.

4. Implications for social welfare of alternative methods of interpretation

We are principally interested in the question of how a lawmaker who is interested in enhancing social welfare ought to go about selecting a method of interpretation. This model yields the standard result that if a single method of interpretation must be selected to govern a heterogeneous population of contracting pairs then choosing one method of interpretation over another may very well benefit some contracting pairs while harming others. Our lawmaker should switch to an alternative method of interpretation whenever the benefits outweigh the costs (see, for example, Ayres and Gertner 1989, Shavell 2006). More formally, if the lawmaker is considering whether to adopt one method of interpretation or another we can say:

Proposition 1: Moving from one method of interpretation to another creates benefits in the form of reduced drafting costs for contracting pairs who prefer the first method of interpretation (M^1) and costs in the form of increased drafting costs imposed upon pairs who prefer the alternative method of interpretation (M^2). The first method of interpretation will be optimal unless the benefits of moving to a second outweigh the costs.

Proof: We can begin by describing the benefits of moving to M^2 from M^1 . From (1) we know that this will benefit pairs for whom, (suppressing the indicator of type to avoid cumbersome notation),

$$[V(M^2(D(M^2))) - \alpha(D(M^2))] > [V(M^1(D(M^1))) - \alpha(D(M^1))]$$

This will occur if either

$$\alpha(D(M^2)) < \alpha(D(M^1)) \text{ and } M^2(D(M^2)) = M^1(D(M^1)) \quad (\text{A1})$$

or,

$$[\alpha(D(M^2)) - \alpha(D(M^1))] < [V(M^2(D(M^2))) - V(M^1(D(M^1)))] \text{ and}$$

$$M^2(D(M^2)) \neq M^1(D(M^1)) \quad (\text{A2})$$

When A1 holds, contracting pairs adopt the same contracts under M^2 and M^1 but under M^2 they are able to do so using less costly documents. When A2 holds, a pair adopts different contracts under M^2 and M^1 but derives greater net benefits under M^2 .

As for the cost of moving to M^2 from M^1 , such a move will reduce the welfare of pairs for whom,

$$[V(M^2(D(M^2))) - \alpha(D(M^2))] < [V(M^1(D(M^1))) - \alpha(D(M^1))]$$

This will occur if,

$$\alpha(D(M^2)) > \alpha(D(M^1)) \text{ and } M(D(M^2)) = M(D(M^1)) \quad (\text{A3})$$

or,

$$[\alpha(D(M^2)) - \alpha(D(M^1))] > [V(M^2(D(M^2))) - V(M^1(D(M^1)))] \text{ and} \\ M^2(D(M^2)) \neq M^1(D(M^1)) \quad (\text{A4})$$

When A3 holds, contracting pairs adopt the same contracts under M^1 and M^2 , but find it more costly to do so under M^2 . When A4 holds, contracting pairs adopt different contracts under M^1 and M^2 but still derive lower net benefits under M^2 .

Let the set of all parties for whom A1 or A2 are satisfied be labeled A , distributed according to $A(t)$. Let the set of all pairs for whom A3 or A4 are satisfied be labeled B , distributed according to $B(t)$. Accordingly, the benefits of moving to M^2 from M^1 will be, $\int_A [W(M^2, t) - W(M^1, t)] dA(t)$. The costs will be, $-\int_B [W(M^2, t) - W(M^1, t)] dB(t)$.

Moving to M^2 from M^1 will increase social welfare if $S(M^2) - S(M^1) > 0$ or,

$$\int_A [W(M^2, t) - W(M^1, t)] dA(t) + \int_B [W(M^2, t) - W(M^1, t)] dB(t) > 0$$

Or,

$$\int_A [W(M^2, t) - W(M^1, t)] dA(t) > - \int_B [W(M^2, t) - W(M^1, t)] dB(t) \quad \blacksquare$$

For pairs who are better off under M^2 it must be true that the contract they adopt under that method, K^2 , can be created using a document that is cheaper than the document required to generate K^2 under M^1 , otherwise the pair would be better off adopting K^2 under M^1 .

Remark 1.1: For contracting pairs who are better off under M^2 , the contract they prefer to draft under M^2 would be more costly to draft under M^1 .

Proof: See Appendix.

Similarly, for pairs who are worse off under the M^2 , it is implicit that moving to M^2 increases the cost of drafting the contract the pair would have adopted under M^1 ; otherwise they could simply adopt that contract and be no worse off as a result of the change.

Remark 1.2: For contracting pairs who are worse off under M^2 , the contract they prefer to adopt under M^1 is more costly to draft under M^2 .

Proof: See Appendix.

It is also necessarily the case that the conventional method of interpretation will be optimal unless at least one contracting pair benefits from moving to a non-conventional method of interpretation. As indicated above, this necessarily implies that the non-conventional method of interpretation permits that pair to draft their preferred contract using a relatively cheap document. Therefore,

Proposition 2 If a method of interpretation M^2 is optimal then for at least one contracting pair $a(d^2) < a(d^*)$, where $d^2 = D(M^2)$, $K^2 = M^2(d^2)$, and d^* is defined such that $M^1(d^*) = K^2$.

Proof: This follows directly from *Remark 1.1*.

5. Literal interpretation versus gap-filling and other non-literal methods of interpretation

What does an optimal method of interpretation look like in practice? Much of the literature on the economics of contracting implicitly assumes that adjudicators employ what can be called *literal* methods of interpretation. These methods of interpretation assign meanings to documents based on the rules embedded in the ordinary language that is predominant among members of the relevant population (which may or may not be the language found in an ordinary dictionary). It is also typically presumed that when documents are interpreted literally, more complete contracts require longer more sophisticated documents that are more costly to draft. An enormous literature is devoted to the problems faced by parties who are left with no alternative but to adopt incomplete contracts.

It is widely recognized that adjudicators can mitigate these problems by employing non-literal methods of interpretation that allow parties to use relatively cheap documents to make contracts that are relatively complete. Such methods of interpretation involve what we can call *gap-filling*, and are exemplified by doctrines such as the implied duty of good faith in performance, impracticability and mistake. To qualify as a gap-filling method of interpretation there must be some set of documents for which the method will generate at least one contract that is more complete – that is to say, either more specific or less flexible, or both – than the contracts those documents would generate under the literal method of interpretation. Formally then, if we can measure the completeness of a contract with an objective (i.e. type-independent) measure called $c(K)$,⁶ we can say the following:

A method of interpretation M' involves *gap-filling* relative to a literal method of interpretation, M^L , so long as $\exists d: c(M'(d)) > c(M^L(d))$.

⁶ As noted, constructing such a measure will involve taking into consideration, in some way, the number of terms in the contract as well as their degree of flexibility and generality. It is not clear that there is any non-arbitrary way of doing that.

It is reasonably clear that no general claims can be made about the relative merits of literal and non-literal methods of interpretation. It is always possible to identify a non-literal method of interpretation which fills what would otherwise be contractual “gaps” under the literal method of interpretation with terms that are favored by at least some contracting pairs. However, as Goetz and Scott (1985) have argued at length, any non-literal method of interpretation has the potential to impose costs on parties who do not like the terms implied by law and find it costly to draft around them (see also Schwartz and Scott 2003).⁷

A more interesting question is what form an optimal non-literal method of interpretation ought to take. The logic underlying the conventional approach suggests that if there is an optimal non-literal method of interpretation it will necessarily involve gap-filling. However, we shall see that taking into account the existence of boilerplate suggests a richer set of possibilities.

As it turns out, the optimal method of interpretation is only guaranteed to involve gap-filling where the cost of drafting documents is increasing strictly in the completeness of the resulting contract under the literal method of interpretation. In other words,

$$\alpha(d^1) > \alpha(d^2) \leftrightarrow c(M^L(d^1)) > c(M^L(d^2)) \quad (3)$$

When Condition (3) holds it is clear that the only way that adopting a non-literal as opposed to a literal method of interpretation will increase social welfare is if it helps contracting pairs to reduce the cost of drafting contracts that are more complete.

Proposition 3: The optimal non-literal method of interpretation necessarily involves gap-filling iff drafting costs are directly related to the completeness of contracts under the literal method of interpretation in the manner set out in *Condition 3*.

⁷ Shavell (2006) argues that the optimal method of interpretation will be strictly superior to what he calls the literal method of interpretation. However, this claim has to be read in light of the fact that his definition of a literal method of interpretation is quite different from the one used here. Shavell is concerned with showing the sub-optimality of methods of interpretation that do not map on to well-defined obligations for events that are not referred to explicitly when the document is interpreted literally. He assumes that all parties governed by such a method of interpretation will avoid contracts that contain such “gaps” (a term that also has a different meaning in his paper than in this one). Consequently, he reasons that drafting costs under such a method of interpretation will be greater than under a method of interpretation that deals with an event that is not explicitly referred to by creating an obligation preferred by at least one pair of contracting parties. This argument is valid as far as it goes, however, this definition of a literal method of interpretation seems quite different from the one used in practice. In ordinary parlance the literal interpretation of a contractual document that makes no explicit reference to the actions to be performed in a given contingency is that the parties remain subject to whatever obligations governed them in the absence of a contract. In other words, the contract would be treated by the courts as containing an open term in the sense defined above, rather than a Shavell-style gap. Shavell also does not provide any particular justification for his assumption that parties would always avoid contracts that contain gaps.

Proof: As in the proof of *Proposition 2*, define d' : $M'(d')=K'$ and d^* : $M^L(d^*)=K'$. From *Proposition 2* we know that if M' is an optimal non-literal method of interpretation then, for at least one contracting pair, $\alpha(d') < \alpha(d^*)$. Iff Condition (3) holds then $\alpha(d') < \alpha(d^*) \leftrightarrow c(M^L(d')) < c(M^L(d^*))$. Because $M'(d')=K'=M^L(d^*)$, $c(M^L(d^*))=c(M'(d'))=c(K')$. Therefore, iff Condition (3) holds, $c(M^L(d')) < c(M'(d'))$.

Once we take into account the existence of boilerplate though Condition (3) seems unlikely to hold, in which case *Proposition 3* shows that the optimal method of interpretation need not entail gap-filling. Many boilerplate documents are not only cheap but also highly detailed, meaning that if interpreted literally they generate very complete contracts. Drafting a less complete contract—such as a contract that gives plumbers discretion to use any kind of pipe they like rather than specifying the type of pipe to be used in every contingency—may entail more significant drafting costs. Thus a contracting pair may find it cheaper to draft a standard form document than a more novel document, even if when interpreted literally the standard form generates a more complete contract (Sussman 1998; Battigalli and Maggi 2002: 812). In other words, when it comes to boilerplate documents, even under the literal method of interpretation there need not be a particularly tight connection between the drafting costs incurred by the contracting pair and the completeness of the resulting contract.

Taking into account the existence of boilerplate highlights the prospect that parties will find it costly to create novel contracts. This represents a shift away from the literature's traditional focus on the costs of creating complete contracts. Under these circumstances, reasoning analogous to the proof of *Proposition 3* will show that if there is an optimal non-literal method of interpretation it will permit at least one document to generate a more novel – though not necessarily more complete – contract than it would under the literal method of interpretation. This will help contracting pairs confronted with standard forms that are prohibitively costly to change but whose literal meanings are not ideally suited to their purposes (Listokin forthcoming). In practice, such a method of interpretation will involve ignoring the literal meaning of certain terms in a document on the theory that they represent “mere boilerplate.” This occurs, for example, when courts decline to enforce terms contained in the detailed standard forms that merchants use to confirm prior oral agreements.⁸

6. Extension to multiple periods of contracting

The idea that having access to similar documents can reduce the cost of producing any particular document has far-reaching implications when contracts are drafted in multiple periods. The model presented above can be extended to allow for multiple periods of contracting and drafting costs that vary over time depending upon the documents drafted in previous periods. In this extended model, in each period the costs

⁸ See for example, *Trans-Aire International, Inc. v. Northern Adhesive*, 882 F.2d 1254 (7th Cir. 1989). Courts often also depart from the literal meaning of contractual documents when giving effect to the literal meaning would lead to absurd or one-sided results. See generally Posner (2005: 1604-1605).

of creating any given contract will depend not only on the method of interpretation prevailing in the current period but also, because of the relevance of previous drafting choices, on the methods of interpretation that prevailed in previous periods.

6.1 Setup of the extended model

To extend the model in this fashion we can define an *interpretive regime*, A , as a sequence of methods of interpretation, one for each of a potentially infinite number of periods. In other words,

$$A_{1,\tau} = (M_1, \dots, M_\tau)$$

We will assume that not only do Assumptions 1 and 2 above continue to hold, but also that the interpretive regime is known to all parties in period 1 and all subsequent periods. We will also make the strong assumption that the set of types of contracting pairs, T , is exogenously determined and fixed over time. The value of a contract in period τ to parties of a given type will be a function of the drafting costs in τ , which will in turn be a function of the sequence of methods of interpretation adopted in periods 1 to τ , which we can label $A_{1,\tau}$. Therefore,

$$W_\tau(A_{1,\tau}, d, t) = V(M(d), t) - \alpha_\tau(A_{1,\tau}, d, t)$$

Social welfare over any given number of periods will be the sum of the discounted values of the contracts adopted across the population and over time. For the sake of convenience we will ignore discounting so that,

$$S_{1,\tau}(A_{1,\tau}) = \sum_{z=1,\tau} \int_T W_z(A_{1,z}, t) dF(t)$$

Notice that for $x < \tau$,

$$S_{1,\tau}(A_{1,\tau}) = S_{1,x}(A_{1,\tau}) + S_{x,\tau}(A_{1,\tau})$$

6.2 Why the optimal interpretive regime might vary over time

We can now use this extended version of the model to show that the optimal interpretive regime, for either the entire population or some sub-group within it, may vary depending upon the timeframe over which social welfare is being calculated.⁹ This will occur if the value derived from contracts in each period changes at different rates under each regime. More precisely,

Proposition 4: The optimal interpretive regime will vary with τ if social welfare under the interpretive regime that is sub-optimal in the short run increases

⁹ This possibility is foreshadowed by Adler (1994: 1133) who suggests that rules set out in the Bankruptcy Code for interpreting debtor-creditor contracts might be cost-effective in the short-run but undesirable in the long-run because they discourage contractual innovation.

sufficiently quickly over time relative to social welfare under another interpretive regime.

Proof: The optimal interpretive regime varies depending on τ if where A^2 is optimal over the period 1 to τ , there exists A^1 such that, for $x < \tau$,

$$S_{1,x}(A^1) > S_{1,x}(A^2) \quad \text{but} \quad S_{1,\tau}(A^1) < S_{1,\tau}(A^2)$$

This implies that,

$$S_{x,\tau}(A^2) > S_{x,\tau}(A^1) + [S_{1,x}(A^1) - S_{1,x}(A^2)] \quad (4)$$

Inequality (4) defines what it means for the optimal interpretive regime to vary with τ . It also shows that this will only be the case, and *Proposition 4* will only be valid, if $S_{x,\tau}(A^2)$, which represents cumulative social welfare from period x to period τ under the interpretive regime that is sub-optimal over periods 1 to x , is sufficiently large – implying a high rate of increase over period x to τ – relative to the cumulative social welfare from period x to period τ under the interpretive regime that is optimal from periods 1 to x (as well as the difference in cumulative social welfare under the two regimes up to the end of period x). ■

Under what conditions is Inequality 4 likely to hold so that the optimal interpretive regime varies depending on the timeframe? Although *Proposition 4* is valid for all sorts of interpretive regimes, for the sake of convenience we can focus on interpretive regimes that involve consistently choosing one method of interpretation or another (*consistent interpretive regimes*). That is to say, we will compare the effects of choosing either one method of interpretation (A^1) in every period or another method of interpretation (A^2) in every period.¹⁰

To understand the conditions under which Inequality 4 is likely to hold it is useful to rewrite it so that we can distinguish changes in the welfare of two mutually exclusive sets of contracting pairs – those who in the short-run prefer A^1 to A^2 and those for whom the opposite is true over the same time period. We can define the welfare of these sets of contracting pairs as S^A and S^B respectively where,

$$S_x = S_x^A + S_x^B,$$

$$S_{1,x}^A(A^1) > S_{1,x}^A(A^2) \quad \text{and}$$

$$S_{1,x}^B(A^1) < S_{1,x}^B(A^2).$$

Therefore, Inequality 4 can be rewritten as follows,

¹⁰ If documents drafted under one method of interpretation tend to have less value under other methods of interpretation then lawmakers concerned with maximizing social welfare will naturally gravitate toward consistent interpretive regimes.

$$S^A_{x,\tau}(A^2) + S^B_{x,\tau}(A^2) > S^A_{x,\tau}(A^1) + S^B_{x,\tau}(A^1) + [S_{1,x}(A^1) - S_{1,x}(A^2)] \quad (5)$$

Inequality 5 suggests that the optimal short-run and long-run interpretive regimes can differ if the welfare of the contracting pairs who are initially disadvantaged by the regime that is optimal in the long-run eventually increases relatively rapidly. In other words, if $S^A_{x,\tau}(A^2)$ is sufficiently large then a regime that is initially sub-optimal may become preferable in the long-run.

In this model, assuming that there are no changes in the contracting environment, the only reason why contracting pairs' welfare would increase over time under a given consistent interpretive regime is because the costs of drafting documents that they value decrease. Drafting costs will tend to decline over time to the extent that contracting pairs in later periods can obtain helpful boilerplate produced in earlier periods at low cost.¹¹

There are several circumstances in which drafting costs faced by contracting pairs who are initially disadvantaged by a particular method of interpretation—in fact, so disadvantaged that the method of interpretation is not optimal for society as a whole in the initial period—might decline relatively rapidly if that method of interpretation is consistently applied for a long period of time. Here is one possibility: the method of interpretation that is initially optimal may permit adjudicators to rely on documentation that is initially cheap to produce but that subsequent contracting pairs will find difficult to copy. This may occur for methods of interpretation that direct adjudicators to treat extrinsic evidence as well as final written agreements as contractual documents. Extrinsic documentation may be relatively cheap to produce—the only costs involved may be slightly more formal pre-contractual negotiations and the costs of recording large amounts of correspondence. Consequently, a method of interpretation that takes extrinsic documentation into account may well minimize short run drafting costs. However, the extrinsic documentation produced by contracting pairs in earlier periods typically cannot be copied by subsequent contracting pairs who wish to achieve the same legal effects—it is much easier to copy a final written agreement than it is to copy an entire body of e-mail correspondence. Consequently, under a method of interpretation that takes into account extrinsic documentation, drafting costs are unlikely to fall as quickly as they would under a method of interpretation that looks only to final written agreements, at least when those written agreements are easily copied. This analysis supports the practice of interpreting

¹¹ Boilerplate is often readily accessible. For instance, there is typically nothing to prevent one party to a contract from using a document drafted by their counterparty in a similar transaction with a third party. Contracting parties can also take advantage of the fact that sellers of goods and services often disclose the terms upon which they are willing to trade, and hence the documents they plan to use, in order to attract customers. There are even instances of for-profit law firms distributing documents at low cost in order to advertise their drafting skills. In addition, in some cases public disclosure of contracts is mandated, or at least encouraged, by securities laws. Finally, legal publishers, trade associations and other organizations, both for-profit and non-profit, often take it upon themselves to disseminate contractual documents collected from all of these sources at prices that bear little relation to their costs of production and may not even reflect the full costs of dissemination (Davis, 2006).

boilerplate documents without regard to extrinsic evidence concerning the course of dealing between the parties to the contract.¹²

There is an alternative and more general reason to suppose that drafting costs will decline relatively slowly for contracting pairs who value documents that were relatively inexpensive to draft in earlier periods. Having access to a document from an earlier period is likely to reduce the cost of drafting the same document in the current period either to some constant that is the same for all documents or by an amount that is proportional to the original drafting cost. In each case the absolute decline in drafting costs from one period to the next will be greatest for documents that were relatively expensive to produce in the earlier period. The underlying intuition is that when there are fixed costs associated with drafting documents valued by any given class of contracting pairs the welfare of those pairs will be relatively low in the period in which the drafting costs are incurred but relatively high in subsequent periods.

In terms of our model, this all becomes relevant if the reason why A^2 is initially sub-optimal is because it induces the contracting pairs in class A to incur relatively high drafting costs (the alternative possibility is that the drafting costs under A^2 are so prohibitively high that contracting pairs in class A resort to cheap documents that generate highly unsatisfactory contracts). The preceding arguments suggest that drafting costs under A^2 are likely to fall dramatically in later periods when the members of class A can use documents prepared in earlier periods as boilerplate, more dramatically than they would under A^1 . Naturally, the same reasoning suggests that drafting costs will also decline relatively rapidly for members of class B who respond to the regime that they initially find sub-optimal, namely, A^1 , by drafting expensive documents. This suggests the following hypothesis:

$$\textit{Hypothesis 1: } S^A_{x,t}(A^2) > S^A_{x,t}(A^1) \text{ and } S^B_{x,t}(A^1) > S^B_{x,t}(A^2).$$

A second possibility is that drafting costs will fall relatively rapidly for documents that are of high value. Why? Suppose that the reason why drafting costs decline over time is because copies of documents drafted by other parties in early periods are deliberately distributed by actors such as law firms, publishing companies, and trade associations. There may well be costs associated with distributing each type of document that are invariant to their value. In this situation it will be prohibitively costly to distribute certain low-value documents and so, ultimately, high-value documents are more likely to be made available.

Finally, a third possibility is that drafting costs will decline relatively rapidly for contracting pairs who value documents that have been widely disseminated. The logic here is that access to copies of documents may be determined not by their original

¹² See, for example, *Sharon Steel Corp. v. Chase Manhattan Bank, N.A.*, 691 F.2d 1039 (2d Cir, 1982), 1049. This decision was also based in part on concerns that relying on extrinsic documentation would generate uncertainty and excessive litigation costs. On these issues see Katz (2004). Choi and Gulati (2006: 1151-1156) raise the distinct concern that boilerplate interpreted in light of extrinsic documentation in one case might subsequently be interpreted in the same way in cases involving different types of parties.

owners' investments in distributing them but instead by potential users' investments in searching for the documents. It seems reasonable to assume that the ease of finding documents will depend on how widely they have been circulated. If this is the case documents that are widely disseminated in early periods will tend to be more readily accessible in subsequent periods than other documents.

In formal terms, if we assume that the contracting pairs who are initially disadvantaged under A^2 (class A) are those who draft either relatively high value contracts or a relatively large number of contracts, then the preceding paragraphs suggest the following hypothesis:

$$\textit{Hypothesis 2: } S^A_{x,t}(A^2) > S^B_{x,t}(A^1) \text{ and } S^A_{x,t}(A^1) > S^B_{x,t}(A^2).$$

Of course both *Hypotheses 1* and *2* are vulnerable to at least one important theoretical objection: Documents that are costly or valuable are precisely the documents that one would expect profit-seeking drafters to prevent from circulating freely. At the very least, the validity of these hypotheses seems likely to depend on context-specific factors such as the extent to which not-for-profit actors are involved in drafting contractual documents, the state of copy-protection technology and the content of intellectual property law.

If valid though, *Hypotheses 1* and *2* suggest that it is possible for the optimal interpretive regime to vary depending on the timeframe under consideration. This analysis is consistent with claims that the appeal of any given interpretive regime will increase over time as contracting pairs draft contractual documents that are adapted to that regime and become boilerplate. Claims of this sort are sometimes made about literal interpretive regimes (see generally, Scott 2000).¹³ In the short-run, a literal regime might be sub-optimal because it forces a large number of contracting pairs drafting high-value contracts to incur drafting costs that are significantly higher than those they would incur under certain non-literal regimes. But if the literal regime is maintained in subsequent periods drafting costs for this class of contracting pairs will fall significantly as their documents become boilerplate.

These outcomes are by no means guaranteed. Inspection of Inequality 5 reveals that when *Hypotheses 1* and *2* hold, even if $S^A_{x,t}(A^2)$ is very large so that the welfare of class A increases significantly under A^2 , the welfare of class B, $S^B_{x,t}(A^2)$, seems likely to increase relatively slowly. Thus the overall change over time in social welfare under A^2 may not be any greater than the change under A^1 . So, for instance, even if drafting costs fall quite rapidly under a literal regime as documents become boilerplate, that literal regime may still be sub-optimal in the long-run. For one thing, welfare under the non-literal regime will also increase over time as documents produced under that regime become boilerplate and thereby reduce drafting costs. In addition, since the benefits of

¹³ Kraus and Walt (2000: 214-6) make essentially the same point in explaining the appeal of the literal method of interpretation adopted by the National Grain and Feed Association and lauded by Bernstein (1996).

the literal regime accrue in the future and will typically be discounted accordingly, the initial advantage of the non-literal regime may be impossible to overcome.

6.3 Why the optimal legal regime might vary across space

In this model the optimal interpretive regime depends upon not only the contracts that contracting pairs want to write (the distribution of types in the population) but also the types of boilerplate to which contracting pairs have access and the rate at which boilerplate induces changes in drafting costs. Variations across societies along any of these dimensions can lead to variations in how different interpretive regimes influence social welfare, not only in any given period but also over time. For instance, in a society in which boilerplate is disseminated rapidly and effectively there may be a sharp divergence between the interpretive regime that minimizes drafting costs in the short-run and the optimal long-run interpretive regime. By contrast, in societies in which boilerplate disseminates slowly the interpretive regime that maximizes the welfare of contracting parties in the short-run by interpreting existing boilerplate documents in ways that are preferred by the majority of contracting pairs, will probably also be the interpretive regime that maximizes long-run welfare. This observation may be useful in analyzing whether methods of interpretation suitable for smaller or less developed economies differ from those appropriate for larger or more developed economies.

7. Giving parties freedom to choose their method of interpretation

Some scholars have suggested that the best response to difficulties in determining the optimal method of interpretation for heterogeneous parties is to give each contracting pair the freedom to choose the method of interpretation to be applied to their contractual documents in the event of a dispute (Schwartz and Scott 2003, Katz 2004, Shavell 2006).¹⁴ This idea builds on the familiar notion that contracting parties are best positioned to know what set of legal obligations will maximize their gains from trade. Practically speaking this proposal would mean being willing to enforce choice of law clauses. The extended version of our model can be used to analyze the welfare implications of giving pairs of contracting parties this sort of interpretive autonomy in a dynamic setting where parties' drafting choices in earlier periods influence drafting costs in subsequent periods.

Will it necessarily be optimal for lawmakers to grant parties interpretive autonomy? Let us assume that in situations where different contracting pairs adopt different interpretive regimes, all pairs of a given type adopt the same interpretive regime ($A'_{1,\tau}$) and the welfare of each type is independent of the interpretive regime selected by other types. In this case, the social welfare function under interpretive autonomy can be written as,

¹⁴ Parties will only be able to do this if there is some mandatory method of interpretation that maps the contents of their documents onto various interpretive regimes (Katz, 2004: 523-4).

$$S_{1,\tau}(A^1_{1,\tau}, \dots, A^T_{1,\tau}) = \sum_{z=1,\tau} \int_T W_z(A^t_{1,z}, t) dF(t)$$

Under these assumptions, social welfare for the relevant time period will be maximized whenever the welfare of each type of contracting pair is maximized over that same period of time. Conversely, socially welfare will not be maximized unless the welfare of each type is maximized over the relevant period. Therefore, if lawmakers grant parties interpretive autonomy social welfare will not be maximized unless all contracting pairs can be counted on to exercise their autonomy to choose an interpretive regime that maximizes the welfare of pairs of their type over the entire timeframe.

However, it is quite plausible that contracting pairs who are given the choice will not choose the interpretive regime that is optimal for their type. This is because pairs who choose the method of interpretation in any given period may not fully take into account the effects of their choices on pairs of their type in future periods. In other words, viewed from the perspective of the type to which they belong, contracting pairs may be short-sighted.

To see this, imagine a scenario in which only a limited number of contracting pairs of each type contract in any given period and, crucially, each pair only expects to contract for a limited number of periods. The fact that contracting pairs do not take into account the welfare of similarly situated pairs in all future periods gives rise to an externality. In the initial period the pair will select the method of interpretation that maximizes its welfare in the current period even if choosing an alternative method of interpretation would yield greater welfare for pairs of the same type over the longer run as the boilerplate produced in early periods reduced drafting costs in later periods. This choice will be repeated in subsequent periods. As a result, independent self-interested contracting pairs' sequential choices of methods of interpretation will not necessarily result in an interpretive regime that maximizes their collective welfare over the long-run. For example, as discussed, contracting pairs may opt for a non-literal regime that creates an unconditional obligation to use steel pipe when the document is silent on the matter, thereby saving many contracting pairs the expense of specifying a type of pipe, even if in the long-run it would be optimal for the parties to opt for the literal interpretive regime and draft a document that creates a more conditional obligation.¹⁵

The basic intuition is that parties granted interpretive autonomy will be unwilling to choose a method of interpretation which forces them to incur the fixed costs of drafting boilerplate documents that will be valuable to similarly situated parties in later periods. In other words, parties who adopt a document in early periods confer positive externalities upon parties who subsequently adopt the document. This is consistent with the more general idea that where early adopters of a document confer positive externalities on later

¹⁵ Parties' may also converge upon a sub-optimal literal regime. Consider the case where the (non-literal) regime that is optimal in the long run refuses to give effect to excessively legalistic documents, no matter how precise they may be when read literally. This can be accomplished by, for example, requiring documents to be "written in a clear and coherent manner using words with common and every day meanings" (New York General Obligations Law § 5-702). Parties who find it difficult to write concisely may well opt for a regime that will interpret their documents literally, even if the long-run benefits of plain language drafting are significant.

adopters of the same document, parties' choices of contractual documents are not guaranteed to be optimal (Goetz and Scott 1985; Kahan and Klausner 1997). This can all be summarized as follows:

Proposition 5: Social welfare will not be maximized under interpretive autonomy if there is at least one type of contracting pair, A, for which the interpretive regime must maximize $S^A_{1,x}$ and,

$$S^A_{1,x}(A^1) > S^A_{1,x}(A^2) \text{ but } S^A_{1,\tau}(A^1) < S^A_{1,\tau}(A^2),$$

implying that,

$$S^A_{x,\tau}(A^2) > S^A_{x,\tau}(A^1) + [S^A_{1,x}(A^1) - S^A_{1,x}(A^2)]. \quad (6)$$

Note: Hypothesis 1 suggests that it is plausible that Inequality 6 will hold. ■

8. Conclusion

The analysis in this article is premised on the notion that relative drafting costs are the primary factor to be considered in analyzing the consequences of adopting alternative methods of interpretation. Within this framework, the only justification for adopting an alternative method of interpretation is to help pairs of contracting parties draft contracts that would be costly for them to draft under whatever happens to be the conventional method of interpretation. The implications of this analysis are highly context-specific. For instance, the analysis does not necessarily support the use of non-literal methods of interpretation designed to help parties create more complete contracts than the literal method of interpretation. Given that contracts are often drafted by referring to standard form documents, it will not necessarily be costly to draft complete contracts under the literal method of interpretation; instead it may often be costly to draft novel contracts. Under these circumstances optimal deviations from the literal method of interpretation will be those designed to help parties draft more novel contracts. Similarly, the optimal method of interpretation will be sensitive to the drafting choices that have been made previously in the jurisdiction, a fact which in turn has implications for whether methods of interpretation ought to vary across jurisdictions and whether contracting parties ought to be permitted to choose their preferred method of interpretation.

This analysis still leaves significant room for additional research on optimal methods of contractual interpretation. To begin with, the analysis of the multi-period model could be extended to include interpretive regimes that are not consistent over time, such as those in which the method of interpretation varies depending on whether a particular document has achieved the status of boilerplate. More fundamentally, further research is also required on factors that influence the costs of obtaining contractual documents and how those costs vary across time and space. Future research might also explore the implications of allowing the distribution of types of contracting pairs to vary over time, as the availability of standard forms from prior periods affects incentives to

contract with certain persons as opposed to others. Finally, further research is also warranted on other factors that may bear on the implications for social welfare of alternative methods of interpretation. These factors have been set to one side here by making the strong assumptions that the applicable method of interpretation at any point in time is common knowledge and can be applied without cost. In reality though, some methods of interpretation will be less transparent to some people than to others or may be more costly for contracting parties and adjudicators to adopt. The administrative costs and potential for disagreement associated with alternative methods of interpretation may be more significant than the drafting costs. Moreover, these parameters may change over time.

Appendix

Proof of Remark 1.1: This is obviously true when (A1) holds. More generally though, let $d^1 = D(M^1)$ and $d^2 = D(M^2)$. Also, define d^* such that $M^1(d^*) = K'$.

If the parties in question are better off under M^2 than under M^1 then we know that,

$$W(M^2, d^2) > W(M^1, d^1)$$

From *Assumption 3* we also know that,

$$W(M^1, d^1) \geq W(M^1, d^*)$$

Therefore,

$$W(M^2, d^2) > W(M^1, d^*)$$

or,

$$V(M^2(d^2)) - \alpha(d^2) > V(M^1(d^*)) - \alpha(d^*)$$

Since $M^2(d^2) = M^1(d^*)$, this implies that $\alpha(d^*) > \alpha(d^2)$. ■

Proof of Remark 1.2: This is obviously true when (A3) holds. Generally though, let us define d^2 and d^1 as in the previous remark and d^{**} such that $M^2(d^{**}) = K^1$.

If the parties in question are worse off under M^2 than under M^1 then we know that,

$$W(M^1, d^1) > W(M^2, d^2)$$

From *Assumption 3* we know that,

$$W(M^2, d^2) \geq W(M^2, d^{**})$$

Therefore,

$$W(M^1, d^1) > W(M^2, d^{**})$$

or,

$$V(M^1(d^1)) - \alpha(d^1) > V(M^2(d^{**})) - \alpha(d^{**})$$

Since $M^1(d^1) = M^2(d^{**}) = K^1$, we know that $\alpha(d^{**}) > \alpha(d^1)$. ■

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