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RENDERED IMPRACTICABLE: BEHAVIORAL ECONOMICS AND THE IMPRACTICABILITY DOCTRINE

Aaron J. Wright*

INTRODUCTION

Impracticability is about change.¹ The doctrine reconciles changed circumstances, discharging contractual obligations when events surrounding the contract vary dramatically from expectations.² Ideally, impracticability sets parameters for such circumstances, including how drastic the change must be to justify discharge.³ Yet despite centuries of development, the current impracticability doctrine lacks a theoretical foundation, leading to inconsistent case holdings⁴ and doctrinal

¹ Cook v. Deltona Corp., 753 F.2d 1552, 1558 (11th Cir. 1985) ("[C]hange is what impossibility is about.").
² See infra Part I for an elaborate history of the impracticability doctrine, and the circumstances under which the impracticability doctrine excuses contractual obligations.
confusion. Today, courts rarely find circumstances satisfying the modern requirements of impracticability. The rigid requirements of foreseeability and the common law concept of impossibility limit the impracticability doctrine's ability to provide "flexible adjustment machinery," leading scholars to lament that "the court must exercise its equity powers and pray for the wisdom of Solomon" when dealing with the rule.

Legal economists have examined the impracticability doctrine since the late 1960s. Applying traditional micro-economic theory, these scholars have questioned whether the impracticability doctrine promotes efficient exchanges by lowering transaction costs associated with bargaining. In 1977, two such approaches appeared consecutively in the Journal of Legal Studies, reaching two contrary results. In an influential article written by Richard Posner and Andrew
Rosenfield, the authors rejected the current rule encapsulated under Uniform Commercial Code (U.C.C.) § 2-615, proposing in its place the "superior risk bearer" model.11 Paul Joskow, in contrast, used the same micro-economic insights to support § 2-615 and argued that the rule strikes a balance between the rigid rule of enforcing all contracts and a lenient excuse doctrine.12

However, recent scholarship from the emerging field of behavioral economics has altered our understanding of the way people traditionally understand risk assessment and rationality.13 Over the past twenty-five

11 See Posner & Rosenfield, supra note 9, at 89-92. Generally, the superior risk bearer is the party that is the more efficient bearer of a particular risk, regardless of the party's ability to prevent the risk from materializing. Id. at 90. Details of the superior risk bearer model are found infra Part III.

12 See Joskow, supra note 9, at 154-55, 163. Joskow discusses how a well designed impracticability doctrine reduces transaction costs associated with contracting by reducing litigation costs and preventing extensive negotiations. After a micro-economic analysis, Joskow asserts that U.C.C § 2-615 is such a doctrine. Joskow's interpretation of U.C.C. § 2-615's foreseeability test is found in Part II infra.


years, economists have increasingly utilized research from psychology and other social sciences to argue that humans possess bounded rationality, and rely on heuristics, which are distorted by many cognitive biases, including over-optimism, the hindsight bias, and the confirmation bias. These behavioral insights support the notion that people make subjective probability assessments that differ from the objective probability of a given risk.

Armed with the insights of behavioral economics, this Note will examine micro-economic approaches to the impracticability doctrine proffered by Posner and Rosenfield, and Joskow, and will argue that heuristics and cognitive biases undermine the foreseeability test encapsulated in § 2-615. Moreover, this Note will argue that a comparative analysis similar to the one articulated under the superior risk bearer test provides a starting point to create a workable, consistent standard by limiting the effects of cognitive biases on the impracticability doctrine.

14 See Herbert A. Simon, A Behavioral Model for Rational Choice, 69 Q.J. ECON. 99 (1955). Bounded rationality refers to the theory that rational choice takes into account the cognitive limitations of the decision maker, meaning human cognitive abilities cannot evaluate all possible states of the world or all available information that might affect a particular situation. Id. at 99-102. This idea was first introduced by Herbert Simon in 1955. Id. Simon criticized economists choice to model humans as having unlimited information processing abilities. Id. He suggested the term “bounded rationality” because it accurately describes the problems solving abilities of humans. Id. Part III infra discusses bounded rationality and other aspects of behavioral economics, which are pertinent to this Note.

15 See Amos Tversky & Daniel Kahneman, Judgment Under Uncertainty: Heuristics and Biases, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIAS 3 (Daniel Kahneman et al. eds., 1982) for a thorough discussion of heuristics. Generally, heuristics are the mental lists and shortcuts people employ to ease the process of decisions making. Id. Part III infra explains in greater detail heuristics and their interrelation with the recent “available” memories.

16 See Korobkin & Ulen, supra note 13, at 1091. While Part IV discusses the over-optimism bias in more detail, this cognitive bias refers to the general proposition that people when making subjective probability assessments believe good things are more likely than average to happen to them, and bad things are more likely to affect others. Id.

17 The hindsight bias shows that the parochial folk wisdom is correct: past events seem more predictable now than in actuality. See Jeffery J. Rachlinski, A Positive Psychological Theory of Judging in Hindsight, 65 U. CHI. L. REV. 571, 576 (1998). Part III infra examines the hindsight bias in more detail, explaining how ex post determinations of foreseeability implicate the hindsight bias.

18 See Raymond S. Nickerson, Confirmation Bias: A Ubiquitous Phenomenon in Many Guises, 2 REV. GEN. PSYCHOL. 175 (1998). The confirmation bias refers to the psychological theory that people tend to seek information that supports their existing beliefs and to interpret information in ways that are partial to those beliefs. Id. at 177. Extensive empirical evidence suggests that the confirmation bias is “extensive and strong.” Id. The confirmation bias along with several examples of this cognitive bias are discussed in Part III infra.

19 See Christina Jolls et al., A Behavioral Approach to Law and Economics, in SUNSTEIN, supra note 13, at 16 (stating that “bounded rationality as it relates to judgment behavior will come into play whenever actors in the legal system are called upon to assess the probability of an uncertain event”).

20 For more information on the foreseeability test under U.C.C. § 2-615, see infra Part III.C.

21 See infra Part III.D.
Part I will outline the development of the impracticability doctrine from the common law impossibility doctrine to its codification in the Uniform Commercial Code. Part II will discuss the impracticability doctrine as interpreted through traditional micro-economics. Part III will examine how pertinent aspects of behavioral economics undermine reliance on an absolute foreseeability test. Moreover, this section will examine how cognitive biases and heuristics affect the superior risk bearer test, and will suggest a new, workable, direction for the impracticability doctrine.

I. THE IMPRATICABILITY DOCTRINE

Impracticability arises as a defense when “the real world has in some way failed to correspond with the imaginary world hypothesized by the parties to the contract.”22 The modern impracticability doctrine—now encapsulated in the Uniform Commercial Code23—developed over several centuries,24 emerging out of an Anglo-American common law that initially resisted its development.25

Embedded in early English common law was the rigid principle of pacta sunt servanda,26 which absolutely bound parties to contractual obligations.27 English courts generally refused to allow for excuse even when performance became impossible or frustrated by an unanticipated supervening event.28 As the court bluntly declared in Paradine v.
Jane,29 "when the party by his own contract creates a duty or charge upon himself, he is bound to make it good, if he may, notwithstanding any accident by inevitable necessity, because he may have provided against it by his contract."30 Under this early view, parties entering into a contract remained bound, even when faced with uncontrollable circumstances, such as natural disaster and death.

Between 1860 and 1920, English courts chipped away at the doctrine of pacta sunt servanda, firmly establishing limited exceptions.31 Drawing from the ancient Roman concept of obligation de certo,32 courts developed common law impossibility doctrine as an exception to rigid enforcement of contracts, most notably in Hyde v. Dean of Windsor33 and Taylor v. Caldwell.34 Hyde introduced the concept of implied conditions, suggesting in dictum that a contract discharges in the event of a promisor’s death.35 Taylor expanded such implied conditions, excusing both parties upon the destruction of a physical structure necessary for the contract’s performance.36

In Taylor, the court found Caldwell, the owner of a concert hall, not liable to Taylor, an impresario who rented the hall, because just prior to the engagement the building burnt to the ground.37 The court reasoned that the continued existence of the hall constituted an implied condition under the contract, stating that “in contracts in which the performance depends on the continued existence of a given person or thing, a condition is implied that the impossibility of performance arising from the perishing of the person or thing shall excuse performance.”38 Thus, the court discharged Taylor’s obligation to pay Caldwell, and Caldwell’s duty to pay damages to Taylor for non-delivery.39

After Taylor, the common law impossibility doctrine excused nonperformance in the following situations: (1) when the contract’s

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30 Id. at 897.
31 See Wladis, supra note 28, at 1593 (“Between 1860 and 1920, the English judiciary proceeded to erode significantly the strict view of excuse . . . .”).
32 The texts of the Roman law on the subject of the obligation de certo state: “If a promise has been made to deliver the slave Stichus on a certain day, and he dies before that day the promisor is not bound.” Page, supra note 25, at 598 (citing DIGEST, lib. XLV, tit. I, I. 33).
35 Hyde, 78 Eng. Rep at 798. In Hyde, the court stated that no cause of action exists for breach of contract where the promisor died before fulfilling his agreement, even though the contract did not provide for the promisor’s death. Id.
37 Id.
38 Id. at 314.
39 Id. at 39.
subject matter—a specific person or thing—became unavailable;\(^{40}\) (2) when English law made performance illegal;\(^{41}\) and (3) when a clause in the contract provided for excuse.\(^{42}\) Gradually, however, English courts expanded the impossibility doctrine to other cases, including situations where unknown pre-existing causes precluded the agreement’s performance.\(^{43}\)

English courts continued to stretch the impossibility doctrine in the early twentieth century, developing the closely related frustration doctrine.\(^{44}\) The frustration doctrine traces back to the coronation cases,\(^{45}\) most notably *Krell v. Henry*.\(^{46}\) In *Krell*, a lessee rented several

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\(^{40}\) See Williams v. Lloyd, 82 Eng. Rep. 95 (K.B. 1692) (stating that a promise to deliver a particular horse was excused when, prior to delivery and without fault of the promisor, the horse took sick and died). In *Hall v. Wright*, 120 Eng. Rep. 688, 690 (1858), the court stated that:

"Where a contract depends upon personal skill, and the act of God renders it impossible, as, for instance, in the case of a painter employed to paint a picture who is struck blind, it may be that the performance might be excused, and his death might also have the same effect."

\(^{41}\) See, e.g., Brewster v. Kitchin, 91 Eng. Rep. 1108, 1110 (K.B. 1697) ("Where a man covenants not to do a thing which was lawful for him to do, and an Act of Parliament comes after and compels him to do it; there the Act repeals the covenants; and vice versa.").

\(^{42}\) See Paradine v. Jane, 82 Eng. Rep. 897, 897 (K.B. 1647). The court holds this implicitly when it states: "because he might have provided against it by his contract."

\(^{43}\) See Abbot of Westminster v. Clerke, 73 Eng. Rep. 59 (K.B. 1536) (holding that a promise to sell a building was excused, because unknown to either party, the building had burned down prior to the execution of the sales agreement).

\(^{44}\) See Richard W. Duesenberg, *Contract Impracticability: Courts Begin to Shape* § 2-6, 32 BUS. LAW. 1089, 1090 (1977) ("In the century which followed, English courts stretched the concept of the implied condition in contract impossibility cases beyond those of total destruction. A first cousin, not in any way requiring impossibility, was born of the doctrine."). It is interesting to note that some commentators believe that no American court of last resort has expressly followed the doctrine of frustration when making its decision. See, e.g., Nicholas R. Weiskopf, *Frustration of Contractual Purpose—Doctrine or Myth?*, 70 ST. JOHN’S L. REV. 239, 247 (1996); Arthur Anderson, *Frustration of Contract—A Rejected Doctrine*, 3 DEPAUL L. REV. 1, 1 (1953).

\(^{45}\) Coronation cases refer to contract disputes resulting from the cancellation of King Edward VII’s coronation ceremonies. As Andrew Kull describes:

The coronation of King Edward VII was to be celebrated by processions through the streets of London on June 26 and 27, 1902, with a naval review and “illumination of the fleet” to be held at Spithead (near the Isle of Wight) on June 28. Many contracts were entered into in anticipation of these festivities. Some owners or tenants of property commanding a good view of the parade route hired out rooms at high prices; others built grandstands, had tickets printed and sold seats; shipowners chartered vessels to organizers of pleasure cruises, who offered the public the opportunity to observe the naval exercises. Many of those hiring rooms or chartering ships subsequently contracted with caterers to supply refreshments to their paying or invited guests. The contracts memorializing these arrangements employed a predictable variety of payment terms: some required full payment in advance, others payment in installments, with final payment due in some cases on the day of the great event and in others some time before. Few of them contained any provision to govern the rights of the parties in the event the celebrations did not take place.

Kull, supra note 3, at 22. For a detailed case-by-case examination of the coronation cases, and their role in shaping the common law impracticability doctrine, see R.G. McElroy & Glanville Williams, *The Coronation Cases*, 4 MOD. L. REV. 241 (1941).
Apartments overlooking the coronation route of King Edward VII.\textsuperscript{47} Due to the King's unexpected illness, the coronation was cancelled.\textsuperscript{48} When the lessee refused to pay the agreed rent, the lessor sued.\textsuperscript{49} Relying on \textit{Taylor}, the court extended the impracticability doctrine\textsuperscript{50} by reasoning that the purpose of the contract, given all circumstances, was for the lessee to witness the King's coronation.\textsuperscript{51} Since the parties at the time of formation failed to contemplate the King's illness and the illness frustrated the contract's purpose, the court discharged the lessee's obligation to pay.\textsuperscript{52}

As evidenced in both \textit{Taylor} and \textit{Krell}, the common law impossibility doctrine required objective proof to discharge a party from contractual performance.\textsuperscript{53} Any objective possibility of successful performance ruled out impossibility as an excuse. Strictly enforced, this standard occasionally led to unmerciful results.\textsuperscript{54} However, as commercial trade expanded in the twentieth century, the objective impossibility standard blurred\textsuperscript{55} as some courts interpreted the impossibility doctrine in light of prevailing business practices. A relaxed alternative view of impossibility emerged, resting on the

\begin{itemize}
  \item \textsuperscript{47} 2 K.B. 740 (1903).
  \item \textsuperscript{48} Id. at 740.
  \item \textsuperscript{49} Id.
  \item \textsuperscript{50} Id.
  \item \textsuperscript{51} Id. at 746-57.
  \item \textsuperscript{52} Id. at 746.
  \item \textsuperscript{53} See \textit{In re Smoot}, 82 U.S. 36, 46 (1872) ("As between individuals, the impossibility which releases a man from the obligation to perform his contract, must be a real impossibility, and not a mere inconvenience."); \textit{Fast, Inc. v. Shaner}, 183 F.2d 504, 506 (3d Cir. 1950) ("If an elderly judge, for good consideration, promises to run 100 yards in 10 seconds and then fails to perform he can hardly be held to puff out the defense that he could not possibly run that fast... there is a difference between 'the thing cannot be done' and 'I cannot do it.'").
  \item \textsuperscript{54} See Beebe \textit{v. Johnson}, 19 Wend. 500 (N.Y. Sup. Ct. 1838). In Beebe, an individual contractually agreed to obtain a Canadian patent for an American citizen. Id. Canadian law forbade the issuance of patents to non citizens. The court refused to excuse performance, reasoning that the law might someday change. Id. The court noted that "if the covenant be within the range of possibility however absurd or improbable the ideas of the execution of it may be, it will be upheld." Id. at 502.
  \item \textsuperscript{55} This trend was noted by Sir Frederick Pollock in 1911. Pollock noted: Indeed many things have become possible which were long supposed to be impossible;... Formerly it seemed impossible that we should ever have direct evidence of the physical constitution of the sun and fixed stars; we now have as much. In the earlier edition of the book the case of an agreement to make a practicable flying machine was propounded with some diffidence. Now several persons are ready, and publicly offer to sell and warrant such machines.
  \item FREDERICK POLLOCK, \textit{PRINCIPLES OF CONTRACT} 422 (1957). The court in \textit{Austin Co. v. United States}, 314 F.2d 518, 519 (Cl. Ct. 1963), also noted this trend: [I]n the not too distant past, while perhaps foreseeable, no organization would have thought possible or undertaken a contract to construct a device whereby a living human body could be put in orbit around the earth; nevertheless, it has been accomplished. Thus, in this case, we cannot categorically say that it was or is impossible to achieve the goal called for in the plaintiff's contract.
\end{itemize}
common understandings that the implied intent of any commercial agreement is that "a thing is said to be impossible when it is not practicable, and a thing is impracticable when it can only be done at an excessive or unreasonable cost." Labeled commercial impracticability, courts used this subjective view of impossibility in cases involving unforeseen costs increases, extreme difficulty, and illegality.

When attempting to standardize variations in American contract law, the drafters of the U.C.C. included commercial impracticability as § 2-615. The drafters sought to codify "[t]he ever-shifting line, drawn

57 See, e.g., Mineral Park Land Co. v. Howard, 156 P. 458 (Cal. 1916). In Mineral Park Land Co., a contractor agreed to remove gravel from landowner’s property for the construction job. Id. at 290. After removing roughly half the needed gravel, the contractor refused to remove the balance. Id. The rest of the gravel sat below water. Id. at 291. Technology existed to extract the gravel; however, the cost of removal utilizing this technology greatly exceeded the market price of gravel. Id. Accordingly, the court excused performance. Id. at 293.
58 See, e.g., Northern Corp. v. Chugach Elec. Ass’n, 518 P.2d 76 (Alaska 1974). Here, a contractor agreed to repair a lake dam by quarrying rock. Id. at 77. Due to ice on the lake, stone removal became difficult. Id. at 78. Trucks repeatedly fell through the ice. Id. However, the contractor continued, until the lake’s condition led to the death of two workers. Id. at 79. The court discharged the contractor’s performance. Id. at 85.
59 See, e.g., Brauer v. Hyman, 121 A. 667 (N.J. 1923) (discharging a promisor from a contract to purchase a liquor store, because of the federally mandated alcohol Prohibition); Directions, Inc. v. New Prince Concrete Constr. Co., 491 A.2d 1347 (N.J. Super. Ct. App. Div. 1985) (stating that the regulation or law, foreign or domestic, may be an event the nonoccurrence of which was a basic assumption upon which the contract was made); see also Note, The Fetish of Impossibility in the Law of Contracts, 53 COLUM. L. REV. 94, 99 (1953) (arguing that courts grant the illegality excuse to discourage criminal activity, and not because performance is impossible from an objective or subjective standpoint).
60 See U.C.C. § 2-615 (1994), which states:

Except so far as a seller may have assumed a greater obligation and subject to the preceding section on substituted performance: (a) Delay in delivery or non-delivery in whole or in part by a seller who complies with paragraphs (b) and (c) is not a breach of his duty under a contract for sale if performance as agreed has been made impracticable by the occurrence of a contingency the non-occurrence of which was a basic assumption upon which the contract was made or by compliance in good faith with any applicable foreign or domestic governmental regulation or order whether or not it later proves to be invalid...


Interestingly, uniform international contract law—under the United Nations Convention on Contracts for the International Sale of Goods (CISG), to which the United States is a signatory—rejects the impracticability doctrine, only allowing an excuse in situations where a party proves that failure to perform was due to an impediment beyond his control and that he could not
by courts hopefully responsive to commercial practices and mores, [under] which the community's interest in having contracts enforced according to their terms is outweighed by the commercial senselessness of requiring performance."61 Section 2-615 and its associated official comments require the claiming party to prove that he: did not foresee62 (or cause)63 the event at the time of contracting; did not assume the risk of the future event's occurrence;64 and made reasonable attempts to assure that the source of the good in question did not fail.65

reasonably be expected to have taken the impediment into account at the time of the conclusion of the contract or to have avoided or overcome it or its consequences" United Nations Convention on Contracts for the International Sale of Goods, Apr. 11, 1980, art. 79(1), S. TREATY DOC. NO. 98-9 (1986), 1489 U.N.T.S. 3, 67.

61 Transatlantic Financing Corp. v. United States, 363 F.2d 312, 315 (1966). This is a frequently cited case dealing with the modern impracticability doctrine under § 2-615. A ship owner based his claim for recovery on the Suez Canal closure and the corresponding need to undertake a voyage around the Cape of Good Hope. Id. at 314. The court ruled that the risk of the Suez Canal closure was allocated to the ship owner. Id. at 318. Therefore, the court barred recovery. Id. at 319-20.

62 As U.C.C. § 2-615 comment 1 reads:

This section excuses a seller from the timely delivery of goods contracted for, where his performance has become commercially impracticable because of unforeseen supervening circumstances not within the contemplation of the parties at the time of contracting.

Since virtually nothing is unforeseeable, in the sense that every event can be assigned a mathematical probability, the foreseeability requirement is a "contemplation" doctrine, invoking the question: what future events should have been negotiated in the underlying contract and what contingencies were not? Joskow, supra note 9, at 157. Courts generally enforce those contracts whose interfering future event should have been part of the decisionmaking process. Id. Professor Farnsworth supports this position. See E. Allan Farnsworth, supra note 3, at 876-71 (suggesting that courts should attempt to determine whether the future event was foreseen by the parties). If the event was foreseeable, courts should then attempt to determine the parties' actual expectations. Courts ascertain the parties' expectations by examining their negotiations, including proposals concerning price, and trade usage. Id.

63 If, for example, a shop owner burns down his store, the owner cannot claim the impracticability defense under § 2-615. This requirement derives implicitly from § 2-615's language and explicitly from case law. See, e.g., Roth Steel Products v. Sharon Steel Corp., 705 F.2d 134 (6th Cir. 1983) (barring the seller's use of the impracticability defense where seller could not fill as many orders as accepted); Luria Bros. & Co. v. Pielot Bros. Scrap Iron & Metal, Inc., 600 F.2d 103 (7th Cir. 1979) (denying the impracticability defense to a seller who failed to respond to the buyer's request to deliver substitute goods after the original goods became unavailable).

64 Under this prong, U.C.C. § 2-615 departs from the rigid requirements for impracticability, responding to the changing nature of commercial transactions since the nineteenth century. Id. However, the requirements for rendering performance impracticable are relatively strict. Id. As U.C.C. § 2-615 comment 4 explains:

Increased cost alone does not excuse performance unless the rise in cost due to some unforeseen contingency which alters the essential nature of the performance. Neither is a rise nor a collapse in the market in itself a justification, for that is exactly the type of business risk which business contracts made at fixed prices are intended to cover. But a severe shortage of raw materials or of supplies due to a contingency such as war, embargo, local crop failure, unforeseen shutdown of major sources or supply or the like, which either causes a marked increase in cost or altogether prevents the seller from securing supplies necessary to his performance, is within the contemplation of this section.
Some legal scholars characterize § 2-615 as confusing, which in turn might explain the existence of inconsistent case holdings. In an attempt to minimize this confusion and provide justification for § 2-615, legal economists examined the impracticability doctrine shortly after its drafting. Unfortunately, however, these scholars failed to reach a uniform conclusion, with their collective analysis dividing into two distinct camps best represented by the work of Richard Posner and Andrew Rosenfield, and Paul Joskow. The following section will discuss some general micro-economic principles, define foreseeability, and examine these two approaches.

II. TRADITIONAL MICRO-ECONOMIC APPROACH TO THE IMPRACTICABILITY DOCTRINE

A. Micro-Economics, Contract Law, and Foreseeability

Law and economics posits that legal rules are best understood in light of standard economic principles, most notably efficiency. Efficiency asks the following question: to what degree does a given rule of law maximize society’s wealth? According to law and economics, contract law should aim to promote efficiency by minimizing the

Note that this section states that cost alone is not sufficient to render performance impracticable. To be impracticable, the unforeseen event must have really “hurt.” Joskow, supra note 9, at 160.

66 Official Comment 5 to U.C.C. § 2-615 states: "There is no excuse under this section, however, unless the seller has employed all due measures to assure himself that his source will not fail.” This comment refers to the case Canadian Industrial Alcohol Co. v. Dunbar Molasses Co., 179 N.E. 283 (N.Y. 1932). In this case, a buyer sued a seller for failure to deliver molasses. Id. at 384-85. The seller claimed that the contract implied delivery only if its exclusive supplier, a refinery, produced enough molasses to meet the buyers needs. The refinery cut its production and could not meet the needs of the seller. Id. The court did not discharge the seller from its obligation to the buyer and held that the seller must make all reasonable attempts to avoid the failure of the underlying condition. Id.

67 See sources cited supra note 9.

68 For a formalized explanation of efficiency, see THOMAS J. MICELI, ECONOMICS OF THE LAW 4-7 (1997). Wealth maximization is also known as the Kaldor-Hicks criterion, for example: [If A values the wood carving at $5 and B at $12, so that any price between $5 and $12 the transaction creates a total benefit of $7 (at a price of $10, for example, A considers himself $5 better off and B considers himself $2 better off), then it is an efficient transaction provided that the harm (if any) done to third parties (minus any benefit to them) does not exceed $7.]

POSNER, supra note 10, at 14.
transaction costs\textsuperscript{71} associated with private exchange.\textsuperscript{72} In the context of the impracticability doctrine, the doctrine will realize true economic efficiency when the rule minimizes the transaction costs associated with bargaining.

As evidenced by the varying interpretations proffered by Posner and Rosenfield, and Joskow, questions still remain as to whether the current impracticability doctrine maximizes efficiency. To unravel this knotty question—since both interpretations (albeit at different levels) rely on the concept of foreseeability when attempting to determine the efficiency of the impracticability doctrine—foreseeability should be defined.\textsuperscript{73} This is especially true since Posner and Rosenfield, and Joskow failed to explicitly define foreseeability when examining the impracticability doctrine.

To resolve this confusion and to understand the impracticability doctrine under the assumptions of law and economics, foreseeability should be characterized in reference to transaction costs and efficiency. This Note defines foreseeability by the following equation:

\[ TC_E \leq P_E \times M_E \]

where \( E \) represents a given future event, \( TC_E \) equals the transaction costs associated with determining \( E \)'s risk and magnitude, \( P_E \) equals the probability of \( E \)'s occurrence, and \( M_E \) equals \( E \)'s magnitude. In other words, a given risk will be foreseeable if the transaction costs associated with determining the risk and magnitude of a given event is less than or equal to the product of the event's probability and magnitude.\textsuperscript{74} Conversely, an event will be unforeseeable if the costs of determining the risk’s probability and magnitude outweigh the event’s potential

\textsuperscript{71} See BLACK'S LAW DICTIONARY 350 (7th ed. 1999) (defining transaction costs as the "costs of bargaining or acquiring information").

\textsuperscript{72} This is an extension of the famous Coase Theorem. See Ronald Coase, The Problem of Social Cost, 3 J.L. & ECON. 1 (1960). The Coase Theorem states that regardless of the initial assignment of rights, if transaction costs are low enough, then parties will bargain until they exhaust all mutual gains, creating an efficient result. See MICELI, supra note 69, at 9.

\textsuperscript{73} See infra Part III.B-C.

\textsuperscript{74} This equation is inspired, in part, by Learned Hand's equation for differentiating negligent from non-negligent behavior, in United States v. Carroll Towing Co., 159 F.2d 169, 173 (2d Cir. 1947). Learned Hand's equation is \( B = P \times L \), where \( B \) is the burden of precaution, \( P \) is the probability of harm caused by precaution, and \( L \) is liability. \textit{Id.} Under the Hand Rule, negligence analysis considers whether the burden of an untaken precaution outweighs the probability of injury multiplied by the severity of likely damages. \textit{Id.}; see MICELI, supra note 69, at 20-23 (describing in more formal terms the Hand Rule and causation in general).
damage. Assuming the traditional micro-economic concept of rationality—as will be assumed throughout the rest of the Note, even in light of various behavioral critiques—this formula comports with the economic goal of efficiency, because a rational party will not decrease his wealth by expending money, time, and other associated transaction costs in an attempt to determine an unforeseeable future event. Moreover, this formula helps explain the superior risk bearer test and helps illustrate the effect of cognitive biases on the current impracticability doctrine.

B. The Superior Risk Bearer Model

Under Posner and Rosenfield’s proposal, the superior risk bearer is “the party that is the more efficient bearer of the particular risk in question” i.e., the party that could have better prevented and/or insured against a given risk. Because contracting parties generally cannot prevent future risks, however, the superior risk bearer test requires a determination of the lowest cost insurer.

75 But see John Elofson, Note, The Dilemma of Changed Circumstances in Contract Law: An Economic Analysis of the Foreseeability and Superior Risk Bearer Tests, 30 COLUM. J.L. & SOC. PROBS. 1, 32-33 (1996) (describing an alternative formulation for foreseeability). Elofson argues that foreseeability should be defined in reference to the “expenditure necessary to include a relevant exculpatory clause in the contract.” Id. at 33. This result is justified on the grounds that the party claiming impracticability should prove that it was not worth the required negotiating costs to include an exculpatory clause explicitly allocating the risk. Id.

76 See generally Richard H. Thaler, Doing Economics Without Homo Economicus, in FOUNDATIONS OF RESEARCH IN ECONOMICS: HOW DO ECONOMISTS DO ECONOMICS? 227, 230-35 (Steven G. Medema & Warren J. Samuels eds., 1996) (arguing that micro-economics’ reliance on the rational actor is misplaced). But see Posner, supra note 13 (arguing that even in light of behavioral economics, man is still rational); Mitchell, supra note 13 (positing that the rationality assumption should not be removed from law and economics).

77 This is an extension of the concept of man as a rational maximizer. Traditional micro-economics assumes that an actor consciously or unconsciously maximizes his self interest, and will not take actions that decrease his self interest. See POSNER, supra note 10, at 4. But see Christine Jolls et al., supra note 19, at 15 (asserting that people exhibit “bounded willpower,” noting that people take actions that conflict with and fail to maximize their long term interests).


79 See Posner & Rosenfield, supra note 9, at 90.

80 See id. at 91. One commentator on legal liability supports the notion that liability should attach to the lowest cost insurer when a risk is not preventable by the parties involved. As Maurice Finkelstein states: “In all cases of liability without fault it will be noticed upon observations that the loss is placed on the shoulders of him who can regulate the loss or more easily insure against it.” Maurice Finkelstein, The Functional View of Legal Liability, 34 INT’L J. ETHICS 243, 249-50 (1924) (emphasis added). But see Elofson, supra note 75, at 8 (critiquing the superior risk bearer test, because it is “an unreliable guide to contracting parties’ intentions”).

To determine the lowest cost insurer, risk appraisal costs and other transaction costs associated with diversifying risk must be calculated. Risk appraisal costs refer to the transaction costs of determining the “probability that the risk will materialize” and “the magnitude of the loss if [the risk] does materialize.” Transaction costs associated with diversifying risk represent the costs of pooling a given risk together with other uncertain events. Once determined, the lowest cost insurer uses these two values when charging the other party a risk premium for bearing the risk in question or determining the appropriate level of self-insurance or market insurance needed.

On a contractual level, each party involved must first determine the foreseeability of an event before it can efficiently exchange risk premiums and/or purchase insurance. A party will view an event as foreseeable if the party’s transaction costs of determining a given risk are less than or equal to the product of the risk’s probability and magnitude. If a party views an event as foreseeable, then, according to Posner and Rosenfield, the lowest cost insurer will ask for a premium from the other party in exchange for bearing the risk in question or will purchase the appropriate level of insurance.

On the judicial level, if a future event renders a contract impracticable, and the parties did not contractually allocate the risk due to a lack of foreseeability, courts must apply a comparative analysis.

81 See Posner & Rosenfield, supra note 9, at 91.
82 Id. at 91-92.
83 See id. at 91. Posner emphasizes that both elements must be known in order for the insurer to know how much to ask from the other party to the contract as compensation for bearing the risk in question. Id.
84 Id.; see BLACK’S LAW DICTIONARY 807 (7th ed. 1999) (defining self-insurance as “a plan under which a business sets aside money to cover any loss”).
85 See generally Isaac Ehrlich & Gary S. Becker, Market Insurance, Self-Insurance, and Self-Protection, 80 J. POL. ECON. 623 (1972) (examining the interplay between the demand for market insurance and self insurance); Yang-Ming Chang & Isaac Ehrlich, Insurance, Protection from Risk, and Risk Bearing, 18 CANADIAN J. ECON. 574, 574-75 (1985) (citing study finding that individuals generally prefer self-insurance to market insurance when given the option).
86 More formally, if TC <= p * M.
87 However, even if parties are able to calculate risk appraisal costs, they may have a difficult time finding insurance. As Pietro Trimarchi notes: The principle of insurance . . . lies basically in aggregating a number of homogenous and uncorrelated risks, that are sufficient for the statistical regularity of events to make the overall losses in a given timespan predictable with a reasonable degree of accuracy . . . . An important requisite for any given risk to be efficiently insurable is, therefore, that it can be assessed in terms of statistical findings. This however is not feasible in the case of such exceptional events as wars, international crises, national political crises and the like, the occurrence of which is so spasmodic as to defy statistical calculation over a reasonable timespan.
88 See Trimarchi, supra note 3, at 66-67. Moreover, even if insurance can be procured, the superior risk bearer might have a negotiating advantage, giving him the ability to shift the risk to other parties. See Bruce, supra note 9, at 318-19.
89 See Posner & Rosenfield, supra note 9, at 92-94 (describing the comparative analysis
Under this approach, a court determines which party possessed the lowest risk appraisal costs and transaction costs of diversification. Less formally, courts assess which party is the lowest cost insurer by considering the following questions: (1) which party had more knowledge about the likelihood of the risk’s occurrence?; (2) which party had more knowledge about the consequences of the risk’s occurrence?; (3) which party was in the best position to diversify its risks.\(^{89}\) Under Posner and Rosenfield’s approach, a court does not inquire into the \(\text{ex post}\) foreseeability of a given risk; rather, the court focuses on which party possessed more knowledge about the future event’s occurrence and magnitude and/or was in the best position to protect against the risk through diversification.\(^{90}\) In other words, a court compares which party had the lower \(TC_E\).

To illustrate, assume two parties X and Y.\(^{91}\) X has manufactured apparel for twenty-five years, and Y owns and operates a chain of nationwide retail stores, which sells X’s items alongside those of other suppliers. Suppose further that Y has lower risk appraisal costs than X at the time of contracting, because Y is better acquainted with the likelihood of a factory fire affecting his supply source and can better estimate his own losses in case of a fire. After a fire (not of X’s doing) destroys X’s factory and X fails to deliver any goods, Y sues X for breach of contract, and X claims impracticability in defense. Under the superior risk bearer test, a court would excuse X from contractual performance for two reasons. First, Y possessed lower risk appraisal costs at the time of contracting. Second, Y has lower transaction costs associated with diversifying the fire’s risk. Y could have purchased one policy to cover all losses attributable to his supplier’s factory fires, while X would have had to expend substantial resources to investigate the likelihood of a fire and purchase a more expensive insurance policy.\(^{92}\)

If, as in the above example, it is possible for the court to determine the lowest cost insurer, the court denies the impracticability defense to

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\(^{89}\) See Elofson, supra note 75, at 9 (characterizing the superior risk bearer test as a three pronged analysis, revolving around the above questions).

\(^{90}\) Id.

\(^{91}\) This hypothetical is based in part on what Posner and Rosenfield dub “an easy case for discharge,” and, also a hypothetical provided in Elofson, supra note 75, at 9. Such a case would occur when: (1) the promisor asking to be discharged could not reasonably have prevented the event rendering his performance uneconomical, and (2) the promisee could have insured against the occurrence of the risk at a lower cost than the promisor because the promisee: (a) was in a better position to estimate both (i) the probability of the event’s occurrence and (ii) the magnitude of the loss if it did occur and (b) could have self-insured, whereas the promisor would have to buy most costly market insurance.

\(^{92}\) See Elofson, supra note 75, at 9.
the party with the lowest total transaction costs. If, in contrast, it is impossible for the court to determine the party with the lowest total transaction costs surrounding the interfering risk, the court denies the impracticability defense to any involved party. Posner and Rosenfield justify this second result on the theory of pacta sunt servanda—courts should enforce contracts.

C. The Foreseeability Test Under U.C.C. § 2-615

Unlike Posner and Rosenfield’s superior risk bearer test, the impracticability doctrine under § 2-615 explicitly requires a determination of foreseeability. Under § 2-615, for a court to excuse a performance, a party must not have foreseen a future event’s occurrence at the time of contracting. As Official Comment 1 states: “this section excuses a seller... where his performance has become commercially impracticable because of an unforeseen supervening circumstance not within the contemplation of the parties at the time of contracting.” Although every risk is foreseeable in the sense that every risk has a slight mathematical probability of occurrence, the foreseeability doctrine resembles a “contemplation doctrine,” forcing the judiciary to reason about the significance of changed circumstances on the contracting process.

93 See Posner & Rosenfield, supra note 9, at 90-91. Posner and Rosenfield analogize this rule to the operations of an insurance company. Just because an insurance company cannot prevent a fire does not mean the insurance company does not have to indemnify the insured for the damage caused by the fire. Id. at 92.

94 According to Posner and Rosenfield, a good example of when courts would be unable to determine the superior risk bearer is the famous coronation cases, where neither party was in a superior position to foresee the illness of the King. Id. at 110. See supra note 45 and accompanying text for more information on the coronation cases.

95 Posner and Rosenfield premise this form of strict liability on the premise that the promisor to the contract is generally the superior risk bearer and is usually in a better position to prevent changed circumstances and estimate the probability of its occurrence. Posner & Rosenfield, supra note 9, at 110. Some commentators question Posner and Rosenfield’s reliance on strict liability as a default rule for the superior risk bearer test. As one commentator states:

[T]here are reasons to doubt whether strict liability would be the optimal rule. For one thing, some versions of the impossibility defense has been accepted by western courts, with infrequent interruptions since at least Roman Times. While not dispositive, this fact suggests that strict liability, despite its appealing simplicity, simulates some deep-seated intuition about the significance of changed circumstances on the contracting process. Elofson, supra note 75, at 28; see also Daniel T. Ostas & Frank P. Darr, Understanding Commercial Impracticability, 27 RUTGERS L.J. 343, 347 (1996) (“[T]he strict liability of contract historically has been tempered by some sense of fairness or justice.”).

96 See supra note 26-27.


98 Id. The impracticability doctrine under the U.C.C. is a contemplation doctrine, because if no event is unforeseeable because there is a mathematical probability of occurrence, the doctrine will never be applied and contracting parties will be left with a de facto strict liability rule as the default rule.
ex post to make a determination of the future occurrences parties should have reasonably included in their contract negotiations.  

Joskow contends that micro-economic theory supports § 2-615. The rigid foreseeability test of § 2-615 strikes a balance between the policy of pacta sunt servanda and a lenient interpretation of impracticability.  

Strict enforcement of the impracticability doctrine places the burden of future risks on the promisor, creating an incentive for the parties to write detailed, complicated contracts that increase negotiation costs.  

Increased negotiating costs, in turn, provide a disincentive for parties to enter into contracts, limiting the ability of parties to diversify risks and generate wealth. Conversely, a lenient interpretation of the impracticability doctrine negates the important risk-diversifying function of fixed contracts by creating a disincentive to provide for future risks.  

Joskow argues that the foreseeability test lies in the middle. The doctrine creates an incentive for parties to articulate reasonably contemplated future occurrences, which encourages parties to carefully evaluate available information and allocate the risk of foreseeable events in their contracts.  

Doing this, Joskow contends, increases efficiency by reducing the transaction costs associated with bargaining.  

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99 To illustrate, if parties live in the San Francisco Bay area and enter into a long term construction contract there for twenty years, it might be unreasonable for the parties to allocate the risk of a debilitating blizzard. However, it would be reasonable for the parties to take into account the possibility of an earthquake or national war.

100 According to Joskow, § 2-615 sets a "strict standard that contracts will be performed unless certain low-probability events occur." Joskow, supra note 9, at 163. Moreover, the test does not "reward suppliers who . . . do not behave efficiently." Id.

101 Rigid enforcement of contracts provides an incentive for parties to articulate every future occurrence. This leads to over-contracting and waste. See id. at 154; Pierpaolo Battigalli & Giovanni Maggi, Imperfect Contracting, Working Paper Feb. 2000, available at http://www.princeton.edu/~maggi/contrwp3.pdf (stating that contracts are often incomplete because it is too costly to describe all relevant contingencies and behavior of contracting parties).

102 See Joskow, supra note 9, at 153-54. A lenient interpretation of the impracticability doctrine places the risk of future events on the promisee. Therefore, the promisee would have to find ways to self-insure or also specify all contingencies under which the promisee expects performance under the contract. Id.

103 Id. at 163. See supra notes 62, 64, 98 for a discussion of § 2-615's use of foreseeability as a contemplation doctrine.

104 Joskow, supra note 9 at 163; see also Elofson, supra note 75, at 35 (stating that the foreseeability doctrine also reduces the incentive for parties to over-contract). Since the impossibility defense is only available if the future event could not have been reasonably accounted for in the contract, a promisor is encouraged to allocate risks contractually. However, parties are not encouraged to bargain for exhaustive exculpatory clauses, because the impossibility defense is available as a means of reading appropriate clauses into the contract should extremely remote risks occur. Id. at 35-36. Therefore, the foreseeability test encourages efficient negotiation. Id. at 36.

105 See supra notes 70-72 and accompanying text for a discussion of the reduction of transaction costs as the paradigm under which law and economics views legal rules.

106 See Joskow, supra note 9, at 163 ("U.C.C. § 2-615 as now interpreted does appear to
Interestingly, Joskow also raises, as an aside, that foreseeability may only be understood in conjunction with bounded rationality.\textsuperscript{107} Bounded rationality acknowledges that people lack infinite cognitive abilities and fail to assimilate and order infinite amounts of information.\textsuperscript{108} This inability may explain why people lack the ability to determine the probability and magnitude of every future risk.\textsuperscript{109} Under the above definition of foreseeability, cognitive limitations make the transaction costs of determining every risk’s probability and magnitude economically prohibitive. The transaction costs of determining a future event’s probability and magnitude may at times outweigh the potential damage caused by the event,\textsuperscript{110} making most events appear subjectively unforeseeable at any given moment.

While a relatively new concept at the time Joskow penned his article, bounded rationality now rests as a primary theory of behavioral economics, helping to explain how people make decisions.\textsuperscript{111} The following section outlines those precepts of behavioral economics that are pertinent for the rest of the Note and examines their effect on foreseeability under § 2-615 and the superior risk bearer test.

III. IMPRACTICABILITY, FORESEEABILITY, AND BEHAVIORAL ECONOMICS

A. Behavioral Economics

Behavioral law and economics explores the implications of actual human behavior on the law,\textsuperscript{112} stressing the existence of an important

\textsuperscript{107} See Joskow, supra note 9, at 157 (“The foreseeability requirement may only make sense if we introduce the concept of ‘bounded rationality.’”).

\textsuperscript{108} See supra note 14; see also infra text accompanying notes 118-25 (discussing of bounded rationality and its effect on subjective probability assessments).

\textsuperscript{109} See Joskow, supra note 9, at 157 (stating that “bounded rationality recognizes that human beings cannot evaluate all possible states of the world or all available information that might affect a particular situation”).

\textsuperscript{110} Micro-economics represent the concept of cognitive limitations by defining them as “positive information costs.” Such costs are divided into two categories: the costs of acquiring information, and the costs of absorbing or processing information. See POSNER, supra note 10, at 17.

\textsuperscript{111} See supra notes 14, 18 and infra notes 118-25.

\textsuperscript{112} See, e.g., Christine Jolls et al., supra note 13, at 1476 (asserting that the purpose of behavioral law and economics is to understand how actual human behavior effects legal rules); Thomas S. Ulen, The Growing Pains of Behavioral Law and Economics, 51 VAND. L. REV. 1747, 1750 (1998) (stating that the purpose of behavioral law and economics is to refine traditional micro-economic approaches to legal doctrine, by identifying “cognitive limitations” or “information processing problems”).
bound on human decision-making: bounded rationality. This cognitive limitation helps explain how people use information to predict future events, focusing on people’s limited ability to gather and process information, their use of mental shortcuts to help them do so, and their cognitive biases in making decisions. The presence of these factors explains why people fail to make consistent rational decisions that conform to wealth-maximizing goals. Moreover, these limitations may also bring into question traditional micro-economic assumptions of rationality, utility maximization, stable preferences, and optimal processing of information.

Bounded rationality recognizes that human cognitive faculties cannot evaluate all possible states of the world or all available information that might affect a particular situation. People are endowed with inadequate computational skills, flawed memories, and limited amounts of time. However, even with these constraints, people must still make decisions by collecting and processing information. The manner of acquiring and processing information is costly, as it consumes time, energy, and often money. People tend to “economize to some degree on information,” minimizing the total cost of decision-making, including the cost of error. People adapt to

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113 Although beyond the scope of this Note, two other limitations might affect human decision making: bounded willpower and bounded self-interest. See Jolls et al., supra note 13, at 1476. Bounded willpower refers to the notion that people “often take actions that they know to be in conflict with their long-term interests.” Id. at 1479. Bounded self-interest positis that people do not always maximize their self-interest, and may make decisions in reference to other people, including strangers. Id. at 1479.


115 See Scott, supra note 114, at 335 (asserting that heuristic and bias scholarship indicates that people make systematic errors in their cognitive judgments and decisions); CHRISTINA LEE, ALTERNATIVES TO COGNITION 81 (1998) (stating that behavioral insights suggest that “human beings are not particularly good at thinking rationally.”).

116 See sources cited supra note 76.

117 See Jolls et al., supra note 13, at 1477 (“Human cognitive abilities are not infinite. We have limited computational skills and seriously flawed memories.”); Joskow, supra note 9, at 157 (expressing similar sentiment).

118 See Jolls et al., supra note 13, at 1477.

119 Hillman, supra note 13, at 720 (stating that “in order to make decisions, people must collect and process information”).

120 See Eisenberg, supra note 13, at 214 (“In reality . . . searching for and processing information does involve costs, in the form of time, energy and perhaps money.”). Most people do not have the time or the money required for a comprehensive search or the ability to process the information perfectly. Id.

121 See Garvin, supra note 13, at 391 (“Neither information nor its processing comes free of charge, and any rational person will inevitably economize to some degree on information.”); Jolls
limited memory capacity by making lists, and counteract their limited brain power by using mental shortcuts and rules of thumb. These shortcuts inform appropriate decisions, given the information available and the cognitive limitations of the decision-maker. However, because these decisions rest on shortcuts, they potentially lead to inaccurate decisions about a future event’s probability.

Heuristics refer to the mental lists and shortcuts people use to cope with their bounded rationality. Humans use heuristics during the decision-making process to make quick and low-cost inferences, usually in uncertain decision-making environments. Because people possess limited cognitive abilities, these heuristics “reduce the complex task of assessing probabilities and predicting values to simpler judgmental operations.” Humans use heuristics in lieu of using analytical methods or deliberate calculations, processing information by drawing on their memories and experiences. Generally, people do not attempt to determine the objective probability of an event’s occurrence. Instead, people use heuristics to construct subjective probability assessments, which include computations of previously experienced events. People mistakenly believe that easily “available”...

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et al., supra note 13, at 1477 (stating that people sometimes respond rationally to their own cognitive limitations, minimizing the sum of decision costs and error costs).

122 Jolls et al., supra note 13, at 1477.

123 These decisions are reached on less than perfect information, typically using a “grab bag of shortcuts” that have proved satisfactory over time in producing results. See Garvin, supra note 13, at 392; Larry T. Garvin, Adequate Assurance of Performance: Of Risk, Duness, and Cognition, 69 U. Colo. L. Rev. 71, 142 n.327 (1998) (stating that limits on mental processing and availability of data lead to the best decision possible).

124 If the costs of acquiring and processing information were zero, and human cognitive abilities were perfect, then an individual would comprehensively search for information, process perfectly all the information acquired, and then make the best possible decision. This decision would be better than all the alternative decisions the individuals might have made. Therefore, this decision would maximize the actor’s subjective expected utility. See Eisenberg, supra note 13, at 214.

125 Heuristics can be conceptualized as rules of thumb that lead people to conclusions “quickly and cheaply.” See Garvin, supra note 132, at 146; Cass R. Sunstein, The Perception of Risk, 115 Harv. L. Rev. 1119, 1125 n.24 (2002) (book review) (providing this useful definition of heuristics: “Heuristics are rules of thumb, substituting simple questions for a more difficult one”).


127 Tversky & Kahneman, supra note 15, at 3.

128 See Cioffi, supra note 126, at 205-06 (describing studies finding that heuristics are used in lieu of objective calculations of surrounding events).

129 See Eisenberg, supra note 13, at 220 (“When an actor makes a decision that requires a judgment about the probability of an event, he commonly judges that probability on the basis of comparable data and scenarios that are readily available to his memory or imagination.”); Cioffi, supra note 126, at 205 (acknowledging that heuristics are made in reference to previous events, causality, exemplars, and availability).

130 See Eisenberg, supra note 13, at 221 (asserting that heuristics lead to systematic biases because factors other than objective probability and frequency affect how people make decisions).

131 See Cioffi, supra note 126, at 205. Individuals process information of a subjective nature...
events—those easy to recall—will more likely occur than events more
difficult to remember. The use of availability heuristics leads to
decisional error when assessing risk, because vivid memories of recent
events are recalled with more ease than commonplace ones. For
example, people tend to overestimate the possibility of contracting
specific diseases if family members or close friends suffer from them.
While people find availability heuristics helpful when making
decisions, they may lead to inaccurate subjective probability
assessments.

Beyond heuristics, humans also exhibit cognitive biases that
further shape an individual’s subjective probability assessment for a
given future event. Three such cognitive biases are over-optimism, the
confirmation bias, and the hindsight bias. People generally exhibit
over-optimism and overconfidence. This shapes peoples’ decision-
making ability, causing them to systematically underestimate the
probability of future events. People in most social categories believe
to estimate probability from personal experiences in judgment situations. Id. at 206. The
estimations occur rapidly, and some psychologists believe that they give judgments based on
“odds.” Such odds are made unconsciously by people when placed in a decisionmaking situation
where the answer is not certain or there are multiple answers to a single problem. Id.

As Jolls, Sunstein, and Thaler state: “[T]he frequency of some event is estimated by
judging how easy it is to recall other instances of this type (how ‘available’ such instances are) . . . .” Jolls et al., supra note 13, at 1477. For a simple example of the error involved when
relying on availability heuristics see Garvin, supra note 123, at 147. Ask yourself whether there
are more words that start with the letter “K” or have “K” in the third position. If you chose the
former, then you would be incorrect. Twice as many words have the letter “K” in the third
position rather than in the first. Most people err here, because it is easier to remember words that
begin with the letter “K” than words that have “K” in the third position. Id.

See, e.g., Garvin, supra note 123, at 146-47 (“[V]ivid memories may color our
recollections too garishly, distorting our perceptions and . . . our analyses . . . . [T]he dominant
datum overwhelms its recessive mate.”); Garvin, supra note 13, at 406 (stating that people “tend
to overvalue their own experience in assessing risk”); Jolls et al., supra note 13, at 1477 (“People
tend to conclude . . . that the probability of an event . . . is greater if they have recently witnessed
an occurrence of that event than if they have not.”).

See Timur Kuran & Cass R. Sunstein, Availability Cascades and Risk Regulation, 51
STAN. L. REV. 683, 707 (1999) (“While underestimating dangers that are not highly publicized
(heart disease, strokes, asthma), [people] grossly overestimate risks to which the media pay a
great deal of attention (accidents, electrocution).”); Garvin, supra note 123, at 147 (asserting that
people, especially those with personal experience with natural disasters, tend to overestimate the
risk of tornadoes and floods); Eisenberg, supra note 13, at 221 (noting that events that are
“instantiated, vivid, and concrete” will be more “salient” than scenarios which are “general,
pallid, and abstract”).

See id. at 20 (explaining that people do not make objective assessments of an event’s
probability or frequency); Eisenberg, supra note 13, at 220-21.

See Cass R. Sunstein, Behavioral Analysis of the Law, 64 U. CHI. L. REV. 1175, 1183
(1997) (stating that even factually informed people think that risks are less likely to materialize
for themselves than for others); Jennifer Arlen, Comment: The Future of Behavioral Economic
Analysis of Law, 51 VAND. L. REV. 1765, 1773 (1998) (observing that people are over-optimistic
about their fate even when they know the magnitude of the risk to the general public).

See Sunstein, supra note 137, at 1183 (“People systematically underestimate the extent to
which they are at risk . . . .”); Arlen, supra note 137, at 1773 (noting that experimental evidence
that adverse events will not affect them, especially in situations where they possesses the ability to minimize the risk through their own behavior. For example, roughly ninety percent of motorists believe they are above-average drivers. Recent college graduates exhibit over-optimism about the probability of owning their own homes, enjoying their jobs, avoiding drinking problems, and remaining married. Most decision-makers, moreover, are susceptible to the over-optimism bias. It applies to professionals and merchants who—even in the face of the economy’s cyclical booms and depressions—consistently exhibit over-optimism about expected production. Interestingly, the only group found not to exhibit such over-optimism is the clinically depressed.

The confirmation bias also leads to a subjective undervaluation or overvaluation of risk, by inducing people to confirm prior decisions regardless of whether the decisions were correct when made. Once people form an initial opinion on a given subject, they tend to disregard new information that contradicts their initial opinion. For example, if

and empirical analysis demonstrate that “people make consistent and systematic errors in risk assessment”).

139 See Sunstein, supra note 137, at 1183. For example, homosexual men appear to underestimate the risk that they will get AIDS even if they possess a sufficient amount of information about the disease in general. Id.

140 See Arlen, supra note 137, at 1773 (asserting that when people can control the risk and magnitude of an event they are particularly susceptible to over-optimism, because people tend to over-estimate their own capabilities).

141 See Ola Svenson, Are We All Less Risky and More Skillful than Our Fellow Drivers Are?, 47 ACTA PSYCHOLOGICA 143, 146 (1981) (describing in detail a psychological experiment which supported this conclusion).


143 See generally CHARLES KINDELBERGER, MANIAS, PANICS, AND CRASHES (1978) (discussing the rise and fall of the American economy, throughout U.S. history).


Ironically, because lawyers as a group experience higher than average levels of depression, lawyers may as a profession minimize the over-optimism bias. See Martin E.P. Seligman et al., Why Lawyers are Unhappy?, 23 CARDOZO L. REV. 33 (2001).

146 See, e.g., Charles G. Lord et al., Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence, 37 J. PERSONALITY & SOC. PSYCHOL. 2098 (1979) (discussing in detail the confirmation bias); Nickerson, supra note 18, at 175 (declaring that the “[c]onfirmation bias is perhaps the best known and most widely accepted notion of inferential error to come out of the literature on human reasoning”).

147 This is especially true for people who use weak evidence to form an initial opinion. See Mathew Rabin, Psychology and Economics, 36 J. ECON. LIT. 11, 26 (1998) (discussing and providing examples of the confirmation bias). The confirmation bias is a long recognized phenomenon. Francis Bacon recognized this distortion on human reasoning in 1620:

The human understanding when it has once adopted an opinion (either as being the
a teacher initially believes that one student is smarter than another, the teacher will likely confirm that initial opinion when interpreting later performance even when the student’s performance is sub-par.\textsuperscript{148} In the context of predicting future risks, once an individual forms an initial opinion about a given risk, he might not revise this opinion when subsequently presented with more accurate information.\textsuperscript{149}

An additional cognitive bias is the hindsight bias, which refers to the tendency to exaggerate in hindsight what one knew in foresight.\textsuperscript{150} In other words, the hindsight bias is “a person’s tendency to judge past decisions in light of one’s current knowledge of the outcome,” distorting “one’s ability to judge the true probability of a particular outcome.”\textsuperscript{151} This bias shows few individual or cultural limits influencing people throughout the world.\textsuperscript{152} The bias, moreover, impacts economic expectations, suggesting that the hindsight bias may affect businesses professionals. For example, in one study, participants rated the probabilities of various economic developments happening after the Euro’s introduction. One year later, the participants were


\textsuperscript{148} Another example includes a study where undergraduates were asked to complete a questionnaire on capital punishment. \textit{Id.} at 27. After all the students finished the questionnaire, a sample of proponents and opponents of capital punishment were selected from the initial group. These subjects were then given randomly selected studies (and criticisms of each study), and asked to judge the merits of the deterrent efficacy of the death penalty. The results indicated that, on average, those who were proponents before being given the additional material believed more in the deterrent efficacy of the death penalty after reading the material, while those who were initially opposed to the death penalty believed even less in the deterrent efficacy. \textit{Id.}

\textsuperscript{149} See Donald C. Langevoort, \textit{Taming the Animal Spirits of the Stock Markets: A Behavioral Approach to Securities Regulation}, 97 NW. U. L. REV. 135, 142 (2003) (“Once a person voluntarily commits to an idea or course of action, there is a strong motivation to resist evidence that it was ill-chosen.”).

\textsuperscript{150} See Rudiger Pohl et al., \textit{Hindsight Bias Around the World}, 49 J. EXPERIMENTAL PSYCHOL. 270, 272 (2002) (stating that the hindsight bias is very robust, and has been demonstrated in numerous studies over a period of more than twenty-five years).

\textsuperscript{151} Debra L. Worthington et al., \textit{Hindsight Bias, Daubert, and the Silicone Breast Implant Litigation: Making the Case for Court-Appointed Experts in Complex Medical and Scientific Litigation}, 8 PSYCHOL. PUB. POL’Y. & L. 154, 155 (2002). The cognitive strategy of “creeping determinism” explains the hindsight bias. This is the tendency of people to automatically incorporate an outcome into their understanding of pre-existing circumstances. For example, “when people learn of an outcome, they integrate that knowledge into the story they” construct to explain a given event. Thus, people “rewrite” events so that the beginning, middle, and end are causally connected. While rewriting, people “favor facts that are consistent with the outcome over facts that are not.” \textit{Id.} at 155-56.

\textsuperscript{152} Pohl, \textit{supra} note 151, at 271-72.
reminded of the Euro’s introduction and told about the economic changes that occurred over the past year. Many of the study’s participants, armed with new information about the changes over the past year, revised their initial probability assessments to better reflect reality.¹⁵³ Given that courts judge in hindsight, this bias may also exert a tremendous influence on judicial decision-making, especially when a court must determine what a party “knew or should have known.”¹⁵⁴ Together, bounded rationality, availability heuristics, over-optimism, the confirmation bias, and the hindsight bias provoke questions concerning the ability of humans to accurately assess a given risk, thereby clouding reliance on rules that require ex post determinations of an event’s foreseeability. Accordingly, as the following examples will illustrate, these heuristics and cognitive biases undermine reliance on a foreseeability standard, an insight damaging to §2-615.

B. The Effect of Heuristics and Cognitive Biases on Subjective Assessments of Foreseeability

Heuristics and cognitive biases are significantly implicated when an individual must determine the foreseeability of a future event. When determining the risk and magnitude of a future event, a party will rely on heuristics to make subjective probability assessments, which are influenced by cognitive biases.¹⁵⁵ People use such subjective probability assessments in situations lacking immediate answers, or where all possible answers cannot be determined.¹⁵⁶ Heuristics and cognitive biases affect a party’s determination of an event’s probability,

¹⁵³ Erik Hölzl et al., Hindsight Bias in Economic Expectations: I Knew All Along What I Want to Hear, 87 J. APPLIED PSYCHOL. 437, 440-42 (2002). This also suggests that businesses professionals may also be susceptible to the hindsight bias.
¹⁵⁴ Rachlinski, supra note 17, at 591. Juries have been shown to exhibit the hindsight bias in negligence cases. See, e.g., CASS R. SUNSTEIN ET AL., PUNITIVE DAMAGES: HOW JURIES DECIDE (2002); NEAL FEIGENSON, LEGAL BLAME: HOW JURIES THINK AND TALK ABOUT ACCIDENTS (2000); Hal R. Arkes & Cindy A. Schipani, Medical Malpractice v. the Business Judgment Rule: Differences in Hindsight Bias, 73 OR. L. REV. 587 (1994); Kim A. Kamin & Jeffery J. Rachlinski, Ex-Post Not = Ex Ante: Determining Liability in Hindsight, 19 L. & HUM. BEHAV. 89 (1995). For example, in one study, participants were asked to judge in foresight whether a municipality should take a precaution against flooding or to judge in hindsight whether a decision not to take the same precaution was negligent after lack of planning caused one million dollars of damage. The two conditions produced different results. In foresight, only 24 percent of the participants decided that the municipality should take precautions, while in hindsight 57 percent found the decision not to take precautions negligent. See Rachlinski, supra note 17, at 589-90. However, it is important to note that none of these studies polled actual juries; rather these studies occurred in controlled conditions, with authors then making inferences from their results.
¹⁵⁵ See supra Part IV.A and accompanying notes.
¹⁵⁶ See Cioffi, supra note 126, at 205.
or $P_E$ in the above definition of foreseeability. The degree to which heuristics and cognitive biases affect this variable will determine the foreseeability of a future event.

Decision-makers assessing probability during contract negotiations will rely on their previous experiences.\footnote{See Paul B. Marrow, The Unconscionability of a Liquidated Damages Clause: A Practical Application of Behavioral Decision Theory, 22 PACE L. REV. 27, 64 (2001) (stating that the “phenomenon of availability has significant implications for contract formation”); see also Cioffi, supra note 126, at 205.} The availability of these experiences shapes a party’s assessment of a future event’s probability and magnitude.\footnote{See Choi & Pritchard, supra note 13, at 12 (discussing assessment of risk in the investor context, and stating that “[i]nvestors may under-[w]eight low probability, high magnitude risks if no obvious examples of the risk have recently been brought to their attention”). Choi and Pritchard provide a helpful real-world example: Immediately after the Enron and WorldCom scandals in the United States, the net volume of money flowing into mutual funds actually turned negative for a period of time, even though the holders of diversified mutual funds are unlikely to suffer any significant reduction in their returns from fraud at any particular company. Id.} To illustrate, again assume two parties X and Y. X has manufactured apparel for twenty-five years, and Y owns and operates a chain of nationwide retail stores which sells these items. In all of his years in operation, X has never heard or learned of a fire affecting his or his competitors’ factories, all of which employ similar manufacturing equipment as X. Suppose further that X can quantify transaction costs determining the probability and magnitude of a future fire, $TCE$, the probability of the future fire, $P_E$, and the magnitude of the fire’s damage, $ME$. The transaction costs of determining the probability and magnitude of the future fire equal $10,000 and the product of the objective probability and magnitude equals $11,000, meaning that X should objectively foresee this event. The two parties, moreover, agree to allocate the risk of all foreseeable events. During contract negotiations, X will likely make a subjective probability assessment of the likelihood of his plant’s destruction. X’s lack of memories associated with fires afflicting his and his competitors’ factories will influence this probability assessment, making it likely that X will underestimate the fire’s probability and subjectively fail to foresee an objectively foreseeable event. In other words, X will likely underestimate $P_E$, concluding that the product of the fire’s probability and magnitude are less than the transaction costs of determining the probability and magnitude of the fire. X will, therefore, fail to allocate the risk of the fire contractually or through the purchase of insurance.

The confirmation bias also limits people’s ability to determine an event’s foreseeability\footnote{The confirmation bias leads people to a systematic underestimation of risk, which in turn will cause a distortion in the foreseeability equation. People attempt to reduce cognitive} by inducing people to confirm prior decisions.
regardless of whether the decisions were correct when made.\textsuperscript{160} In the context of risk appraisal, if a decision-maker forms an initial opinion that he is shielded from a given risk, he will likely maintain this opinion throughout negotiations even when presented with more accurate information. This, in turn, will cause an underestimation of a given risk.\textsuperscript{161} Conversely, if the decision-maker forms an opinion that he is susceptible to a given risk, this opinion will carry through negotiations, leading to an overestimation of a given risk. For example, assume the same situation described above involving X and Y with the following additional fact: X believes that there is no chance of a fire destroying his factory because of a satisfactory inspection by the local fire inspector. In other words, X subjectively believes that the product of the risk's probability and magnitude approaches zero. Even if X learns about a rash of fires affecting his similarly situated competitors, his initial opinion might not change to reflect the new information. He might, for instance, attribute his competitor's fires to conditions, which, in this case, the fire inspector checked. Because X believes the probability of fire to be close to zero, any costs associated with determining the risk and magnitude of fire become economically unreasonable, making the fire seem subjectively unforeseeable. Accordingly, the confirmation bias, in this situation, will prevent X from bargaining over and allocating an objectively foreseeable risk either contractually or through insurance.

The over-optimism bias, which indicates that people underestimate the probability of adverse events affecting them, also affects the foreseeability of future events.\textsuperscript{162} Over-optimism is most pronounced for difficult tasks, where the individual feels that he possesses a degree of control over the risk.\textsuperscript{163} Over-optimism indicates that people will dissonance by thinking that the risks they face are lower than they are in fact. As Cass Sunstein states, this is a "serious problem for law and policy, and a serious problem too for those who accept the rational actor model in the social sciences." Cass R. Sunstein, Hazardous Heuristics, 70 U. CHI. L. REV. 751, 772-73 (2003). For more information on cognitive dissonance, see LEON FESTINGER, A THEORY OF COGNITIVE DISSONANCE (1957).

\textsuperscript{160} As generally stated in notes 156-60 supra, the confirmation bias is "the tendency to interpret ambiguous information in ways that confirm preconceived notions." Russell B. Korobkin, Behavioral Analysis and Legal Form: Rules and Standards Revisited, 79 OR. L. REV. 23, 46 n.57 (2000).

\textsuperscript{161} See Marrow, supra note 157, at 65 ("If a decision maker previously developed the opinion that a specific type of loss cannot happen to him, that opinion is likely to be carried forward and applied to new risks without serious statistical evaluation being made of the new risk.").

\textsuperscript{162} See Neil D. Weinstein, Optimistic Biases About Personal Risks, 246 SCI. 1232, 1232 (1989) ("Optimistic biases in personal risk perceptions are important because they may seriously hinder efforts to promote risk-reducing behaviors."). This has serious implications for the foreseeability test under § 2-615, because if over-confidence hinders risk-reducing behavior, then parties might not contractually allocate future risks.

\textsuperscript{163} The reason for this is that people tend to over-estimate their own capabilities. See Arlen, supra note 137, at 1773. For example, in a study involving a random sample of New Jersey adults, a significant over-optimism bias was found for twenty-five of thirty-two hazards,
underestimate the risk of adverse future events when making subjective probability assessments.\footnote{See Arlen, supra note 137, at 1773 (stating that “[e]vidence suggests that people are particularly likely to underestimate the extent to which they themselves are at risk”).} Again, assume X, Y, and the same basic fact pattern described above. X’s transaction costs of determining the probability and magnitude of a future fire equal $10,000, while the product of the objective probability and magnitude equals $11,000. After a recent rash of fires affected his competitors’ factories, X now believes that there is a possibility that a fire might destroy his factory. Even though X acknowledges that a fire could affect his factory, the over-optimism bias suggests that X will underestimate the objective probability that a fire will affect him. Although the fire is objectively foreseeable, when making a subjective probability assessment, X might underestimate the probability of the fire’s occurrence, $P_E$. If X determines the risk of fire to be less than it objectively is due to a satisfactory fire inspection, he will subjectively determine that the fire is unforeseeable. Thus, although an event in reality might be objectively foreseeable, subjective distortions caused by the over-optimism bias will cloud the ability of X to plan for future events.

As the above examples demonstrate, heuristics and cognitive biases distort individuals’ subjective probability assessments. These distortions will systematically affect whether or not an individual consistently deems a given risk foreseeable.\footnote{See Scott, supra note 114, at 335 (stating that heuristics cause systematic errors in cognitive judgment); Sunstein, supra note 137, at 1183 (noting that over-confidence systematically causes an underestimation of risk); Nickerson, supra note 18, at 177 (asserting that a great deal of evidence supports the idea that the confirmation bias is extensive).} Since under § 2-615 courts deny the impracticability defense to parties who incorrectly determine an event’s foreseeability,\footnote{See U.C.C. § 2-615 cmt. 1 (1994).} the affect of cognitive distortions on subjective probability assessments may explain why parties fail to contract for future risks while at the same time drawing into question whether the impracticability doctrine should rely on a foreseeability standard.\footnote{Norman R. Prince argues that: “[T]he element of foreseeability has . . . in effect, emasculated the statute. The effect has been to deny relief to most parties seeking it and to leave the case law in a state of disorder; the only consistency in options is that the [promisor] almost always loses.” Norman R. Prince, Commercial Impracticability: A Textual and Economic Analysis of Section 2-615 of the Uniform Commercial Code, 19 IND. L. REV. 457, 485 (1986).} Behavioral insights, moreover, call into question the purported efficiency gains of Posner and Rosenfield’s superior risk bearer test on a contractual level. If parties fail to determine the foreseeability of a future risk, they will not efficiently exchange risk including drug addiction, lung cancer, and food poisoning. See Weinstein, supra note 142, at 1232. In the context of current impracticability doctrine, this could lead to underestimation of risk in which the promisor can control, such as machine malfunctions, supply problems, and destruction of manufacturing facilities.\footnote{See Arlen, supra note 137, at 1773 (stating that “[e]vidence suggests that people are particularly likely to underestimate the extent to which they themselves are at risk”).}
premierse and/or purchase insurance. These behavioral insights thus question the workability of current impracticability rules that rely on a standard of foreseeability.

C. The Effect of Heuristics and Cognitive Biases on Posner and Rosenfield’s Comparative Superior Risk Bearer Test

Although behavioral phenomena draw into question the foreseeability standard, heuristics and cognitive biases will not distort the comparative determination of the lowest cost insurer. Under the superior risk bearer test, if parties do not contractually allocate a risk and an event allegedly renders performance impracticable, a court does not inquire into the event’s foreseeability; rather the court makes a comparative analysis. Under this approach, a court determines which party possessed the lowest risk appraisal costs and transaction costs of diversification.\(^{170}\) Formally, the foreseeability test under § 2-615 requires the court to determine \(TC_E \leq P_E \times M_E\). Conversely, the superior risk bearer test forces a court to make only a comparative \(ex\ post\) determination of \(TC_E\) plus any additional transaction costs associated with risk diversification.

For example, again, assume X and Y and the same general facts of the hypothetical described above. X and Y did not contractually provide for the risk of fire. After a fire destroys X’s factory, Y sues X for breach of contract, and X claims impracticability in defense. In this hypothetical, since X is not Y’s exclusive supplier, Y is in a better position to diversify the risk by purchasing one insurance policy to protect against the risk of fire for any of his suppliers’ factories. As such, assume the risk appraisal costs equal $20,000 for X and $10,000 for Y. Unlike the foreseeability test under Posner and Rosenfield’s comparative analysis, a court will only examine the risk appraisal costs.

\(^{168}\) See supra notes 86-93 and accompanying text.

\(^{169}\) Various decisions also provide a basis for questioning the effectiveness of the foreseeability doctrine, because most courts find that most events are foreseeable. See, e.g., Neuf-Cooper Grain Co. v. Texas Gulf Sulphur Co., 508 F.2d 283 (7th Cir. 1974) (holding government regulation sufficiently foreseeable to deny excise); United States v. Wegmatic Corp., 360 F.2d 674 (2d Cir. 1966) (ruling that engineering problems sufficiently foreseeable in construction of an innovative computer system so as deny defense); Eastern Air Lines, Inc. v. Gulf Oil Corp., 415 F.Supp. 429 (S.D. Fla. 1975) (determining that fuel crisis was foreseeable, and therefore denying impracticability defense); Mishara Constr. Co. v. Transit-Mixed Concrete Corp., 310 N.E.2d 363 (Mass. 1974) (stating that labor strike foreseeable so as to preclude the impracticability defense); Maple Farms, Inc. v. City Sch. Dist. of City of Elmira, 352 N.Y.S.2d 784 (N.Y. Sup. Ct. 1974) (denying the impracticability defense to a supplier of milk where there was a significant change in price because the fluctuations in price were foreseeable).

\(^{170}\) See supra notes 89-90 and accompanying text.

\(^{171}\) See supra notes 81-85 and accompanying text.
and other transaction costs associated with the fire. The court would deem Y the superior risk bearer regardless of the event's foreseeability, because Y could have insured at a lower cost at the time of contracting. Accordingly, the court will grant X the impracticability defense and discharge his contractual obligations.

By avoiding the concept of foreseeability, Posner and Rosenfield's comparative analysis circumvents distortions to probability assessments caused by cognitive biases and heuristics. Determining the lowest cost insurer forces the court to identify which party could have insured against the outcome at the lowest cost, and denies the impracticability defense to the lowest cost insurer. If the court cannot determine the lowest cost insurer, then the court does not discharge contractual obligations, a result supported by the principle *pacta sunt servanda*.

**D. The Effect of the Hindsight Bias on Judicial Determinations of Foreseeability Under U.C.C. § 2-615 and the Superior Risk Bearer Test**

Cognitive biases affect more than just subjective probability assessments. They also affect courts' ability to determine an event's objective probability in hindsight. The hindsight bias refers to the tendency to judge past decisions in light of one's current knowledge of the outcome. When courts make *ex post* decisions about *ex ante* probability assessments, they are particularly susceptible to the hindsight bias.

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172 See supra notes 88-92 and accompanying text.

173 See supra notes 93-96 and accompanying text.

174 However, even Posner and Rosenfield question the reliance on strict liability to back up the superior risk bearer test. As they acknowledge, "in many individual, and perhaps some classes of, cases economic analysis ... will fail to yield a definite answer, or even a guess as to which party is the superior risk bearer." Posner & Rosenfield, supra note 9, at 110. However, as in tort law, when given the choice between strict liability and no liability for unavoidable answers, strict liability might be the sensible result, absent any empirical evidence to suggest otherwise. *Id.*

175 See Worthington et al., supra note 151, at 155.

176 See Rachlinski, supra note 17, at 590. Rachlinski states that there are three situations where courts must make *ex post* judgments of *ex ante* decisions:

(1) judgments under objective ("should have known") standards; (2) judgments under subjective ("did know") standards; and (3) judgments of what was foreseeable. The hindsight bias probably influences all three of these, albeit in slightly different ways.

Courts also make many judgments in hindsight that do not require an evaluation of *ex ante* decisions and are therefore not subject to the influence of the hindsight bias.

*Id.* The hindsight bias has implications across the whole legal system. Consider, for example, the dilemma of a defendant who, despite taking reasonable care, has caused an accident and has been sued. The defendant's level of care will be reviewed by a judge or jury who already knows that it proved inadequate to avoid the plaintiff's injury. Consequently, the defendant's level of care will seem less reasonable in hindsight than it did in foresight. *Id.*
Under § 2-615, a court makes an ex post determination of the interfering event’s foreseeability at the time of contracting. Formally, a court evaluates ex post whether $T_C \leq P_E \times M_E$. To illustrate, assume the same basic fact pattern described above involving X and Y. Now, suppose that X’s transaction costs of determining the probability and magnitude of a future fire equals $12,000, while the product of the objective probability and magnitude equals $10,000. At the time of contracting, the risk of fire is objectively and subjectively unforeseeable. Therefore, X does not allocate the risk of fire contractually. Assume further that after the close of negotiations but before performance, a fire destroys X’s factory. Y sues X for breach of performance, and X claims impracticability in defense. At this point, the court makes an ex post determination of the ex ante foreseeability of the risk of fire. The hindsight bias indicates that knowledge of a fire’s occurrence will tend to cause a judge to overestimate an event’s probability at the time of contracting. The hindsight bias may cause a judicial overestimation of $P_E$. Depending on the degree of overestimation, a court might determine that the fire, though actually unforeseeable, was foreseeable at the time of contracting. If a court makes such a determination, the court will deny the impracticability defense.

Psychologists have developed de-biasing techniques that may limit the effects of the hindsight bias. The ideal de-biasing technique prevents implicated parties from learning in advance the actual outcome. This technique, however, would be impractical in the context of § 2-615, because to determine whether performance should be excused, a judge will have to know what event allegedly rendered the contract impracticable. Other de-biasing techniques may prove useful in the context of the impracticability doctrine, especially those that restore an individual’s consideration of alternative outcomes.

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178 See Worthington et al., supra 151 at 155; Holzl, supra note 153, at 437 (“When provided with information about the outcome of an event or about a correct solution, people tend to adjust their prior answers to match the ‘correct’ one more closely.”).
179 See U.C.C. § 2-615 cmt 1.
180 See Worthington et al., supra note 151, at 156. For example, psychologists constructed a hypothetical case where a plaintiff sued a railroad company for personal injuries in an attempt to examine the effect of the hindsight bias on punitive damage awards. The study revealed that participants who lacked knowledge of the plaintiff’s injury, i.e., those who did not know the outcome, rated the quality of the railroad company’s decision higher than those who already knew the plaintiff had been injured. Most importantly, in the context of this Note, participants judging the defendant’s actions in hindsight believed the accident was more foreseeable than those who lacked knowledge of the outcome. Id. at 157.
181 Courts are aware of the hindsight bias, and have developed procedural mechanisms to minimize the effect of this cognitive distortion. Courts may bifurcate issues in a given trial, so that jurors must decide the threshold question of liability before hearing any evidence on the
minimize the hindsight bias under the current foreseeability test, judges must be procedurally required to consider the possibility that an event was unforeseeable at the time of contracting. To date, no such debiasing technique exists for the impracticability doctrine under § 2-615.

Although the hindsight bias raises a question as to the wisdom of an ex post determination of an event’s foreseeability, no evidence exists that suggests that the hindsight bias effects ex post determinations of comparative values. Instead, a comparative analysis, like the one proposed by Posner and Rosenfield, might actually reduce or eliminate the effect of the hindsight bias. Since the comparative analysis requires the determination of alternative outcomes without the need to know the ex post probability of an event’s occurrence, the comparative analysis will minimize the effect of the hindsight bias. Indeed, it is theoretically plausible that this cognitive distortion will affect a court’s determination of X and Y’s transactions costs of determining the risk and magnitude of a given event by the same degree. If in hindsight a judge overestimates the value of $TCE$ for each party by the same degree—a plausible consequence since the judge will likely view each value with the same set of biases—the hindsight bias in effect becomes a constant and will not distort the judge’s determination of the superior risk bearer.

E. Future Direction of the Impracticability Doctrine

Where does this leave us? Do cognitive distortions render the foreseeability standard impracticable? Although more empirical research is needed to determine the extent to which cognitive distortions affect subjective probability assessments, the proven robustness of these behavioral phenomena draws into question the current reliance on a foreseeability standard. Therefore, a tentative solution would be to construct a test resistant to heuristics and cognitive biases. While Posner and Rosenfield’s superior risk bearer test might be limited by a
court’s ability to determine the transaction costs of determining the probability and magnitude of a future event, their analysis provides a starting point for the construction of such a doctrine.

Instead of requiring an assessment of foreseeability, the comparative analysis requires an *ex post* assessment of each party’s cost of determining the event’s probability and magnitude at the time of contracting plus any transaction costs associated with diversification.\(^{185}\) This test does not require a court to determine a given event’s foreseeability at the time of contracting. It only requires a court to determine which party could have insured against the interfering outcome at a lower cost and denies the impracticability defense to the lowest cost insurer. If a lowest cost insurer cannot be judicially determined, contractual obligations are not discharged, a result supported by *pacta sunt servanda*.

Although Posner and Rosenfield’s superior risk bearer test might not lead to efficient exchanges of risk premiums and/or insurance at the contractual level, their comparative analysis at least provides a consistent standard to judge the effect of changed circumstances on contractual performance. A workable application of this test, which takes into account human cognitive limitations, will in turn lead to efficiency gains in general situations by placing liability on the lowest cost insurer, a proposition supported by commentators since the 1920s.\(^{186}\)

**CONCLUSION**

After centuries of development, the impracticability doctrine is limited by inconsistent case holdings and doctrinal confusion. Although micro-economists have attempted to provide clarity to the doctrine, their analysis lacks insight into how individuals make subjective probability assessments. While Paul Joskow noted that bounded rationality might explain the foreseeability standard, he did not take into account the effect that heuristics and cognitive biases have on subjective probability assessments and *ex post* judicial determinations of an outcome’s probability. Over the past twenty-five years, psychologists and

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\(^{185}\) See Posner & Rosenfield, *supra* note 9, at 90-92.

\(^{186}\) Ron Harris believes that law and economics should rely on historical arguments to support propositions, because current scholars will then understand their place in developments of historical reasoning, theories, and research methods. Considering that the school of law and economics is relatively young and dominated by pure economists, this is a wise assertion. See Ron Harris, *The Uses of History in Law and Economics*, 4 THEORETICAL INQUIRIES L. 659, 659-60 (2003). As such, Maurice Finkelstein asserted in 1920s that in the absence of fault, liability should attach to the lowest cost insurer. See Finkelstein, *supra* note 80, at 249-50.
economists have begun to model actual human decision-making, bringing to light the pervasiveness of availability heuristics, over-optimism, the confirmation bias, and the hindsight bias. Combined, these effects undermine § 2-615’s reliance on a foreseeability standard.

At the time of contracting, availability heuristics, over-optimism, and the confirmatory bias affect subjective probability assessments, clouding the ability of parties to determine consistently whether or not a future event is objectively probable. If an event is objectively foreseeable, but behavioral distortions render it subjectively unforeseeable, parties will not allocate the risk of the foreseeable event either contractually (as required under § 2-615) or through the purchase of some form of insurance (as required under the superior risk bearer test).

The hindsight bias also suggests that on the judicial level, courts will overestimate the objective probability of a particular outcome, thereby determining that some objectively unforeseeable events are foreseeable. In these situations, under § 2-615, courts will deny a party the impracticability defense even though the event was unforeseeable.

However, the comparative analysis of Posner and Rosenfield’s superior risk bearer test circumvents cognitive biases and heuristics. The test does not require courts to determine a given event’s foreseeability at the time of contracting and minimizes the effect of the hindsight bias. It only requires the court to determine which party could have insured against the interfering outcome at a lower cost, and denies the impracticability defense to the lowest cost insurer. If a lowest cost insurer cannot be judicially determined, then contractual obligations are not discharged.

While at times Posner and Rosenfield’s superior risk bearer test might not lead to efficient exchanges of risk premiums and/or insurance at the contractual level, their comparative analysis provides a consistent standard to judge the effect of changed circumstances on contractual performance. Therefore, in light of recent developments in behavioral economics and cognitive psychology, Posner and Rosenfield’s test provides the foundation for a new impracticability defense by shifting the discussion from foreseeability to an examination of each party’s relative knowledge and access to risk diversification mechanisms.