LIABILITY UNDER UNCERTAIN CAUSATION? FOUR TALMUDIC ANSWERS TO A CONTEMPORARY TORT DILEMMA

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ABSTRACT

The question of whether to impose tort liability in cases of increased risk is an evidentiary issue that has been of concern to legal scholars, particularly in the field of tort law, for thousands of years. In contemporary Western tort law, the issue is most often of concern in cases involving medical malpractice, environmental pollution and exposure to toxins, such as radiation or asbestos. This issue, which is subsumed under the topic of uncertain or probabilistic causation, was also of great interest to Jewish legal scholars and courts many years ago.

We present four models for uncertain causation, derived from the literature and court rulings in contemporary tort law and Talmudic law, and examine each case vis-à-vis the goals of tort law. Although at times we tend to think that portions of Talmudic law are outdated and incapable of shedding light on contemporary law, we will demonstrate that a school of thought within Talmudic law devised an approach to the problem of tort liability under uncertainty that contemporary tort law began to consider only in the last twenty years.

Can contemporary tort law learn from Talmudic law in this issue? We argue that although it seems that both Talmudic law and contemporary tort law favor the same four models and reach similar results in some cases, one should be careful when comparing solutions from different legal systems — religious and secular — because they face similar problems but deal with them by different means. We also show how the specifics of legal culture shape legal analysis even where similar results are reached. There is a significant conceptual difference between Talmudic law and contemporary tort law regarding both the theory of torts and the goals of adjudication. The difference between the legal systems is revealed by careful analysis of the various models in Talmudic law within their legal, economic and cultural context.

I. INTRODUCTION

Comparisons among various legal traditions have always provided a rich source of in-depth analysis in the theoretical literature of contemporary law. These comparisons have also generated far-reaching changes in many legal systems and endorsed elements imported in full or in part from other legal systems. There is a central axis of comparison between common law and civil law legal traditions.[1] There is, however, an addi-

[1] "Comparative law coursebooks in the United States have tended to focus exclusively on the Romano-Germanic civil law tradition." MARY A. GLENDON, MICHAEL W. GORDON & CHRISTOPHER OSAKWE, COMPARATIVE LEGAL

tional axis of comparison between contemporary legal traditions and Talmudic law that is of particular interest because it provides a broad basis for original legal literature. It presents confrontation not only between different systems of law but also contemporary Western and Jewish culture; namely, Talmudic law and the sources of "Jewish Law" (the common broader term).[2]

Some scholars opine that Jewish law provides a basis for the reform and development of contemporary Western law.[3] In the United States, Jewish law is used — and often reinterpreted — to provide a requisite counter-model for contemporary U.S. legal theory.[4] Particularly in the field of tort law, some scholars emphasize the significant difference between the contemporary Anglo-American concepts of tort law and the unusual Talmudic law of torts.[5] The comparative research presented in this article may serve as a paradigm for dealing with tort law in general and the subject of probabilistic causation in particular from the perspectives of Western contemporary common law and Jewish law.

The question of whether to impose tort liability in cases of increased risk (and lost chance) is an evidentiary issue that has been of concern to legal scholars for thousands of years. Contemporary Western law usually discusses this issue in cases of medical malpractice, environmental pollu-

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TRADITIONS 17 (1994). *See, e.g.,* R. H. Helmholz, *Continental Law and Common Law: Historical Strangers or Companions?*, 1990 DUKE L.J. 1207 (1990) (providing a historical survey of many points of convergence and continuity between civil and common law systems).

[2] The most common term used by both legal and Jewish Studies scholars is "Jewish Law," or in Hebrew, "Mishpat Ivri" (ie: Hebrew law). For the definition of this term, *see* MENACHEM ELON, JEWISH LAW: HISTORY, SOURCES, PRINCIPLES 105-11 (Bernard Auerbach et al. trans., 1994). "Talmudic law" is usually used in regard to Talmudic sources only (and not post-Talmudic), while the term "Jewish law" is broader and deals with all Jewish legal literature (both Talmudic and Post-Talmudic). In the present article we use "Talmudic law" when dealing with Talmudic texts and "Jewish Law" when dealing with post-Talmudic literature of Halakhic authorities and Jewish legal decisors.

[3] *See, e.g.*, PATRICK GLENN, LEGAL TRADITIONS OF THE WORLD 120-22 (2007) (commenting on various legal systems, among them Talmudic Law).

[4] *See* Suzanne L. Stone, *In Pursuit of the Counter-Text: The Turn to the Jewish Legal Model in Contemporary American Legal Theory*, 106 HARV. L. REV. 813, 814 (1993).

[5] *See, e.g.*, Steven F. Friedell, *Some Observations on Talmudic Law of Torts*, 15 RUTGERS L.J. 897 (1984) [hereinafter Friedall, *Observations*]; Irwin H. Haut, *Some Aspects of Absolute Liability Under Jewish Law and, Particularly, Under View of Maimonides,* 15 DINE ISRAEL 7 (1989-90); Steven F. Friedell, *Liability Problems in Nezikin: A Reply to Professor Albeck*, 15 DINE ISRAEL 97 (1989-90); Steven F. Friedell, *Jewish Tort Law Remedies Not Based on Torah Law – An Approach Based on the Ran and the Rivash*, 10 JEWISH POL. STUD. REV. 47 (1998) [hereinafter Friedall, *Jewish Tort Law Remedies*]; Steven F. Friedell, *Nobody's Perfect: Proximate Cause in American and Jewish Law*, 25 HASTINGS INT'L & COMP. L. REV. 111 (2002).

tion or exposure to toxins, such as radiation or asbestos, and it also has applications in non-tort cases.[6] This complex issue, which is subsumed under the broader topic of uncertain causation, probabilistic causation or proportional liability,[7] was also of great interest to Jewish legal scholars and courts many years ago. The present article suggests that scholars of Jewish law, both in theory and in practice, faced the same issues that tort law is currently confronting.[8]Certain areas of Jewish law may seem outdated and incapable of shedding new light on contemporary tort law. This is certainly not true with regard to the issues addressed in the present article. But the challenge is to examine whether contemporary tort law can learn from Jewish law on this the issue of increased risk.

An example that illustrates the relevance of Jewish law sages regarding tort liability under uncertain causation to contemporary tort law is an important judgment in the area of tort law issued in August, 2010 by the Israeli Supreme Court. In a further hearing of *Malul*, a medical malpractice case, the court ruled on the issue of compensation based on probabilities in cases of uncertain causation and increased risk.[9] Some justices resorted to sources of Jewish law. Reviewing the position of Jewish law, Justice Elyakim Rubinstein said:

> In her opinion, my colleague, Justice Naor, addressed the position of Jewish law following Dr. Yuval Sinai's essay, "Ruling on Partial Compensation Based on Proportional Liability in Cases of Uncertain Causation According to Jewish Law" (The Center for Applied Jewish Law, 2006). I would like to expand on this topic. Indeed, not only is ruling in doubtful matters not foreign to Jewish law, but it is built into it. Questions of uncertainty were part of Jewish law since ancient times, whether the issue was causation, indirect damage and liability for it, or the rate of damage. Jewish law, similarly to other

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[6] *See* David A. Fischer, *Tort Recovery for Loss of a Chance*, 36 WAKE FOREST L. REV. 605 (2001), for a comprehensive survey of the range of cases; *see also* Nils Jansen, *The Idea of a Lost Chance*, 19 OXFORD J. LEGAL STUD. 271 (1999).

[7] *See* ARIEL PORAT & ALEX STEIN, TORT LIABILITY UNDER UNCERTAINTY 57-83 (2001), for the various categories of uncertain causation; *see also* David A. Fischer, *Proportional Liability: Statistical Evidence and the Probability Paradox*, 46 VAND. L. REV. 1201 (1993).

[8] However, this finding should not be taken as surprising. In his recent work on comparative aspects of public law, private law and legal science, Chaim Saiman said that the Talmud addresses by and large the same issues that are the objects of private law (contracts, financial matters, personal matters, family, inheritance issues and the like). *See* Chaim Saiman, *Public Law, Private Law, and Legal Science*, 56 AM. J. COMP. L. 691, 701 (2008).

[9] Further Hearing 4693/05 Carmel Hospital, Haifa v. Malul (Aug. 29, 2010) (not yet published) (majority opinion of the Israeli Supreme Court significantly reducing recognition of the doctrine, especially to cases of mass or serial tortfeasors).

> 'classical' legal systems, tends to adopt "formal" expressions; but matters are not fixed.[10]

We present four models for determining whether and how much damages defendant should pay in cases of uncertain causation derived from literature and court rulings. Our sources include both contemporary Western tort law and Talmudic law. Jewish legal sources suggest several models for situations of uncertain causation. These models exist in contemporary law as well, albeit with differences in their scope and other limitations. Our primary goal is to present the four models as they appear in contemporary Western tort law and in Talmudic law, and examine each case vis-à-vis the goals of tort law in order to show that despite some similarities between the Western legal systems and Jewish law, there are internal differences between the two in theory and perception, especially with regard to the first and the third models presented below. We argue one should be cautious in comparing these legal systems' solutions since they use different means, based on legal, economic and contextual differences, to address similar problems.

This article focuses specifically on increased risk cases in which the victim is known and the damage is provable, but there is uncertainty as to which of several risk factors is responsible for the injury. In other words, in cases with uncertainty as to factual causation between the tortuous action of the defendant and the harm caused to the victim-plaintiff, it is unclear who the tortfeasor is.[11]

We address cases in which several risk factors could have caused the injury that occurred, or, where each risk factor increased the risk. Some of the factors are non-tortuous (for example, "*force majeure*" or Act of God), but at least one, the defendant, is a tortuous agent. The defendant acknowledges that he acted inappropriately and breached a duty of care, but argues (perhaps only as an alternative argument) that it is not possible to prove a factual causation between his negligent act and the harm by a preponderance of the evidence.[12] He argues that the harm was caused by some other factor, tortuous or non-tortuous, or even by a com-

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[10] *Id*. at § 7 (Rubinstein, J.) (translation by authors).

[11] For other categories, *see* PORAT & STEIN, *supra* note 7. Where necessary, we also refer, by way of comparison, to other categories, including mass torts in which the tortfeasor is known and the extent of damages caused is known, but it is not clear who in the group of victims was harmed by the tortfeasor and who was harmed by some other factor. In our case — in which the victim is known and the damage is provable, but there is uncertainty as to which of several risk factors is responsible for the injury — there is also uncertainty as to the factual causation between the tortuous action of the injurer and the injury to the victim, but unlike in our case, in this case the victim was not clearly known.

[12] *See*, *e.g.*, Richard W. Wright, *Causation in Tort Law*, 73 CALIF. L. REV. 1735, 1775-90 (1985) (expanding on factual causation); DAN B. DOBBS, THE LAW OF TORTS 992-96 (2001) (explaining the preponderance of evidence test).

bination of several other factors. The plaintiff, for his part, cannot prove by the preponderance of the evidence that it was specifically this defendant who caused the injury, and that another factor, tortuous or non-tortuous, or a combination of factors, possibly including the defendant, were not the true cause of the injury.

The issue of what compensation, if any, should be awarded when the defendant's tortuous action at most increased the risk of injury to the plaintiff, rather than being the only or primary cause of injury, raises serious legal problems. Consider, for example, the increased risk in the birth of a premature baby:

> A baby was born who suffered from cerebral palsy and mental retardation, was recognized as 100% disabled. When the mother was in the thirtieth week of pregnancy, the weight of the fetus was low, indicating that he would be born prematurely. The mother's water broke early. She was rushed to hospital, where vaginal bleeding began as a result of placental separation. Forty-five minutes after massive bleeding began, it was decided to perform a Caesarean section. The plaintiff argued that at such a late stage the decision to perform the operation constitutes medical malpractice. In fact, there were three possible factors that may have led to the baby's disability, two of which are non-tortuous; the prematurity and bleeding. The third, delay in performing the Caesarean section, is tortuous. Naturally, only the tortuous factor is actionable. The medical team's delay in performing the Caesarean section was a breach of the duty of care. The parents decide to sue the hospital. But, although the injured party is known, there is uncertainty about the factor that caused the harm, resulting in uncertain causation.[13]

Another example mentioned in the literature is one of mass tort:

> A factory negligently releases radiation and increases the health risks of residents in the nearby town. Assuming all other risk factors for residents (such as state of health, working near risk factors, etc.) remain constant over the years, if it is known that in the year preceding the tortuous activity there were 100 new cases of cancer, and each year after the beginning of the tortuous activity there have been 125 new cases, we know that the owner of the factory is responsible only for twenty-five new cases each year, or twenty percent. Let us assume that the average loss to each plaintiff is x. Here we have uncertain causation of the increased risk type which is the "converse" of the birth case: the tortfeasor and the extent of the injury he caused are known, but the specific twenty-five victims are not known, and it is impossible to know to which of the 125 patients the

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[13] The example is taken from CA 7375/02 Carmel Hospital Haifa v. Malul, 60(1) PD 11 (2005) (Isr), *rev'd in part*, Further Hearing 4693/05 Carmel Hospital Haifa v. Malul (Aug. 29, 2010) (not yet published).

> factory is liable. In other words, we cannot determine who would have become sick anyway and therefore deserves no compensation, and who should be awarded full compensation by the factory.[14]

Another branch of uncertain causation is loss of chances. A lost chance occurs when a factor has caused the plaintiff to lose a chance of recovery. For example, a doctor may fail to discover a cancerous growth in time and, thus reduce the plaintiff's chances of survival. As in the case of increased risk, in lost chance cases, the plaintiff can prove only that the defendant's tortuous action was the cause of the lost chance but cannot prove by a preponderance of the evidence that there is a factual causation between the omission and the injury.[15] Therefore, in some ways a lost chance is a mirror image of increased risk. Increased risk may be seen as the loss of chance not to be harmed or become sick, and lost chance may be seen as an increased risk of losing a chance of recovery.[16]

This article focuses on increased risk (and sometimes also draws comparisons with lost chance where necessary). Specifically, it focuses on cases where there are multiple possible causes for the injury in which the defendant's action is the only tortuous cause and the plaintiff cannot prove by the preponderance of the evidence that it is the defendant who caused all (or even part) of the harm.

Several solution models address this issue. The first is the traditional approach of "all or nothing," which uses the familiar evidentiary path of the preponderance of evidence. As it will be seen below, this solution appears unjustifiable, and it is a clear case of underdeterrence. In response, various legal systems have attempted to develop other solutions.

In the second model, the victim-plaintiff is awarded full compensation, despite the fact that he cannot prove by the preponderance of the evidence that the defendant caused all the harm. However, since the defendant did act wrongfully, the court allows for some relaxation of causation requirements. This solution may be, in our opinion, more consistent with the goals of tort law, but it may also amount to a dangerous overdeterrence. Thus, it is not surprising that this solution has not been adopted either by contemporary or Talmudic law, both of which have opted instead for intermediate solutions.

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[14] *See* PORAT & STEIN, *supra* note 7, at 125-28.

[15] *Id.*

[16] DOBBS, *supra* note 12, at 434-35, 439-40; David P.T. Price, *Causation—The Lords' Lost Chance?*, 38 INT'L & COMP. L.Q. 735, 758-60 (1989); Fischer, *supra* note 6, at 612-13, 627; Glen O. Robinson, *Probabilistic Causation and Compensation for Tortuous Risk*, 14 J. LEGAL STUD. 779, 792-93 (1985); Keith W. Lapeze, Comment, *Recovery for Increased Risk of Disease in Louisiana*, 58 LA. L. REV. 249, 267 (1997). At the same time, Jansen does not agree the two cases should be equated in practice. He sees increased risk as a weaker doctrine that should not be recognized. Jansen, *supra* note 6, at 278-79, 281-82, 287, 295.

A third model attempts to quantify the increased risk and impose liability on the defendant only to the extent that his tortuous actions may have caused the plaintiff's injury. This is compensation according to probabilities. If the defendant increased the plaintiff's chances of being injured or becoming ill by twenty percent, the probability that he was responsible for the damage, as opposed to some other agent(s), is twenty percent. This intermediate solution seems compatible with the majority of the goals of tort law and appears to balance successfully the interests of the plaintiff, the defendant, and society. But it raises several problems, particularly because of the difficulty of proving the attributable fraction with any accuracy.

A fourth model shifts the burden of persuasion in cases of uncertain causation to the defendant because it has been proven he acted inappropriately. Despite the efficacy of this model in certain cases, it raises theoretical and practical problems.

Jewish law discusses at length the issue of awarding damages in cases of increased risk, when factual causation is uncertain.[17] This article shows how scholars of Jewish law vacillated among the four models, struggling with the same concerns that courts and legal literature are still struggling with hundreds and even thousands of years later. However, the systematic study of contemporary comparative law requires that we analyze not only the bottom lines of the legal rules being compared, but also that we examine these rules in a broader view considering their legal and cultural context. Modern thinking about comparative methodology in legal research introduced two major concepts in the twentieth century systematic study of comparative law: function and context. This means that "you cannot compare legal rules, institutions, or systems without knowing

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[17] For a general overview of some of the relevant sources in Jewish Law, *see* NAHUM RAKOVER, A GUIDE TO THE SOURCES OF JEWISH LAW (1994); MENACHEM ELON, JEWISH LAW: HISTORY, SOURCES, PRINCIPLES (Bernard Auerbach et al. trans., 1994). In general, "the principles and rules of Jewish law are based on the Scripture." RAKOVER, *supra*, at 15. Some rules are quite explicit, but others are only implied. All are elucidated in the teachings of the *Tanna'im* and *Amora'im*, the rabbis of the Mishnah and Talmud, and presented systematically in the codes. The Mishnah was "the first topical compilation of the Oral Law (*Torah shebe'al peh*) . . . completed around 200 C.E. . . . ." *Id.* at 33. For some 300 years after the redaction of the Mishnah in approximately 200-500 C.E., "Jewish scholarship was devoted primarily to the study, clarification, and application of [the Mishnah]." *Id.* at 43. The scholars of this period, known as the *Amora'im*, wrote the Talmud. "Halakhic literature after the period of the *Talmud* . . . includes codes, halakhic glosses, responsa literature, and court decisions." *Id.* at 61. The main codes are the Maimonides' code Mishneh Torah, Elon, Tur, and Shulhan Arukh, which are universally accepted as the authoritative codes of Jewish law. *Id.* at 1135-1204, 1270-1340, 1488-1575. Thus, over many generations, a comprehensive legal system has developed based on the Scripture as elaborated by exegesis and amplification.

how they function, and you cannot know how they function without situating them in their legal, economic, and cultural context."[18]

Steven Friedell commented about the importance of recognizing the inherent difficulties attached to the analysis of Talmudic tort laws:

> There is always the risk that one will unduly read one's own biases and viewpoints into documents produced under different conditions by people who had different concepts of law. Further, one cannot validly make the claim that there is only one Talmudic view of any particular subject. The Talmud contains a variety of viewpoints on most subjects, and uncertainties of the text and its meaning create extensive room for argument over the correct interpretation.[19]

To reveal the differences between Talmudic tort law and the modern tort theory, this article analyzes the legal, economic and cultural context of different models to which Talmudic law resorted to solve cases of uncertain causation. The fundamentals of Jewish law, as they relate to the issue at hand, must be addressed both in themselves and in comparison to contemporary models. Consideration must be given not only to the bottom lines of various solutions and models but also with respect to the rationales of each legal system and their development over time. For example, the first and the third models discussed serve as a good example of a similar legal result that stems from a completely different legal perception. Notably, Talmudic law did not resort to the type of analysis used by contemporary tort scholars, which take into account considerations such as distributive justice, corrective justice and the provisions of incentives and deterrence. This type of analysis identifies the interests, policies, and principles at stake in a way that is too modern to fit the thinking of rabbis who lived long ago.

This article analyzes the four models in comparative sections, examining each model in contemporary tort and Talmudic law.[20] Sections II-V

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[18] GLENDON ET AL., *supra* note 1, at 11. In particular, as Suzanne L. Stone stressed, we should be aware of pitfalls when comparing the rules of Jewish law with those of contemporary Western law:

> It is not always clear whether the model of Jewish law evoked in contemporary writings is intended to correspond to historical reality. But, even if it is not, it is still important to test this model against the Jewish legal system's own frame of reference for two reasons. First, the conceptual model is compelling, both for the writer and her audience, precisely because it seems to reflect an actual, living legal system . . . . Second, a fuller exploration of the religious concepts that underlie Jewish law can deepen awareness of the differences as well as the similarities between religious and secular legal systems.

Stone, *supra* note 4, at 822

[19] Friedall, *Jewish Tort Law Remedies*, *supra* note 5, at 109.

[20] We chose not to present the positions of Jewish law separately from those of contemporary tort law in a three-part approach found in many comparative studies. That approach is appears as follows: uncertain causation in contemporary tort law, followed by a detailed description of uncertain causation in Jewish law, followed by a

introduce the four models in cases of uncertain causation. We summarize and draw conclusions in Section VI. We will explain that the main differences between Western contemporary tort law and Talmudic law on this issue is found primarily in two models. We will also focus on the proximity of Talmudic tort law to criminal law, a similarity not found in 'contemporary tort law. Even if contemporary tort and Talmudic law reach similar results, one should treat carefully when drawing comparison between the two widely different legal systems.

II. Awarding No Compensation ("All or Nothing")

A. *Contemporary Tort Law*

Traditionally, in increased risk cases (as well as in lost chance cases), the plaintiff cannot obtain compensation because he cannot prove the factual causal link by a preponderance of the evidence.[21] If the plaintiff succeeds in proving that the defendant is responsible for damages and can show all the elements of the tort, including factual causation, with more than fifty percent probability, he will receive full compensation for his injury. If he does not reach this threshold of proof, his claim is dismissed, and he is left without compensation. In the premature birth example above, at best the plaintiff may argue that the defendant, who represented only one of several risk factors, increased the risk of harm. It would not possible to prove with more than fifty percent probability that he caused the injury. This would result in the claim being rejected. In other words, if the plaintiff cannot prove with more than fifty percent probability that the medical team was a cause of the injury, rather than some other factor or combination of factors, 'the claim will fail. In the factory emissions example, although the factory acted tortuously, none of the injured parties can prove by a preponderance of the evidence that the factory, and not some other factors, caused the harm. This is the "all or nothing" model,[22] in which proof defendant caused more than fifty percent of the harm means "all," (ie: full compensation) and inability to offer such proof means "nothing," (ie: claim rejection).

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brief section that attempts to draw the chief comparisons. "Comparative law scholarship should be organized in a way that emphasizes explicit comparison." To achieve a better understanding and a more accurate comparison, we confronted the two systems directly, head to head, rather than deal with them separately. Thus, we embrace the attitude of John C. Reitz. *See* John C. Reitz, *How to Do Comparative Law*, 46 Am. J. Comp. L. 617, 633-34 (1998).

[21] There are several tests for factual causation, among them the "but-for" and the *conditio sine qua non* tests. *See* Wright, *supra* note 12, at 1775. For a discussion of causality consistent with law and economics, see William M. Landes & Richard A. Posner, *Causation in Tort Law: An Economic Approach*, 12 J. Legal Stud. 109 (1983); David Rosenberg, *The Causal Connection in Mass Exposure Cases: A "Public Law" Vision of the Tort System*, 97 Harv. L. Rev. 849 (1984).

[22] *See*, *e.g.*, John W. Strong, McCormick on Evidence 514 (5th ed. 1999).

In the U.S., states take different approaches to probabilistic causation. In some states, the doctrine is explicitly rejected, forcing the plaintiff to prove by a preponderance of the evidence that the defendant caused all the damage.[23] In the U.K., until recently the law adhered strictly to the "all or nothing" model in cases of increased risk or lost chance, and even today it recognizes the doctrine of probabilistic causation only in limited lost chance cases, but usually not in increased risk cases.[24]

Attempts by courts in various countries to consider probabilistic causation as an alternative to the "all or nothing" model often encounter strong opposition. Some argue that the concept of probabilistic causation is an illusion because the issue in these cases is not increased risk or lost chance but simply a lack of information about causality.[25] Others maintain that risk and chance are not concrete objects that people actually lose or that cause them to suffer losses, but that they are abstract, which the law cannot acknowledge.[26] Yet others believe that the law cannot operate from a purely philosophical standpoint and must handle these situations in a realistic and practical manner.[27] Furthermore, the law does address chances and risks because people feel that they lose chances and are exposed to risks, and therefore have a normative legal right with regard to these chances and risks.[28] This right is sometimes all that an individual has left, as in the case of the premature birth, and so he sees it as an important interest.[29] We call this an "incomplete tort," meaning an action performed wrongfully (even if proving factual causation is problematic and incomplete) that, for reasons of deterrence, should be sanc-

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[23] *See*, *e.g.*, Dumas v. Cooney, 1 Cal. Rptr. 2d 584, 592 (Cal. Ct. App. 1991); RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM (BASIC PRINCIPLES) § 26 cmt. a (Tentative Draft No. 2, 2002); DOBBS, *supra* note 12, at 435, n.1. Rejection of probabilistic causation is at times a factual problem, owing to insufficient scientific factual grounds to allow use of the doctrine. *See* Michael D. Green, *The Future of Proportional Liability: The Lessons of Toxic Substances Causation*, *in* EXPLORING TORT LAW 352 (M. Stuart Madden ed., 2005); Fischer, *supra* note 6, at 621. In other cases, courts are concerned that lack of clear limitations on the principle of probabilistic causation can lead to a flood of trivial claims. *See* Paul M. Secunda, *A Public Interest Model for Applying Lost Chance Theory to Probabilistic Injuries in Employment Discrimination Cases*, 2005 WIS. L. REV. 747, 762 (2005).

[24] Fischer, *supra* note 6, at 605-06; Gregg v. Scott, [2005] UKHL 2, [2005] 2 A.C. 176; Barker v. Corus, [2006] UKHL 20, [2006] 2 A.C. 572; Lara Khoury, *Causation and Risk in the Highest Courts of Canada, England, and France,* 124 L.Q. REV. 103 (2008).

[25] See the arguments quoted in Jansen, *supra* note 6, at 280; Helen Reece, *Losses of Chances in the Law*, 59 MOD. L. REV. 188, 192 (1996).

[26] Timothy Hill, *A Lost Chance for Compensation in the Tort of Negligence by the House of Lords*, 54 MOD. L. REV. 511, 514, 518 (1991).

[27] Jansen, *supra* note 6, at 280-81.

[28] *Id.* at 281, 283.

[29] *Id.* at 292-93.

tioned because the one performing the action endangers others.[30] Indeed, some scholars argue that the "all or nothing" model is unfair – at times even arbitrary[31] – and notwithstanding possible difficulties of implementation, the structure of the law, particularly common law, requires acceptance of the rationale of probabilistic causation.[32]

It seems that the application of this model appears contrary to all of the goals of tort law: compensation, corrective justice and restitution (*restitutio in integrum*), distributive justice and optimal deterrence.[33] No compensation at all is received for a negligent act. In cases of environmental pollution the problem is even more difficult because damages suits are generally not filed whenever there is a problem proving factual causation in cases of increased risk.[34] The goals of distributive justice and optimal deterrence are not served either, although the risk is generally borne by a strong financial entity, such as an employer who exposes a worker to a health risk, a hospital, a factory that causes pollution, a cellular phone company, etc. These entities would be able to bear and distribute the loss, but they do not pay anything if the "all or nothing" model is applied. "All or nothing" fails to justly divide the aggregate welfare "cake." The victims, generally from a weaker sector of society, do not receive compensation; the damagers, who generally belong to the stronger sector, do not pay for their tortuous actions. This serves as an incentive to continue the wrongdoing, resulting in underdeterrence. The damage remains where it falls and is not distributed.[35] The law must find a better solution.

The person seeking relief is the one who bears the burden of proof, even in situations where it is impossible to prove by a preponderance of the evidence that the defendant caused the plaintiff's injury. On the surface, it is impossible to overcome this problem because even if one acts inappropriately, this alone does not justify imposing liability. It is the victim who must prove all the elements of the tort that collectively make up the preponderance of the evidence, and if he has not done so, his claim must fail because in some views, a pure risk (a risk that may never have materialized as actual harm) has no value,[36] even if some people

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[30] *Id.* at 293.

[31] Robert J. Rhee, *The Application of Finance Theory to Increased Risk Harms in Toxic Law Litigation*, 23 VA. ENVTL. L.J. 111, 116, 154 (2004); Secunda, *supra* note 23, at 761; Richard W. Wright, *Liability for Possible Wrongs: Causation, Statistical Probability and Burden of Proof*, 41 LOY. L.A. L. REV. 1295, 1319-21 (2008).

[32] *Cf.* Jansen, *supra* note 6, at 290.

[33] For a focused discussion on the goals of tort law, *see* W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS 20-26 (5th ed., 1984); Glanville L. Williams, *The Aims of the Law of Tort*, 4 CURRENT LEGAL PROBLEMS 137 (1951).

[34] Rosenberg, *supra* note 21, at 855-58.

[35] On the principle of loss distribution, *see generally* Guido Calabresi, *Some Thoughts on Risk Distribution and the Law of Torts*, 70 YALE L.J. 499 (1961); IZHAK ENGLARD, THE PHILOSOPHY OF TORT LAW 55 (1993).

[36] Hill, *supra* note 26, at 516, 519.

believe it to have value and see it as an interest that the law should protect.[37] To use the famous words of Justice Benjamin Cardozo, who quoted Sir Frederick Pollock's work on tort law[38] in the *Palsgraf* case, "Proof of negligence in the air, so to speak, will not do."[39] Therefore, the plaintiff, who did not prove all the elements of the tort by a preponderance of the evidence, receives nothing. The problem is evidentiary and the medicine is ineffective.

B. *Talmudic Law*

Some Talmudic law sources also adopt the "all or nothing" model in cases of uncertain causation. In Talmudic sources we find two central approaches that address the possibility of awarding partial compensation in situations of uncertain causation. The approach of the majority of the Sages is that of the first model, "all or nothing" ("he who takes from his friend bears the burden of proof").[40] But the Sages' approach is not the only one represented in Talmudic law in cases of uncertain causation. Another opinion that appears in the Talmud is that of Symmachus, who disagrees with the Sages and allows the award of partial compensation (ie: 50-50) in cases of uncertain causation ("they must divide equally"). This model is presented *infra* in Section III.

A Talmudic source that follows the majority approach of the Sages appears in the Mishnah:

> If an ox was pursuing another's ox which was [afterwards found to be] injured, and the one [plaintiff] says, 'It was your ox that did the damage [to my ox],' while the other pleads, 'Not so, but it was injured by a rock [against which your ox had been rubbing itself],' the burden of proof lies on the claimant [therefore the plaintiff must bring proof that his ox was damaged by the defendant's ox, and as long as he has no witnesses, the defendant is not liable to pay him]. [So also] where two [oxen belonging to two different people] pursued one [another ox] and the one defendant asserts, 'It was your ox that did the damage,' while the other defendant asserts that '[I]t was your ox that did the damage,' neither of the defendants will be liable [for each of them rejects the victim's claim by saying, 'Prove that it was my ox that caused the damage, and I will pay.'] The burden of

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[37] Gary T. Schwartz, *Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice*, 75 TEX. L. REV. 1801, 1815 (1997).

[38] FREDERICK POLLOCK, THE LAW OF TORTS 455 (11th ed., 1920).

[39] Palsgraf v. Long Island R.R. Co., 162 N.E. 99, 99 (N.Y. 1928).

[40] For an expanded discussion on this topic, *see* Yuval Sinai, *The Doctrine of Affirmative Defenses in Civil Cases — Between Common Law and Jewish Law*, 34 N.C. J. INT'L L. & COM. REG. 111, 142-50 (2008).

> proof falls on the plaintiff [and as long as he has not brought proof, he cannot collect anything from the defendant(s)].[41]

One must therefore follow the rule that "[h]e who takes from his friend bears the burden of proof," which, for our purposes, means, "If there is reliable proof, we should rely on it, and if not, nothing would be awarded."[42]

What is the basis for the Sages' position to award no damages (when the plaintiff did not provide reliable proof) and reject all other options, including the awarding of partial compensation for increased risk in cases of "evidentiary uncertainty"?" The meaning of the rule "he who takes from his friend bears the burden of proof" is that one who claims an object held by the respondent must bring proof of his claim. The Sages saw this as a "fundamental principle in law," based both on verses from the Torah and human logic. Jewish legal scholars rationalized this rule on the basis of evidentiary law and the rules of burden of proof rather than on consideration of the goals of tort law. Shalom Albeck sought to found this rule on a *probabilistic* basis, basing the burden of proof in preponderance of the evidence. He writes:

> Why is it that the defendant, who is in possession, wins, while the plaintiff, who seeks to take possession, loses, even though both of them are equal in terms of their evidence and arguments? It is because we base the assessment on the majority. In the majority of cases, the situation in reality is that which ought to be under the law, and anyone who argues against the existing situation and seeks to change it, in the majority of cases his claim is not lawful, while only a minority of claims are lawful. Hence, if the plaintiff has no proof that is stronger than the estimate in the majority of cases, his claim must lose.[43]

If we attempt to apply these principles to examples such as premature birth or factory emissions, the inevitable conclusion is that the plaintiff who seeks to recover money from the defendant through a damages claim must persuade the court that it is appropriate to do so, and if he has not proven his claim by a preponderance of the evidence, his claim is dismissed.

However, one has to bear in mind that Jewish law distinguishes between statements made in the context of *theoretical halakhah*, like the two approaches in the Talmud presented by Symmachus and the Sages, on the one hand, and the implications of *practical rulings* (*halakhah*

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[41] MISHNAH, BAVA KAMA 3:11. In that Mishnah, there are additional cases that article the rule that "he who takes from his friend bears the burden of proof."

[42] *See* TESHUVOT HAGEONIM (RESPONSA OF THE GEONIM), GERESH YERACHIM, LAWS OF JUSTICE § 142 (Harpanes ed., 2002) (Heb.).

[43] SHALOM ALBECK, HA'RAYAOT B'DINEI HA'TALMUD (EVIDENCE IN TALMUDIC LAW) 324 (1987) (translation by authors).

le'ma'ase) written by later halakhic authorities in legal codes, the responsa literature and commentaries, on the other hand.[44] We examine halakhic authorities later to determine whether the gap between the Symmachus and the Sages has been reduced over the time,[45] and whether in practice the Sages take the radical position of "all or nothing" in every case of uncertain causation or, when policy considerations require it, opt for the alternative of partial compensation (ie: "they must divide equally" between the parties).

Careful examination of Jewish law sources shows that the "all or nothing" model was not the only one used. Halakhic authorities and decisors were divided on the question of whose view — that of the Sages or of Symmachus — was normative under Jewish law. The majority view was that of the Sages (ie: he who takes from his friend bears the burden of proof).[46] The minority view was that money of undecided ownership (arising from factual uncertainty) must be divided according to Symmachus' position.[47] As it will be shown below, on one hand, various limitations were placed on Symmachus' view, but on the other hand, even according to the majority of Jewish legal authorities that in principle adopted the Sages' approach, there were cases in which considerations of judicial policy required an award of 50-50 compensation (ie: "they must divide equally"), thereby following Symmachus. Thus, the Sages' approach of "he who takes from his friend bears the burden of proof" has not been interpreted as a radical one that stands for the "all or nothing" model in all situations of doubt. As it operates in practice, this approach is *not* identical to the contemporary tort law version of the "all or nothing" model presented in sub-section A. There are cases in which major Jewish legal authorities who followed the opinion of the Sages chose to award partial rather than full compensation in cases of uncertain causation when the plaintiff did not prove his claim by a preponderance of the evidence. The examples below come not only from tort law but also from other branches of civil law, since problems of uncertain causation relate to evidentiary and civil law in general, not only tort law.

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[44] The importance of the distinction between *halakhah* and *halakhah le'ma'ase* is stressed in the works of Hanina Ben-Menachem. *See* HANINA BEN-MENACHEM, JUDICIAL DEVIATION IN TALMUDIC LAW (1991); Hanina Ben-Menachem, *Maimonides on Equity: Reconsidering the Guide For the Perplexed III:34,* 17 J.L. & RELIGION 19 (2002); Hanina Ben-Menachem, *The Second Canonization of the Talmud*, 29 CARDOZO L. REV. 37 (2006).

[45] *See infra* § IV(B)(4).

[46] *See*, *e.g.*, TOSAFOT ON BAVA KAMA 46a, sv. Hamotzi; RABBI ISAAC ALFASI ON BAVA KAMA, ch. 5; RABBENU ASHER ON BAVA KAMA, ch. 5; MAIMONIDES, MISHNEH TORAH, LAWS OF DAMAGE BY PROPERTY 9:2; TUR & SHULCHAN ARUCH, HOSHEN MISHPAT 223:1.

[47] *See infra* § IV(B)(4).

For example, Rabbi Yechiel Michel Epstein[48] thinks that ruling according to the principle of "he who takes from his friend bears the burden of proof" is justified only when the plaintiff has the ability to bring proof to support his claim. But one cannot rule based on this principle when neither the plaintiff nor the defendant can bring proof, in which case "they must divide equally."[49] The rationale underlying Rabbi Epstein's theoretical distinction is in some ways consistent with a legal doctrine mentioned in some contemporary Anglo-American legal rulings and literature, in which the burden of persuasion lies on the party that has better access to the evidence.[50] Nevertheless, there is an important innovation in Rabbi Epstein's approach. Consideration of access to evidence was used by most scholars of both contemporary and Jewish law in the context of the fourth model, in which the burden of persuasion is shifted to the defendant in cases of uncertain causation,[51] whereas Rabbi Epstein used this consideration in awarding partial (ie: 50-50) compensation according to the third model.

An additional example, found in Maimonides, supports the conclusion that there were cases in Jewish law when money of undecided ownership was to be divided:

> Five people who placed their packages upon a pack animal and it didn't die, and after that the last one came and placed his package on the animal it died—if [the animal] was able to walk with those first [five] packages, but once this one added his package, it stopped and

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[48] RABBI YECHIEL MICHEL EPSTEIN, ARUCH HASHULCHAN [LAYING THE TABLE], HOSHEN MISHPAT [BREASTPLATE OF JUSTICE], 223:2.

[49] As we see in section IV *infra*, the commentators attributed a similar position to Symmachus, but here Rabbi Epstein attributes this view, which allows the award of partial compensation in cases of evidentiary uncertainty, to the Sages.

[50] For a detailed survey, *see* Sinai, *supra* note 40, at 124-26. Some courts and scholars support imposing the burden of persuasion on the party that has better access to the evidence based on considerations of economic utility, placing the burden of persuasion on the one who can create effective testimony at the lowest cost. *See*, *e.g.*, Jody S. Kraus, *Decoupling Sales Law from the Acceptance-Rejection Fulcrum*, 104 YALE L.J. 129, 135-52 (1994). This point was made by Jeremy Bentham, founder of the Utilitarian school in law, who wrote that the burden of persuasion should be placed "on whom it will sit lightest." *See* Jeremy Bentham, *An Introductory View of Rationale of Evidence; for the Use of Non-Lawyers as well as Lawyers*, *in* 6 THE WORKS OF JEREMY BENTHAM 139 (1962). Also, in the context of torts, the rule of *res ipsa loquitur* transfers the burden of persuasion to the defendant if the plaintiff can prove that he himself did not, or could not, have knowledge of the circumstances causing the harm, because the harm was caused by property over which the defendant had full control, and the plaintiff can convince the court that the accident's occurrence is more consistent with the defendant having failed to take reasonable care than with the defendant having taken such care. *See*, *e.g.*, Civil Wrongs Ordinance (New Version), 5732-1972, 2 LSI 12, § 41 (1972) (Isr.).

[51] *See infra* § V.

> could not walk, then the last one is liable. If, from the outset, it was unable to walk, the last one is exempted. *If it is not known, they pay equally*.[52]

One of the major halakhic decisors, Rabbi Aryeh Leib Heller, understood from the last sentence —"If it is not known, they pay equally" — that according to Maimonides the principle of "he who takes from his friend bears the burden of proof" does not always apply.[53] Now we have to clarify: Why did Maimonides deviate from his primary ruling (following the majority approach of the Sages cited above in the Mishnah) in the case of the two oxen that pursued a third one but the owners of both oxen were exempted[54] because it was unclear which ox caused the harm? What is the difference between the case of the oxen and the case of the pack animal?

Rabbi Heller explained that Maimonides follows Rashi's opinion in a similar case, where he accepted a 50-50 division in cases of uncertain causation. Rabbis of the Talmud ruled in a case in which two workers were plowing a rocky field and the plow broke.[55] The ruling was that both were to pay damages to the owner of the plow, although it was not clear which of them caused the plow to break: the worker who led the cow inappropriately, or the one who was actually plowing and drove the plow too deeply into the rocky soil. Rashi explains that both must pay equally, "since they should have been extremely cautious [yet the plow] . . . was broken, *and so it is a matter which is in doubt*."[56] Rashi's opinion was questioned because according to the accepted majority approach of the Sages "he who takes from his friend bears the burden of proof," and therefore the matter being in doubt, the two workers ought to have been exempted.[57] But according to Rashi's view, which Maimonides seems to support in the case of the pack animal, even where there is doubt as to who caused the harm, both workers are made to pay, ignoring the rule that he who takes from his friend bears the burden of proof. Maimonides appears to agree with this view. Thus,although Rashi and Maimonides generally ruled according to the Sages and contrary to Symmachus, they

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[52] MAIMONIDES, MISHNEH TORAH, LAWS OF INJURER AND DAMAGER, 6:14 (*emphasis added*).

[53] RABBI ARYEH LEIB HELLER, KETZOT HACHOSHEN [ENDS OF THE BREASTPLATE], 383:1, 388:10.

[54] MAIMONIDES, MISHNEH TORAH, LAWS OF DAMAGE BY PROPERTY 9:7.

[55] RASHI, BAVA METZIA 80a.

[56] *Id.* (*emphasis added*).

[57] *See* TOSAFOT, *id. sv. Ve'I* (explaining that liability should be imposed on both workers, but not as a result of doubt but for another reason: "For here both of them were negligent: since [the land] is known to be rocky, [the plow may be] broken easily, and each of them had to watch out for his fellow in the same way as for himself, and warn him, and since he did not warn him, he too was negligent"); *See also* RABBENU ASHER, *id.* (reaching the same outcome).

nevertheless felt that as a matter of judicial policy, there were cases of uncertain causation in which a 50-50 division should apply.[58]

We must now determine in what cases the rabbinical ruling of 50-50 division should be applied.[59] Although there appear to be no explicit rulings on this matter in the writings of the classical halakhic decisors, one of the leading rabbinical judges of our generation, Rabbi Zalman Nehemiah Goldberg, offers a distinction between the case of the two oxen pursuing a third, the cases of the five parcels on the pack animal (according to Maimonides) and the case of the two workers who broke the plow (according to Rashi).[60] Rabbi Goldberg raises an important distinction: "The rabbis enacted their ruling only with regard to payment that must be made in case of doubt when it is a *human* who causes the damage, not when it is an *ox* that causes the damage."[61]

This insight follows a fundamental distinction in Talmudic law between damage caused by a person's *property* (Laws of Damage by Property)[62] and damage caused by a person's *body* (Laws of Injurer and Damager). The general, unquestionable and agreed upon position of Talmudic law is that liability must be imposed for harm caused by an individual's body even when it is due to force majeure, without particular negligence on that individual's part, because the rule is that a human being is always considered liable for the damages caused by one's own body.[63] Therefore, the scope of the damages imposed on a person who harms another is broader than is compensation for harm caused by one's property, like an ox.[64] The more stringent approach derives from the fact that man is an intelligent being who bears responsibility for his actions and must pay for

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[58] Similar positions can be found in the Rishonim (Jewish legal scholars of the tenth through sixteenth centuries) and other halakhic authorities. This is seen in TOSAFOT, BAVA BATHRA 62b, *sv. Itmar*, as noted in HELLER, *supra* note 53; TOSAFOT, BECHOROT 28b, *sv. Revia*. For an extended treatment, *see* 24 ENCYCLOPAEDIA TALMUDIT 22-24, *sv.* ("They must divide equally.").

[59] We cannot here cover in detail the many cases in which the ruling is "they must divide equally" even according to the Sages (for a comprehensive survey, *see id.* at 1-26). However we do identify some distinctions that are particularly important for the present subject.

[60] Rabbi Zalman Nehemiah Goldberg's notes to RABBI AVRAHAM SHEINFELD, HOK LEYISRAEL—NEZIKIN (LAW FOR ISRAEL—DAMAGES) 353 (1992) (Heb.).

[61] *Id.*

[62] In the passage by Rabbi Goldberg quoted above, property includes "an ox that damages."

[63] *See* MAIMONIDES, MISHNEH TORAH, LAWS OF INJURER AND DAMAGER, 1:12, 6:1; SHULCHAN ARUCH, HOSHEN MISHPAT, 378:1, 421:11.

[64] *See* MAIMONIDES, MISHNEH TORAH, LAWS OF INJURER AND DAMAGER, 1:1. ("One who injures his fellow is required to pay him [for] five things: damage, pain, medical treatment, loss of income, and embarrassment," which is not the case for damage caused by one's property, like an ox, where one pays only for the harm caused).

the harm he causes. From this perspective, it may be appropriate to award partial compensation in cases of uncertain causation when the injury was caused by a person, even if such compensation would not be awarded in case where the injury is caused by a person's property (such as an animal).[65] The distinction between damage caused by a person and damage caused by a person's property places an alternative limitation on the possibility of awarding partial compensation in cases of uncertain causation. In other words, the outcome should be "all or nothing;" however, a certain fine is imposed if the damage was caused by a human being.

If we were to apply this limitation to contemporary tort law, we would impose a fine of partial compensation in cases of uncertain causation that involves one person causing harm to another (ie: medical malpractice) but not when the harm was caused by a person's property (ie: harm caused by animals, a manufactured product, a car or a machine). In other words, if contemporary law were to adopt the principles of Talmudic law in cases of uncertain causation, the law applying to a victim suing for increased risk caused by a doctor who was negligent in his treatment would be different from the law applying to a victim suing for increased risk as a result of a dog bite or faulty product.

Nevertheless, there is great difficulty in applying such limitations in contemporary tort law because of the differences between Talmudic and contemporary tort laws. The distinction between damage caused by a person's *property* and damage caused by a person's *body* is a unique concept of Talmudic law, and is usually nonexistent in the contemporary tort law of common law systems. In contemporary legal systems, tort and criminal law are two entirely separate areas of law. They are different in their essence and in their methods of proof. In contrast, in general ancient law, particularly in Talmudic law, criminal and civil law were mixed.[66] In many civil cases, especially in tort law, there was a focus on criminal punishment.[67] For example, compensation for damage to someone by a person who injured him is not considered part of civil law but of penal law, or at least part of an intermediary domain situated between the realms of monetary and penal law.[68] In other words, compensation for bodily harm, although intended to restore the injured to his state

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[65] *See generally* Maimonides in MISHNEH TORAH, LAWS OF DAMAGE BY PROPERTY. For other views, *see* Zerach Warhaftig, *The Basis for Liability for Damages in Jewish Law*, *in* MECHKARIM BA-MISHPAT HA-IVRI (RESEARCHES IN JEWISH LAW), 211-28 (1985) (Heb.).

[66] *See infra* note 68.

[67] *See*, *e.g.*, David Weinrib Amram, *Retaliation and Compensation*, 2 JEWISH Q. REV. 191, 201 (1911-1912); DAVID DAUBE, STUDIES IN BIBLICAL LAW 102-03 (1969).

[68] This can be seen in the fact that Maimonides, in the torts book MISHNEH TORAH, included together the laws of injurer and damager, followed by the laws of murderer. In GUIDE FOR THE PERPLEXED 3:41, Maimonides addressed the laws of injurer as part of his broader discussion of penal law.

before the injury, serves other purposes as well and has an aspect of punishment, which results in the application of a portion of penal law to the laws of injury.[69] The punitive tendency of Talmudic tort law, especially in cases of bodily harm caused by another person, can explain why some believe that a fine in the form of partial compensation should be imposed on the damager even in cases of uncertain causation. Note, however, that this is a type of fine or punishment, and not compensation based on probabilities. It is a unique concept because contemporary tort law, unlike contemporary criminal law, does not mete out punishment, except in relatively rare cases of punitive damages.[70] Thus, Talmudic law is different in its essence from contemporary legal systems in its approach to this model, in which it appears that most of the deciders followed the opinion of the Sages and ruled "all or nothing."[71]

C. *Conclusion*

In sum, after analyzing the "all or nothing" model, it seems unsatisfactory in light of the goals of tort law. From a factual causation perspective, the plaintiff cannot prove by a preponderance of the evidence that the defendant's action harmed him. At the same time, it seems unjust for the defendant to avoid paying compensation and correcting the damage. This is particularly true when the defendant is a large organization that belongs to a stronger segment of society and has no extra-legal incentive to stop causing damage. In Talmudic law, the majority opinion of the Sages also appears to follow the "all or nothing" rule. However, several opinions of the Sages were also subjected to various qualifications dealing with the degree of proof or the identity of the damager (the person himself or his property), and there were cases in which the Sages did not apply the general rule of "all or nothing." But it appears, as explained *infra* in Section IV, that even in these qualified cases it is not possible to explain a "divide equally" (i.e., 50-50) solution as compensation based on probabilities. The compensation must be regarded as a fine, typical of Talmudic tort law precisely because of its proximity to criminal law — a distinction that is not accepted or known in contemporary legal systems.Contemporary law seeks other methods that would bring a certain measure to bring relief to the victim, and not reject his claim in case of because of uncertain causation.

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[69] *See* MAIMONIDES, MISHNEH TORAH, LAWS OF INJURER AND DAMAGER, 5:6-11; Ilan Sela, Payment for Inflicted Personal Injuries in Jewish Law: Between Civil and Criminal Law 6-8 (Dec. 2007) (Ph.D. thesis, Bar-Ilan University Ramat-Gan, Israel) (Heb.).

[70] *See*, *e.g.*, David Partlett, *Punitive Damages: Legal Hot Zones*, 56 LA L. REV. 781 (1996); Restatement (Second) of Torts § 908 (1965); State Farm v. Campbell (2003) 538 US 408, 155 L Ed 2d 585, 123 S Ct 1513; BMW of North America, Inc. v. Gore, 517 U.S. 559 (1996); Philip Morris USA v. Williams, 549 U.S. 346 (2007).

[71] *See supra* note 46.

III. Awarding Full Compensation

A. *Contemporary Tort Law*

The second model addresses the need to reduce the evidentiary burden on the plaintiff in cases of increased risk (and lost chance). According to this model, the defendant compensates the plaintiff fully for the injury if it has been proven that his tortuous action was dangerous (ie: it increased the risk or reduced the chances of the plaintiff to recover) and that the plaintiff suffered an injury, even if the defendant's liability for the injury has not been proven by a preponderance of the evidence.[72] This extreme form of relief may be explained according some of the policy goals of tort law, such as compensation and distributive justice, and it may also reflect a policy of punishment that assigns punitive damages against the defendant for causing harm and acting wrongfully. This theory raises issues with the policy goals of compensation. The compensation awarded under this model may be overcompensative because it is possible that a cause of the injury is not the tort at all, or that the defendant's action was not the sole cause of injury. For example, in the premature birth and factory emissions examples there are roughly eighty percent chances that it was not the defendant who caused the harm. Nevertheless, because this model meets some of the goals of tort law, it may be construed as *better* than the "all or nothing" model, under which no compensation is awarded at all.

The goal of corrective justice is problematic in cases of increased risk. The common notion for conceptions of corrective justice is that correction must be made by the damager, to the victim, in the sum of the whole of the damages caused.[73] In these cases it has not been proven with more than fifty percent certainty that it was the defendant, specifically, who caused some or all of the plaintiff's injury. Therefore, the corrective justice requirement that the damager himself must rectify all of the harm seems unjust. In mass tort cases the problem is mitigated because even if the defendant did not cause the injury to a specific victim, he did cause it to another, and so some restitution is warranted. But even in mass tort cases there is a problem from the perspective of corrective justice, at least according to its more constructionist approaches,[74] which look exclusively at the two parties, plaintiff and defendant, disregarding other victims.

Awarding full compensation in cases where the tortfeasor may not have been a cause of the entire injury will result in overdeterrence because the tortfeasor may pay in excess of the harm that he actually caused. In the case of mass torts where the tortfeasor fully compensates many people for increasing their risk, overdeterrence becomes pronounced and may

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[72] *See* Porat & Stein, *supra* note 7; Fischer, *supra* note 6, at 605.

[73] *See* Ernest J. Weinrib, The Idea of Private Law 5, 56-83 (1995); Ernest J. Weinrib, *Corrective Justice*, 77 Iowa L. Rev. 403 (1992).

[74] *See* Weinrib, *supra* note 67, at 403.

reduce aggregate welfare, especially if the tortfeasor's action is socially desirable. Nevertheless, one may say that in paying full compensation, the mass or serial tortfeasor may actually be paying for other cases of harm caused by him to people who, for various reasons, did not bring an action against him. It appears the goal of distributive justice is met in principle because aggregate welfare is divided more equally through compensation from the stronger party (the defendant) to the weaker party (the plaintiff). But the sum being distributed may be greater than the harm caused, which takes the goals of distributive justice too far through a distorted distribution.

In the factory emissions example, awarding no damages at all according under the first "all or nothing" model is unjustifiable, especially from the perspectives of optimal deterrence and distributive justice. Full compensation is also problematic. Full compensation to all 125 patients each year means excessive restitution to those (roughly eighty percent) to whom the defendant is not liable. If the average harm is *x*, the factory is liable only for *25x* annually, then *paying 0x* is a frustration of the goals of tort law; however, paying *125x* is clearly overcompensative and overcorrective. The distribution of aggregate welfare also becomes distorted because those who do not deserve damages receive something at the expense of the tortfeasors, with their slice of the cake growing unjustifiably. But one can argue the distribution is just after all, as tortfeasors, mostly in the case of mass torts are not always made to pay for their tortuous actions . In cases of mass and serial tortfeasors, it may be an optimal deterrence after all, since often mass and serial tortfeasors are not sued for each tort they commit. However, at what cost does this come to the tortfeasor? As a result of overcompensation, the factory may become unprofitable and the tortfeasor may have to move the factory or close it down, which results in discontinuing what is an otherwise productive and socially desirable activity.

In the U.K., this approach can be traced primarily to *Wilsher v. Essex AHA*,[75] in which the court allowed inference of causation based on "common sense" and read the majority opinion in *McGhee v. National Coal Board*[76] as favoring this approach.

In Israel it is possible to interpret the majority opinion in the *Krishov* case as granting full compensation when there should have been at most compensation based on probabilities (the third model to be presented

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[75] Wilsher v. Essex Area Health Auth., [1988] A.C. 1074, 1088 (H.L.) (appeal taken from Q.B.).

[76] McGhee v. National Coal Board [1973] 1 W.L.R. 1 (H.L.). Until that time, *McGhee* had been read as supporting the reversal of the burden of proof of causation, which was the method favored by the lower courts. *See* Erik Knutsen, *Ambiguous Cause-in-Fact and Structured Causation: A Multi-Jurisdictional Approach*, 38 TEX. INT'L L.J. 249, 268-70 (2003).

infra), or no compensation at all (this model).[77] In *Krishov*, an employee who worked in a garage was exposed to brake pads made of asbestos.Some studies tied exposure to asbestos to cancer of the lymphoma, but because of lack of evidence it was difficult to prove that the garage was indeed responsible for the damage caused to plaintiff. At the time *Krishov* was decided, there was no solid and uncontroversial information about asbestos exposure and its risks. The plaintiff could not prove by a preponderance of the evidence the causal connection between his exposure to asbestos at the garage and his cancer. The plaintiff showed that six out of fourteen garage workers in the relevant years had cancer, and tried to convince the court that this datum proved the link to a more certain probability than mere chance This is a clear case of increased risk, as in the premature birth example presented above. If the court adopted a compensation based on probability, then the plaintiff would have received an award calculated out to 100 *x* 6 / 14, which is 42%.

The minority opinion was in favor of the "all-or-nothing" model. Justice Miriam Naor thought the plaintiff was unable to substantiate his claim.[78] The majority opinion, formulated by Justice Dalia Dorner, held that the plaintiff should receive full compensation.[79] Although proof of factual causation was missing, the justice explained that the law cannot wait for developments in the field of medicine, and that the burden of proof was legally satisfied, which did not necessarily mean it was also medically satisfied.[80] It is difficult to explain how a non-representative sample of fourteen people can serve as a basis for compensation, especially full compensation. At most, it can be the basis for partial compensation, based on a probability of 42%. However, the small statistical sample in this case is not convincing now is it robust. Speaking for the majority, Justice Dorner explained that she was persuaded, and that this was not a case of evidentiary lenience.[81] Nevertheless, it appears that in the *Krishov* case the majority opinion, which gave full compensation to the plaintiff, can be construed as exercise of significant evidentiary lenience in a situation of uncertain causation.Despite these cases, full compensation in cases of uncertain causation is not common, as we will show in subsequent models presented *infra*.

B. *Talmudic Law*

Jewish legal sources also discuss the possibility of imposing full compensation for increased risk of injury. In the Talmud,[82] it is clearly

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[77] *See* C.A. 1639/01, 2246/01 Kibbutz Ma'ayan Tzvi v. Krishov, PD 58(5) 215 (2004) (Isr.).

[78] *Id.* at 271-72 (Naor, J.).

[79] *Id.* at 284-85 (Dorner, J).

[80] *Id.* at 283-85 (Dorner, J).

[81] *Id.* at 283-84 (Dorner, J).

[82] BAVA METZIA 36b.

accepted that a negligent person is liable for subsequent harm even if he had no intention of causing the harm and even if it occurred as a result of force majeure.[83] But is this a just law? Should courts require that the plaintiff prove factual causation between the negligence and the damage in cases of "incomplete torts" (meaning – as mentioned above – an action performed wrongfully, even if proving factual causation is problematic and incomplete) by, for example, using the "but for" test to show that the force majeure would not have occurred but for the negligent act?

The Talmudic passage deals with a person who was negligent in watching over an animal.[84] As a result, the animal escaped and went to graze in a riverside meadow, where it died. The leading rabbis of the Babylonian Talmud [*Amoraim*] were divided over whether or not to require the negligent watchman to compensate the owner of the animal.[85] According to Abaye, one of the sages, the watchman was liable for the value of the animal, but in Rava's view he is exempted from payment. In Abaye's opinion, it was possible that something about the meadow, such as vapors unique to the atmosphere of the river, caused the animal's death, and if so, it was caused by the watchman's negligence because he did not prevent the animal from wandering off to the meadow.[86] Rava, however, opined the animal died of natural causes, and the animal's location at the time of its death was of no importance. Therefore, there was no factual causation between a possibly negligent act on the part of the watchman and the cause of death, meaning the watchman was not liable.

There seems to be more to Abaye and Rava's disagreement than a simple factual dispute over whether the animal became ill because of the air in the meadow. What is the legal foundation underlying this dispute? Abaye and Rava represent two fundamental approaches to liability in cases of increased risk, where Rava corresponds to the first model and Abaye corresponds to the second model.In Rava's opinion, as in the "all or nothing" model, the watchman should not be held liable for the value of the animal because this was an incomplete tort: no causal connection has been proven between the watchman's negligence and the injury, which was caused by a force majeure. As usual in the case of the "all or nothing" model, some major goals of tort law are not achieved by Rava's approach because there is no compensation for the damage, the incomplete tort is not rectified and the tortfeasor (the negligent watchman) has

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[83] SHALOM ALBECK, EXPLANATION OF DAMAGES LAWS IN THE TALMUD 61-63 (1990) (Heb.).

[84] BAVA METZIA 36b.

[85] These rabbis are part of the Talmudic BAVA METZIA 36b text (and not external commentators).

[86] At the same time, Abaye concedes that if the animal returned from the meadow, either to its owner's house or to that of the watchman, and was still healthy without any visible sign of illness, but subsequently died there, the watchman was exempted because it would be clear the death was not caused by his negligence.

not been deterred from continuing in his negligence. By contrast, Abaye holds that it is difficult to completely invalidate the possibility that the animal died as a result of negligence,[87] and therefore the watchman must fully compensate the owner of the animal. Analyzing Abaye's approach, the commentators explained that because the watchman was negligent through his omission (by not locking the gate to prevent the animal's escape he exposed it to many risks, such as thieves, wolves, etc.), as a matter of judicial policy he should be held liable if some harm was ultimately caused that could be said to have any causal connection with the neglect, even if it is only a remote possibility from a probabilistic point of view.[88]

Using terms derived from contemporary tort law, we may present Abaye's view as follows: if the tort is incomplete, but the element of breach of the duty of care has been fulfilled (assuming that there is no other tortfeasor), that is, there is a wrongful act (omission), and there is proven damage (the death of the animal), as a matter of judicial policy, the law should impose liability for the damage. This is a judicial policy that prefers payment of full compensation to the victim, even at the price of harming the defendant, who may not have been the actual damager. This is because he acted inappropriately and his tortuous action or omission justifies the payment of compensation even if it is not possible to prove with a sufficiently high degree of probability a factual causation between his action and the damage. This use of judicial policy is characteristic of the rule of negligence in contemporary law, and its purpose is to achieve a desired outcome even if analysis of the cumulative elements of the tort may lead to a different outcome, namely that the tort is incomplete and no liability should be imposed for it.

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[87] In the view of most of the Rishonim, even Abaye would agree that in practice the watchman would be liable in cases "where there was neglect at the start, but the final injury was due to force majeure" only if there was a chance that force majeure was caused by his neglect. *See*, *e.g.*, TOSAFOT ON BAVA METZIA 36a, *sv. Ein retzoni*; 78a, *sv. Huchama*. At the same time, some argue Abaye would hold the watchman liable even if the force majeure was not related at all to the initial neglect, and even if it is clear that the force majeure would have occurred irrespective of the watchman's negligence. *See*, *e.g.*, RABBI ISAAC ALFASI, BAVA METZIA 20a.

[88] *See* RABBI BETZALEL ASHKENAZI, SHITA MEKUBETZET, in the name of Tosafot Rabbenu Peretz, Rabbenu Asher, and Rabbi Shimon Ben Aderet. Some Acharonim [Jewish legal scholars of the 16th century onward] have compared this with the case of a borrower who acknowledges that he took a loan, but says "I do not know if I have repaid you," who by law would be required to pay. Similarly, in their view, the watchman would be held liable in our case because he was certainly negligent, but it is not clear whether the harm occurred as a result of his negligence. *See* RABBI YITZCHAK MEIR ROTHENBERG ALTER, CHIDDUSHEI HARIM (NOVELLAE OF RABBI YITZCHAK MEIR) on BAVA METZIA 36b. For an extended treatment, *see* HELLER, *supra* note 53, at 340:4.

In light of the suggested interpretation, Abaye's opinion reflects the full compensation model in cases of uncertain causation, which emphasizes deterrence. The model, however, appears to lead to overdeterrence, and perhaps to overcompensation and restitution beyond the extent attributable to the damager. Note that Abaye recognizes increased risk as a source of liability (appropriate and justified for the reasons mentioned in modern legal literature), but he presents no boundaries, such as exceptions and limitations. Examination of Abaye's ruling in its Talmudic context, however, can also explain its conclusion in a different way. According to alternative explanation, the watchman must be fined or held liable for all cases in which the animal is injured, even by force majeure, as a type of *penalty* for his actions. For modern tort scholars this is clear overdeterrence because we are concerned with tort law and not criminal law. But Abaye's ruling is a reflection of a unique Jewish judicial policy that is more closely related to criminal law than to tort law. As discussed in the context of the former model, contemporary legal theory argues that tort law, unlike criminal law, does not mete out punishments and fines except for the case of punitive damages.[89]In Jewish legal practice, however, some halakhic authorities rule in accordance with Abaye's approach and require the watchman to pay.[90] Still, the majority of Jewish legal authorities would rule according to Rava.[91] Therefore, according to most Jewish legal authorities, liability is not to be imposed if there was neglect at the start and the final injury was due to force majeure, unless it is possible to attribute the force majeure to the negligent act, and factual causation between the harm and the negligent act is proven.

C. *Conclusion*

The majority of halakhic authorities, albeit not all, did not adopt the model of awarding full compensation in cases of uncertain causation, just as contemporary tort law generally does not adopt it. It is possible that scholars of Jewish law were also aware of problems in the implementation of this model (given its incompatibility with most, if not all the goals of tort law). They likely did not see a good reason for giving the plaintiff *de facto* relief in evidentiary law. Indeed, in contemporary and in Talmudic law other models may be preferable.

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[89] For a historical point of view according to which tort law grew from criminal law, *see, e.g.*, Christopher J. Robinette, *Can There Be a Unified Theory of Torts? A Pluralist Suggestion from History and Doctrine*, 43 BRANDEIS L.J. 369 (2005). Nevertheless, from a modern point of view, it is clear that contemporary Western tort law is an independent branch of law.

[90] *See* RABBENU HANANEL & MEIRI ON BAVA METZIA 36b.

[91] *See* MAIMONIDES, MISHNEH TORAH, LAWS OF HIRING 3:10; SHULCHAN ARUCH, HOSHEN MISHPAT, 291:9.

IV. Compensating according to Probabilistic Causation

A. *Compensation According to the Probabilistic Causation Model*

The third model, where a defendant compensates a plaintiff proportionally based on the probability that he caused the harm to the plaintiff, is a true intermediate model. If it is applied properly, it may offer an adequate solution.Less than one-third of U.S. jurisdictions have adopted the lost chance doctrine,[92] and fewer have adopted the increased risk doctrine.[93] There are echoes of the lost chance doctrine in a dissenting opinion in English[94] and Israeli court rulings.[95] Some researchers have suggested recognizing the doctrines only in cases of medical malpractice.[96] In Canada and Germany, the doctrine has been rejected.[97]

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[92] *See* Secunda, *supra* note 23, at 760, n.71.

[93] Rhee, *supra* note 31, at 141; Amanda Leiter, *Substance or Illusion? The Dangers of Imposing a Standing Threshold*, 97 Geo. L.J. 391 (2009).

[94] It appears that Justice Nicholls, dissenting in *Gregg v. Scott*, followed this path in light of the ruling in the American case of Herskovits v. Group Health Coop., 664 P.2d 474, 486 (Wash. 1983). *See* Gregg v. Scott, [2005] UKHL 2, [2005] 2 A.C. 176 [para. 3] (Nicholls, J., dissenting). In *Barker v. Corus*, this reasoning was extended to explicitly recognize "loss of chance" as a head of damages, and thus to distribute blame between multiple possible tortfeasors, even when not all possible causes of an injury are tortuous. Barker v. Corus, [2006] UKHL 20, [2006] 2 A.C. 572. Although a U.K. statute overturned *Barker* in the specific case of asbestos, it did so to hold each defendant liable jointly and severally, thus extending even greater protection to plaintiffs, and should not be seen as overturning the basic principle of proportionality. *See* Compensation Act 2006 (UK); Khoury, *supra* note 24, at 121.

[95] The lost chance doctrine has been expressly recognized by Israeli courts. *See* C.A. 231/84, Histadrut Health Fund v. Fatah, 42(3) PD 312 (1988) (the leading case on this issue). The increased risk doctrine was first recognized by the Israeli Supreme Court in 2005. *See* CA 7375/02 Carmel Hospital Haifa v. Malul, 60(1) PD 11 (2005). This decision was partially overturned by the Israeli Supreme Court in 2010, with the majority holding that it can be acknowledged only in certain circumstances, and only in mass or serial cases. Further Hearing 4693/05 Carmel Hospital Haifa v. Malul (Aug. 29, 2010) (not yet published).

[96] Saul Levmore, *Probabilistic Recoveries, Restitution and Recurring Wrongs*, 19 J. Legal Stud. 691, 720 (1990). Regarding lost chance, it seems that this is the case in the United States. *See* Restatement (Third) of Torts § 26 (Proposed Final Draft No. 1, 2005); *see also* Hard v. Southwestern Bell Telephone Co., 910 P.2d 1024 (Okla. 1996). *But see* Rosenberg, *supra* note 21, at 851 (arguing that the doctrine should not be limited only to cases of medical malpractice); Steven Shavell, *Uncertainty over Causation and the Determination of Civil Liability*, J.L. & Econ. 587, 606 (1985) (arguing that the doctrine should be recognized not only in cases of medical malpractice, but also in cases of toxins and environmental risks). As to the possibility of recognizing the lost chance doctrine in cases of medical malpractice in the United Kingdom, *see* Paul Davidson Taylor (a firm) v. White [2004] EWCA (Civ) 1551 (Eng.); Beary v. Pall Mall Investments [2005] EWCA (Civ) 415 (Eng.); Andrew Grubb et al., The Law of Tort (2d ed. 2007).

Under this model, the law is not doing the plaintiff a "favor" or granting him a "concession," as it does under the second model by giving him *de facto* relief in evidentiary law, but, instead, the law regards the defendant as having acted wrongfully, thereby increasing the risk to the plaintiff (or harming his chance of being cured), and therefore imputing liability. Nevertheless, unlike the first model, this model does not grant the plaintiff full compensation. The concept behind this model is that in cases of increased risk and lost chance, probabilistic causation requires proportional and, partial compensation based on probabilities. There is some concession on factual causation, but this is acceptable because the defendant did indeed act wrongfully.[98]

In a situation such as the premature birth example, if it were possible to assess the fraction attributable to the defendant's actions that increased the risk to plaintiff, that would determine the rate of compensation to the plaintiff (ie: the percentage representing the probability that the defendant's actions caused the injury). This would be proportional, partial compensation informed by probabilities. In our example, if one could point to data showing that the probability of medical malpractice leading to brain damage is 20%, while the probability of non-tortuous factors causing the same damage is 80%, the defendant would have to pay the plaintiff 20% of proven damages.[99] In reality, the defendant is either responsible for all the damages and his liability is 100% or he is not responsible for the damage at all (although he acted tortuously) and his liability is therefore 0%. But in the premature birth and factory emission examples, his responsibility or lack thereof cannot be proven. The only thing that can be proven is the extent of the increased risk. Thus he would pay only according to probabilistic causation.

Corrective justice is only partially fulfilled because if the defendant fully caused the harm he should fully compensate for it and correct the harm, but if he was not the one who harmed the plaintiff then he should pay nothing. But full satisfaction of corrective justice may not be possible if causation is uncertain. The defendant indeed increased the risk by 20%, as in the above examples, but the more likely case is that other factors besides the defendant caused the injury. Hence, the connection

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[97] MARC STAUCH, THE LAW OF MEDICAL NEGLIGENCE IN ENGLAND AND GERMANY — A COMPARATIVE ANALYSIS 91-92 (2008); Jansen, *supra* note 6, passim; Laferriere v. Lawson [1991] 1 S.C.R. 541 (Can.); *see generally* Khoury, *supra* note 24.

[98] *Cf.* Jansen, *supra* note 6, passim (raising another possible conception of this model, that regards the increased risk as a form of injury in and of itself, for which compensation must be paid). Addressing this possibility requires further expansion that is beyond the scope of this paper.

[99] In this case, the plaintiff would try to claim all the damages, and should the court not be convinced by the evidence that the defendant must compensate the plaintiff for all of his damages, as an alternative the plaintiff would ask the court for proportional, partial compensation on the grounds of increased risk.

between a specific damager who must rectify the harm and a specific victim is absent.[100] At the same time, there are approaches that relax the demand for corrective justice, regarding it as less rigid; they see increased risk or lost chance compensation as more consistent with corrective justice[101] than it appears at first blush.Distributive justice is satisfied more than in previous models, particularly when the defendant is a strong entity (such as a hospital) or a profit-making organization (such as a company that releases pollution or radiation).[102] Organizations of this type can easily become serial or mass tortfeasors, justifying the distributive use of tort law against them.

From a legal standpoint, the goal of deterrence is still not perfectly met by this model, even though the paying entity did act wrongfully, because the paying entity may not have caused the damage, and therefore the tortuous action is "incomplete" without proof of causality. But from a law and economics perspective, deterrence is optimal because the tortfeasor is liable for the exact amount by which his actions increased the risk, and he pays the value of the injury he caused. Therefore, he can evaluate the increased risk in advance and act in the most cost-effective way.[103] This is a case of directing behavior.[104]

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[100] Charles Nesson, *The Evidence or the Event? On Judicial Proof and the Acceptability of Verdicts*, 98 HARV. L. REV. 1357, 1366-67 (1985) (arguing the doctrine is completely contrary to morality).

[101] *See* Rosenberg, *supra* note 21, at 858, 877-79; Jeff L. Lewin, *Boomer and the American Law of Nuisance: Past, Present, and Future*, 54 ALB. L. REV. 189, 278 (1990); *see also* Gregory C. Keating, *Distributive and Corrective Justice in the Tort Law of Accidents*, 74 S. CAL. L. REV. 193, 197 (2000) (arguing there is no consensus on the nature of corrective justice).

[102] There is still a certain distortion in the division of the aggregate welfare cake because victims who do not deserve anything will also receive compensation at the level of the defendant's attributable fraction. *Cf.* Rosenberg, *supra* note 21, at 880; David Rosenberg, *Mass Tort Class Actions: What Defendants Have and Plaintiffs Don't*, 37 HARV. J. ON LEGIS. 393, 410-12 (2000). In this case there is also the question of symmetry, and whether partial compensation in the range between 50% and 100% will be given, and not only in the range below 50%. The answer also changes the distributive perspective, because even plaintiffs with a high chance, who have not proven their case 100%, will receive partial compensation and lose, while the injurers profit.

[103] Rhee, *supra* note 31, at 154.

[104] It may be that there is overdeterrence in all cases in which the claim has been proven over 50%, and where full rather than partial compensation is awarded. In other words, there is no "mirror image:" proportional compensation is relevant to proof below 50%, whereas over 50% it entitles the plaintiff to full compensation. As noted above, this is a kind of asymmetry. For discussion and various opinions on this issue, *see* Jane Stapleton, *The Gist of Negligence (pt. 2)*, 104 LAW Q. REV. 389, 390 (1988); Deidre A. McDonnell, *Increased Risk of Disease Damages: Proportional Recovery as an Alternative to the All or Nothing System Exemplified by Asbestos*

This third model is also effective in cases of mass torts. In the factory example, the owner of the factory is responsible for a 20% increase in cancer cases. According to the first model, he pays nothing and has an incentive to proceed with the tortuous act. According to the second model, he pays five times for the damage he caused and has an incentive to discontinue operations, which may reduce aggregate welfare. Applying the third model it is possible to achieve a more balanced outcome. Under the third model, increased risk for each of the 125 residents is only 20%. If the average loss is *x*, the factory owner is responsible only for 20% of *125x*, which is *25x*. Each year 125 new potential plaintiffs are added, none of whom can prove factual causation by a preponderance of the evidence. That is, no one can prove that his harm was caused specifically by the factory emissions and that he belongs to the group of twenty five and not to the group of 100 who would have become ill in any case. Therefore, instead of non-compensation (*0x*) or excessive compensation (*125x*), under the third model, *25x* would be divided among the 125 plaintiffs, with everyone receiving compensation for 1/5th of his loss. Under this model, someone who deserves full compensation is compensated for 1/5th of his loss, but people who do not deserve compensation will be similarly compensated. No plaintiff will be able to show entitlement to full compensation.Awarding partial damages to those who deserve full compensation will mean undercompensation, whereas those who deserve nothing will receive excessive compensation. The goal of compensation is only partially fulfilled; the same holds true for corrective justice. Importantly, some hold that if the damager pays for the extent of damages that he caused and the victim is compensated to the extent of his increased risk, the goals of corrective justice are met.[105] Even if this is not correct from the perspective of "classic" corrective justice, which postulates the need for the tortfeasor to correct and pay the one he harmed and not others, the goal has been achieved at least partially and approximately. Distributive justice is also satisfied to a greater degree than the previous model, and there is optimal deterrence.It appears, therefore, that the third model has many advantages. The solution takes into account various interests of affected parties and the public interest, which requires

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Cases, 24 B.C. ENVTL. AFF. L. REV. 625, 647 (1997); Fischer, *Tort Recovery*, *supra* note 6, at 619, 627-28; Rhee, *supra* note 31, at 170-71.

[105] This approach appears to be appropriate for market share liability as well, which is a form of probabilistic proportional determination in cases of mass torts involving multiple tortfeasors. This doctrine was first recognized in Sindell v. Abbott, 607 P.2d 924, 937-38 (1980). Subsequently, the doctrine was recognized in several additional cases but rejected in others. It is therefore difficult to assess whether it has taken hold throughout the U.S. *See* Jansen, *supra* note 6, at 285 (criticizing the market share liability solution, arguing that it makes tort law merely distributive and should therefore be a last resort, and even then implemented only through legislation). *Cf.* Glen O. Robinson, *Multiple Causation in Tort Law: Reflections on the* DES *Cases*, 68 VA. L. REV. 713 (1982).

that a person who endangers others but whose tort is incomplete still be sanctioned.

Despite its advantages, however, the model has serious problems, foremost among them proving the fraction of damage attributable to the defendant. How do court rulings and the literature handle these and other difficult issues? Among those who agree in principle with the model, there are differences of opinion regarding its method of operation and the best ways to overcome its problems. Talmudic law and contemporary tort law may agree on the outcome, but, as we argue in the following sub-section, they do not agree on the means by which to achieve that outcome.

B. *Talmudic Law: Compensation According to Probabilities or Compromise?*

1. Symmachus' Approach: A 50-50 Division ("They Must Divide Equally")

Does Talmudic law recognize compensation according to probabilities and acknowledge probabilistic causation? One might argue Talmudic law recognizes the idea of proportional, partial compensation, derived especially from Symmachus' approach, as recently stated by a justice on the Israeli Supreme Court. At the Further Hearing of the *Malul* case, some of the nine justices on the panel opined that in establishing a causal relationship between (proven) negligence and (proven) damages where a defendant is known to be theoretically capable of causing the damages and thus should have foreseen the damages, yet where it is not possible to prove what the process causing the damage was in practice, one can settle on probabilistic causation for the damage, assessed by statistical evidence or by estimate.[106] Two of the justices on the panel sought to ground their rulings in favor of compensation according to probabilities in Jewish law, following Symmachus' approach. Justice Miriam Naor said that:

> The exception of partial liability and compensation according to probabilities has roots in Jewish law as well. The opinion of Symmachus, although a minority opinion, about ruling on property that is under factual uncertainty, when it is clear that the uncertainty will never be resolved, is that it must be divided . . . . It follows that Jewish law supports the exception of partial liability as a basis for compensation according to probabilities, that this support is not limited to group situations, and that it is possible to apply it in individual cases as well [which is contrary to the majority opinion, which recognized the increased risk in serial or mass situations only]. It appears

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[106] This is the position that appears in the *Malul* judgment. *See* CA 7375/02 Carmel Hospital Haifa v. Malul, 60(1) PD 11 (2005). This position was rejected by the majority in the Further Hearing. *See* Further Hearing 4693/05 Carmel Hospital Haifa v. Malul (Aug. 29, 2010) (not yet published).

> that one of the policy considerations on which this position is based is the principle of fault and a preference for the innocent victim.[107]

We doubt that this statement is accurate and argue that although both Talmudic law (according to Symmachus' view) and modern theories of tort law favor a partial compensation model, there is a significant conceptual difference between the two. Even if the outcome (ie: the resultant legal rule) may seem similar, it stems from two different conceptual rationales. Talmudic law, even according to Symmachus, does not acknowledge compensation according to the probabilities model. Symmachus presented a rather different model that allowed a 50-50 division in cases of uncertain causation. This is unique and favors partial compensation but not based on compensation according to probabilities.

Several early Talmudic sources allowed the award of partial compensation based on a 50-50 division in cases of uncertain causation. In ancient days, when there was factual doubt, many rabbis were of the opinion that the parties should divide the money in question between themselves (although later sources adopted the "all or nothing" position of the Sages). According to these early sources, the plaintiff received half of the money even if he had not proven decisively that he was entitled to receive it. For example, we learn in the Mishnah that:

> If an ox [not known for goring] has gored a cow [that was with calf] and its [newly-born] calf is found [dead] nearby, and it is unknown whether the birth of the calf preceded the goring or followed it, half damages will be paid for [the injuries inflicted upon] the cow but [only] quarter damages will be paid for [the loss of] the calf.[108]

There is uncertain causation regarding the calf's death. If the cow gave birth before being gored by the ox and the death of the calf was not due to the goring, the owner of the ox should not be held liable for the death of the calf. But if the cow miscarried as a result of the goring, then the owner of the ox should be held liable for the harm to the calf. Because of the factual doubt, partial compensation is applied when determining damages. The owner of the ox must pay half damages for the harm to the cow, as is the case with traditional law for an ox that gored, although it was not known for goring. Additionally, the owner of the ox must pay a quarter of the damages for the death of the calf, since there is doubt as to whether the calf died as a result of the ox's goring. Liability under the law is for half the damages, and because of the uncertain causation, that half is divided in two. Note that partial compensation means that "they must divide equally" because when the victim-plaintiff receives only a portion of the damages, he effectively becomes partly responsible for the

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[107] Further Hearing 4693/05 § 138 (Naor, J.).

[108] MISHNAH, BAVA KAMA 5:1.

injury, given that he also bears a portion of the liability.[109] Indeed, most early Talmudic sources adopt Symmachus' approach,[110] although it later became a minority approach.

Symmachus' approach might mean compensation based on probabilities that defendant caused the harm. But the approach of Talmudic sources reflects another outcome. These sources are *not* consistent with the contemporary model discussed above in which defendant compensates plaintiff proportionally based on the probability that he caused the harm. All the examples from Mishnah[111] and from Symmachus deal only with situations where there are *two* parties and a 50-50 division.

The test case for Symmachus' approach will be the solution to cases involving more than two parties, or when the attributable fraction of each factor is not even, as with the premature birth or factory emissions examples. It seems that this is also the rule, in Symmachus' view, in the case of three parties, where liability is divided equally. The same concept applies in the case of the five people who placed their packages on a pack animal that survived, but after a sixth person placed his package on the animal it died. The ruling in the case was "If it is not known, they pay equally," each thus paying one sixth. One cannot find in any Talmudic source which deals with Symmachus' opinion, an indication that when each party's contribution to the damage is probability-weighted differentially, liability should be proportionally divided based on the probabilistic weight of each party's contribution, whether it is a tortuous factor or not. In fact, Symmachus does not indicate that partial compensation is based on the measure of probabilistic weight.Symmachus enunciated the principle that "Money, the ownership of which cannot be decided, has to be equally divided,"[112] using the Hebrew term *yachloku,* which literally

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[109] This is similar to the rationale for contributory fault in modern tort law. However, if the outcome of "they must divide equally" is due to contributory fault, then this is unrelated to uncertain causation, since it is a case of dividing the loss *after* the respective liability of the plaintiff and the defendant has been fully proven. The only question is how to divide the liability between them, with the plaintiff's liability resulting in a reduction due to his contributory fault. However, the passages from the Mishnah and Talmud mentioned above indicate Symmachus' ruling ("they must divide equally") also applies in cases of uncertain causation, with no contributory fault consideration.

[110] *See*, *e.g.*, MISHNAH, BAVA KAMA 8:4. The Talmud in Bava Kama 100b explains that this Mishnah follows the opinion of Symmachus, that in cases where ownership of money is undecided, it must be divided equally, while the Sages disagree with this view. A similar position is evident in additional Mishnah passages. *See*, *e.g.*, MISHNAH, BAVA METZIA 8:2. Here too the Talmud explains that Mishnah follows the opinion of Symmachus, who holds that in cases of money whose ownership is undecided, it must be divided equally. In MISHNAH, BAVA BATHRA 9:8, the apparent implication is that the School of Shammai adopted Symmachus' approach.

[111] *See* BAVA KAMA 8:4; BAVA METZIA 8:2; BAVA BATHRA 9:8.

[112] *See*, *e.g.*, MISHNAH, BAVA KAMA 46a.

means "they must divide equally." It is possible, therefore, that Symmachus intended to implement the principle only when there was a need to divide money in disputes equally between parties who could not reach an agreement, and in no other cases.If we accept this commentary, we understand that there is no real approach in Talmudic law for implementing probabilistic causation. The opinion of the Sages follows the first model of "all or nothing," and Symmachus'' approach, which appears to be probabilistic causation based on outcome in the case of the cow, is actually the application of another approach, and not probabilistic causation.

Justice Elyakim Rubinstein, who was on the panel of the Israeli Supreme Court in the Further Hearing of the *Malul* case, also referred to the opinion of Symmachus, as did Justice Naor, but Justice Rubinstein more accurately presented what one can infer, and more important, what one cannot infer from Symmachus:

> There is no indication here that in cases of inherent uncertainty, Halakhah Sages were prepared to rule about the presence of a causal link by way of a division of liability — and it appears that ruling of this type is not within the standard process of the law (although, as Justice Naor noted, the authority exists to impose a compromise). But all this seems to indicate that there may be special rules for reaching a decision in special cases; and the fact that under exceptional circumstances, determined in advance, a unique rule for decision making applies, is not foreign to the legal thought of Jewish law.[113]

In sum, Symmachus does not recognize the existence of a model of compensation according to probabilities in Talmudic law.

2. Symmachus' Approach and the Goals of Contemporary Tort Law

We have seen that Symmachus' approach is not a model of compensation according to probabilities, but rather a model of 50-50 division. But what is the rationale for the model, and can it be justified in terms of the goals of contemporary tort law? Or does Symmachus' approach fraw from other theories unique to Talmudic law?It should be stressed that sources of Talmudic law did not use the type of analysis presented used in the previous sub-section (ie: rationalizing the third model in light of the goals of contemporary tort law – specifically: distributive justice, corrective justice, and the provision of incentives and deterrence). Such an analysis identifies interests, policies and principles that were foreign to the thinking of the rabbis of centuries past, even if the rabbis faced cases similar to those we encounter today.

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[113] Further Hearing 4693/05 Carmel Hospital Haifa v. Malul (Aug. 29, 2010) § 11 (Rubinstein, J.) (not yet published).

Furthermore, there seems to be a difference between contemporary tort law and Talmudic law regarding the concept of tort liability. According to Steven Friedell:

> [T]ort law in the Talmud differs fundamentally from tort concepts to which American lawyers are accustomed. The American lawyer sees tort liability as arising mainly from intentional or negligent behavior or from certain types of special activities that warrant the imposition of strict liability. The basic headings of Talmudic tort law, Pit, Horn, Foot, Tooth, Fire, Pebbles, Man, seem quaint, although they are not without parallel in Anglo-American jurisprudence.[114]

Friedell describes accurately the fundamental difference between Talmudic and Anglo-American tort law. In contemporary tort law, the general rule is that the defendant is liable for harm caused by fault, and special allowance is made for cases of strict liability, in which the defendant pays even when no fault is proven. By contrast, liability in Talmudic law is not based exclusively, or even mostly, on fault. According to some scholars, liability in Talmudic law appears to be based on the fact that one owns an ox that gores, or one digs a pit that someone falls into, whether one is actually at fault or not, because these are specific cases for which one is liable according to the Torah.[115] Nevertheless, other sources and scholars support the assumption that Jewish law has a negligence regime.[116]

One way of rationalizing Symmachus' approach of 50-50 division in uncertain causation tort cases is to say that payment of half the damages is based on the concept of loss sharing. Contemporary Jewish law scholars presented a similar rationale when explaining that according to Talmudic law the owner of innocent oxen (*tam)* is liable only for half the damages.[117] For example, David Daube has suggested that in ox injury cases

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[114] Friedell, *Observations*, *supra* note 5, at 902 (criticizing the approach of SHALOM ALBECK, PESHER, DINE HA-NEZIKIN BA-TALMUD (GENERAL PRINCIPLES OF THE LAW OF TORT IN THE TALMUD) (1965) which attempts to show that concepts of negligence and foreseeability underlie all the rules of Jewish tort law). Albeck's efforts are often forced, and many scholars rejected his approach and argued that the concepts of negligence or foreseeability did not explain all Talmudic tort rules, some of which reflect the concept of strict liability. *See*, *e.g.*, Friedell, *Observations*, *supra* note 5,at 902-12; Haut, *supra* note 5, at 7-11; ZERACH WARHAFTIG, STUDIES IN JEWISH LAW 211-28 (1985) (Heb.).

[115] *See* Haut, *supra* note 5; Warhaftig, *supra* note 65.

[116] *See*, *e.g.*, ALBECK, *supra* note 43.

[117] This liability is expressed in *Exodus* 21:35: "And if one man's ox hurt another's that he die; then they shall sell the live ox, and divide the money of it; and the dead ox also they shall divide." The Bible imposes full liability on an ox owner only if he had formal notice that his ox had gored on previous occasions. *See Exodus* 21:36.

it is difficult, if not impossible, to know who was at fault.[118] Reuven Yaron used Daube's insight to explain that the defendant pays only half the damages because the law makes a crude attempt at loss sharing.[119] The "loss sharing" rationale for Symmachus' approach addresses only tort cases, but the fundamental dispute between the Sages and Symmachus on the issue of "money whose ownership is undecided" touches upon a range of legal fields (eg: torts, sales and loans, bailment law, inheritance law). There seems to be yet another general rationale for Symmachus' approach, which could explain its application in the legal fields mentioned above.

3. The 50-50 Division as a Compromise in Talmudic Law Compared with John E. Coons' Approach

In this sub-section we suggest a second general rationale for Symmachus' approach, which could explain its application in a variety of legal fields besides torts. Examining the rationale for Symmachus' view that 50-50 division compensation should be awarded in cases of uncertain causation, some of the leading rabbinical authorities of late argued that this view took into account considerations of appropriate conflict resolution methods used by the judge, namely that the division is legally effective because it is a compromise imposed on the parties.[120] Rabbinical courts, which rule according to Jewish law, have the authority to coerce the parties to compromise, where each party receives or pays half (or in case of more parties, each party receives or pays an equal share), so that each accepts half (or an equivalent proportion) rather than risk loss of the whole.[121]

Rationalizing Symmachus' approach in light of courts' authority to coerce parties to compromise might appear strange to a contemporary Western jurist. In today's legal environment, compromise is perceived as the result of an agreement reached freely between the parties rather than

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[118] David Daube, *Direct and Indirect Causation in Biblical Law*, 11 VETUS TESTAMENTUM 246, 259 (1961).

[119] REUVEN YARON, THE LAWS OF ESHNUNNA 193 (1969)*; see also* Friedell, *Observations*, *supra* note 5, at 908-12.

[120] *See* RABBI SHIMON SHKOP, SHA'AREI YOSHER (GATES OF HONESTY), pt. 5, chs. 1, 10; RABBI NAFTALI TROP, HIDUSHEI HAGRANAT (INNOVATIONS OF RABBI NAFTALI TROP), BAVA KAMA, ch. 136; *see also* Further Hearing 4693/05 Carmel Hospital Haifa v. Malul § 11 (Aug. 29, 2010) (not yet published) (Rubenstein, J.).

[121] The method of the Sages, on the other hand, which follows the "all or nothing" position of the first model, may be viewed as an unjust approach because in all cases one party loses everything. Symmachus' approach is likely to be perceived as more justified than that of the Sages, as Michael Barris suggests, assuming that the rationale underlying the division model is one-sided character of the rule that governs the burden of proof, which creates a zero-sum game, whereas "justice is not necessarily on the side of one party." *See* Michael Barris, Vision Versus Verity: Doubt and Skepticism in Maimonides' Jurisprudence 244 (2009) (Ph.D. thesis, Bar-Ilan University Ramat-Gan, Israel) (Heb.).

a coerced decision by the court. In Jewish law, the judge has the authority, in some cases, to force the parties into compromise. The judicial authority of coercion to compromise is a concept unique to Jewish law. Further, the concept of compromise (*p'shara*) has a wider meaning than what is usually implied by the English common-law term "compromise."[122] Itay E. Lipshits showed that in the Talmud, "compromise" carries two meanings. The first meaning is of dispute resolution as an alternative to the law.[123] In this sense, compromise requires the consent of the parties, and its purpose is to restore peace (*shalom*) and do justice (*tzedaka*). This meaning resembles more or less the modern meaning of the term. According to Jewish law, the preference for compromise in its first meaning, over judicial decisionmaking, is rooted in the fact that parties *agree* to a compromise.[124]

Additionally, there is fear that if the judge is left to reach a decision in accordance with Torah law, he may err as to the true intent of the Torah, as Rabbi Jacob Ben Asher, the Tur, one of the most prominent rabbis in Spain in the 14th century, wrote: "The judges must do all in their power to distance themselves from having to decide in accordance to Torah law, as the minds have greatly diminished." Thus the judges should prefer a compromise as a solution to a dispute before him.[125] Unlike contemporary Western law, which is generally assumed to be the product of human deliberation about the common good, Jewish law is a normative system in which adjudication is subject to religious commandments. The judge bears responsibility not only to the litigants standing before him but also to God, an allegiance which most contemporary Western judges do not recognize, at least explicitly.[126] As a result, rabbinical judges are often unwilling to assume responsibility for a ruling that may turn out to be mistaken.[127] In Hebrew, this reluctance to assume judicial responsibility to adjudicate in uncertain cases is called *yir'at hora'ah*, literally "fear of deciding questions of law."[128] The religious character of Jewish law dic-

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[122] *See* Itay E. Lipshits, 'P'shara' in Jewish Law, pt. 1 (July 2004) (Ph.D. thesis, Bar-Ilan University Ramat-Gan, Israel) (Heb.); Berachyahu Lifshitz, *Compromise,* in MISHPETEI ERETZ — JURIST, JURISDICTION & JURISPRUDENCE 137 (Mishpetei Erez Institute for Halacha & Law 2002) (Heb.); Haim Shapira, *The Debate Over Compromise and the Goals of the Judicial Process*, 26-27 DIN'E ISRAEL 183-228 (2009-2010).

[123] Lipshits*, supra* note 123.

[124] *See* Yuval Sinai, *Practice and Procedure*, *in* 16 ENCYCLOPAEDIA JUDAICA 434, 443 (2d ed. 2007).

[125] TUR HOSHEN MISHPAT 12:6.

[126] *See* Yuval Sinai, *The Religious Perspective of the Judge's Role in Talmudic Law*, 25 J.L. & RELIGION 357, 357-58 (2009-10) (discussing the different role judges in Jewish and Western legal systems).

[127] PINHAS SHIFMAN, DOUBTFUL KIDDUSHIN IN ISRAELI LAW 20 (1975) (Heb.).

[128] Several studies have discussed the role played by "fear of deciding" in various contexts within Jewish law. *See generally* Sinai, *supra* note 126, at 363; Pinhas

tates some of the considerations that warn against coercing judges to decide a case when they are uncertain what the Torah instructs.[129] Handing down judgment in accordance with a compromise removes this "fear of deciding," as the judge need not seek out the truth in the Torah.[130]

Jewish law also established another meaning of compromise for particular cases in which the court can coerce the parties to compromise. This is dispute resolution in which the law offers no solution and compromise is a category of adjudication.[131] This unique concept was rationalized by the Rosh, one of the most prominent rabbis active in Germany and Spain in the 14th century, in a long and highly instructive responsum that has significant implications for the laws of estimation.[132] The Rosh presented in his responsum a general argument:

> Because the case has come before the judge and he is unable to clarify [the factual basis] of matter, he cannot withdraw from the case and leave the litigants to quarrel with one another. As the Scripture says, "render in your gates judgments that are true and make peace" [Zech. 8:16], for through justice there is peace in the world, and therefore the judge was invested with the power to judge and do whatever he wishes even without proper proof and evidence, so as to create peace in the world.

In the final paragraph of his responsum, the Rosh sums up his position:

> Such is my opinion, and I have presented it at length, to make it known that no judge is empowered or permitted to leave the case undecided, but should render final and complete judgment to impose peace on the world. It was for this that the rabbis permitted the

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Shifman, *The Doubt in Halakhah and in Law*, *in* 1 SHENATON HA-MISHPAT HA-IVRI 328 (1974) (Heb.).

[129] Fear of deciding is not unique to the Halakhah, and it is characteristic of other religious laws as well. *See* SHIFMAN, *supra* note 127, at 30-31 (discussing Islamic and Canon law systems).

[130] Nevertheless, a judge is not at liberty to suggest an arbitrary compromise. Even the suggested compromise must reflect the law, and a mechanical compromise of a 50-50 division is invalid. *See* BAVA BATHRA 132b; RASHI, BAVA METZIA 80a. Note further that according to the Halakhah, as long as the proceedings have not ended, the court may — and indeed must — suggest that the parties agree to a compromise. *See* SEFER ME'IRAT EINAYIM ON SHULCHAN ARUCH, HOSHEN MISHPAT 6:9.

[131] Lipshits, *supra* note 123, at 1. One halakhic authority, a North African rabbi in the 16th century, Radbaz, commented in a *responsum* that the best way of adjudicating is to divide the money under dispute by a court decision that strikes a compromise between the litigants, giving each one of them partial, not necessarily 50-50, compensation. RESPONSA RADBAZ 1:99.

[132] RESPONSA ROSH 107:6; *see also* Yuval Sinai, *Judicial Authority of Fraudulent-Claim Cases (Din Merume)*, 17 JEWISH L. ANN. 209, 250-54 (2007) (analyzing this responsum at length).

> judge to adjudicate in accordance with his own discretion whenever the matter cannot be determined through evidence and testimony. At times this depends on estimation, at times it is in accordance with what the judge can see without explanation or proof and without estimation, *and at times by way of compromise.*

According to the Rosh, a compromise as a way of adjudication (without the consent of the parties) is desirable over other forms of adjudication only "[whenever] the matter cannot be determined through evidence and testimony." In such cases, when the facts are uncertain, the judge cannot leave the case undecided and therefore renders a judgment of compromise. The Rosh's view was accepted by Halakhic codifiers.[133] The concept of adjudicating by way of compromise whenever the matter cannot be determined through evidence and testimony can serve as a reasonable rationale for Symmachus' view that partial compensation should be awarded in cases of uncertain causation or other factual uncertainty.

A quite similar approach is found in contemporary legal literature. This approach can provide further insight into Symmachus' view. In a discussion of the shortcomings of the "all-or-nothing" or "winner-take-all" models of adjudication, John E. Coons argues for more extensive use of the alternative of a judicially imposed compromise, such as an equal division (a 50-50 split) of rights and duties between plaintiff and defendant.[134] Coons' approach is a voice crying in the wilderness, and it seems to not have been accepted by contemporary tort law scholars and jurists. As he himself notes: "Such an approach to factual dilemmas is, as far as I know, without support in Anglo-American law."[135] Nevertheless, his observations about imposed compromises in situations of doubt received unexpected support from Symmachus, though one can imagine that Coons likely did not rely on Jewish law sources. Conversely, Coons' insight can expand our understanding of Symmachus' principle that "Money, the ownership of which cannot be decided, has to be equally divided." Coons argues that "where judgment for one party in a civil case at law can be based upon no greater probability of factual accuracy than its opposite, and where no reason of policy intervenes, the court should divide between the parties in equal quantitative parts the rights and/or the duties at issue."[136] He argues further:

> The justification for doubt-compromise in cases of factual indeterminacy lies on the principle of equality before the law. Insofar as men ought to be treated by the law without unnecessary discrimination, the imposition of a burden of persuasion on either party raises

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[133] *See* SHULHAN ARUCH, HOSHEN MISHPAT 12:5.

[134] John E. Coons, *Approaches to Court Imposed Compromise — the Uses of Doubt and Reason*, 58 NW. U. L. REV. 750, 752-53 (1963-64).

[135] *Id.* at 758.

[136] *Id.* at 757.

> an issue of partiality. Why either party without substantial reason ought to bear a risk of judicial inaction is by no means clear. If the substance plaintiff and defendant have asserted equally probable versions of the facts, and if no issue of overriding policy intrudes, the impulse to judicially impose compromise should be strong indeed. What excuse exists for awarding judgment to one party? In cases of factual impasse where this question is left unanswered — where no substitute rationale is offered — the all-or-nothing judgment appears an arbitrary preference of one litigant over another.[137]

Coons proposes imposing partial, proportional liability in cases of increased risk or lost chance only when there is a balanced doubt, meaning proof is close to 50% at the end of trial.[138] But the question arises: if a 50-50 split is conceivable, why not 60-40 or some other proportion? Coons' response is that:

> Any split other than fifty-fifty can only be based upon a sufficiency of knowledge — a condition absent by hypothesis in the factual problems under discussion. As long as we confine our attention to instances of balanced probability, any division other than fifty-fifty would discriminate against one party. In other words, it would offend the equality principle.[139]

4. Jewish Law in Practice

We have seen[140] that later halakhic authorities reduced the gap between Symmachus' and of the Sages' viewpoints. In practice, the Sages' approach does not take the radical position of "all or nothing" in every case of uncertain causation. Halakhic authorities and Jewish legal decisors were divided on the question of whether the Sages' or Symmachus' view was normative judicial decisionmaking. The majority followed the Sages' view that "he who takes from his friend bears the burden of proof,"[141] with a minority following Symmachus' 50-50 division approach.[142]

The scope of Symmachus' approach — instances in which it is necessary to rule that money whose ownership is undecided should be divided

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[137] *Id*. at 757-58.

[138] *Id*. at 777.

[139] *Id*. at 759.

[140] *See infra* § II(B).

[141] *See*, *e.g.*, TOSAFOT ON BAVA KAMA 46a, sv. Hamotzi; RABBI ISAAC ALFASI & RABBENU ASHER ON BAVA KAMA, ch. 5; MAIMONIDES, MISHNEH TORAH, *Laws of Damage by Property*, 9:2; TUR SHULCHAN ARUCH, HOSHEN MISHPAT 223:1.

[142] Moreover, as we have seen in II(B), even according to the majority of Jewish legal authorities, who in principle adopt the Sages' approach as the basic law, there are cases in which considerations of judicial policy require them to award compensation divided 50-50 ("they must divide equally"), according to Symmachus' view.

50-50 between the plaintiff and defendant — has been subject to various limitations. Jewish legal authorities have ruled Symmachus' approach does not apply in all cases because implantation in every case would mean anyone could claim something that does not belong to him, with the true owner not always be able to provide sufficient proof that the item belongs to him, causing the owner to lose half its value.[143] Many rabbis who interpreted Symmachus' approach were concerned that the courts would be flooded with false claims. This concern led to the limitation accepted by most Jewish legal authorities that Symmachus' approach applies only when both parties have some connection or association with the money of questionable ownership.[144] Another related limitation is that the rule applies only when the court finds that there is an objective or factual doubt in the matter.[145] An example that demonstrates this second limitation can be found in the Mishnah, in the case of the ox and the cow mentioned *supra*.[146] Doubt touches on objective, factual reality, even if the parties have not presented their arguments to a court.[147]

It seems that, according to Symmachus, compensation divided 50-50 does not rely exclusively on considerations of adjudication and appropriate methods of dispute resolution (that is, the division is legally effective because it is a compromise imposed on the parties), although, as noted *supra*, these considerations support his view. His approach relies on a

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[143] *See*, *e.g.*, TOSAFOT ON BAVA KAMA 35b, *sv. Zot omeret*. Other Rishonim followed this approach in their commentaries on that passage. *See*, *e.g.*, RABBI SHLOMO BEN ADERET ON BAVA KAMA 35b; *see also* 9 ENCYCLOPAEDIA TALMUDIT 452-55 (noting that "[h]e who takes from his friend bears the burden of proof" and presenting the limits of Symmachus' approach in the view of the Rishonim and Jewish legal decisors); 14 ENCYCLOPAEDIA TALMUDIT 84-90 (applying the same principle to possession of money).

[144] In Talmudic terminology, *derara demamona* ("money at stake"). The Aramaic term *derara demamona* has several meanings, but here it means a connection with the money, so that even without their arguments one would have a claim on the other, and the doubt arises of itself in the mind of the court. For a detailed survey see 7 ENCYCLOPAEDIA TALMUDIT 733-37 ("Money at stake"); 24 ENCYCLOPAEDIA TALMUDIT 2-11 ("They must divide equally").

[145] *See* PISKEI RID (RULINGS OF RABBI ISAIAH OF TRANI) ON BAVA BATHRA157a.

[146] MISHNAH, BAVA KAMA 5:1. *See supra* text accompanying note 109.

[147] A similar concept is found in another case mentioned *supra*, that of the ox pursuing another ox, where there is doubt as to whether the second ox was harmed by the first, with this doubt existing even in the absence of actual argument on the matter. MISHNAH , Bava Kama 3:11. The accepted view of many rabbis is that Symmachus holds that money whose ownership is undecided "must be divided equally" only in cases such as this one. S*ee* 24 ENCYCLOPAEDIA TALMUDIT 2-11. But when the doubt is the result of parties' arguments, and without these arguments the court would have no factual doubt because there would be no objective doubt about facts, all Jewish legal scholars, including Symmachus, would concur that partial compensation is not to be awarded and the case must be considered according to the general rule of "he who takes from his friend bears the burden of proof."

concrete probabilistic-factual test for cases in which it is clear that "the doubt can never be resolved, and the facts of the case will never come to light."[148] As explained here, Symmachus' approach supports the argument that whenever it is impossible to prove whether a potential tortfeasor actually caused the harm, we cannot rule out the use of the 50-50 division, nor can we ignore the increased risk doctrine that provides a remedy for the victims. Why? Because we may never be able to approximate the exact proportion of liability attributable to the defendant.

In sum, to justify adopting the 50-50 division under this approach, courts must ensure that the requirement of inherent uncertain causation is met, which happens only when the court finds an objective or factual doubt in the matter.

Symmachus' approach has been further qualified by some scholars[149] who argue that in the case of the ox that gored the cow, "they must divide equally" applies only when the offspring was clearly born dead and there was a high probability that the death was the result of the goring. According to this perspective, when it is not clear whether the calf was already dead when born, even under Symmachus' view the owner of the ox is exempted from payment and the respective owners will not "divide equally."[150] One commentator[151] argued that according to Symmachus not every case of increased risk justifies partial compensation, even in cases of uncertain causation in which "the doubt can never be resolved," as in the previous example. There should be partial compensation, according to Symmachus, only when the plaintiff's argument has a relatively high degree of probability. The rabbis did not indicate what percentage is "high probability," but it is surely not less than 50%.

C. *Conclusion*

Superficial comparison between Symmachus' approach and the contemporary tort law approach of compensation according to the probabilistic causation model is liable to create the mistaken impression that the two are similar approaches awarding partial compensation in cases of uncertain causation. But the rationale of each is entirely different. The modern approach can be explained in light of the objectives of contemporary tort law, whereas the rationale underlying Symmachus' approach is unique to Talmudic law (whether the issue is a compromise imposed by

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148 ALBECK, HA'RAYAOT, *supra* note 43, at 334-35.

149 *See* PORAT & STEIN, *supra* note 7, at 160-206.

150 At the end of the third chapter of Bava Kama in the Mishnah, where there is doubt as to whether one had taken a *sela*'s worth, it is stated that he who takes from his friend bears the burden of proof. Here, too, Symmachus would concur because there is doubt as to whether the cow died as a result of the goring.

151 RABBI MENACHEM MEIRI, BEIT HABECHIRAH (CHOSEN HOUSE), BAVA KAMA 35a, 111 (Kalman Schlesinger ed., 1963). Rabbi Avraham Ben David of Posquieres wrote in a similar vein and is quoted in SHITA MEKUBETZET, *supra* note 88.

the court or some other rationale). Note that we did not find percentage other than 50-50 in the Talmudic sources, and that Symmachus and other Sages did not adopt the model of compensation according to the probabilistic causation model.

V. Shifting the Burden of Persuasion

A. *Contemporary Tort Law*

Judges and scholars have suggested yet another solution – shifting the burden of persuasion to the defendant in cases of uncertain causation, in which the situation is vague and it is difficult to point at an exact fraction attributable to the defendant, but it is clear by a preponderance of the evidence that the defendant acted ortiously . According to this model, the defendant must prove he is not at all liable for the tort, or that he is not liable for the percentages for which he is being sued.[152] This approach may be related to the evidential damage doctrine, in which the burden of persuasion is shifted to the defendant if his deeds or omissions destroyed the evidence and prevented the plaintiff from being able to prove his case.[153] The burden may also be shifted by applying the rule of *res ipsa loquitur*.[154] Some suggest the burden should be shifting only when the increased risk is not negligible.[155]

In England, a school of thought supports shifting the burden of persuasion to the defendant, but this view is not reflected in current court decisions.[156] Scholars in the U.S. have also reasoned that this solution is

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[152] This has been done, for example, in Israel. *See* Justice Eliyahu Matza in an *obiter dictum* in para. 6 of his judgment in Further Civil Hearings 6714/01, Health Fund of the General Federation of Labor in Israel v. Shai Shimon Mordechai (a Minor), Tak-El 2003(2) 370 (2003) [hereinafter Shimon Mordechai] (speaking of implementing the solution only in "appropriate cases," without providing further detailing); C.A. 9656/03, Estate of the Late Marciano v. Dr. Zinger, Tak-El 2005(2) 125 (2005); C.A. 1639/01, 2246/01 Kibbutz Ma'ayan Tzvi v. Krishov, PD 58(5) 215 (2004) (Levi, J., dissenting).

[153] *See* Porat & Stein, *supra* note 7, at 160-206 (also proposing that evidentiary damage be considered as damage, and that courts should only be able to award damages on these grounds when the defendant destroys plaintiff's evidence, preventing him from proving his claim). This proposal was not implemented and thus remains in the theoretical realm. This alternative proposal of shifting the burden of persuasion in such cases has been accepted in some countries, including Israel.

[154] *See* Shimon Mordechai, (Matza, J.). For more information on *res ipsa loquitur see generally* Patrick S. Atiyah, *Res Ipsa Loquitur in England and Australia,* 35 Mod. L. Rev. 337 (1972); John McDonough, *Res Ipsa Loquitur*, 1 Hastings L.J. 28 (1949-50); Mark Shain, *Res Ipsa Loquitur* 17 S. Cal. L. Rev. 187 (1943-44).

[155] *See*, *e.g.*, Shimon Mordechai, *supra* note 153 (Matza, J.).

[156] *See* Mallett v. McMonagle [1970] A.C. 166 (H.L.) (appeal taken from N. Ir.); Stephen M. Waddams, *The Valuation of Chances*, 30 Can. Bus. L.J. 86, 87 (1998). In *McGhee*, the plaintiff argued his exposure in the workplace to dust at a high temperature caused him to develop a skin disease. Judge Wilberforce opined the

appropriate and should be used.[157] Echoes of this approach are found in American case law.[158]

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claim of increased risk by the employer was sufficient to transfer the burden of persuasion to defendant. McGhee v. National Coal Board [1973] 1 W.L.R. 1 (H.L.). But this doctrine was reversed in *Wilsher.* Wilsher v. Essex Essex Area Health Auth., [1988] 1 A.C. 1074, 1088 (H.L.) (appeal taken from Q.B.). For a view that the *McGhee* case was not at all a case of lost chance, *see* Jansen, *supra* note 6, at 275 (arguing this was a case of lost chance only if the burden was transferred to the defendants, and defendants were unable to prove that it was not their breach of duty that destroyed the plaintiff's chances. *See id.* at 280, n.49. Jansen here was faithful to his approach, under which lost chance is recognized only when all chances have been destroyed, and not in all cases of reduced chance).

[157] *See, e.g.*, Joseph H. King, Jr., *Causation, Valuation, and Chance in Personal Injury Torts Involving Preexisting Conditions and Future Consequences*, 90 YALE L.J. 1353, 1378 (1981). The principle is more popular in joint and mass torts, when the plaintiff can prove that a group of people acted negligently toward him in a manner that could have caused injury, and that he was injured by one of these actors. The burden then passes to each defendant, who must prove that he was not responsible. *See* Summers v. Tice, 199 P.2d 1 (Cal. 1948) (a collective liability case, in which the plaintiff did not need to prove which of two people shooting negligently in his direction actually hit him)*;* RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM § 26 cmt. n, reporters' note (Proposed Final Draft No. 1, 2005); DOBBS, *supra* note 12, at 434, § 178*; see also* Wright, *supra* note 31 (discussing the rationale for such a principle); Knutsen, *supra* note 76, at 263 (noting that shifting the burden in those cases is more justified than in general cases of uncertain causation because the defendant or defendants are assumed to have better access to the evidence of causation).

[158] *See, e.g.*, Ybarra v. Spangard, 154 P.2d 687 (Cal. 1944) (significantly extending the principle to create a rebuttable presumption of negligence on the part of each of a staff of doctors and nurses conducting a surgery, holding them jointly and severally liable for the damages, as not all were employed by the hospital in question); Haft v. Lone Palm Hotel, 478 P.2d 465 (Cal. 1970) (holding the owners of a hotel liable for the drowning of a father and son in a hotel pool where no signs or lifeguards were posted, unless defendants could prove that their negligence did not cause the deaths). While the decision in *Haft* was based on *Ybarra*, the difference is significant because in *Haft*, the conduct of the hotel was not a direct cause of the inability of the plaintiff to provide proof of causation. Rather, the court reasoned that had there not been negligence, there would have been only one possible factor, and causation would have been easy to determine. Nor was it a case, like *Summers*, in which the defendants could be supposed to have better information regarding causation. *See Summers*, 199 P.2d 1, at 4. But in *Rutherford v. Owens-Illinois Inc.*, the California Supreme Court rejected the *Haft* precedent and did not order reversal of the burden of proof in cases of cancer that may have been caused by asbestos. 941 P.2d 1203 (Cal. 1997). For more information, *see* Knutsen, *supra* note 76, at 263 (expanding on this case law); Wright, *supra* note 31, at 1334-42 (suggesting that the phrasing of the Third Restatement may hint at a more favorable approach to this doctrine).

B. *Jewish law*

Some Jewish legal sources also shift the burden of persuasion in cases of uncertain causation. Judicial policy considerations can lead to shifting the burden of persuasion onto the shoulders of one party, usually the defendant (although that party is not the one that "takes from his friend [and] bears the burden of proof").[159] One of the leading halakhic authorities indicated that when the breach of a duty of care is clear, and there is an injury, but the causal connection between the two is uncertain, as a matter of judicial policy, "since there was neglect at the start, as long as we can argue that the final injury due to force majeure was due to that neglect, the defendant is liable. Defendant remains liable until it is clearly demonstrated that the force majeure was not due to that neglect."[160] Therefore, in Jewish law there is sometimes justification for shifting the burden of persuasion in cases of uncertain causation.

C. *Conclusion*

Shifting the burden of persuasion — a solution that is similar in Jewish and contemporary tort law — seems consistent with the goals of tort law, and more so than the first two models (all or nothing and full compensation). The burden of persuasion is already shifted in other cases, consistent with existing court rulings, as in cases of evidential damage or *res ipsa loquitur*. Cases of uncertain causation are also suitable candidates for this model, a solution found both in contemporary and Jewish laws.

At the same time, the model must contend with the danger of evidentiary problems. Uncertain causation is present in many cases, and it is possible that ultimately the model will cease being an exception and become a common tool that will supersede the traditional and fundamentally appropriate solution of "he who takes from his friend bears the burden of proof," thus acting contrary to justice.[161] Burden shifting can cause overdeterrence and may provide an incentive against involvement in socially desirable activities, because in many cases it will be impossible for the defendant to prove force majeure causation, effectively resulting in acceptance of the plaintiff's claim without real proof. Because in many cases the defendant cannot prove that he is not a cause of harm, the final result could resemble the problematic second model of full compensation. Shifting the burden of persuasion must therefore not be viewed as the only solution to the problem, although it should be adopted in certain cases.

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[159] *See* Sinai, *supra* note 40, at 146-50 (giving various examples of this rule).

[160] HELLER, *supra* note 53, at 340:4. A similar conclusion may be derived from RABBI AVRAHAM YESHAYAHU KARELITZ (HAZON ISH), BAVA KAMA 7:7.

[161] *Cf.* Michael Abramowicz, *A Compromise Approach to Compromise Verdicts*, 89 CALIF. L. REV. 231, 281-86 (2001).

VI. Conclusion

We have presented various models for cases of increased risk and found that over the centuries, scholars of Jewish law faced the same issues that confront contemporary tort law, both in theory and practice. It seems, however, most of the models presented in this article were employed differently in Talmudic law.

There is a significant conceptual difference between Talmudic and contemporary law regarding both the theory of torts and the goals of adjudication in some of the models discussed. This is especially true regarding probabilistic causation, in which at first glance the modern outcome seems to be the same as Talmudic law under Symmachus' approach. However, a closer look at Jewish law sources, commentaries and developments shows that the concept is different from that of contemporary tort law. The Talmudic law approach serves more as a 50-50 compromise that the parties are forced to accept than as true compensation according to probabilities. Even in the "all or nothing" model, where contemporary tort law and the Talmudic law of the Sages seem congruous in their approach, a close look shows that they are in fact different.

We also demonstrated the importance of using an appropriate comparative methodology that accounts for both function and context. It is not reasonable to compare the legal rules of tort liability under uncertain causation in contemporary tort law with the rules in Talmudic tort law without understanding how the latter function under the unique system of Jewish law and without also situating each in their respective legal, cultural and religious context.

Considering Jewish law as an operative system, we stressed the distinction between statements made in the context of *theoretical Halakhah*, like the two approaches in the Talmud presented by Symmachus and the Sages, and the implications of *practical rulings* written by the later halakhic authorities in legal codes, responsa literature and commentaries. A careful examination of later halakhic literature revealed that the gap between the approaches of Symmachus and the Sages has been reduced over time. The approach of the Sages was interpreted as being closer to the approach of Symmachus. In practice, even the Sages' approach does not take the radical position of "all or nothing" in every case of uncertain causation, and when policy considerations require it, partial compensation of 50-50 is awarded in cases of uncertain causation. At the same time, many later halakhic authorities that interpreted Symmachus' approach were concerned with courts being flooded with false claims. This placed some limitations on the application of Symmachus' approach, namely ensuring the requirement of inherent uncertain causation is satisfied to justify adopting the 50-50 solution. Consequently, some halakhic authorities insist that this form applies only when the court finds there is an objective or factual doubt in the matter.

Though it may appear Jewish law has been stagnant for thousands of years, it has in fact continued to develop and advance over the years. One may say that qualifications to the methods of the Sages and of Symmachus suggest a balanced legal approach that, with proper adjustment, can also suit contemporary needs without assuming extreme stands in any of the solutions; but this topic is beyond the scope of the article. At the same time, the discussion reveals the nature of Talmudic law, which adapts its solutions to time and place and does not encourage extreme solutions, so that even solutions that appear entirely contradictory can change orientation and approach each other, although they may never actually meet.

With respect to the cultural and religious context, we have seen the significance of distinguishing between a contemporary secular legal system and a religious one. Unlike contemporary law, which is generally assumed to be the product of human deliberation regarding the common good, Talmudic law is a normative system in which adjudication is subject to religious commandments. The cultural and religious context of Talmudic law is reflected in its unique concepts and legal reasoning described in the present article, such as the punitive tendency of Talmudic tort law, especially in cases of bodily harm caused by another person. It is also seen in the distinction that Talmudic law makes between damage caused by a person himself and his property in cases of compromise as the rationale for a 50-50 division awarded in cases of uncertain causation or other factual uncertainty. One must assume that more precise and careful comparative analysis of Talmudic law and contemporary Western legal systems would have prevented the Israeli judges in the Further Hearing of the Supreme Court[162] from reaching the conclusion (mistaken, in our opinion) that there is compensation according to probabilities in Talmudic law.

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[162] Further Hearing 4693/05 Carmel Hospital, Haifa v. Malul (Aug. 29, 2010) (not yet published).