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Allocation of Fault in Contract Law

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August 2012

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Abstract

In this paper we consider situations in which the parties are in disagreement about the allocation of a certain risk, and either party could have acted ex-ante to prevent breach, to lower its probability or to insure against it (“least-cost avoidance” in tort law), but neither did so. When the state-of-the-world is revealed there remain steps the parties can take to prevent breach or mitigate damages. We consider strict liability and other regimes such as negligence and comparative fault, and show that the first-best solution is not achieved in those regimes because they incentivize the parties to consult the court in order to determine the identity of the obligor, and this is done only after the contract has collapsed.

We design a mechanism that yields the first-best solution without the need for court intervention, thereby allowing the parties to move forward and fulfill efficient contracts. In this mechanism, the court announces that any party that invests half the optimal level of precautionary costs as determined jointly by the parties is off-the-hook, and that if each party invests this amount the total costs and damages will be split. We demonstrate that this achieves optimality by leading the parties to jointly determine the optimal level of precautionary costs and to allocate the desired steps to the low-cost bearer. In addition, the mechanism leads to revelation of private information. Finally, we discuss the possibility of making the rule mandatory. By predetermining the equal split, the suggested mechanism brings renegotiation costs to a minimum because the parties only have to allocate the physical tasks between them.
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Introduction

Contract law is designed to prevent efficient transactions from collapsing. By forcing the breaching party to pay the damages caused by her breach to the innocent party, the law aims to cause her to act optimally in attempting to avoid inefficient breach. To help the promisor in this task, contract law contains techniques that enable her to accurately evaluate these damages, thus allowing her to choose an optimal level of precaution against breach.¹ This works fully if the contract allocates the risk of every contingency that can possibly occur throughout the contractual period, in which case the parties can be assured that as long as the contract remains efficient it will not collapse. Such a contract, for our purposes, is a complete contract.

In this paper we consider instances in which contracts are not complete, and after the contract has been signed a contingency occurs, or stands to occur, that increases the cost of fulfilling the contract (i.e., it adversely affects the profits from the contract). The contract itself does not contain any clause that addresses this contingency. Such situations can arise due to a conscious decision to exclude contingencies from the contract because the cost of including them outweighs the benefit,² due to errors that occur at the time of contracting such as an error in understanding the state of the world at the time the contract was signed or an inability to foresee future events,³ or due to faulty wording in the contract allowing for multiple interpretations, causing each party to believe that the risk of the disruptive event that occurred or stands to occur was allocated to the other party.⁴ In all of these cases the agreement between the parties contains an element of an “accident” in that it does not reflect the rights and obligations the parties believed they were taking upon themselves at the time of contracting. We denote these occurrences “contractual accidents.”⁵

Consider first contractual accidents for which it is clear that the liability falls solely on the promisor, i.e., cases in which the payor is, by definition, passive. As Posner and Rosenfield explain, this occurs in situations in which “the only relevant actors are performer and payor and the productive activity under the contract is controlled and conducted entirely by the former.”⁶ This is a case of “unilateral care” in which only the promisor can take steps to avoid or mitigate

¹ For instance, by limiting liability to only damages that were foreseeable at the time of contracting, they induce the promisee to reveal the extent of damages that will be caused by breach (Hadley v. Baxendale 9 Exch. 341, 156 Eng. Rep. 145 (1854)).
³ See EDWARD ALLAN FARNSWORTH, CONTRACTS. 619 (1999).
⁴ See Benjamin E. Hermalin, Avery W. Katz and Richard Craswell The Law & Economics of Contracts, in THE HANDBOOK OF LAW & ECONOMICS, 64, 66-70 (A. Mitchell Polinsky and Steven Shavell eds., 2007).
the probability of the accident (although the promisee may be able to take steps to lessen the amount of damage by lessening her reliance). In such cases the promisor is, in principle, liable for all consequences of the accident unless the court grants her an excuse from her contractual obligation,\(^7\) for instance, on the grounds of mutual mistake, impossibility or impracticability.\(^8,9\) It is illuminating to note, however, that the accident need not mean the end of the contact; since there is no disagreement regarding which party is the obligor, then as long as the court's decision (whether to grant or refuse to grant an excuse to the obligor) is certain and known ahead of time to the parties, the parties should be able to jointly decide to complete efficient contracts or terminate inefficient ones once the unexpected contingency becomes known.\(^10\) Consider, for example, *Mineral Park Land Co v. Howard.\(^{11}\)* In this case, a contractor agreed to haul gravel from the plaintiff's land for construction purposes. As it turns out much of the gravel was below water, and removing this gravel would have been prohibitively costly. However, gravel can be bought on the open market. Assume first that the benefit from the gravel is greater than its market price. If the court does not give the contractor an excuse and the parties know this ahead of time, then the contractor will be willing to pay the plaintiff to allow her to purchase the gravel. If the court gives the contractor an excuse and the parties know this ahead of time, then the plaintiff will be willing to pay so that the contractor will purchase the gravel and continue building. Conversely, if the cost of the gravel on the market is greater than the benefit from it, the contract will be terminated in all instances. Such contractual accidents for which the identity of the obligor is known are not the main subject of this paper, but we shall return to them in Part V.

What we do consider are instances in which the parties are in disagreement regarding the identity of the obligor with respect to this accident. For a disagreement to exist regarding which

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\(^8\) Some scholars believe that because it is always possible for the promisor to breach and pay damages, the impossibility doctrine is included in the impracticability doctrine (see George G. Triantis, *Contractual Allocations of Unknown Risks: A Critique of the Doctrine of Commercial Impracticability*, 42 U. TORONTO L. J. 450, 452 (1992)).

\(^9\) There is disagreement among scholars whether such an excuse can be economically justified. Posner and Rosenfield, *supra* note 6 at 90, state that in instances in which the promisee is the low-cost risk bearer it is efficient to grant such an excuse, since this allocates the damages efficiently. Ariel Porat, *Sharing Responsibility in Cases of Frustration of Contract*, 16 TEL. AVIV U. L. REV. 65 (1991, in Hebrew) disagrees, and says that since the granting of an excuse stems from the inability of the parties to foresee the contingency that occurred, it makes little sense to expect the promisee to have foreseen what the promisor could not. Therefore, there is no efficiency to be gained from transferring the damages to the promisee. If we accept this latter reasoning, it would seem that the granting of an excuse should transpire only when the desire of the parties has not been fulfilled given the current risk allocation.

\(^10\) Of course, the granting of an excuse lessens the promisor's incentives to take proper precautions and increases the probability of breach. The more broadly excuses are construed, the more the promisor will externalize some of the costs of breach (*see* Cooter, *supra* note 7 at 12-14).

\(^11\) 172 Cal. 289, 156 p. 458 (1916).
party is the obligor, it must be the case that either party could have taken steps ex-ante to avoid the accident, lower the probability of it occurring or lessen the damages to the parties from an accident. This is a case of “bilateral care,” which can be further divided into cases in which it is sufficient for one of the parties to act (denoted “exclusive care” herein and “least-cost avoidance” in the torts literature\textsuperscript{12}) and cases in which both parties optimally take actions (“joint care”). Consider, for example, the famous case of \textit{Raffles v. Wichelhaus}\textsuperscript{13} in which the plaintiff was to ship cotton to the defendant “ex-Peerless from Bombay,” and the defendant was to receive the shipment in Liverpool. As it turned out, there were two ships named Peerless that fulfilled the conditions of the contract. Note that in this case the information (that there were two ships named Peerless) could have been discovered (almost) costlessly by \textit{either} party before the contract was signed (a case of exclusive care), and had this been done the accident would have been avoided.

The result of this situation is that when the accident occurs, or stands to occur, each party may believe that if the case goes to court, the court will allocate the risk to the other party, and she will be absolved from responsibility.

Further restricting the relevant set, we are concerned with only those instances in which, when the state of the world is revealed, \textit{there are still steps that can be taken that can help avoid breach or lessen the damages from it occurring}. In \textit{Raffles},\textsuperscript{14} for instance, the defendant claimed that he expected the shipment to arrive on the ship that arrived in October, while the plaintiff shipped the goods on the ship that arrived in December, when the defendant no longer required the goods. It would have been efficient, when the goods did not arrive in October, for the defendant to notify the plaintiff not to send the goods. In cases such as these, the question is whether the parties will be able to reach agreement to allocate the risk and take the desired steps despite the dispute that has emerged from the contractual accident. As we shall explain, the strict liability regime that typifies contract law makes it particularly difficult for the parties to successfully rise above the current crisis. In such a regime the court allocates the entire responsibility to a single party,\textsuperscript{15} and if each party believes she will escape court proceedings unscathed, she may refuse to renegotiate any continuation of the contract. Put differently, because entitlements are not well defined between the parties, it could be difficult for them to reach an agreement even if renegotiation is


\textsuperscript{13} 2 H. \& C. 906, 159 Eng. Rep. 375 (hereinafter "\textit{Raffles}").

\textsuperscript{14} Supra note 13.

costless. As a result, the required actions will likely not be carried out, and efficient contracts could collapse.

These problems with a strict liability regime may find their solution in a fault-based regime that assigns responsibility for harm according to the fault of the parties, and grants an excuse from liability if the party takes sufficient precautions. Several scholars have recently considered the benefit from moving toward a fault regime in Contract Law, and a number of possibilities have been suggested. One option is to adopt the comparative fault defense to contract law, thus allowing apportionment of damages between the parties according to their fault. An alternative option is to give the promisor a release from responsibility if she took the precautions required by the court. In this case, the promisor will be excused from damages she could not prevent, so the innocent party will internalize these damages. This yields a similar result to the first solution.

These solutions, however, are particularly problematic when dealing with contractual accidents that stem from the disagreement about the allocation of risk. Consider what is required for such rules to attain the desired goal of having the parties take optimal steps to complete the efficient contract. First, the court will have to determine which party is the obligor for this contractual accident. Second, they will have to specify what precautionary steps will be deemed sufficient to grant the obligor an excuse from liability. Third, and most difficult, they will have to determine all of this ex-ante so that the parties can have certainty when the accident occurs and know how to act. In other words, the courts will have to specify a set of rules that give the parties a clear guideline for all contingencies whose risk is not allocated in the contract, thus removing all uncertainty regarding all costs and damages in the minds of the parties to the contract without them having to actually consult the court. If the court cannot give a clear signal and each party believes the other will be found liable, the desired result of saving efficient contracts will not be attained.

In this paper we design a simple mechanism based on fault that divides the liability between the parties, but does not suffer from the problems raised above because the court verdict is predetermined. Under this mechanism, whenever the parties disagree about the allocation of a certain risk that transpired/materialized or stands to transpire/materialize, the parties must equally

16 See Cooter, supra note 7 at 7.
17 See Robert Cooter and Ariel Porat, Anti-Insurance, 31 J. LEGAL STUD. 203 (2002); Cooter and Porat, supra note 13, and articles in the May 2009 issue of the Michigan Law Review which was devoted in its entirety to the conference on Fault in Contract Law held at The University of Chicago in the summer of 2009. Some of the papers in this conference were concerned with building proper incentives for the promisee to act when she can do so, and helped inspire this paper.
18 See Porat, supra note 15 at 1398.
20 See Porat, supra note 15 at 1434.
share the costs of any precautionary steps that the parties jointly determine should be taken. Any party that invests half of the optimal costs as determined receives an excuse, and if each party invests this amount, the damage, if it occurs, will be split. As a result of the fact that costs, as well as damages, are shared, the parties’ incentives become perfectly aligned, and they will act as if they were a single economic unit. Thus, they will carry out all cost efficient precautionary steps, including jointly allocating all steps to the low-cost bearer, and terminating contracts if the costs of performing the contract outweigh the benefits. In addition, since the division of costs and damages is predetermined, there is no need for additional court intervention. Returning to Raffles,\textsuperscript{21} when the concern first arises (when the shipment does not arrive in October), the defendant has an incentive to notify the plaintiff in order to discern whether the plaintiff admits that he breached the contract (in which case he is responsible for the entire loss from the breach) or, alternatively, that the parties disagree about the allocation of risk. In the latter instance, the parties would act in tandem, and agree to cancel the shipment to Liverpool. The incentive to do this stems from the fact that, under the recommended mechanism, if it turns out that they disagree about the allocation of risk, costs and damages will be split between them. Thus, each party will benefit from coordinating with the other party in order to bring these costs to a minimum.

The paper is organized as follows. In Part I we discuss bilateral care in contract law. We present cases of bilateral care and discuss the problems that arise from a strict liability regime, problems our mechanism is designed to solve. Part II presents and explains our mechanism, and shows why this mechanism yields the desired results. In Part III we discuss the mechanism and give more insight to how and why it works. In Part IV we consider existing liability regimes and demonstrate instances in which each fails to yield optimal behavior when faced with contractual accidents characterized by bilateral care. In Part V we consider the possibility of extending our model to include cases of unilateral care: the impossibility, impracticability and frustration of purpose doctrines. We demonstrate the benefit from such an extension and raise some concerns. Part VI concludes.

\textbf{I. Bilateral Care in Contract Law}

As stated above, we consider instances of bilateral care in which, when the contractual accident occurs or stands to occur, there are still steps the parties can take to avoid breach (or additional breach) and/or that will mitigate the damages from the accident. We shall present three types of cases in which the parties are divided as to identity of the risk bearer for the accident. What is common to all of these cases is that were the court to ask the parties which of them is liable for

\textsuperscript{21} Supra note 13.
the risk from this accident, they would each allocate it to the other party. The cases are a) when either party could have cost-effectively taken steps *ex-ante*, such as gathering information, that would have prevented the accident; b) when either party, or both parties, could have cost-effectively taken steps *ex-ante* to lower the probability of the accident occurring; and c) when neither party could have protected against the accident (but, possibly, either could have insured against the accident).

A. Bilateral Care in Preventing the Accident

One example of this type of situation is when possession of pertinent information at the time of contracting or soon thereafter could have allowed the parties to act to prevent the contractual accident completely, and either party could have acquired such information *ex-ante*, as in *Raffles*. Another example is when prevention of the accident requires taking measures other than information gathering, but, again, either party can do so with equal or similar proficiency. This can occur, for instance, when both parties are experts in the matter at hand and they both had the knowledge and ability *ex-ante* to take the actions necessary to prevent the accident, such as in the famous case of *J.O. Hooker & Sons v. Roberts Cabinet Co.* discussed below. In such a situation, one way to think about the source of the contractual accident is that each party believes that the risk was allocated to the other party. Both of these examples are instances of exclusive care.

Returning to *Raffles*, recall that this is a case of exclusive care in which either party could have discerned information regarding the identity of the ship that would have helped them avoid the accident. This, however, was not done, perhaps because each party believed that the other party had already discerned all the relevant information regarding the shipping possibilities. The court determined that since it is reasonable that each party intended a different ship there was no meeting of the minds, and hence no contract.

We will denote cases such as *Raffles* as **Case A**. In such cases, there may be efficient steps that could be taken that could help avoid additional damages. For instance, if the price of the goods in the destination market had fallen below the contractual price (including shipping costs), it would have been efficient to stop the goods from being shipped, and if the goods were nonetheless sent there was a waste of resources. From an economic perspective, if each party believes she will

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22 Supra note 13.

23 Supreme Court of Mississippi 683 So. 2d 396 (1996) (hereinafter “*Hooker*”). For a discussion of the way courts deal with such cases, see note 30 infra and the accompanying text.

24 Supra note 13.

25 Even under a strict liability regime, there are situations in which the goods would not be sent on the second ship. If *B* notifies *A* that the shipment did not arrive, and, during their conversation, she announces
prevail (given the strict liability regime), she will have no incentive to take steps to avoid future additional damages, even if such steps are economically efficient. To this extent, it is interesting to note that in this case even if the liability were allocated to the plaintiff, the damages would not be avoided in future similar, or even identical, cases. Since the defendant knows she is absolved from responsibility, she has no incentive to inform the plaintiff that the ship did not arrive. Say the price of cotton in Liverpool had fallen before the second ship was sent. In this case the defendant fulfills her obligation to mitigate damages by purchasing cotton in the local market. Once this is done, the defendant is excused from any additional obligations, and she has no incentive to notify the plaintiff that the ship never arrived. In fact, she has an incentive not to notify the plaintiff; if the price rises by the time the second shipment arrives she can benefit through arbitrage (even if she no longer needs the cotton), and if not, the plaintiff will be liable to pay the damages, so she will not lose.

In a benchmark case before the Israeli Supreme Court, the parties could have, as in Raffles, prevented the accident by acquiring information. The court wanted, in future cases, to give each of the parties incentive to act at whatever point in time the state of the world is revealed, and therefore decided to divide the damages between the parties rather than allocate them to a single party. As we will demonstrate below, however, the court decision will not completely achieve its goal; this decision will not necessarily lead the parties to act optimally ex-ante in future cases in which each party believes the risk was allocated to the other party. In short, the fact that each party knows that the other party is also liable for damages (but not costs) in the case of an accident can lead to different possible outcomes. For instance each party may believe that the

that she will refuse to accept the shipment on the later ship, A could use the right given her by §2-609 of the Uniform Commercial Code and refrain from sending the goods until B supplies "adequate insurance of due performance."

26 CA 3912/90 Eximin SA, a Belgian corporation v. Itel Style Ferarri Textiles and Shoes Ltd. The Supreme Court of Israel sitting as the Court of Civil Appeal [22 August 1993] (hereinafter "Eximin"). Available at: http://elyon1.court.gov.il/files_eng/90/120/039/Z01/90039120_z01.htm. In this case the appellant ordered from the respondent 3,000 pairs of boots for a customer in the United States. The respondent had previously manufactured similar boots for both the Israeli market and for export to Germany. The respondent manufactured the entire quantity of boots in accordance with the specifications requested by the appellant, sent the goods to the United States and received the full price. When the goods reached the United States, it turned out that the design violated a trademark registered in the United States, and the consignment was therefore detained in customs. The appellant sued for restitution of the price of the goods, arguing that the transaction failed through the fault of the manufacturer. At a preliminary hearing, the parties accepted a proposal of the court to minimize the damage. The appellant altered the boots and the customer in the United States bought them at a reduced price. Consequently, the claim was reduced to the difference in the price that represented the appellant’s loss. The court decided that since both parties knew of the possibility that there might be a registered trademark and neither investigated the matter, both parties acted with a lack of good faith. Consequently, liability for the damage was divided between the parties.

The difference between this case and Raffles is that in this case, according to the court, both parties were experts and should have suspected that the boots are protected by a copyright. Once the accident is discovered the parties could have immediately done as eventually suggested by the court and returned the boots for alterations, thus saving both time and court costs.
other party will acquire the information, and this may result in no one acquiring the information. Alternatively, both may acquire the information, a duplication of costs, if each believes the other will not acquire the information. As we will demonstrate below, the mechanism we present will give each of the parties in future similar cases incentives to take optimal steps to avoid such additional damages.

However, not all cases in this category deal with information gathering. In *Hooker* for instance, a general contractor (Hooker) entered into a subcontract agreement with a subcontractor (Roberts) according to which Roberts agreed to tear out old cabinets and install new ones as part of a general contractor's work on a public housing project. A dispute arose between the parties as to which of them had the obligation to dispose of the cabinets, as required according to the general contract with the owner. In court, Hooker argued that the subcontractor's obligation included disposal of the old cabinets as according to the general contract, while Roberts claimed that he committed himself to remove the old cabinets and to install the new ones as according to his contract with Hooker, but not to dispose of the unwanted cabinets. This is one of a series of cases spanning over 50 years, in which disputes between a contractor and a subcontractor reached court with each party claiming that a certain task was allocated to the other party. In those cases there were both specifications as to the tasks to be carried out by the subcontractor and a reference to the provisions, plans and specifications of the general contract between the contractor and the client, which imports them into the subcontract. As a result, disagreements arose as to the precise obligations of the subcontractor. The cases differ with respect to the level of ambiguity of the subcontract and the severity of the discrepancy between the requirements of the two contracts, and the court rulings differed in accordance with these.

The other common denominator in these cases is that the contract collapsed and the parties turned to court for relief, each convinced of her interpretation. The courts have tried to specify a rule that will guide parties with respect to this issue. As the Fifth Circuit in *Perry* stated “while a reference in a subcontract to the provisions, plans and specifications of a general contract imports them into the subcontract where not inconsistent with its terms, it is quite well settled that such a reference is not effective beyond this, and that if the subcontract contains words of definite limitation, they will be given effect and the reference limited accordingly.” However, this rule has not given sufficiently clear guidelines when a subcontract will be determined to be integrated

27 Supra note 23.
29 Supra note 28.
such that the parties’ intentions is that provisions in the general contract that add obligations above and beyond the subcontract are not imported into the subcontract.30 As a result, it seems likely that such disputes will continue to arise, particularly as long as contractors continue have an incentive to use uniform contracts that save on contracting costs by limiting the amount of detail in the subcontract, and, instead, referring to the terms in the general contract. One of the side-benefits from the mechanism we suggest below is that it will give both parties a strong impetus to write more complete contracts. In addition, once the discrepancy in interpretation is uncovered, the certainty lent by the mechanism will allow the parties to proceed with carrying out the contract rather than end up in court and incur additional costs.

B. Bilateral Care in Lowering the Probability of the Accident

In this type of case the accident cannot be prevented completely, but either party can take steps ex-ante to lower the probability of the accident occurring or the damages from its occurrence. While, for the most part, the obligations inherent from the contract are clear and unilateral (the promisor has an obligation to perform and the promisee an obligation to pay), the manner in which agreement was reached leads each of the parties to believe that the risk that led to the contractual accident was allocated to the other party. In the following example optimality may require that both parties act (joint care):

**Case B:** A client and a contractor sign a contract whereby the contractor is required to lay foundations for a pre-fabricated building being built by a company that specializes in making such buildings according to the specifications of the client. The client supplies the contractor with the precise technical specifications of the desired foundations which she received from the company producing the building, and the contract with the contractor is for a pre-determined fixed price. After work begins it is discovered that there are geological concerns on this land parcel that were not taken into consideration by the parties that will require changes in the foundations and/or in the building construction in order to minimize the probability that the building will collapse or sink.

Note, first, that if the probability of this occurrence is very low and the cost of a geological survey that could have uncovered the problem is high, the parties may have chosen optimally not to carry out such a survey. Nevertheless, had the actual state of the world been known at the time of contracting the parties could have taken steps before the work commenced to minimize the

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30 For instance, while in *Perry* (*supra* note 28) the subcontract was found to contain "words of definite limitation," in *Roberts* (*supra* note 28) it was determined that the subcontract provided that the subcontractor would perform "all work" related to the piping, thus importing the specifications in the general contract regarding piping into the subcontract.
expected damages. Second, the steps that should optimally have been taken can be of an
exclusive care nature (the foundations needed to be strengthened by the contractor or the building
needed to be constructed with lighter materials) or of a joint care nature (a combination of these
options is optimal).

Under a strict liability regime, if each party believes the liability will be placed on the other
party the deal could easily break apart even if the parties could still act to save the building.31 This
could occur if the contractor believes that any risk related to the technical specifications of the
foundations are the responsibility of the client since she supplied the detailed plans, while the
client believes that her only obligation is to pay, and all risk for changes in the building, including
the foundations, fall on the contractor.32 The rule we suggest below will give the parties the
incentives to take the optimal actions ex-post, be they exclusive or joint, by supplying them with
certainty regarding the court ruling.

C. Unavoidable Accidents

These are instances in which neither party can prevent the contractual accident nor lower the
probability of its occurrence, such as in the case of an act of G-d. In some of these cases either
party could have insured against the damage. In practice, however, neither did so, perhaps
because they did not foresee the possibility, because they thought the probability of occurrence
was minute, or because they believed that the liability for the contingency and, therefore, the
responsibility to insure, fell on the other party. In such a case, each party may believe that the
court will give her an excuse, and the deal may, as above, fall apart and end up in court.

In *Davis H. Young v. City of Chicopee*33 (hereinafter “*Young”*) it is not at all clear who should
be held responsible for the damages:

**Case C:** City of Chicopee and Young signed a contract according to which Young was to
repair a wooden bridge. According to the contract Young was required to place at least
half of the required lumber on the worksite as a precondition to beginning the work.

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31 Article 4 of the American Institute Of Architects, General Conditions of the Contract for Construction
(1997) establishes a mediation mechanism applicable to parties who have adopted this contract. The
mechanism states that if physical conditions are materially different than the parties believed at the time of
contracting, the Architect may "recommend an equitable adjustment in the Contract Sum or Contract Time,
or both." While this mechanism has the potential to expedite matters so that efficient contracts can be
continued, its scope is limited to instances of changes in physical conditions in building contracts. In
addition, although the mechanism prevents the case from reaching court, it cannot guarantee that the
Architect's decision will end the dispute. Like many mediation mechanisms, this one is also subject to
arbitration if the claim is not resolved by mediation, which is a legal proceeding for all intents and
purposes. As a result, the parties may still lose faith in one another and the contract may, as a result,
collapse.
32 Such arguments can be found in *Eximin*, supra note 26.
33 186 Mass. 518, 72 N.E. 63 (1904).
While the work was in progress a fire broke out destroying the bridge and some of the wood stored onsite. The court decided that City of Chicopee had to reimburse Young for the lumber incorporated in the bridge, but not for the lumber not yet incorporated.

Notice that under the circumstances in *Young* neither party could have prevented the fire, however, either party could be considered responsible for the materials because of the fact that he did not insure them. In this case City of Chicopee argued that the responsibility was not his since he did not have title to the materials and they were not under his control until he incorporates them into the bridge, while Young argued that City of Chicopee was responsible because he insisted that the materials be placed there as a precondition for commencing the work. The circumstances in this case were such that there was nothing left for the parties to save after the fire broke out since the bridge was completely destroyed. However, the parties could have saved court costs, and it is important to note that there is no economic benefit from litigating such cases in court simply in order to determine on which side to place the burden. Say, however, that the case was slightly different and the bridge was still standing (say only the materials not incorporated in the bridge had burned). In this case the contract between the parties would still be efficient (the lost lumber is a sunk cost, and hence does not affect the efficiency of the contract), but we could certainly imagine instances in which the dispute about which party is liable for the fire damages could cause the contract to fail.

We turn now to presenting a mechanism which is designed to alleviate these problems.

**II. A Mechanism for Dividing Costs**

We consider situations in which two parties, $a$ and $b$, sign an incomplete contract, i.e., a contract that fails to specify liability for all contingencies. Assume that at some point after the contract is signed, but before it is completed, a contingency occurs i) for which the liability has not been assigned in the contract, ii) that could have, ex-ante, reasonably been assigned to either party, and iii) that requires that one or both of the parties to take actions ex-post in order to minimize the total expected damage from the contingency. Conditions i) and ii) are necessary for the parties to be divided as to the expected outcome in court. If either of these conditions does not hold the identity of the obligor is known and the outcome in court is clear, so that the rule we suggest is irrelevant (but see Part V below). Condition iii) is important because without this condition there is no real need to determine liability outside of court (aside from saving court costs), while under this condition the parties cannot afford to await the court decision if they don't want the deal to break down.
Under condition iii), the amount of damage created by the contingency depends on measures taken by the parties. As an example, consider a situation like Case B above in which it is discovered at some point after the contract is signed that unless immediate steps are taken, there is an 80% chance that the building will sink, causing damage of 200. In addition, assume that the most cost effective way to mitigate the damage is by having the contractor invest in strengthening the foundations at a cost of 20, and the client invest in changing the materials from which the prefabricated building is constructed at a cost of 10, in which case the probability of the damage falls to 50% (in other words, the expected damage is decreased from 160 to 100). We will call the optimal amount of expenditures by the first party \(X^*\), and that by the second party \(Y^*\). These are the levels of expenditure that will bring the total cost from the contingency to a minimum. This optimal expenditure is found by increasing spending until the marginal dollar spent by each of the parties decreases the expected damage by a dollar. The problem that arises is that if each party believes that the court will allocate the entire risk to the other party, neither will have an incentive to invest the amount required to minimize the damage, nor to cooperate with the other party.

Our aim, then, is to design a mechanism that will lead the parties faced with a contractual accident of the type we are considering to choose to take the optimal actions. The rule that we choose must be able to overcome several obstacles. First, it must be able to either solve or sidestep the fundamental disagreement regarding the identity of the obligor, i.e., it must give the parties certainty \textit{ex-ante} regarding the manner in which the court will rule. Second, it must give the parties incentives to cooperate with the other party in order to determine and carry out whatever steps are necessary to bring total costs to a minimum. As presented in the literature on mechanism design this requires two conditions to hold. First, it must be \textbf{individually rational} for each of the parties to cooperate. This, in our case, can only occur if each of the parties knows that the outcome in court will be inferior, from her perspective, to the outcome she can achieve through cooperation. Second, it must be \textbf{incentive compatible} (also known as the \textit{Revelation Principle}). This means that each of the parties must be willing to disclose private information if

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34 For simplicity, we assume throughout that the parties are risk-neutral.
35 Formally, if \(D(X,Y)\) is the total expected damage to the parties given expenditures of \(X\) and \(Y\), then the total cost is given by \(C(X,Y) = X + Y + D(X,Y)\). This cost function is identical to the cost function used by Cooter (\textit{supra} note 7) in analyzing precaution in general and accident law in particular.
36 While our example presents a case in which the expenditures by the two parties is complementary, this need not be the case, and, in fact the actions required by the parties could be perfectly substitutable. For instance, the required action could be for either of the parties to gather information at a fixed cost (i.e., a case of exclusive care, like Case A above, in which the parties are perfect substitutes), and if the information is gathered the damage is completely avoided. Such cases will be presented in Part IV below.
37 If the cost function is differentiable, then the optimal expenditure levels which bring the cost to a minimum are found by setting \(D_i' = -1, i = X, Y\).
this is required by the other party in order to determine what steps she should optimally take. One way this can be accomplished is by building a mechanism that makes each party internalize the loss created by any information she withholds.

The rule we recommend attains all of these objectives:

**Rule:** When a certain contingency is not covered in the contract, and the parties are in disagreement about to which party this risk has been allocated or they agree that it has not been allocated, each party must bear 50% of the cost of the precautionary steps as determined by the parties. Any party who bears her share of the agreed upon costs will be granted an excuse from the damages and will be reimbursed by the other party for her costs. If both parties pay their share of the prevention cost, the damages and costs will be split. If the parties do not reach agreement the damages will be split, but any costs incurred unilaterally will not be reimbursed.

The rule states that the parties should jointly determine $X$ and $Y$, and each should bear half of the cost. Operationally, one way to do this is to have the party with the lower expenditure pay the other party half of the difference. If this is done, each will, in expectation, bear half of the damages. Thus, the cost to each party in this instance is half of the total cost. If, however, one party fails to carry out the steps jointly agreed upon, the entire burden, costs plus damages, shifts to her. Note that the rule also states that if agreement is not reached regarding $X$ and $Y$, the total costs will be split in court (and will very possibly not be minimized). This is independent of the reason agreement was not reached. In other words, if the parties do not reach an agreement and the dispute is brought to court, the court will ask the parties to present the agreement they reached regarding the required additional steps and expenditures. If the parties tell the court they did not reach such an agreement, the court will equally divide the damages from the contingency between them, without regard to the cause of their failure to reach an agreement. This is required so that neither party can benefit from painting the other party as being uncooperative.38 We posit the following proposition:

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38 The reason reimbursement of unilateral expenditures are not stipulated is so that one party will not be able to strategically place costs on another party for extraneous reasons. Thus, for instance, if the parties are competing firms, the one who is more financially sound may be able to drive the other into bankruptcy by "investing" large sums of money, and thereby attain market power.
**Proposition 1:** The rule gives proper incentives for optimal behavior by both parties to the contract and obviates court involvement.

The Proposition states that the parties will choose to cooperate, will choose \( X' \) and \( Y' \), and will proceed to carry out the steps decided upon without requiring court involvement. Note first that it is trivial that if the parties each know how expenditures affect the damage and choose the levels of \( X \) and \( Y \) together, they will choose \( X' \) and \( Y' \); since each party pays half of the total cost, this will be minimized for each party when the total cost is minimized. To prove the proposition, we first show that if the parties choose \( X' \) and \( Y' \), no party will have an incentive to deviate from this. We then show that even if there is private information regarding the optimal level of \( X \) or \( Y \), the rule leads to truth-telling, i.e., each party will reveal the relevant information she has. Finally, we will demonstrate the incentive to cooperate.

**Lemma 1 (Individual Rationality):** No party has an incentive to deviate from the jointly chosen precautionary levels of \( X' \) and \( Y' \). (Proof in Appendix)

The explanation is simple. Consider our example. According to the rule the parties must communicate and will come to the conclusion that the contractor should invest 20 in strengthening the foundations and the client should invest 10 in switching to lighter materials. Recall that, according to the rule, each must bear half of the total amount in order to receive an excuse. This can be accomplished if, say, the parties decide that each will carry out his task, and then the client will return 5 to the contractor to even things up. We will now demonstrate for the contractor why he will not want to deviate (a similar argument holds for the client).

To this end, assume that if the client invests 10 as agreed and the contractor chooses not to invest, then the expected damages are 130. The case is summarized in the following Table:

<table>
<thead>
<tr>
<th>Damage</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability damage will occur if no further steps are taken</td>
<td>80%</td>
</tr>
<tr>
<td>Expected damage if no further steps are taken</td>
<td>0.8 \times 200 = 160</td>
</tr>
<tr>
<td>Optimal expenditure by contractor</td>
<td>( X^* = 20 )</td>
</tr>
<tr>
<td>Optimal expenditure by client</td>
<td>( Y^* = 10 )</td>
</tr>
<tr>
<td>Expected damage if optimal steps are taken</td>
<td>0.5 \times 200 = 100</td>
</tr>
<tr>
<td>Expected damage if only the client takes optimal steps (( X = 0, Y = Y^* = 10 ))</td>
<td>0.65 \times 200 = 130</td>
</tr>
</tbody>
</table>

\(^{39}\) If the contractor invests 20 and the client invests 10, the probability that the damage occurs falls to 50%.
The contractor's payoffs are presented in the following Table:

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Client Invest 10</th>
<th>Client Invest 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invest 20</td>
<td>65</td>
<td>0</td>
</tr>
<tr>
<td>Invest 0</td>
<td>140</td>
<td>80</td>
</tr>
</tbody>
</table>

What we will show is that, independent of the choice made by the client, the contractor will always want to carry out the agreed upon actions under the rule (invest 20). If both the client and the contractor choose to invest (the upper left box), the contractor will bear an expected cost of 65 (15 expenditure plus half of the expected damages of 100). If the contractor chooses not to invest but the client chooses to invest (lower left box), the contractor will bear an expected cost of 140 (reimbursement of 10 to the client plus expected damages of 130). Therefore, if the client invests 10 as agreed, it is better for the contractor to invest also. If the client decides not to invest, it will still be optimal for the contractor to invest. If she invests (upper right box), she is reimbursed for her expenditures and excused from all of the damages, so her payoff is 0. If neither she nor the client invest (lower right box) she pays half of the expected damages of 160. Thus, since 160 > 0, investing as agreed between the parties is a dominant strategy for the contractor independent of what the client decides to do, and similarly for the client.

This Lemma is trivial given the rule, yet it demonstrates how the rule directs people to optimal behavior. The next Lemma states that even if each of the parties knows only her own precautionary possibilities and not those of the other party, they will still arrive at \( X^* \) and \( Y^* \); i.e., each has an incentive to announce the truth.

**Lemma 2 (Incentive Compatibility – Revelation):** Each party will fully reveal proprietary information regarding the optimal level of precaution. (Proof in Appendix)

Say, in our example above, that the contractor knows of a way in which the foundations can be strengthened at a cost of 12, instead of 20, but the client is unaware of this. If the contractor conceals this information and acts according to the rule, her half of the expenditures will be 15 (he must pay half of the total expenditures of 30), as above. However, if she reveals the

\[40\] If the contractor does not invest but the client invests 10, the probability that the damage occurs only falls to 65%. 

16
information the total expenditures will be only 22 instead of 30, and her half will be only 11. Thus, revelation is dominant.\footnote{A notable exception is when the low cost bearer can overstate her expenses, and the other party is unable to verify these costs. For instance, assume that the contractor in Case B has equipment already in the field, and she can therefore carry out the required tests for less than others. In addition, assume the client cannot verify the contractor's actual costs, but knows the cost of having it done by another party. In this case the contractor has an incentive to announce that her costs are higher than they really are, but she is limited in how much she can cheat by the outside option. The result will be that the investment will be made optimally by the low cost bearer, but the cost won't be evenly split. Note, of course, that if the client can determine the price other contractors would charge were they in the same situation as the contractor, the contractor will not be able to overcharge at all.}

This Lemma is less obvious and somewhat surprising since in most situations we might think that each party might try to cheat a little and not reveal full information. This generally occurs because the optimal solution is such that, from a social perspective, at the margin the last dollar spent on precaution yields a dollar of savings, but from a private perspective the dollar is spent by one of the parties but the benefit accrues to both of them, thereby leading to under-investment. This, however, is not the case with the suggested rule since both the dollar spent and the dollar saved are divided equally between the parties.\footnote{This result will not be attained under a regime that splits only the damages (see below) even if renegotiation costs are low because under such a regime the costs are not split. When parties have private information optimality is not necessarily attained (see, e.g., Steven G. Medema and Richard O. Zerbe Jr., \textit{The Coase Theorem}, in \textit{The Encyclopedia of Law and Economics} 36-92 (Boudewijn Bouckaert and Gerrit de Geest eds., 2000). In the case at hand, each party will have a clear incentive to understate the size of her optimal investment, so that renegotiation will not attain optimality. If the parties recognize this, renegotiation costs will also not be low.} For this reason disclosure of the truth is a best response for each of the parties.

Finally, the incentive given by the rule to cooperate is clear. Any party initiating contact in the case of a contractual accident will achieve one of two goals – either optimal precaution, thus bringing her cost to a minimum, or refusal by the other party to participate, in which case the higher costs will be split in court. There is nothing to lose from initiating contact, and everything to gain. This is true even if the party believes that without the rule there is a high probability that the court would have ruled that the risk was initially allocated to the other party, since the rule \textit{is} the court verdict; it states that the court will divide the total costs down the middle whenever the parties did not reach an agreement.

The same is true if one party is contacted by the other party about a possible accident. Refusal to cooperate will lead to splitting higher costs, and there is nothing to lose from cooperation. Thus, cooperation both by the person learning of the possible accident and by the person approached is a dominant strategy.

The two Lemmas, together with the incentive to communicate when a concern arises, complete the proof of Proposition 1.
An additional benefit of the rule is set out in the following Proposition.

**Proposition 2:** The rule is a mechanism that leads to efficient termination of inefficient contracts and fulfillment of efficient contracts when faced with a contractual accident.

**Proof:** Let us return to Case B above. Assume the value of the contract to the client is 1000 and the cost to the contractor is 800. The agreed upon price is 850. Assume that after the foundations were laid, but before the client had the building erected, it was discovered that if certain steps were not taken, the building was likely to collapse or sink, causing damage of 300 to the building. However, if the changes are carried out, the damage will not occur. We assume for simplicity that these changes must be carried out by the contractor.

Consider first an efficient contract. If the cost of the changes is 150 then the contract is efficient since the value the client from the contract (1000) is greater than the cost to the contractor (800 + 150), and should optimally be carried out. Under the rule, if the contractor invests the 150 as agreed each of the parties has to pay half of the precautionary costs (75 each). Therefore, the client will receive $1000 - 850 - 150/2 = 75$, and the contractor will receive $850 - 800 - 150/2 = 25$. Although the contract is efficient, the contractor has a negative payoff. At first glance it might seem that the contractor, under such a circumstance, could be expected to deviate and not strengthen the foundations as agreed. However, under the rule, the alternative is to bear all of the damages of 300. In this case, his total payoff will be $850 - 800 – 300 = –250$. Clearly this is worse than cooperating, so the contractor will prefer cooperating.

If, however, the contract is not efficient, the gain to one party (if there is one) will be less than the loss to the other, so renegotiation will always lead to termination of the inefficient contract. If, in our example, the cost of strengthening the foundations is 250, then the contract is inefficient since the value the client from the contract 1000 while the cost to the contractor is $800 + 250 = 1050$. According to the rule the contractor gets $850 - 800 - 250/2 = -75$ and the client gets $1000 - 850 - 250/2 = 25$. In this case, when they meet to determine what steps to take, the contractor will offer to compensate the client in exchange for termination of the inefficient contract. Note that termination of the contract will occur only through agreement and not through breach. This is because breach will result in the entire costs of the accident, if it occurs, falling on the breacher.

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43 As explained in the next Section, the rule has the effect of making the renegotiation process between the parties simple because the division of costs is already given in the rule and not open for discussion. Thus, the renegotiation costs are close to zero. If, however, these costs are positive, the parties will include this cost when deciding whether to terminate the contract.
Thus, a party contemplating breach will prefer contacting the other party and paying only half of the total costs. \textit{Q.E.D.}

III. Discussion

A number of salient features of the rule are worth emphasizing. First and foremost, the rule gives the parties a joint incentive to act to save the deal. This mechanism tells the parties to “split the costs or split the damages in court,” and thereby raises their awareness, so that if one of them suspects that a disruptive event is about to occur (or if it has already occurred), she will contact the other party to try to clarify the situation. If they discover that the current predicament is the result of a risk that is unallocated or that each party believes was allocated to the other party, they will choose to act in order to prevent the accident or mitigate its costs, as long as the cost of prevention is lower than the cost of the accident that the court will split between them.

Second, it requires only a one time announcement by the court, which then becomes self-motivating. Third, it not only places the burden of determining the optimal precautionary steps squarely on the shoulders of the parties who are in the best position to determine these values – the contracting parties (and not on the courts who are not experts in the industry under concern and certainly not in the specific deal being undertaken by the parties) – it also gives the parties incentives to jointly determine these steps, a result that is not achieved in the existing regimes, as we shall demonstrate in Part IV below. Finally, it is sufficient for one of the parties to initiate contact in order to guarantee that action will be taken. The other party would certainly agree to speak since if she does not do so she is likely to end up paying more.

The reason this works is that making them split the cost gives the parties a shared incentive to bring costs to a minimum.\textsuperscript{44} One result of this shared incentive is that renegotiation costs are drastically reduced. To understand this, note that, in general, renegotiation is thought to be expensive because “[i]n order to acquire more of the gains from trade, or to establish reputations as tough bargainers, parties adopt "hold out" tactics.” As a result “[i]f both parties are stubborn, they may never reach an agreement.”\textsuperscript{45, 46} Under the rule, however, this does not happen for two

\textsuperscript{44} This goal of giving each of the parties an incentive to minimize the costs can also be attained with a non-even split; as long as the proportion allocated to each party is the same for costs and for damages, total costs will be minimized by each. Thus, for instance, Lucian Arye Bebchuk and Omri Ben-Shahar \textit{Precontractual Reliance}, 30 J. OF LEGAL STUD. 423, 438-9 (2001) recommend dividing precontractual reliance costs according to a value-based sharing rule. Such a division, however, fails to obviate court intervention as the court will have to determine the allocation ex-post. For a model in which a regulator uses such a mechanism to control pollution, see Alan C. Marco, Adon S. Van Woerden, and Robert M. Woodward, \textit{The Problem of Shared Social Cost}, 5 REV. L. & ECON.: 137 (2009). We thank Ariel Porat for bringing this paper to our attention.

\textsuperscript{45} See Polinsky, A. Mitchell, Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies, 32 STAN. L. REV. 1075, 1092 (1980).
reasons. First, as soon as it becomes clear to one of the parties that there is a contractual accident, her first reaction will be to contact the other party and cooperate to solve the problem. Second, it **predetermines the split**, thus making positioning and posturing irrelevant. Since the parties share the total costs equally they will both want precaution to be done optimally, which will require, for instance, that they assign the physical action to be taken to the low cost bearer. For these reasons, we have abstracted from renegotiation costs, however even if these are positive our results will generally hold as long as the benefit from the renegotiation outweighs the cost. If the cost outweighs the benefit, the contract is inefficient and will be stopped (as shown in Proposition 2).

Note that while some might view this rule as excessively rigid, our aim is not to place punitive damages on the parties, but rather to create a clear and unambiguous threat point (disagreement point) that gives the parties certainty and obviates court involvement. The only exception to the rule would be when the steps that need to be taken cannot be pushed off until the parties discuss the issue and agree what steps need to be taken, for instance, if immediate action must be taken to stop the building from collapsing. In this case, and in this case only, the steps should be carried out first and reimbursement sought afterwards, if necessary then in court. Note, however, that in this case and all cases, under the rule the dispute will reach the courts, if at all, **only after the efficient contract has been saved**. This is our goal.

**IV. Existing Regimes**

To set the table for a comparison with existing regimes in situations of bilateral care, we first recall that the technology of precautionary expenditures can take many forms. Specifically, the expenditures by the two parties can be complements, as in Case B discussed above, or substitutes, and even perfect substitutes as in Case A which we will now analyze. In addition, the expenditure itself can be continuous or discrete.

The situation with discrete and perfectly substitutable expenditures is as follows. Say, as in *Raffles* above, the required action is to gather information at a cost of 60 by either *a* or by *b*, and if the information is gathered the damage of 200 is completely avoided. In addition, assume that there is an 80% chance that without the information the damage will occur, so that the expected

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47 Note that the possible unfairness of this rule can actually play a positive role in getting the parties to invest in writing more complete contracts ex-ante, see Ian Ayres and Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L. J. 87, 91 (1989). Thus, a rule that one or both parties will view as punitive will give that party an incentive to raise the issue during the contractual stage.

48 *Supra* note 13.
damage is 160 (80% of 200). The situation is described in Table 3, which shows the total cost of the contingency under each set of actions (without regard to how these costs are allocated):

<table>
<thead>
<tr>
<th></th>
<th>Gather Information</th>
<th>Do not gather Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Gather information</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td>a Do not gather Information</td>
<td>60</td>
<td>160</td>
</tr>
<tr>
<td>b Gather Information</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td>b Do not gather Information</td>
<td>60</td>
<td>160</td>
</tr>
</tbody>
</table>

In the upper left hand corner both parties gather the information (overinvestment), in the lower left and the upper right corners only one party gathers the information, and in the lower right corner no one gathers the information. Clearly, optimality is achieved if either (but not both) party acquires the required information. The rule we suggested will result in the parties coordinating so that only one of them will attain the information for a cost of 60, and the other will reimburse him for half of the cost. Since the rule says that they split the costs and damages equally, each of them wants to bring these to a minimum. This will happen when they each make sure that the information is not attained by both parties (overinvestment), but that one of them will acquire it so that the accident is avoided (each party prefers to pay the cost of 30 over the expected damage of 80). While the rule we presented above achieves this goal, this cannot necessarily be guaranteed under existing regimes.

In analyzing the existing regimes, we will at times utilize an additional assumption that is natural in a bilateral care situation. Specifically, we will assume that the parties are divided as to the expected result of court proceedings, with each party having a “self-serving bias.” Note that this assumption played no role in the rule suggested above since the rule predetermines the outcome in court and thereby eliminates any uncertainty. As a result, expectations played no role in the analysis.

We will now show that the existing regimes do not always achieve the desired outcome, only partially because of the self-serving bias. Our goal is not to present comprehensive analyses of the different regimes, but, rather, just to demonstrate instances in which they run into trouble in bilateral care settings.

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49 Proposition 2 also concerns cases in which the cost of gathering the information is greater than the expected damage.
A. Strict Liability

Under a strict liability regime it is clear that one party will be found liable for the entire damage, but it is not clear which. As a result, optimality may not be achieved.

Consider first the case of perfect substitutes in gathering information, as per the example in Table 3 above. Each player has a self-serving bias, and let us assume that each player believes that the probability that the court will find her liable is only 25% (so that she believes that the probability that the court will find the other party liable is 75%). Player $a$, for instance, must choose between gathering the information and paying 60 with certainty, or not gathering the information, in which case the outcome depends on $b$'s choice. Assume for a moment that $a$ assumes that $b$ will not be checking the information. In this case, $a$ will also not gather the information since her expected savings is only 40 (25% of 160). If $a$ assumes there is a positive probability that $b$ will check the information, the choice to not gather information is strengthened. A similar condition holds for $b$. Thus, the information will not be discerned in this example. This is more likely to occur the greater the self-serving bias, and the greater the information gathering cost relative to the damage. In the extreme case, when each party is certain she will not be found liable, the perceived payoffs in the situation described in Table 3 are:

<table>
<thead>
<tr>
<th></th>
<th>Gather information</th>
<th>Do not gather Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gather information</strong></td>
<td>60, 60</td>
<td>60, 0</td>
</tr>
<tr>
<td><strong>Do not gather Information</strong></td>
<td>0, 60</td>
<td>0, 0</td>
</tr>
</tbody>
</table>

The first number in each cell is the cost to player $a$ and the second the cost to player $b$. Consider player $a$, with an identical result for player $b$. If player $a$ gathers the information (upper left box) it costs him 60, but if he does not gather the information and player $b$ gathers the information in his stead the damage does not occur, and his cost is 0. It is clear, therefore, that if $b$ gathers the information, $a$ should not. However, even if $b$ does not gather the information it is optimal for $a$ not to gather the information if he is certain that the court will determine that $b$ is liable for the entire damage. It is clear that not gathering the information is a dominant strategy for both parties even if the cost of doing so is minimal. Thus, the desired outcome is not achieved.

As an alternative to each party deciding unilaterally whether to gather the information, the parties could choose to cooperate, assuming the cost of doing so does not outweigh the benefit.
To this end, they could decide which of them will gather the information (presumably the low cost bearer if the cost of gathering information differs between them), with, say, each party paying half the cost, $30. This possibility, however, is also affected by the self-serving bias. Specifically, this will be preferable to not gathering the information and anticipating that the court will find the other party liable only if this is less than the player's expected damage cost (the damage times the probability that she places on the court finding her liable). Once again, if the self-serving bias is great, such cooperation will not be attained.

If we move to a situation in which the damage cannot be completely avoided, but its probability or severity can be lowered, such as exemplified by Case B and presented in Table 2 above, the problem will be exacerbated; there will be too little expenditure on lessening the expected damages even in the absence of a self-serving bias, and the presence of such a bias will worsen the situation. The reason this occurs is that the optimal expenditure is attained when the marginal dollar spent on avoiding the damage exactly equals the marginal benefit from this dollar. However, if the party believes she will be liable for the damages with less than certainty, she will stop investing when the marginal dollar equals the damage she personally expects to incur; thus, for instance, if she believes, as above, that there is only a 25% that she will be found liable for the damages she will invest until the marginal decrease in total damages is $4 and not $1 (since 25% of $4 equals $1). Thus, optimality will not be attained.

B. Negligence

A similar result is attained under a negligence regime in which the obligor (as determined by the court) receives a release from responsibility if she took the precautions required by the court. In this case, the obligor will be excused from damages she could not be expected to prevent, so the innocent party will internalize these damages. To demonstrate, we continue to assume we are dealing with exclusive care (only one of the parties needs to act, but since we are dealing with bilateral care it can be either one), but consider a case in which the parties can invest in lowering the probability or severity of the damage (Case B). The expected damage if no one invests at all is 160. The required (optimal) investment level ($X^*$) is 50, and if this is invested it lowers the expected damage to 80. Finally, as above, each party believes there is a 25% chance that she will

50 Define by $p_a$ the probability that party $a$ places on her being found liable. Party $a$'s objective function will be to minimize $C_a(X,Y) = X + p_a^*D(X,Y)$. The first order condition is $D'_a = -1/p_a^*$, which should be compared to the optimal first order condition $D'_a = -1$ (see note 37). If the damage function is convex (decreasing marginal benefit), there will be too little expenditure on lessening the expected damages.

51 See Posner, supra note 19.
be determined to be the obligor. Limiting the choice set of each party to either not invest at all ($X=0$) or invest optimally ($X=X^*$), the payoff table is:

<table>
<thead>
<tr>
<th></th>
<th>Spend 0</th>
<th>Spend 50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spend 0</td>
<td>40, 40</td>
<td>80, 50</td>
</tr>
<tr>
<td>Spend 50</td>
<td>50, 80</td>
<td>110, 110</td>
</tr>
</tbody>
</table>

Consider player $a$, with an identical explanation for player $b$. If she spends 0 and player $b$ also spent 0 (upper left box) then the expected damage will be 160, but since she believes there is only a 25% chance that she will be determined to be the obligor, her expected cost in court is only 40. If she chooses to spend 50 while $b$ chooses to spend 0, the entire damage will be placed on player $b$. Her precautionary cost, however, are 50, and therefore higher than her expected damages if she spends 0. Therefore, she prefers spending 0. If player $b$ spends 50, then if she chooses to spend 0, the court will give $b$ and excuse, and $a$ will pay the entire expected damage of 80 (the expenditure of 50 by $b$ lowered the expected damage from 160 to 80). Finally, if both spend 50, the expected cost to $a$ has two components: the 50 spent on precaution, plus the expected damages (80) times the probability that the court finds that the other party is the obligor (which each party believes to be likely 75% of the time), and so grants the other party an excuse and transfers the entire remaining damage to player $a$. The expected cost in this case is $50 + 0.75 \times 80 = 110$. Therefore, even if player $b$ invests 50, it is better for player $a$ to invest 0 (since 80 < 100).

Analysis of Table 5 shows that the choice of $X=0$ is dominant for both players regardless of the choice of the other player, and so there will be underinvestment. As before, this is more likely to occur the greater the self-serving bias, and, as with a strict liability regime, the self-serving bias can make cooperation difficult to attain.

C. Comparative Fault

A similar result is found under a comparative fault defense, which Porat suggested adopting into contract law.\footnote{Ariel Porat, *Contributory Negligence in Contract Law: Toward a Principled Approach*, 28 U. BRIT. COL. L. R. 141 (1994); Porat, *supra* note 15, at 1398.} Under such a regime, the obligor is liable for all damages unless the obligee was in a position to carry out some relatively inexpensive action that would have diminished the probability of the damage or of breach, and did not do so. In this case, the damage will be
apportioned between the obligor and the obligee, with the obligee paying the portion of the damage for which she is liable.

Applying this to a bilateral care setting, it must be the case that either of the parties can be the obligor and either of them can carry out the actions of the obligor or of the obligee. In this case, given the self-serving bias and the low cost of the obligee’s required actions, both parties will generally choose to carry out the obligee’s tasks, indicating a duplication of these costs. If, in addition, the self-serving bias is great, each will also choose not to carry out the obligor’s task. For instance, if each is convinced she is the obligee, there is no reason to do this task because she will never be liable for any of the damages.

The main problem in the three regimes just discussed was that the identity of the obligor is not known until after the court determines this. We will now discuss two regimes that do not require identification of the obligor: “anti-insurance” which makes each party responsible for the entire damages, and division of damages, presented below.

D. Anti-Insurance
Cooter and Porat have shown that if each party were responsible for the entire damage, each would take all the necessary steps to bring such damages to a minimum. They suggest a mechanism they call “anti-insurance” which places the entire risk on each of the parties. This mechanism, however, runs into two problems. First, even were such a mechanism to exist, it would be completely market based, and would thus lend a solution only to those contracting parties who choose to subscribe to such a policy ex-ante. Second, while the mechanism works for situations in which the parties’ actions are complementary, it can fail to yield optimal behavior when the actions are substitutable. Consider, for instance, the case of perfect substitutes when either party can take an action that will prevent the damage from occurring (as in Case A) presented in Table 3 (gathering information). The payoffs under anti-insurance are as follows:

53 See Cooter and Porat, supra note 17.
54 See Cooter and Porat, supra note 17, at 204.
55 The way this is done is by introducing a third player, an "anti-insurer," whose job it is to place risk on the players rather than remove or lessen the risk as done in standard insurance markets. In short, if there is breach of the contract the anti-insurer breaks the connection between the promisor and the promisee so that the promisor pays for the entire damage, but the money does not go to the promisee; rather, it is the anti-insurer who receives the payment. To attain this right, the anti-insurer pays both the promisor and promisee ex-ante. The result is that each party takes the entire risk upon him, and so carries out the optimal precautionary investment.
56 The authors recognize that there are no anti-insurance markets in practice, and discuss the difficulty in creating such a market.
This is a game of “chicken,” and it contains two pure strategy equilibria (one party acquires the information and the other does not). In practice, it is not clear how the parties will choose to act (there is no focal equilibrium – no obvious way to play). For this reason, out of equilibrium outcomes are also likely to ensue, especially in a one-shot game. One possibility is that each party will rely on the other party to acquire the necessary information. As a result, the information may not be acquired at all. Alternatively, each party may decide not to rely on the other party, and the information will then be acquired by both parties, with a duplication of costs.

Here, also, cooperation can yield a better result than achieved when each party acts on her own. However, if each party believes she can win the game of chicken, cooperation will not ensue, and, instead, there will be a failure to attain the required information.

E. Dividing Damages
As discussed in Part I, in Eximin, the court wanted to give each of the parties an incentive to act at whatever point in time the state of the world is revealed, and therefore decided to divide the damages evenly between the parties rather than allocate them to a single party. This has the benefit that it gives the parties certainty regarding the court decision without them actually having to go to court. This rule is related to the one we recommended, however, since each party pays her own costs and it places only half the damages on each party, it gives neither party the proper incentive to act optimally; we get optimal prevention only when either the entire damage is placed on each party, meaning that the costs are also split (the mechanism presented in this paper). Consider, for example, party $a$ in a joint care setting (complementary actions by the parties, like in Case B). Her cost from the contingency under the dividing damages rule is her entire expenditure plus half the damages, and since each party only pays half of the damages there will be too little expenditure on lowering the probability of the damage. This is the same

\[ \frac{\text{Formally, } C_a(X,Y) = X + 0.5D(X,Y)}{\text{which will be minimized when } D_a' = -2. \text{ Optimality requires investing until } D_a' = -1.} \]

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Table 6

<table>
<thead>
<tr>
<th></th>
<th>Gather information</th>
<th>Do not gather Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gather information</td>
<td>60, 60</td>
<td>60, 0</td>
</tr>
<tr>
<td>Do not gather Information</td>
<td>0, 60</td>
<td>160, 160</td>
</tr>
</tbody>
</table>

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\[ {\text{57 supra note 26.}} \]
\[ {\text{58 See Cooter and Porat, supra note 17 at 204.}} \]
\[ {\text{59 Formally, } C_a(X,Y) = X + 0.5D(X,Y), \text{ which will be minimized when } D_a' = -2. \text{ Optimality requires investing until } D_a' = -1.} \]
problem that we saw under strict liability, albeit for a different reason. In addition, in the perfect substitute case with discrete actions, the analysis would be as presented above in Table 6, with the exception being that the payoff when neither gathers the information is 80 for each party. In the example given, both the multiple equilibria problem and the difficulty with attaining voluntary cooperation between the parties discussed in the previous Part persist.

V. Extending the Rule to Cases of Unilateral Care: Impossibility, Impracticability and Frustration of Purpose

To this point we have suggested use of our mechanism for instances of contractual accidents with bilateral care, noting that, in these cases, the rule lends the parties certainty which is otherwise missing. The result was a mechanism that yields optimal forward-looking behavior, allowing parties to take steps to save contracts that have run into troubles while they can still be saved, with the added result that the number of cases that reach court would decline. There is nothing in the model, however, to suggest that the same mechanism cannot be utilized with similar results in cases of unilateral care. The difficulty with applying the rule to cases of unilateral care, however, lies in the effect of such a mechanism ex-ante. Placing all of the liability on the promisor causes her to internalize all of the expected costs and benefits ex-ante and to choose her optimal precautionary steps. If, however, she knows that if the accident occurs she will have to pay only half of the total costs, then she will choose a suboptimal level of precaution, and paradoxically, this could lead to an increase in the incidence of contractual accidents. This is particularly true in cases in which the promisor has private information regarding the risks that could arise during performance of the contract since she might have an incentive to keep the information private, and if the negative contingency occurs to claim it is an accident and split the total costs.

Such a concern, however, is not uniform across all types of contractual accidents with unilateral care. Specifically, there are cases that fall under the categories of impossibility, impracticability or frustration of purpose in which the identity of the promisor and the promisee is clear, but it is equally clear that the cause of the contractual accident was out of the promisor's hands. Consider, for example, *Northern Pacific Ry. Co. v. American Trading Co.* in which a faulty and unexpected decision by a government employee resulted in a time sensitive shipment of lead not being allowed to sail as planned. As soon as the employee's superior learned of the error he reversed the decision, but the shipment arrived six weeks late, and at that point the promisee argued that it was no longer desired. In court the promisor requested an excuse but was not

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60 195 U.S. 439; 25 S Ct. 84 (hereinafter "*Northern*.")
61 Note that it is possible that the promisee did not stop the second ship from departing since he stood to lose nothing from stopping it. If, when the later ship arrived, the price in the destination market rose, it
granted one. In such a case it is clear that the plaintiff was the promisor, but it is just as clear that he did everything expected of him, and there was nothing he could do to prevent the accident from occurring. Use of the rule in this case would begin with the promisor demonstrating that the breach was not something he could control (as witnessed, say, by a letter from the superior explaining what transpired) at which point the parties could concentrate on damage control. Note that we could consider two types of damage – the expectancy interest that each party expects to gain from the contract, and the additional damages caused from the point of the accident onwards. The latter includes the loss from shipping the goods that were no longer desired, and court costs that could have been saved (which are, in and of themselves, significant). While, on justice grounds, Porat (1991) has suggested that it is desirable for the court to divide all of the damages between the parties, doing so will not keep the parties out of court since they will argue regarding the expected value from the contract. Therefore, for our rule to achieve its goal of saving additional damages, the rule we suggest concerns the additional damages and costs only.

A similar case can be made when the accident is caused by a fire when neither party was negligent, such as in *Taylor v. Caldwell* or in *Jones v. United States*. In many such cases the fire makes further performance of the contract impossible, or, at the very least, impractical. In this case, use of the rule will lead the parties to divide the additional damages between them, and allow them to terminate the contract without having to incur additional court costs. The first step in such a case would most probably be for the promisor (or the promisee) to bring a letter from the fire department explaining that the fire was not caused by negligence, at which point they would both know the outcome in court and make court proceedings superfluous. What typifies both of these cases is that the promisor can bring *objective evidence* proving that no negligence was involved, and so allows the parties to focus on preventing additional damages rather than on appealing to court and incurring additional damages.

The type of case in which it is more problematic to apply the rule is when it is difficult to discern whether negligence played a part. For instance, in *Berg v. Erickson* as a result of a
drought a farmer was unable to supply the agreed amount of grass for a cattle owner’s cattle, and the value of the cattle fell. One crucial question in this case is the prevalence of droughts of sufficient severity to cause this outcome in this area, something the parties may not be able to prove easily. Thus, it would seem, using the rule in such a case could lead to a moral hazard problem. Because of this, we would not suggest utilizing the suggested rule in cases such as this, where expert testimony is required to determine the presence or absence of negligence. Such cases require legal procedures in order to determine liability.

To summarize, the rule for unilateral care would be:

**Rule for Unilateral Care:** In a suit for breach of contract when the promisor or promisee seeks to be excused from performance on the grounds of impossibility, impracticability or frustration of purpose due to an unexpected event, the court will split the additional damages between the parties if it finds that the obligor was neither at fault nor negligent and proved this to the other party using simple objective evidence. If, however, the parties jointly determine precautionary steps in order to minimize additional damages, the party who bears 50% of the agreed upon costs will be granted an excuse from the damages and will be reimbursed by the other party for her costs. If both parties pay their share of the prevention costs, the total costs will be split.

**VI. Summary**

In this paper we considered instances in which contracts are not complete, and after the contract has been signed a contingency occurs, or stands to occur, that increases the cost of fulfilling the contract (i.e., it affects the profits from the contract). The contract itself does not contain any clause that addresses this contingency. Specifically, we considered situations in which either party to the contract could have acted to prevent breach, to lower its probability or to insure against it (cases of “bilateral care”), but neither did so. When the state-of-the-world is revealed there remain steps the parties can take to prevent breach or mitigate damages. We explain that existing regimes that assign liability in some manner to the parties can make it difficult for them to carry out such steps if each party believes the court will allocate the liability to the other party, and that even regimes that assign equal, or even full, liability to each of the parties can lead to inefficient expenditures in handling the accident. We suggest an alternative mechanism designed to allow the parties to move forward and fulfill efficient contracts without court intervention. In this mechanism the court announces that any party that invests half the optimal level of precautionary costs as determined jointly by the parties is off the hook, and that if each party
invests this amount the costs and damages will be split. We demonstrate that this achieves optimality by leading the parties to jointly determine the optimal level of precautionary costs and to allocate the desired steps to the low-cost bearer. We also show that this mechanism could be extended to apply also to cases of unilateral care in which the promisor (in cases of impossibility or impracticability) or the promisee (in cases of frustration of purpose) has proven to the other party that she was not negligent regarding the contingency that occurred.

An interesting question is whether the rule should be a default rule, in which case the parties may determine that the total costs should be split unevenly (for instance, 70-30 instead of 50-50) if they believe it is beneficial for them to do so, or mandatory, in which case they may not change the split ex-ante or ex-post. The benefit from allowing the parties to contract around the rule is that it allows them, for instance, to account for differing degrees of risk aversion. Thus, one party may be more risk averse than the other, so that welfare can be enhanced by assigning risk unevenly. Such a determination, however, brings with it a non-negligible cost ex-post. By predetermining the equal split, the suggested mechanism brings renegotiation costs to a minimum and allows the parties to focus, instead, on what steps should be optimally taken to minimize the total costs. If we allow the parties to contract around the rule ex-post the parties will find themselves in a renegotiation process, which is well recognized to be problematic and costly, and can even breakdown with the parties ending up in court. Keeping the 50-50 split removes this concern. Other ex-ante and ex-post costs and benefits no doubt exist, and it is unclear which is preferable a priori.
Appendix

Proof of Lemma 1

We prove this for \( a \) with an analogous proof for \( b \).

Assume first that \( b \) invests \( Y^* \) as agreed. If \( a \) chooses \( X^* \) she pays \( C(X^*, Y^*)/2 \). If she chooses \( \hat{X} \in [0, X^*) \) she bears all of the cost, and since \( C(\hat{X}, Y^*) > C(X^*, Y^*) > C(X^*, Y^*)/2 \), she is better off if she invests \( X^* \).

Even if there is concern that \( b \) will under-invest, it is still optimal to invest as agreed. If \( b \) chooses \( \hat{Y} < Y^* \), the party can receive an excuse if she invests \( X^* \), i.e., in that case her total cost will be 0. If, instead, she chooses \( \hat{X} \in [0, X^*) \) she pays \( C(\hat{X}, \hat{Y})/2 > 0 \). Thus, it is optimal to invest \( X^* \).

Q.E.D.

Proof of Lemma 2

Assume that \( b \) says that her optimal level of precaution is \( Y^* \). If \( a \) announces \( X^* \) her total cost will be \( C(X^*, Y^*)/2 \). If she does not reveal full information and instead recommends a level of precaution \( \hat{X} \in [0, X^*) \) her total cost will be \( C(\hat{X}, Y^*)/2 > C(X^*, Y^*)/2 \). Therefore, her choice will be \( X^* \). By symmetry, \((X^*, Y^*)\) is a Nash equilibrium. It is also clearly the Pareto optimal solution.

Since \( b \) knows that \( Y^* \) by her will yield \( X^* \) by \( a \) and give her the best outcome, she will choose \( Y^* \).

Q.E.D.

\[66\] It is simple to see that there is never an issue of investing more than agreed upon. If the party chooses \( \hat{X} > X^* \), her total cost will be \( C(\hat{X}, Y^*)/2 \), while if she chooses \( X^* \) she pays \( C(X^*, Y^*)/2 \). By definition \( C(X^*, Y^*)/2 < C(\hat{X}, Y^*)/2 \), and so she will never overinvest.