

IS RISK A HARM?

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INTRODUCTION

A person drives at breakneck speed down a small residential street, risking the lives of children playing. A doctor performs a dangerous operation under the influence of alcohol, imposing a significant risk of harming the patient. A sleep-deprived commercial pilot flies a plane full of passengers, thereby increasing the risk of an accident. In such cases, if the risk the agent creates eventuates, he may be liable for damages or subject to punishment, assuming that he has no legal justification for imposing the risk on others. But how should we think of the situation if the feared result does not eventuate? Should the actor who wrongfully endangers those around him without ultimately harming them be liable or punishable for the unjustified risk he creates?

Some would answer affirmatively, on the grounds that the driver, the doctor, and the pilot are as blameworthy for their wrongful behavior as they would be if the risk they created resulted in actual injury. They would say that an actor's blameworthiness is a function of what he takes himself to be doing when he acts, rather than of the resulting state of affairs his acts produce.¹ According to this argument, two individuals who impose precisely the same unjustified risk of harm are in equivalent moral positions, even if one ends up causing a person's death and the other does not. The explanation offered for this is that the difference between them is entirely a matter of luck. And, the explanation continues, since human beings are responsible only for the

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¹ For arguments defending this view in criminal law, see Sanford H. Kadish, *Foreword: The Criminal Law and the Luck of the Draw*, 84 J. CRIM. L. & CRIMINOLOGY 679, 684-95 (1994); Stephen J. Morse, *Guiding Goodness* 44-81 (2002) (unpublished manuscript, on file with author). For a similar approach in the field of torts, see ERNEST J. WEINRIB, *THE IDEA OF PRIVATE LAW* 153-58 (1995); Jeremy Waldron, *Moments of Carelessness and Massive Loss*, in *PHILOSOPHICAL FOUNDATIONS OF TORT LAW* 387, 389-92 (David G. Owen ed., 1995).

things they control, and since luck's effects are beyond their control, actors who make the same choices, but produce different results, are morally equivalent.²

Whatever the merits of this suggestion in the moral arena, its significance for the law is doubtful.³ For blameworthiness plays a more minor role in judgments of legal responsibility than the proponents of the foregoing account would countenance. In general there is no compensation for blameworthy conduct that produces no damages.⁴ Tort law does require the defendant's conduct to have been "wrongful," meaning that the defendant must have breached a duty to the plaintiff. But the duties in question need not be moral in nature, and thus we cannot assume that the wrongful actor is also a morally blameworthy actor. And in criminal law, where moral wrongdoing is obviously of greater significance than it is in tort law, blameworthiness is neither necessary nor sufficient for criminal liability.⁵ In both tort and criminal law, then, blameworthiness is of questionable importance for determining liability.

There is, however, a different concept that is arguably of greater importance in both areas: the concept of harm. While both tort and criminal law recognize that there are harms that should not generate liability, harm appears to be at least a *necessary* condition for liability in both areas.⁶ In tort, there can be no damages if no one has been harmed, since there is no basis for a civil plaintiff to sue a defendant for wrongdoing alone.⁷ In criminal law the point arguably holds as

² For an argument against this position, see Leo Katz, *Why the Successful Assassin Is More Wicked Than the Unsuccessful One*, 88 CAL. L. REV. 791, 794-95 (2000).

³ The position, however, has never struck me as defensible in moral philosophy either, as it seems to rest on a confusion between act evaluation and agent evaluation. See Claire Finkelstein, *The Irrelevance of the Intended to Prima Facie Culpability: Comment on Moore*, 76 B.U. L. REV. 335, 336 (1996) (arguing that judgments of permissibility focus on acts, not agents).

⁴ See, e.g., WILLIAM L. PROSSER & W. PAGE KEETON, PROSSER AND KEETON ON THE LAW OF TORTS § 30 (5th ed. 1984) (stating that the fourth element of a negligence cause of action is "actual loss or damage resulting to the interests of another").

⁵ That is, not all morally blameworthy conduct, such as lying (not under oath) or making promises one has no intention of keeping, is punishable. And some conduct, such as failing to comply with various registration requirements, is subject to punishment without being intrinsically blameworthy.

⁶ See Claire Finkelstein, *Positivism and the Notion of an Offense*, 88 CAL. L. REV. 335, 375-82 (2000) (arguing that criminal punishment is focused on harm creation rather than on blameworthiness).

⁷ See, e.g., RESTATEMENT (SECOND) OF TORTS § 902 cmt. a ("Damages flow from injury."); see also John C.P. Goldberg & Benjamin Zipursky, *Unrealized Torts*, 88 VA. L. REV. 1625, 1650 (2002) ("An inchoate wrong does not generate tort liability.").

well, despite the existence of a class of so-called "victimless crimes," which appear to prohibit conduct on the basis of pure moral wrongdoing. But the most defensible instances of victimless crimes are ones in which someone is in danger of suffering either harm or exploitation, despite the fact that he has consented to the activity in question.⁸

Given the importance of harm in civil and criminal law, we might ask a different question than the one about wrongdoing on which commentators normally focus: *Is the imposition of a risk a harm to the person on whom it is inflicted?* In this Article, I attempt to defend an affirmative answer to this question. While some legal scholars have found this position intuitively plausible,⁹ none has to my knowledge attempted to defend it in any detail. My argument does not, by itself, entail a position on whether defendants who expose others to unjustified risks should be held liable or punished for doing so.¹⁰ To say that

⁸ A justification for forbidding prostitution, for example, is that it exploits women who consent to have sex for money only because they are in desperate economic circumstances. Admittedly, victimless crimes prohibiting consensual sexual activity among homosexual adults, like the Georgia statute prohibiting sodomy in *Bowers v. Hardwick*, 478 U.S. 186, 188 (1986), do not particularly display a concern with exploitation. Their justification purportedly rests with the moral wrongdoing of the conduct they forbid. But as such, they would appear to be a more questionable use of state power.

The criminal law's overwhelming concern with harm is underlined by the fact that consent is not a defense to homicide offenses. See, e.g., *Commonwealth v. Atencio*, 189 N.E.2d 223, 225 (Mass. 1963) (affirming conviction for manslaughter for the "concerted action and cooperation of the defendants" in causing death). But see *Commonwealth v. Root*, 170 A.2d 310, 314 (Pa. 1961) (reversing manslaughter conviction of a defendant driver in a fatal drag race). Presumably this is because the law thinks that a person is harmed by being killed, whether or not he consented to the activity that caused his death.

⁹ See Goldberg & Zipursky, *supra* note 7, at 1651 ("[W]e assume that exposure to increased risk can be regarded as in and of itself a loss of welfare to the person(s) placed at heightened risk. Whether correct or incorrect, this assumption strikes many as intuitive.").

¹⁰ Some commentators argue that there should be compensation for exposure to risk or for lost chance of benefit, but advocates of this position cannot be assumed to think that a risk of harm is itself a harm, unless they also argue that compensation is appropriate only for harm. Such commentators include WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF TORT LAW* 256-72 (1987); Joseph H. King, Jr., *Causation, Valuation, and Chance in Personal Injury Torts Involving Preexisting Conditions and Future Consequences*, 90 YALE L.J. 1353, 1354 (1981); Glen O. Robinson, *Probabilistic Causation and Compensation for Tortious Risk*, 14 J. LEGAL STUD. 779, 783 (1985); Richard W. Wright, *Causation in Tort Law*, 73 CAL. L. REV. 1735, 1813-26 (1985). For a particularly good debate on this topic, see Christopher H. Schroeder, *Corrective Justice and Liability for Increasing Risks*, 37 UCLA L. REV. 439, 442 (1990); Kenneth W. Simons, *Corrective Justice and Liability for Risk-Creation: A Comment*, 38 UCLA L. REV. 113 (1990); Christopher H. Schroeder, *Corrective Justice, Liability for Risks, and Tort Law*, 38 UCLA L. REV. 143, 160 (1990).

risk is a harm is not to suggest that it is a harm the law will countenance—that would be a further claim.¹¹ It does, however, suggest that it would not be incoherent for the law to mandate compensation or punishment for mere risk infliction, assuming, as I suggested above, that harm is a necessary condition for liability.

The heart of my argument is that agents have a legitimate interest in avoiding unwanted risks.¹² A person who inflicts a risk of harm on another damages that interest, thus lowering the victim's baseline welfare. This account distinguishes between risk-based harm, which I call "risk harm," and ordinary, tangible harm, which I call "outcome harm." I claim that risk harm is a form of harm that is independent of outcome harm, on the grounds that minimizing one's risk exposure is an element of an agent's basic welfare. "Real" harm, in other words, is not limited to outcome harm.

As a corollary to my argument for the existence of risk harm, I also argue that a chance of benefit is itself a benefit. And I distinguish the existence of what we might call "chance benefit" from "outcome benefit" by analogy to risk harm and outcome harm. I refer to my claims about the notions of harm and benefit as the "Risk Harm" and the "Chance Benefit" Theses respectively. In garnering support for my approach to harm, I draw freely on the benefit side when the intuitions in support of the thesis seem stronger. That is, I treat support for the general approach to risk and chance as available either from the harm or from the benefit side. I do not see any basis for thinking risk and chance would be any different with regard to the question at issue.

In Part I, I attempt to make the intuitive case for the Risk Harm Thesis. I also address some important difficulties with the idea, and consider the shape it must take in order to meet those difficulties. In Part II, I consider the law's treatment of compensation and punish-

¹¹ Goldberg and Zipursky argue compellingly that the law should not compensate for what they call "unrealized torts." Goldberg & Zipursky, *supra* note 7. Even they allow, however, that "a heightened risk of physical injury can constitute a loss of welfare," and that it is therefore a harm. They suggest, in other words, that exposure to risk is a "non-cognizable harm." *Id.* at 1634. They do not, however, seek to defend the latter claim. Other tort scholars have also defended the position that tort law requires wrongdoing that has "materialized." See Heidi M. Hurd, *The Deontology of Negligence*, 76 B.U. L. REV. 249, 262-65 (1996) (defending the view that "a defendant can not be held liable in tort for risking harm; she must in fact and proximately cause the harm").

¹² They often consent to risks, of course, because the expected benefits from the risky activity outweigh the expected costs. In such cases, their interest in being free from risk is outweighed by their other interests.

ment for risk alone. As we shall see, support exists in the case law for the proposition that a risk of harm is in and of itself a harm. For if, as I argue, the law treats harm-imposition as a necessary condition for torts and crimes, and if the law demands compensation or punishment for risk imposition, this signals a recognition that risk harm is itself a harm. In Part III, I address several important objections to the thesis that risk is itself a harm. While these objections are significant and expose a number of difficulties with the idea, I argue that the objections are ultimately unconvincing. I conclude with some observations about the implications of the Risk Harm Thesis for the law.

I. CHANCE BENEFIT AND RISK HARM

The Risk Harm Thesis suggests that exposing someone to a risk of harm itself harms him. That is, exposure to risk entails a reduction of an agent's welfare, regardless of whether the risk eventuates in outcome harm. This is obviously not to say that outcome harm is irrelevant to addressing the harmfulness of risk. Without the possibility of outcome harm there is no risk. But it does suggest that the harm a person suffers by being exposed to risk does not evaporate the moment it is clear no outcome harm will result. This idea may seem paradoxical: How can we say that the reason a person is harmed by being exposed to risk is that he has an increased chance of suffering outcome harm, but that the harm persists even once it is clear no outcome harm will result? Nevertheless, I claim in this Part that this is indeed the case. It may help to prepare for this somewhat odd suggestion by considering the benefit side, namely the claim that the chance of benefit is itself a benefit. For the analogous claim on the benefit side strikes me as easier to accept.

The Chance Benefit Thesis suggests that an agent's increased chance of receiving a certain outcome benefit is itself a benefit to the agent, such that the agent is better off for having had that chance than he would be if he had never had the chance at all. It is easy to see that a person regards himself as better off for having a chance of winning some outcome benefit before it is determined whether the chance has eventuated. But the question is whether the chance of winning is itself a benefit, apart from whether the agent actually wins the outcome benefit. If we accept this idea, we must also accept that if the agent does *not* win the outcome benefit, he must still regard himself as better off than he would have been if he had never had the chance of winning the outcome benefit in the first place. On this view, two agents, both of whom end up with ten dollars, would never-

theless be in different positions depending on the history by which they came to this state of affairs. The person who had a fifty percent chance of winning a million dollars but who did not win, ending up with ten dollars instead, would be better off than the person who merely had ten dollars, without the chance of winning more. The former received a chance benefit, the value of which persists even after the chance of winning the outcome benefit no longer does.

But why should we think of the person who had a chance of winning a million dollars as better off than the person who had no such chance, if, in fact, he did not win? In what sense better off? The answer is that the person exposed to a chance of winning has received an opportunity the other person did not have. That opportunity is a benefit he would have been willing to pay something to secure. Of course a rational person is only willing to pay for the chance of benefit *ex ante*—before the outcome has been determined. No one would pay for having been exposed to a chance of winning in the past that did not work out, just as no one would pay for the memory of having seen a great opera or eating a fine meal.

To see that the benefit does not entirely disappear with the chance of outcome benefit, imagine that a friend purchases a lottery ticket on your behalf. It seems reasonable to think the friend has benefited you, even if the ticket turns out not to be the winning ticket. Further, it is likely you would feel this way even if you learned of the existence of the ticket only after the lottery had been won and it was determined that the ticket purchased on your behalf was not the winning one. If the chance of benefit by itself conferred no benefit, it would presumably be out of place to feel grateful to the friend who purchased the ticket. Yet we feel gratitude and not indifference under these circumstances, whether or not the ticket turns out to be the winning one, and this emotion seems appropriate.

If willingness to pay is the measure of benefit, however, one might object to the claim that a person benefits from the gift of a lottery ticket beyond the lottery drawing, since no one would be willing to pay for a ticket after the lottery has run. While this is true, it does not show that the person who receives the ticket is no longer benefited. Consider the benefit an opera ticket confers. From the fact that the physical ticket no longer has value after the opera, it does not follow that there is no enduring benefit from having received it. Assuming you saw the opera and enjoyed it, you are better off than you would have been had you never received the ticket. The ticket was a benefit to you, both at the time you received it and after you saw the opera.

Of course, the lottery ticket and the opera ticket are distinguishable. The lottery ticket is valuable because it provides you with a chance of an outcome benefit, and that chance is gone once the lottery is run and lost, whereas the opera ticket derives value from an experience you value, and that experience continues once the opera is over. But the analogy with the opera ticket helps to establish a general category of things that can be beneficial even at a time when no one would be willing to pay for them. My claim, then, on the benefit side is that a chance of benefit is like a positive past experience: while you would not want to pay for it once it is in the past, its value is not entirely gone from the ex post perspective.¹³

A second objection runs as follows: Suppose a friend intended to give you a very expensive gift, which he purchased from a store but then promptly lost. Learning of the intended gift after the fact, you might be touched and grateful. But it does not follow that your friend has benefited you. Given that he lost the gift, it might be more appropriate to say that he *tried* to benefit you but did not succeed in doing so. Arguably the gratitude a person might appropriately feel for another's expenditures or efforts on his behalf does not imply that he has received a benefit commensurate with those feelings. It is possible to be grateful for another's generosity without actually receiving any benefit at all.

But I believe one should not so quickly dismiss the idea that there is benefit in cases like that of the lost gift. Arguably, your friend benefited you by purchasing the gift, even if he lost it before you could receive it. He benefited you by giving you a chance of receiving a benefit. Indeed, it seems just as plausible to say that the *reason* gratitude is appropriate under the circumstances is that your friend has done something that benefited you. One cannot, therefore, deny that he benefited you in this case without begging the question against the Chance Benefit Thesis.

A third objection runs as follows: Suppose you purchased a lottery ticket and someone steals it. If a chance of benefit were itself a benefit, the thief would owe you compensation for the chance of

¹³ Someone might argue that the benefit of the past experience of opera lies in the *memory* a person has of that experience. While it is no doubt correct that my fond memories of *Madama Butterfly* are among the benefits I enjoy from attending a particular production, it is surely not the case that they are the only benefit or even the most important benefit. A person suffering from Alzheimer's disease, for example, can still benefit from opera, because of the intrinsic pleasure of the experience of attending. A person who has experienced that pleasure is arguably benefited, whether he remembers it or not.

which he deprived you, even if it turns out that the ticket is a losing one. But if the thief owes you compensation, you will receive a windfall, for even if all he must pay you is the price of the ticket, you will end up in a better position postcompensation than you would have been in if he had not stolen the ticket in the first place. And this would be tantamount to getting a refund of your ticket if you lose the lottery. The right answer, the objection runs, is to say that the thief owes you nothing in the case in which he has stolen a losing ticket, for he has deprived you of nothing. But in the case of a winning ticket, he owes you the winnings, for that is what he deprived you of by stealing the ticket.

But arguably this approach to the theft of the lottery ticket would be too lenient, for one could just as well claim that the person who has stolen the losing ticket has deprived you of something you valued, namely the chance of winning a million dollars. Arguably the thief should compensate you, at least somewhat, for the theft of a losing ticket. Furthermore, the *thief* would appear to enjoy a windfall if he is able to steal the ticket without having to compensate you. For there is a chance, when he steals the ticket, that it is the winning ticket, and a chance that he will escape detection, and so keep the winnings. He has therefore had the benefit of a chance of winning a million dollars without having to pay for it. A better conclusion seems to be that in the case of a losing ticket, the thief owes you either the price of the ticket or the expected value of the ticket (if that is not equal to the price of the ticket) on the grounds that the expected value is the true chance benefit the ticket provides.¹⁴

How does the idea of chance benefit translate into the corresponding notion of risk harm? On the harm side, the idea would be that a person who has been exposed to a risk of harm has been made worse off than he would have been if he had never been exposed to that risk in the first place. This would remain the case even if the risk did not materialize. While the idea is somewhat harder to grasp than the comparable idea on the benefit side, there are cases in which the notion of risk harm seems fairly plausible. Suppose that unbeknownst to you, an airline on which you regularly fly is negligent in maintaining its planes. On one particular trip, one of two engines on the plane on which you are flying quits in midflight, a fact you only learn after you have disembarked. It seems plausible to suppose that flying

¹⁴ I am here assuming that the fair objective measure of chance benefit is expected value, but strictly speaking this need not be the case.

under these conditions has harmed you, as compared with similarly situated passengers on a flight without engine failure. You have been harmed because you are worse off, from the standpoint of your baseline welfare, than passengers who fly in nondefective planes. Your entitlement to compensation is, of course, a different matter, since there are many reasons why compensation might be unwarranted even if there is a harm.

What are the concepts of benefit and harm to which the foregoing claims appeal? It seems plausible to say that the person for whom a nonwinning lottery ticket has been purchased is benefited or that the person who unwittingly flew on an airplane with only one engine is harmed. Yet, arguably, the concepts of benefit and harm in this context depart from ordinary usage. Perhaps what is really at work in the above examples is just that the agent who receives a chance of benefit *thinks* of himself as better off than he would otherwise be, or the person who has been exposed to a risk of harm *regards* himself as doing less well as a result of the exposure to risk. On this view, the notions of chance benefit and risk harm would be purely psychological—names for feelings people have about exposure to chance and risk, rather than their actual levels of welfare from the exposure to a risk or a chance of benefit. But the claim is not intended to be a psychological one. Instead, the suggestion is that chance benefit and risk harm affect objective levels of welfare. The passengers flying in a defective plane have been harmed by the increased risk of death or bodily injury they suffered, and that remains the case whether or not they knew they had been exposed to it. Can we make sense of risk and chance as objectively harmful or beneficial in this sense?

In order to see how a risk of harm could itself be a harm, let us begin by defining the notion of harm.¹⁵ The concept we will use is that suggested by Joel Feinberg, according to which a harm is a setback to a legitimate interest.¹⁶ If my law enforcement activities force you to curtail your illegal drug trade, I may have hurt your economic interests but I have not harmed them, since your interest in dealing drugs is not a legitimate one. What counts as a legitimate interest is an important question, one Feinberg does not particularly discuss. Some kind of objective moral theory will be required to define it, and developing the relevant theory is, needless to say, beyond the scope of

¹⁵ I shall not attempt a similar analysis for the notion of chance benefit, but I have no doubt that for the reasons expressed above, *supra* text accompanying note 12, the parallel analysis is equally effective.

¹⁶ JOEL FEINBERG, HARM TO OTHERS 34-38 (1984).

the present inquiry. Fortunately, however, no account of legitimacy will be required for our purposes, since it will suffice to notice that it is possible to give that notion moral content, and recognize that the precise contours of the notion of harm will depend on that content.¹⁷

If a harm is a setback to a legitimate interest, it should not be difficult to see why a risk of harm is itself a harm, for it is not difficult to make the case that exposure to risk is a setback to a legitimate interest. First, let us consider what an "interest" is. A common way in which the term "interest" is used is as a synonym for "preference." On this view, an agent has an interest in all and only those items that correspond to something he wants or desires.¹⁸ This seems an overly narrow definition, for an agent can have an interest in goods or states of affairs for which he does not have any desire, or even for which he does not expect ever to come to have a desire. Indeed, an agent can have an interest in goods or states of affairs for which he has no desire even if it is also true that he has an interest in having most of his desires satisfied. For example, it is possible for a person to have an interest in finishing his education even if he has no desire to do so. The fact that he would prefer to drop out of school does not mean he does not have a stake in being able to finish if he wishes.¹⁹

Now let us consider what is meant by "risk" in this context, and what reason we might have for thinking that a person's welfare interests are *set back* by exposure to it. There are famously different interpretations of the notion of risk.²⁰ Dividing these interpretations into

¹⁷ The fact that the contours of the notion of harm will vary with the substantive account of legitimacy does not mean that the concept of harm is vacuous. It simply means that it is a contested concept around the edges.

¹⁸ I am here using the term "preference" in the way philosophers normally understand it. Economists, however, do not usually use "preference" in this way. They use the term to signify the notion of "revealed preference," which involves no state of desire at all. A revealed preference is simply whatever it is the agent would choose, rather than some internal state on the basis of which he would choose it.

¹⁹ On the other hand, I do not wish to suggest that the notion of an "interest" bears no relation to a person's desires, since a person does have an interest in having many of his desires satisfied. While it is beyond the scope of this Article to elaborate further, it should suffice to say that I am using the notion of "interest" in a way that lies between a fully subjective and personal idea of preference satisfaction and a fully objective approach to personal welfare. For further discussion of this notion of interest, see Claire Finkelstein, *Rational Temptation*, in PRACTICAL RATIONALITY AND PREFERENCE: ESSAYS FOR DAVID GAUTHIER 56, 56-76 (Christopher W. Morris & Arthur Ripstein eds., 2001).

²⁰ For a helpful discussion of the various interpretations of risk available, see Matthew D. Adler, *Risk, Death, and Harm: The Normative Foundations of Risk Regulation*, 87 MINN. L. REV. (forthcoming May 2003) (manuscript at 20-26, on file with author); Ste-

two rough categories, we can say there are objective and subjective accounts of risk. The objective interpretation treats risk as "relative frequency." It asks with what frequency a particular outcome occurs from a class of events of relevantly similar conditions. Thus, the chances that a given toss of a coin will land heads, according to the relative frequency interpretation, amounts to asking what the relative frequency of a coin's coming up heads would be in a number of similar tosses. Because over the long run the percentage of heads will turn out to be close to fifty percent, we say there is a fifty percent chance that the coin will land heads on *this* toss.

By contrast, the subjective, or "epistemic," interpretation maintains that there is no such thing as an objective measure of probability. There are only degrees of belief or confidence about the likelihood of a certain event occurring. A degree of belief is usually assessed according to the odds a person would accept to place a bet on the occurrence of the relevant event. I may believe it is highly likely it will rain tonight, in which case the probability of rain can be assigned a number according to the odds I would accept on a bet that it will rain tonight. My degree of belief, and hence, the bet I would be willing to place, may be based on the observed frequency of such events under similar circumstances. But the measure of the likelihood of rain remains subjective because there is no clearly defined class relative to which the probability of rain can be assessed. Thus although an agent's degree of belief will be based on real observations he can make, likelihoods cannot be a matter of objective facts.

As we have seen, the idea that a risk of harm is itself a harm asserts not merely that a person perceives risk as a loss in welfare, but that exposure to risk constitutes an objective setback to that person's interests. And this suggests that we are using the objective interpretation of risk. Exposure to a risk of developing cancer, for example, diminishes a person's welfare because he now belongs to a class in which the relative frequency of developing cancer is greater than the relevant class of persons to which he belonged prior to that exposure. And a person has a legitimate interest in being in the class of persons with a lower chance of developing cancer, since to be in the class of persons with a higher chance of developing cancer is to be doing substantially less well in life. As we shall see in Part III, there are various difficulties with speaking of an increased risk of developing cancer in

terms of objective, long-run frequencies. Deferring these difficulties until later, I wish at this point simply to appeal to what I consider a perfectly ordinary way of thinking of one's future welfare: it is clear from the fact that no normal, nonsuicidal person would choose a higher rather than a lower chance of developing cancer that there is a perfectly commonsensical way in which being exposed to an increased risk of developing cancer is a setback to a person's most fundamental interests.

There is a final argument in support of the Chance Benefit and Risk Harm Theses, having to do with the fact that agents value risks of harm and chances of benefit in different ways. Risk-averse agents attach greater disutility to exposure to risk than risk-loving agents, who discount the costs of the exposure to risk by the fact that they attach positive value to risk in general. Similarly, risk-averse agents attach a lower value to the chance of winning some outcome benefit than do risk-loving agents. This suggests that there is reason to think of chances of benefits as separate items of value from the outcomes they may become. In other words, there is no reason to suppose that the chance benefit of a gamble is equal to the expected value of that gamble. Chance benefit and expected benefit simply involve different types of value. It is true that for a risk-neutral agent, the *measure* of the chance benefit of a gamble is presumably equal to the expected value. But the fact that the measure of the two coincide in that case does not mean that the chance benefit and the expected benefit are not conceptually distinct.

The next Part argues that there is support for both chance benefit and risk harm in the case law, despite the somewhat unconventional nature of these concepts. As mentioned above, the notion of risk harm does not imply that the law ought to compensate or punish for the imposition of unconsented-to risks.²¹ But if, indeed, the law *does* compensate or punish for risk imposition alone, that would indicate that the law regards the risk of harm as itself a harm. The same could be said on the benefit side: if the law punishes or compensates in cases in which an agent is unfairly *deprived* of a chance of benefit, that suggests that a chance of benefit is itself a benefit.²² For these reasons, exploring the law of torts and crimes on the question of their support for a Risk Harm or Chance Benefit Thesis may prove illuminating.

²¹ *Supra* text accompanying note 10.

²² Indeed, it would suggest more, namely that *depriving* someone of a chance of benefit to which he would otherwise be entitled inflicts a *harm*.

II. LEGAL SUPPORT FOR THE RISK HARM AND CHANCE BENEFIT THESES

In the Introduction, I argued that both tort and criminal law treat harm infliction as a necessary condition for liability. Against the background of this assumption, there is reason to think that both tort and criminal law provide support for the Risk Harm and Chance Benefit Theses. As we shall see, there are instances in both fields where the decisions of courts or legislatures to mandate compensation or punishment are difficult to explain in the absence of the notion of risk harm. In this Part we will consider those instances.

A. *Tort Liability for Risk*

The view that tort law treats harm infliction as a necessary condition for liability goes naturally with the corrective justice approach to tort law. According to that view, the duty on the tortfeasor to compensate the victim is triggered by a harm he inflicts on the victim, rather than by a moral wrong.²³ This is arguably the traditional approach to tort liability, but it is not the only approach one might take. It is possible, for example, to think of tort law as a way of rectifying wrongful acts,²⁴ annulling wrongful losses,²⁵ shifting losses to the cheapest cost avoider,²⁶ or providing incentives to reduce risky behavior to optimal levels.²⁷ Against the background of one of these alternative approaches to tort law, the cases we will consider do not necessarily lend support to the Risk Harm and Chance Benefit Theses (although they do not contradict those theses either). But as it is beyond the scope of this Article to defend the corrective justice approach, I shall simply assume it in what follows.

²³ For a sustained defense of this position, see JULES L. COLEMAN, *RISKS AND WRONGS* 361-85 (1992).

²⁴ See Ernest J. Weinrib, *Corrective Justice*, 77 *IOWA L. REV.* 403, 410 (1992) (arguing for a relational theory of corrective justice).

²⁵ See Jules L. Coleman, *Tort Law and the Demands of Corrective Justice*, 67 *IND. L.J.* 349, 365-69 (1992) (promoting the annulment thesis of corrective justice). Coleman has since modified his annulment approach. See COLEMAN, *supra* note 23, at 318-24 (advocating an approach "that accommodates both the relational and annulment conceptions of corrective justice").

²⁶ See GUIDO CALABRESI, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* 240-50 (1970) (arguing that tort law seeks to impose liability on the cheapest cost avoider).

²⁷ See LANDES & POSNER, *supra* note 10, at 57-58 ("[T]he tort system may be cost justified when viewed as a means of deterring unsafe behavior rather than just insuring some accident victims.").

The law has traditionally limited at least cognizable harm to physical or other tangible losses. This has excluded both nontangible injuries, such as emotional damage, as well as the more contentious kind of harm for which I am arguing, namely risk harm. In cases involving emotional injuries, for example, courts have traditionally required that the plaintiff demonstrate some physical injury or damage that resulted from the emotional insult, such as symptoms of stress the emotional injury produced.²⁸ The compensation the plaintiff may be entitled to receive is due for the physical injury, and not for the emotional injury from which it stemmed.²⁹ Where risk is concerned, although plaintiffs have sometimes sought compensation for exposure to risk itself, independent of emotional or other forms of injury, such claims have been almost uniformly unsuccessful.³⁰ A leading Supreme Court case on this question is *Metro-North Commuter R.R. v. Buckley*.³¹ In that case, Buckley sued the railroad for negligently increasing his chances of contracting cancer and asbestosis by exposing him to substantial amounts of asbestos dust during the course of his employment as a pipefitter for Metro-North.³² The Court rejected his argument, interpreting it as a claim for emotional distress and upholding the traditional doctrine that claims for emotional distress must establish, at a minimum, that the defendant's negligence had placed the plaintiff at imminent risk of physical harm.³³ There is evidence that the Supreme Court has decided to reconsider its holding in *Metro-North*, however,

²⁸ See *Payton v. Abbott Labs*, 437 N.E.2d 171, 181 (Mass. 1982) (denying recovery for emotional distress to daughters whose mothers took diethylstilbestrol (DES) while pregnant). See generally RESTATEMENT (SECOND) OF TORTS § 436 (1965) (outlining causes of action for physical harm resulting from emotional disturbance).

²⁹ Cf. PROSSER & KEETON, *supra* note 4, § 54 (finding judicial antipathy to recovery for mental disturbance because the harm is "temporary" and "trivial," claims are easily "falsified or imagined," and negligent actors may face disproportionately heavy burdens).

³⁰ See, e.g., *Plummer v. Abbott Labs*, 568 F. Supp. 920, 922 (D.R.I. 1983) (denying compensation for emotional distress resulting from defendants' wrongful increase in plaintiffs' risk of harm through DES exposure). Commentators have mostly agreed with the traditional approach. See Ernest J. Weinrib, *Causation and Wrongdoing*, 63 CHI.-KENT L. REV. 407, 409 (1987) (emphasizing the "immediate normative connection between what the defendant has done and what the plaintiff has suffered" in negligence law).

³¹ 521 U.S. 424 (1997).

³² *Id.* at 424.

³³ *Id.* at 429-33. The case, however, was decided under the Federal Employers' Liability Act (FELA), despite the fact that the Court's approach depended on general principles of the common law. *Id.* at 428-34.

by granting certiorari in another asbestos case with highly similar facts.³⁴

The problem with the traditional requirement of physical harm is that physical harm clearly is *not* the only kind of harm there is, nor is it always the *worst* kind of harm. Some emotional harms, for example, are more serious than many physical harms. The law's unwillingness to compensate for emotional damages may have sound pragmatic foundations—such harms are hard to measure and difficult to prove—but it cannot plausibly depend on a denial that nonphysical harms are properly speaking harms. Similarly, the fact that the law has traditionally refused compensation to those who wrongfully suffer risk harm does not imply that no such harm exists, or even that the law presumes such harms do not exist.

Indeed, despite the law's announced refusal to compensate for risk, there is some evidence that the law *does* recognize a risk of harm as itself a harm, even in the midst of cases denying compensation for risk. A representative case is *Ayers v. Township of Jackson*, in which the plaintiffs demanded compensation for an increased risk of cancer and liver and kidney disease, attributable to toxic waste that seeped into the plaintiffs' groundwater as a result of the defendant's wrongdoing.³⁵ In denying damages for the increased risk of disease, the court wrote:

In order to recover for the alleged negligence of another, plaintiff must plead and prove actual loss or damage. The damage or harm need not be immediate. A plaintiff may recover damages for the prospective consequence of a tortious injury if the "prospective consequence may, in reasonable probability, be expected to flow from the past harm. . . ." Conversely, no recovery can be allowed for possible future consequences of tortious conduct. . . . "Reasonable probability" has been held to require ". . . evidence in quality sufficient to generate a belief that the tendered hypothesis is in all human likelihood the fact."³⁶

The court nevertheless allowed the plaintiffs to recover the costs of medical testing and monitoring to identify early onset of the relevant

³⁴ *Norfolk & W. Rys. Co. v. Ayers*, 122 S.Ct. 1434 (2002). The cases are arguably distinguishable by the fact that the plaintiffs in the current case actually have lung ailments. But since they are unable to establish that their ailments are attributable to the railroad's wrongful conduct, this fact is not as significant as one might suppose.

³⁵ 461 A.2d 184, 186 (N.J. Super. Ct. Law Div. 1983); *see also* *Arnett v. Shell Oil Co.*, No. 729586 (S.F. Super. Ct. Feb. 28, 1989) (providing a case where plaintiffs brought suit for exposure to chemicals produced by the Dow Chemical Company).

³⁶ *Ayers*, 461 A.2d at 186 (quoting *Coll v. Sherry*, 148 A.2d 481, 486 (N.J. 1959)) (citations omitted).

diseases.³⁷ But if the defendant caused the plaintiffs no injury, why should it have to pay for the cost of monitoring whether the plaintiffs develop cancer? That the court required the defendant to pay for monitoring implies that the court thought the defendant's behavior had harmed the plaintiffs, and harmed them in precisely the way we would expect if a risk of harm were itself a harm: The defendant's toxic dumping increased the risk that the plaintiffs would develop cancer and other diseases, and this injury to the plaintiffs constituted a sufficient harm to justify imposing significant costs on the defendant. Moreover, the court in *Ayers* suggested that the reason it rejected compensation for exposure to risk was that such actions would open a Pandora's box of speculative lawsuits and that damages in such suits would be hard to assess.³⁸ As in the case of emotional injuries, there may be good reasons for refusing to compensate for risk imposition, but these are not reasons for refusing to think of imposing a risk on someone as harming him. Indeed, in the absence of the pragmatic considerations the court mentioned, justice seems to demand some compensation in this case. The defendant contaminated the plaintiffs' drinking water with toxic substances known to correlate with a number of serious diseases. The increased risk of developing those diseases seems a sufficient basis for thinking of a person exposed to those substances as harmed.

There are other possible explanations of the duty to pay for medical monitoring ordered in *Ayers*, which would defeat the suggestion that the court thought the defendant had harmed the plaintiffs by exposing them to a risk. One possibility is that the court assessed the harmfulness of the defendant's behavior in the aggregate: since the defendant created a risk of harm to a class of plaintiffs, one could predict that a certain percentage of the plaintiff class would develop cancer or other diseases. The court predicted to a near certainty that the defendant would in the end have caused *actual* harm, not just risk harm. From this perspective, the medical monitoring might reflect the down payment on compensation for that harm. But this interpretation of the court's decision is flawed. The defendant was ordered to pay medical monitoring for the entire plaintiff class, and that class included some individuals who would never develop diseases as a result of the defendant's polluting, in addition to those who would. Requir-

³⁷ *Id.* at 190.

³⁸ *See id.* at 187 ("To permit recovery for possible risk of injury or sickness raises the spectre of potential claims arising out of tortious conduct increasing in boundless proportion.").

ing the defendant to pay compensation with respect to the former group of plaintiffs seems unfair, unless one sees the payments as compensation for exposing those plaintiffs to a risk of harm. The fact that we know that the defendant would end up causing the illnesses of some plaintiffs does not justify paying medical-monitoring costs for others, even if the total amount of compensation that the defendant had to pay does not exceed the amount of harm it ultimately caused. Assuming once again that the point of tort law is for the tortfeasor to compensate the plaintiff for harm he has inflicted, the correct measure of compensation is determined by the plaintiff's harm, not the tortfeasor's wrong.

The duty to pay for medical monitoring is only suggestive of a recognition on the part of courts that an increased risk of harm is itself a harm. But decisions like *Ayers* also show that courts remain unwilling to compensate risk imposition directly. There are, however, lines of cases that allow direct compensation for risk, and thus that better support the Risk Harm Thesis. First, there are cases involving traumatic injury, where the injury increases the risk of further, more remote kinds of harm. In *Schwegel v. Goldberg*, for example, the defendant caused a four-year-old boy to suffer a severe head injury when he struck him with his automobile.³⁹ The child's surgeon testified that the plaintiff "suffered a four-inch linear fracture of the skull, a contusion or bruising of the brain, and a traumatic subarachnoid hemorrhage."⁴⁰ He further indicated that "there are statistics that are reasonably well available from large numbers of similar accidents followed over a long period of time, [which indicate that] this child . . . has one chance in twenty of developing seizures at some time in the future up to 15, 20 years from now."⁴¹ In other words, the plaintiff's expert testified not only to the present damage to the victim's brain from the accident, but also to the increased risk of injury created as a result of the defendant's reckless driving. In this case, the court actually allowed the plaintiff to recover for the increased chance of epileptic seizures arising from the injury to his head.⁴²

Second, it is plausible to interpret cases making use of market share liability as requiring a defendant to compensate a plaintiff for

³⁹ 228 A.2d 405, 408-09 (Pa. Super. Ct. 1967).

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.* at 409; see also *Lindsay v. Appleby*, 414 N.E.2d 885, 891 (Ill. App. Ct. 1980) (holding that an "increase in the risk of injury traceable to the conduct of a defendant is compensable").

the likelihood that the defendant's actions were the cause of the plaintiff's injury. In the famous case of *Sindell v. Abbott Laboratories*, for example, plaintiffs sued manufacturers of the drug diethylstilbestrol (DES), which their mothers had taken during pregnancy.⁴³ The plaintiffs alleged that their mothers' ingestion of DES caused them to develop cancerous vaginal and cervical growths known as adenocarcinoma, as well as adenosis, namely "precancerous vaginal and cervical growths which may spread to other areas of the body."⁴⁴ The defendants argued that the plaintiffs' injuries did not support a cause of action because the plaintiffs were unable to identify which drug company manufactured the DES taken by their mothers and so could not make out the element of causation required for liability.⁴⁵ The *Sindell* court bypassed the difficulty with causation by allowing the plaintiffs to recover for their injuries from each drug company that had manufactured DES at the time their mothers ingested it in proportion to the share of the market that company controlled.⁴⁶ So-called "market share liability" was thus invented to allocate liability among a number of possible defendants, all of whom potentially contributed to a set of plaintiffs' outcome injuries, even though the defendants' definitive causal contribution was impossible to establish.

This use of market share liability is not compensation for risk per se, because unlike the ordinary action for risk harm, the injury has already taken place. But it relies on the same principle and suggests that assessing liability for risk would not run contrary to accepted legal principles of compensation. Suppose I were to toss a coin which I place on the back of my left hand covered by my right. I ask you: What is the probability that the coin landed heads up? Although the event has already occurred, you can assign a probability to the possibility that it landed on one side or the other. It is no different than asking you what the probability is that a coin I am *about* to toss will land heads up. Similarly, although the plaintiffs' injury in *Sindell* had already occurred, since the court could not determine which defendant caused it, the court asked what the chances were that *this* defendant caused it, assigning a probability to each possible tortfeasor. If a given plaintiff can recover from each defendant in proportion to the chances that each was responsible for her injury, the court is effec-

⁴³ 607 P.2d 924, 925 (Cal. 1980).

⁴⁴ *Id.*

⁴⁵ *Id.* at 926.

⁴⁶ *Id.* at 936-38.

tively compensating for a risk of harm, despite the fact that there is no future risk.

Taking the matter a step further, imagine that the plaintiffs discover that the DES their mothers ingested poses a risk to them of developing cancer *in the future*. It would seem arbitrary to allow a victim to recover for her injuries from defendants in proportion to the risk they created to her at the time her mother ingested DES, and yet to refuse that same action prospectively, namely before the daughters developed their injuries. While it is true that plaintiffs in the former case already have cancer, and that plaintiffs in the latter case may or may not develop it, we do not know whether the plaintiffs who have cancer in the former case have contracted it *as a result of* the defendant's activities. There is only a chance that they have cancer as a result of the defendant's behavior, and this is not much different from plaintiffs who have a chance of developing cancer in the future as a result of the defendant's behavior. Thus, it is only a short step from the *Sindell* court's use of market share liability to a prospective suit on the part of the daughters for their increased risk of developing cancer, assuming that the link between DES ingested by the mothers and the risk of illness in the daughters is well established. And if this is so, and if compensation in tort cannot be had without the existence of a harm, *Sindell* suggests support for the thesis that a risk of harm is itself a harm.

A later development on the market share hypothesis provides even stronger support for the Risk Harm Thesis. In *Hymowitz v. Eli Lilly & Co.*, also involving injuries to daughters from their mothers' ingestion of DES, the court once again allowed recovery according to the share of the market each defendant controlled at the time of the plaintiffs' mothers' ingestion of the drug.⁴⁷ But this time the court moved beyond *Sindell* by refusing to exempt defendants who could prove that they could not have caused the plaintiffs' injuries.⁴⁸ The court argued that "because liability here is based on the over-all risk produced, and not causation in a single case, there should be no exculpation of a defendant who, although a member of the market producing DES for pregnancy use, appears not to have caused a particular plaintiff's injury."⁴⁹ In other words, the court used market share liability as a justification for compensating for exposure to risk, rather

⁴⁷ 539 N.E.2d 1069, 1078 (N.Y. 1989).

⁴⁸ *Id.*

⁴⁹ *Id.*

than as a way of estimating each defendant's causal contribution to outcome harm. In this case, it is especially clear that the court was willing to regard the risk of cancer imposed on the future children of mothers who ingested DES as itself a harm.

One might object that in refusing to exempt defendants who could prove that they could not have caused plaintiffs' injuries, the *Hymowitz* court was in fact undercutting the idea of compensating plaintiffs for risk harm. For a defendant who can prove it did not cause the plaintiffs' injuries could presumably also distinguish itself from the group of defendants that created the risk to the plaintiffs of developing cancer. But this impression is misleading: the defendants who sought exemption nevertheless participated in the activity that created the risk to the plaintiffs—that is, they released DES into the market. By way of analogy, suppose the plaintiff is a pedestrian who was hit by a driver traveling greatly in excess of the speed limit. Although we cannot identify the driver, we have a pool of possible suspects. The *Sindell* approach says that any driver in that pool should contribute to an award compensating the plaintiff for his injuries, with the exception of a driver who can prove he could *not* have caused plaintiff's injuries. Each defendant must contribute to the plaintiff's award according to the likelihood that he was the driver in question. The *Hymowitz* approach says that even a defendant who can prove he was not the driver must contribute to the award, according to the degree of risk he inflicted on the plaintiff through his reckless driving. This example highlights a substantial difference between the two approaches: *Sindell* uses market share to measure the degree of likelihood for each defendant that it was causally responsible for the plaintiffs' injuries, whereas *Hymowitz* uses market share to establish the *degree of risk* each defendant imposed on the plaintiffs *ex ante*, irrespective of their actual causal contribution. While *Sindell* thus entertains a probabilistic measure of actual causation—suggesting a probabilistic assessment of the harm itself—*Hymowitz* uses a probabilistic measure to establish responsibility for risk harm directly. The inclusion of the noncausal defendants in the defendant class in *Hymowitz* is thus an especially clear case of compensation for risk alone.

A final objection is that courts in such cases have dispensed with the traditional compensatory approach of tort law in favor of using tort law to pursue other policy goals. Arguably the courts in *Ayers* and *Hymowitz* (*Sindell* is a slightly different matter) were not focused on the harm caused by the defendants, but were focused instead on deterring defendants from engaging in highly risky behavior that was not justi-

fied by claims of social utility. This is, of course, the economic view of tort law, which some tort scholars characterize as the prevailing approach, at least among commentators. Goldberg and Zipursky, for example, argue that "most tort scholars have adopted the view that the main point of tort law is to provide legal incentives that will steer actors away from unjustifiably risky or socially harmful conduct by penalizing them if they engage in such conduct."⁵⁰ And David Rosenberg argues that "collectivizing risk-based claims enhances their deterrence value,"⁵¹ and that deterrence and similar policy considerations provide the only justification for tort awards in such cases.⁵²

We should hesitate, however, before attributing to courts such a radical break from traditional tort principles. Is it really likely that courts in mass tort cases have abandoned concerns about compensation, and have started using the tools of tort law for the legislative purpose of picking and choosing which activities to deter instead? More likely courts have simply extended the traditional function of tort compensation to such cases by recognizing that victims have suffered a distinct form of harm. This is not to say that deterrence considerations do not, or should not, play a role in settling questions of compensation that arise at the margins, once corrective justice considerations have been addressed. But it would be unfortunate if compensation awards in such cases could only be explained by the somewhat questionable judicial motive of attempting to reduce the activity levels of potential defendants.⁵³

A third source of support for the Risk Harm Thesis lies with toxic tort cases that raise statute of limitations concerns. In toxic-exposure cases, the statute is thought to run from the time of exposure, although plaintiffs traditionally have not been allowed to sue until the injuries manifest themselves, often many years later. The result is patently unfair: A plaintiff who sustains actual, or outcome, harm may not be aware of the harm he has suffered until many years after the initial exposure to the toxin. At the time of exposure, he cannot sue

⁵⁰ Goldberg & Zipursky, *supra* note 7, at 1641.

⁵¹ See David Rosenberg, *Individual Justice and Collectivizing Risk-Based Claims in Mass-Exposure Cases*, 71 N.Y.U. L. REV. 210, 215, 233-36 (1996) (outlining, among other things, the deterrence benefits of risk-based claims).

⁵² See *id.* at 215 (evaluating tort policies by "their relative capacity to deter and compensate harms from mass torts consistent with individual justice").

⁵³ It is worth noting that if one thinks of tort law according to the prevailing economic model, one has particularly little basis for refusing to compensate plaintiffs for exposure to risk. For presumably inefficient risk-taking should be deterred whether or not it results in injury.

because he does not know of the existence, let alone the extent, of his injuries. By the time he is aware of his injuries however, his claim is time barred. In *Schmidt v. Merchants Despatch Transportation Co.*, for example, the plaintiff alleged that the inhalation of dust while an employee of the defendant caused him to contract the disease known as pneumoconiosis.⁵⁴ The court found that his claim was time barred, on the grounds that the statutory period of limitations began to run when the plaintiff inhaled the foreign substance.⁵⁵ The same principle was applied in *Schwartz v. Heyden Newport Chemical Corp.*, involving a compound inserted into the plaintiff's sinuses for the purpose of making him more perceptible in an x-ray examination.⁵⁶ The court once again held that an action for injuries arising from the treatment was time barred, despite the fact that the plaintiff could not have known of his actual injuries within the statutory period.⁵⁷

One possible solution to the problem these cases represent is to toll the limitations period until the discovery, or reasonable discovery, of plaintiff's injuries, thus extending the period during which plaintiffs can sue on the other end. Courts, however, have often been quite inhospitable to this solution.⁵⁸ An alternative solution, and one of particular interest for our purposes, is to allow the plaintiff to sue at the time of the initial exposure to the toxin, rather than requiring him to wait until the outcome harm manifests itself. Given that a plaintiff cannot predict whether he will develop outcome harm in the future, this rule only makes sense to the extent that plaintiffs exposed to the toxin are permitted to claim compensation for the increased risk itself. Courts sympathetic to this approach have been willing to recognize a valid tort claim the moment the plaintiff is exposed to the toxin in question.⁵⁹ Judge Posner, in an asbestos case, describes this approach as follows:

Since there is "medical evidence that the body incurs microscopic injury as asbestos fibers become lodged in the lungs and as the surrounding tissue reacts to the fibers thereafter," and since no particular amount of injury is necessary to create tort liability, courts in these states might hold

⁵⁴ 200 N.E. 824, 825 (N.Y. 1936).

⁵⁵ *Id.* at 827.

⁵⁶ 188 N.E.2d 142, 143 (N.Y. 1963).

⁵⁷ *Id.* at 143-44.

⁵⁸ *Cf.* Rosenberg, *supra* note 51, at 218-19 & n.19 (positing that risk-based claims are often not recognized by courts or, if they are, are often barred by statutes of limitations and proof requirements).

⁵⁹ *See, e.g.,* Braswell v. Flintkote Mines, Ltd., 723 F.2d 527, 532 (7th Cir. 1983) (finding that the plaintiff's right of action accrues upon exposure to risk).

that a tort claim arises as soon as asbestos fibers are inhaled, however much time the victim might have for bringing suit.⁶⁰

In addition, Posner suggests that bankruptcy courts may be entitled to reserve a portion of defendants' assets for future torts claims that have not yet manifested themselves.⁶¹ It would be questionable for a court to deny the claims of actual creditors in favor of plaintiffs merely exposed to toxins if exposure creating a risk of outcome harm were not itself considered a harm.

Fourth, and finally, there is a particularly clear example of compensation for risk in the so-called "lost chance of benefit" cases. In such cases, a person is allowed to recover for the reduction in the chance of achieving a medical cure he suffered as a result of the defendant's medical malpractice. In *Roberts v. Ohio Permanente Medical Group*, for example, the plaintiff was the executor of a patient's estate who had died of lung cancer.⁶² The plaintiff sued for wrongful death based on medical malpractice, alleging negligence in causing a seventeen-month delay in the diagnosis and treatment of the decedent's disease. The Supreme Court of Ohio held that the executor could maintain the action for loss of less than an even chance of recovery by presenting expert medical testimony showing that the doctor's negligence increased the risk of harm to the plaintiff.⁶³ The amount of damages recoverable equaled the total damages for the underlying injury or death, assessed from the date of the doctor's negligence, multiplied by the percentage of lost chance the patient suffered as a result of that negligence.⁶⁴

As to the measure of damages, the court further maintained:

In ascertaining the amount of damages recoverable, we believe that the most rational approach is the proportional damage approach Under this approach, damages are awarded in direct proportion to the chance of survival or recovery that the plaintiff lost. . . . This approach

⁶⁰ *In re UNR Indus., Inc.*, 725 F.2d 1111, 1119 (7th Cir. 1984) (quoting *Keene Corp. v. Ins. Co. of N. Am.*, 667 F.2d 1034, 1042 (D.C. Cir. 1981)).

⁶¹ Posner suggests:

Even in states where exposed workers are not injured in a tort sense till the disease manifests itself, and therefore do not have an accrued tort claim in any sense, . . . a bankruptcy court's equitable powers just might be broad enough to enable the court to make provision for future asbestosis claims against the bankrupt when it approved the final plan of reorganization.

Id. (citations omitted).

⁶² 668 N.E.2d 480, 481 (Ohio 1996).

⁶³ *Id.* at 484.

⁶⁴ *Id.*

provides an equitable method of apportioning damages consistent with the degree of fault attributable to the health care provider. Thus, rather than compensating the plaintiff for *all* damages allowed in a malpractice or wrongful death action, the defendant is liable only for those damages attributable to his percentage of negligence.

Consequently, the amount of damages recoverable by a plaintiff in a loss-of-chance case equals the total sum of damages for the underlying injury or death assessed from the date of the negligent act or omission multiplied by the percentage of the lost chance.⁶⁵

Typically, the plaintiff in a medical malpractice case must demonstrate that there was a greater than fifty percent chance that the doctor caused the plaintiff's injuries.⁶⁶ There is no way to make such a showing in cases in which the patient already has less than a fifty percent chance of surviving his disease when he enters the doctor's care and the doctor reduces the chances of survival by some additional amount, say twenty percent. For in this case, it cannot be said that the doctor caused the patient's injuries, since it is more likely than not that he did not. Still, the doctor has deprived the patient of a crucial chance of survival. Some courts have finally come to recognize that the law's rigid causation rules are unfair insofar as they do not allow the plaintiff to receive compensation for that lost chance. It remains the case, however, that many courts reject the kind of claim the court allowed in *Roberts*.⁶⁷

B. Criminal Law

Having considered the support afforded the notions of risk harm and chance benefit in tort, let us now turn to the criminal law's approach to risk. The criminal law also allows liability for risk imposition alone. It is possible, as we discussed in connection with tort law,⁶⁸

⁶⁵ *Id.* (citations omitted).

⁶⁶ PROSSER & KEETON, *supra* note 4, § 41; see also RESTATEMENT (SECOND) OF TORTS § 433B cmt. b (1965). For a discussion of the traditional causation requirement in the context of loss-of-chance cases, see Joseph H. King, Jr., *Causation, Valuation, and Chance in Personal Injury Torts Involving Preexisting Conditions and Future Consequences*, 90 YALE L.J. 1353, 1363-70 (1981).

⁶⁷ In *Hotson v. East Berkshire Area Health Authority*, [1987] 1 All E.R. 210, *rev'd*, 1987 A.C. 750, the trial judge accepted a *Roberts*-like argument, holding that the defendant had caused the plaintiff to lose a twenty-five percent chance of avoiding avascular necrosis, and that this chance should itself be compensable. The English Court of Appeal affirmed, but the argument was ultimately rejected by the House of Lords. We return to consider objections to this kind of approach in Part III *infra*.

⁶⁸ See *supra* Part II.A (arguing that courts have not abandoned traditional tort notions of compensation in favor of deterrence).

to perceive courts and legislatures as adopting a wholly deterrence-based approach to liability. And if this were the motivation behind certain criminal offenses, we would be unable to infer anything about the law's view of risk as harm, since punishment would then be allocated for reasons of public policy, and not in order to punish guilty offenders for harm they inflict. But there is good reason once again to think that courts and legislatures have not wholly abandoned traditional principles of "just deserts" as the ground for legitimate punishment. To the extent that the aim of deterrence affects the punishment schemes the law adopts, it is presumably a supplementary consideration that comes into play only once it is clear the offender deserves punishment in his own right, irrespective of the effects that punishing him would have on other offenders. In addition, there are important moral considerations that support criminalization in cases of risk imposition. The fact that imposing a punishment on one person would deter others from committing crimes is simply not an adequate justification for punishment. The deterrence rationale, I claim, fails because it impermissibly "travels across persons."⁶⁹

Consider, first, the most straightforward case of criminalization for risk imposition and the most ubiquitous, the crime of reckless endangerment. The Model Penal Code, for example, defines "Recklessly Endangering Another Person" as follows: "A person commits a misdemeanor if he recklessly engages in conduct which places or may place another person in danger of death or serious bodily injury."⁷⁰ This is clearly meant to provide a basis for punishing risky behavior that does not result in outcome harm. While this provision might be used in a case of reckless driving, the traditional approach is to define vehicular and other kinds of risky behavior as separate offenses in their own right.⁷¹ It might also be used in cases that would garner a voluntary manslaughter conviction were a death to result, but where no one actually dies. In cases involving Russian roulette, for example, each person takes turns spinning a partially loaded gun cartridge and firing at another player. If a death results, the surviving players can be prosecuted for manslaughter.⁷² But what if no one dies? Arguably,

⁶⁹ Claire Finkelstein, *An A Priori Argument Against the Death Penalty* 30 (Apr. 19, 2002) (unpublished manuscript, on file with author).

⁷⁰ MODEL PENAL CODE § 211.2 (1985).

⁷¹ See generally MODEL PENAL CODE § 211.2(1) (1985) (suggesting that most jurisdictions criminalized reckless driving as a separate offense).

⁷² See, e.g., *Commonwealth v. Malone*, 47 A.2d 445 (Pa. 1946) (affirming a conviction for second degree murder of a boy participating in a game of Russian roulette).

the law should punish the players, not simply to deter adolescents from playing extremely dangerous games, but because the same culpable risk that justifies a manslaughter conviction in the case in which someone dies should also justify a conviction for risk creation where no actual harm results.

It is once again tempting to explain this intuition by saying that the person who kills another playing Russian roulette and the person who plays the game with no resulting injury are equally culpable, since they both do the same *bad act*. Sanford Kadish, for example, argues that there is no moral difference between the two defendants, and hence no difference in the punishment each deserves:

It is commonly accepted that punishment is deserved if persons are at fault, and that fault depends on their choice to do the wrongful action, not on what is beyond their control. . . . Would the Russian Roulette player deserve less punishment if the bullet happened to be in another chamber when he fired?⁷³

Moreover, he suggests that we cannot distinguish the two defendants on policy grounds either. If our concern is with future dangerousness, we do not need the outcome harm to occur in order to know that the offender is dangerous. And from the standpoint of deterrence, we would most likely maximize the deterrent efficacy of rules prohibiting risky behavior by punishing that behavior whether or not actual harm results.⁷⁴ Stephen Morse reaches the same conclusion, arguing that we should punish the defendant who commits a completed attempt and the offender who commits the substantive offense equally, since the two are equally blameworthy.⁷⁵ The problem with the foregoing approach is that it presupposes that the law seeks to punish defendants in accordance with the moral blameworthiness of their acts. But if I am correct that the law is more concerned with harm infliction than with blameworthiness, then the willingness of the criminal law to punish culpable risk creation supports the contention that to expose someone to risk is to harm him.

There are other instances of liability for risk creation in the criminal law. Attempt liability has long troubled criminal law scholars. But the Risk Harm Thesis may help shed some light on an old problem. If exposing someone to a risk is to harm him, and if I am correct to

⁷³ Kadish, *supra* note 1, at 688.

⁷⁴ *Id.* at 685-86.

⁷⁵ See Morse, *supra* note 1, at 46-55 (arguing that attemptors and those guilty of completed offenses are morally equivalent and deserve equal treatment under the law).

think of criminal liability as primarily concerned with harm infliction, then punishing attempts can be explained by the Risk Harm Thesis: since the person who fires a bullet at an intended victim and misses harms his victim by exposing him to a risk of harm, we have every reason to inflict punishment for such behavior. Once again, there are alternative explanations. Kadish and Morse say that we punish attempts because the offender in those cases is as culpable as an offender who commits the substantive offense of murder. And a pure policy-oriented approach would say that we punish attemptors because we wish to add additional deterrent efficacy to the punishments attached to substantive offenses. But there are reasons to reject both explanations: the former, as we have already seen, because the criminal law is more oriented toward harm than wrongdoing, and the latter because we could easily increase the deterrent efficacy of criminal laws by increasing the punishment for the substantive offense itself.

An interesting final application of the notion of risk harm in the criminal law appears in the area of criminal procedure. Consider the cases challenging a defendant's sentence on the grounds that it impermissibly discriminates against the defendant on the basis of race in violation of the Equal Protection Clause. The Supreme Court famously, indeed notoriously, rejected statistical arguments purporting to show that race played a significant part in determining a defendant's sentence. In *McCleskey v. Kemp*, the Court held that statistical evidence was inadequate to establish discrimination in the death sentence of a black defendant who had murdered a white victim.⁷⁶ The Court thus rejected McCleskey's Equal Protection claim, despite a statistical study showing that the defendant was at least 4.3 times more likely to receive the death penalty given that his victim was white than he would have been if his victim had been black.⁷⁷ In rejecting the relevance of this study, the Court suggested that no amount of statistical evidence could prove that there had been discrimination in the defendant's particular case. The Court maintained that in order to show that the defendant's sentence was a product of discrimination, he must either prove an intent to discriminate on the part of judge or jury, or point to some other causal mechanism that would suggest specifically that racial bias operated in the defendant's case.⁷⁸

⁷⁶ 481 U.S. 279, 313 (1986).

⁷⁷ *Id.* at 287.

⁷⁸ *See id.* at 294-97 (suggesting that the nature of individual capital sentencing jury trials provides no objective reference class).

The *McCleskey* decision has been much reviled by commentators; some have charged that what the Court was really afraid of, to quote Justice Brennan's dissenting opinion, was "too much justice."⁷⁹ While this is not the occasion to examine the legitimacy of the Supreme Court's concern about proving discrimination through statistical evidence, the Risk Harm Thesis suggests an additional reason for rejecting the Court's decision in *McCleskey*. A death sentence that violates the Equal Protection Clause is a harm, since it constitutes a setback to a legitimate interest. *McCleskey* tried to make out an Equal Protection violation by proving that he would not have been sentenced to death if his victim had been black. Whether or not this argument could be substantiated, by proceeding with *McCleskey*'s sentence under a law and a set of procedures that *risked* an Equal Protection violation, the state of Georgia exposed him to another kind of harm: the risk of being executed under a sentence that violates the Equal Protection Clause. Thus, arguably, the state of Georgia inflicted a very real harm when it sentenced a person in *McCleskey*'s shoes to death under such conditions.⁸⁰

III. SOME OBJECTIONS

In Part I, I sketched the basic outlines of the ideas of risk harm and chance benefit, and I attempted to make these notions compelling. There are, however, several rather significant objections to those notions we have yet to consider. As we shall see, addressing these objections will require certain refinements of the basic theory.

The first important objection we must consider is the problem of double counting. If the risk of harm were itself a harm, it would seem to follow that the person exposed to a risk who suffers an outcome harm as a result is *worse off* than the person who simply suffers that harm without the associated risk. Thus, the person whose arm is broken in a car accident involving a reckless driver would be worse off

⁷⁹ See *id.* at 339 (Brennan, J., dissenting) ("The Court . . . states that its unwillingness to regard petitioner's evidence as sufficient is based . . . on the fear that recognition of *McCleskey*'s claim would open the door to widespread challenges to . . . criminal sentencing. Taken on its face, such a statement seems to suggest a fear of too much justice.").

⁸⁰ The use I am suggesting for the notion of risk harm in this context would of course be quite a novel one, and there are many reasons why that notion might prove unhelpful in the Equal Protection context. But it may help explain why many have felt that the state of Georgia's death penalty scheme was so convincingly shown to be unacceptable by the statistical study proffered in the *McCleskey* case, and why the Supreme Court's use of that study was so misguided.

than the person whose arm is intentionally broken by a thug, since the first person suffered outcome harm *and* risk harm, whereas the second person suffered only outcome harm.⁸¹

Similarly, if the chance of benefit were itself a benefit, then the person who wins an outcome benefit through a chancy process is better off than the person who wins that same benefit through a sure process. Thus, the person who wins a million dollars in a lottery is better off than the person who simply receives a gift of a million dollars outright. These would be paradoxical results. Normally, we think that inflicting an intentional battery is a worse thing to do than causing a comparable injury by reckless driving. Admittedly, this judgment may have more to do with the level of wrongdoing on the perpetrator's part than with the amount of harm he inflicts. But even so, the intuition has some bearing on the respective amounts of harm inflicted in the two cases, for it would be odd to think of the intentional battery as more wrongful if it inflicted less harm than the injury by reckless driving.

To see this difficulty more clearly, suppose we think that a person wrongfully exposed to risk should be compensated, on the grounds that risk is a harm and compensation is due for wrongfully inflicted harm. It would follow that the power company that exposes me to a risk of cancer would have to compensate me twice in some cases. First, it would owe me compensation for the exposure to risk, and then, if I actually developed cancer, it would also have to compensate me for my outcome injuries. Not only would this provide a windfall to a person harmed through a risky process, it seems to create an odd asymmetry with the person who suffers the same outcome harm through a sure process. For example, it would follow that the person who developed cancer from a process that was *certain* to produce cancer would receive less compensation than the person who was first exposed to a risk of cancer, and then developed it later. Or consider once again the person who steals a lottery ticket. If the ticket turned out to be the winning ticket, the thief would owe the winnings (let us say one million dollars) *plus* the price of the ticket (one dollar).⁸² But this seems to be double counting, made clear by the fact that the victim would thereby receive a windfall: she does better if her ticket is

⁸¹ Someone might try to argue that a person who is intentionally battered *has* been exposed to a risk of injury, a risk that approaches one. But interpreting certain processes as risky events with high probabilities of occurring seems to unduly separate the notion of a risk from our ordinary understanding of the term.

⁸² See *supra* text accompanying note 13 (discussing the lottery ticket example).

stolen and she receives compensation than if the ticket is never stolen in the first place. In general, the Chance Benefit Thesis appears to require double counting of the winnings of a person who wins them according to a chancy process like a lottery, since such a person would first have acquired a chance benefit and then later, when the chance accrued, an outcome benefit.

A second and related difficulty is the problem of infinite regress. It is most easily illustrated on the benefit side. If we count the chance benefit in the losing payoffs to an agent from a plan, then it looks as though there must be a gamble that it would be rational for an agent to accept where the winning payoff would be the combined chance benefit and the outcome benefit: $p = c + o$ (payoff = chance benefit + outcome benefit), defined according to the probability of winning the agent would require to enter the gamble. There is, however, a chance benefit to the agent from entering such a gamble, c' . From that it follows that there is a p' , such that $p' = c' + c + o$. There is a benefit to the agent in entering the gamble that would give him the payoff of entering the gamble, whose payoff is $c'' + c' + c + o$, and so on. One might think that this apparent weakness in the idea of risk harm is not the problem it appears to be, for there can be an entry fee to a poker game, and by the same token, there might be an entry fee to gain membership in a group from which the participants in a poker game are chosen, and so on. There is no problem with the idea of chances over chances. But here the regress is more pernicious. For it would mean that the payoffs from the original gamble are not well defined. The payoff from a risky plan, say, on the losing branch is the outcome at that branch, plus an infinite series of ever-increasing chance benefits. In this case, paradoxically, the payoff from any gamble would be infinitely high if the agent loses, and infinitely low if the agent wins!

On the harm side, the analogous problem is that an agent might appear to be infinitely damaged by being exposed to a risk of being exposed to a risk of being exposed to a risk, etc., without ever suffering any actual outcome harm. Suppose a person's future job placement is determined by chance: he must enter a lottery to determine whether he will work in a nuclear power plant where he would be exposed to a risk of developing cancer or whether, on the other hand, he will take a relatively safe job at which he would earn the same money and have the same benefits as he would in the dangerous job. The lottery, then, constitutes exposure to a risk of a risk of harm, r' , which, presumably, should be added to the risk of harm, r , in order to determine the agent's ultimate welfare position in the case in which

he does not develop cancer, o . Moreover, if there were a lottery to determine who enters the lottery, each subsequent exposure to the risk of working in the power plant would result in the agent's being worse off than he would otherwise be, since each successive risk must be added to the original risk of developing cancer (. . . $r'' + r' + r$). Thus, while an actual harm is finite, it looks as though there is no end to the damage a person could sustain through exposure to a series of risks, even if no outcome harm ever resulted. That is both counterintuitive and seems to render the notions of chance benefit and risk harm incoherent around the edges.

The two foregoing objections can be dealt with by assuming that risk harm and chance benefit are asymmetric with respect to gains and losses: the disvalue of the risk harm is absorbed into the loss in welfare if the risk actually materializes, and similarly, the value of the chance benefit is absorbed into the winnings if an agent actually wins. The risk harm persists only in the case in which the agent is not ultimately subject to the outcome harm. Similarly, it is only in the case in which an agent fails to acquire outcome benefit that we should think of the chance benefit as persisting. Outcome harm and benefit, in short, result in antecedent risks or chances being absorbed into the resulting harms and benefits. Let us call this the "Absorption Thesis."

Before we see how the Absorption Thesis would solve our difficulties, we should consider what might justify this asymmetric treatment of chance benefit and risk harm. Is it an intuitively plausible approach to harm and benefit? There is, I think, an intuitive case to be made for the Absorption Thesis. It seems plausible to think, for example, that a person who has won might regard himself as in some sense harmed by having been exposed to a risk of harm along the way to winning. As I argued above, it does not seem odd to feel harmed upon learning, when disembarking from a plane, that the airline knowingly flew with only one engine. Yet it would be exceedingly odd to think of oneself as worse off for having lost by a risky process than by a sure process. The person who is harmed in a car accident surely does not think of himself as worse off than the person who sustains the same injuries through an intentional battery.⁸³ On the benefit side, a person who lost a gamble may regard himself as somewhat better off for having had a chance of winning. Or the person turned down for a job may consider himself better off for having been seri-

⁸³ Unless, of course, there is special anxiety associated with the risky process as compared with the sure process—but that is a different matter, since emotional injuries are yet a different kind of harm.

ously considered, as compared with the person who never was in the running in the first place. But there seems to be no intuitive support for the claim that a person who actually wins can think of himself as better off than his actual winnings suggest, given that he acquired those winnings by a chancy rather than by a certain process. That is, the person who actually gets the job surely does not think of himself as better off because he was less than certain to receive it. So our intuitions do appear to support the idea that a risk of harm detracts from winning even though it does not add to losses, and similarly that a chance of benefit detracts from the gravity of losses, even though it does not add to winnings.

What makes the Absorption Thesis plausible is when we consider the expected value to an agent of the *other* branches in a risky plan, and adjust an agent's welfare on the branch he ends up on by his exposure to them. The claim, in other words, is that an agent is not indifferent to the manner by which he comes about his winnings or losses. The exact value to an agent of those other branches—the chance benefit or the risk harm to which he has been exposed—is not strictly a measure of their relation to the outcomes at those branches. The agent's attitudes toward risk will affect how he values the chance of benefit or disvalues the risk of harm. Assuming that all rational agents regard a chance of benefit as positive to at least some degree (even if they are risk averse) and a risk of harm as negative (even if they are risk loving), then it is possible to define the chance of benefit on another branch of the plan as itself a benefit, and the risk of harm on another branch as itself a harm.

It should be clear that if the Absorption Thesis is correct, there is no problem of double counting. The power company does not have to compensate a victim twice, once for exposing him to a risk of developing cancer and a second time for actually causing the cancer. If the victim indeed develops cancer as a result of the risk to which he has been exposed, then the disvalue of the risk is absorbed into his actual harm. The compensation for risk is due only if cancer does not develop, since in that case the risk is not absorbed. Similarly, the thief who steals a lottery ticket does not have to compensate the victim both for the winnings and for the price of the ticket. The price of the ticket, as it were, is absorbed into the outcome if the ticket is actually the winning one.

Moreover, a bit of reflection will show that the Absorption Thesis solves the problem of infinite regress as well. For if a chance of benefit were absorbed into outcome winnings, then a chance of a chance

of benefit is absorbed into the chance of benefit if the agent is successfully able to take that chance (c' is absorbed into c in the case in which the agent wins at the c' stage, i.e., successfully gains c , or the chance of o). If the chance of the chance of benefit does not result in the agent's winning a chance of benefit (c' does not result in c), then the chance of benefit the agent received still leaves him better off than he would be if he had never had the chance of the chance of benefit (he is precisely c' better off than he would otherwise be). The same is true if a person were exposed to a risk of suffering a risk of harm. If he enters a lottery to determine whether he will work at the power plant, and he *does* end up working at the plant, then his risk of risk, or r' , is absorbed into the risk, r , that he will acquire cancer. If he does not end up working at the power plant as a result of the lottery, his decrease in overall welfare is simply limited to the original risk, r' . In that case, the risk of developing cancer he suffered endures.

A third and perhaps more formidable objection than the two we have just considered returns to a topic we considered in connection with the "lost benefit" cases in Part II. Stephen Perry disagrees with cases like *Roberts*, on the grounds that the argument for compensating for lost chance of benefit is entirely epistemic.⁸⁴ If we had full information about the causal process by which plaintiffs in such cases sustained injury, he claims, we would either compensate for outcome harm or we would find nothing to compensate. Perry writes:

If the plaintiff's injury was treatable, then the defendant caused him *physical* damage; there is no reason to say that it also caused him another, separate harm that takes the form of risk damage. If, on the other hand, the plaintiff's injury was not treatable, then there is no reason to say that the defendant caused him *any* damage, whether we call it physical damage or risk damage; we can no longer plausibly maintain that he lost a chance of avoiding an adverse physical outcome.⁸⁵

In other words, Perry believes that the only reason we are inclined to compensate for the lost chance of benefit is that we do not know the causal process by which the plaintiff sustained his injuries. If we did, we would realize that there is a fact of the matter about whether the doctor caused the plaintiff's injuries, and so whether he should be held liable for them. If a doctor defending a medical malpractice

⁸⁴ See Perry, *supra* note 20, at 332 (criticizing a comparable English case, *Hotson v. East Berkshire Area Health Authority*, [1987] 1 All E.R. 210 (C.A.), by noting that the judges' estimate of risk easily strays from objective risk due either to a "mistake in inductive reasoning" or "insufficient evidence to ensure a reliable probability").

⁸⁵ *Id.* at 334.

case, for example, caused a plaintiff's injury, he should compensate the plaintiff in full. If he did not, he is not responsible for any decrease in the plaintiff's chances of survival.

Perry's argument echoes a common refrain in the literature on probabilities. The more general argument comes in several forms, but the most frequent is the following: when we want to figure out the objective probability of tossing heads on the next coin toss, we compare that toss with a number of other events of the same sort and ask what the relative frequency of coming up with heads is in that class of events—the "reference class." On a relative-frequency interpretation, we treat the likelihood of getting heads on the next coin toss as equal to the relative frequency with which heads appears in the reference class. The reference class in this case is a very large number (or indeed an infinite number) of coin tosses under the same or similar circumstances. It is by comparing this single event to a wider class of relevantly similar events that we say that the chances of tossing a head on the next toss is fifty percent.

But, the argument goes, it is impossible to apply this same interpretation to an event like exposure to cancer-causing toxins. For what should serve as the reference class in this case? All persons exposed to those same toxins? Each person we might pick for such a reference class will have a slightly different set of circumstances, a slightly different background risk. There is no way, even in principle, to establish the same kind of long-run frequency available in the case of the coin toss, and thus no way to establish the same objective measure of likelihood. This in effect is the same difficulty raised by Perry, since asking what the chances were that the defendant caused the plaintiff's injury purports to place the plaintiff in a reference class of similarly situated individuals who are at risk of developing cancer. But the correct reference class in which to put the plaintiff, if we had full information, would not allow us to infer any likelihoods—it would either be the reference class of those individuals who *did* suffer harm as a result of the toxic-exposure, in which case the likelihood is one, or it would be the reference class of those who were not harmed in this way, in which case the likelihood is zero. The use of long-run frequencies in this context thus appears to create a fictional reference class that has no objective correlative.

I cannot hope to do justice to this complicated and longstanding debate in probability theory here.⁸⁶ There are, however, two reasons why I believe this difficulty should not stand in the way of articulating a coherent notion of risk in terms of relative frequencies. The first is a direct response to Perry: *If* we were determined only to compensate for outcome harm, Perry would be correct that defendants in the lost chance of benefit cases would either be fully liable or not at all, assuming knowledge of all the facts. But this does not give reason to suppose that we should not compensate for risk. If a victim has been exposed to a risk of developing cancer twenty years down the road, he might prefer compensation for the *risk* of cancer rather than to wait and sue for his outcome damages if and when he has them. Moreover, while current rules of *res judicata* would bar this solution, if we take the notion of risk harm seriously, he should be able to sue first for the risk to which he was exposed and later for the outcome harm he suffers, provided that any award he received for the former is subtracted from his award for the latter, to reflect the absorption of the risk into the outcome harm. The important point is that even if we can expect the causal process to be known to us in the fullness of time, it does not follow that we must deny compensation for risk now, in order to wait for the causal process to unfold. And, by extension, even in a case in which the result has already occurred, but its causal process remains unknown, we might prefer compensating for risk over having to choose between full compensation for harm suffered and zero compensation where the injury did not develop. It is once again like the coin that has already been tossed, where we do not yet know the results: it is perfectly reasonable to ask what the chances are the coin landed heads up, even though there is a fact of the matter about whether, when we uncover the face of the coin, we will find heads or tails showing.

Second, the problem of reference classes is quite a generic one. Theoreticians have commonly raised objections to the idea that we can assign probabilities to almost any future event, with the possible exception of cases involving very defined circumstances like the coin toss example.⁸⁷ But we routinely talk of probabilities, and the folk concept at work in such remarks is surely the objective, relative fre-

⁸⁶ For a detailed discussion of the problem, see Adler, *supra* note 20 (manuscript at 52-88).

⁸⁷ See, e.g., ROY WEATHERFORD, *PHILOSOPHICAL FOUNDATIONS OF PROBABILITY THEORY* 165-78 (1982) (identifying the "problem of the reference class" as the fundamental difficulty of relative frequency theory).

quentist sense that these commentators are claiming is unhelpful. Meteorologists speak of the chance of rain for a given day, assigning a precise number. Their intention in speaking this way is not simply to impart to an audience the degree of confidence in the announcer's mind. Rather, they assert an objective likelihood in the world that they infer from other days of relevantly similar environmental conditions. While the science of picking out what counts as relevantly similar is admittedly an imprecise one, the fuzziness of the category hardly shows the incoherence of the underlying idea of relative frequencies.

Third, it is worth noting that the difficulty probabilists assign to defining an appropriate reference class inheres even in the example of the coin toss. On what grounds can I assume that the next coin toss and the one after that and the one after that are relevantly similar to this one? After all, those tosses are different events, as is clear from the fact that they take place at different times and, possibly, in different locations. Whatever theory we develop to show that other tosses of the coin are relevantly similar to this one presumably has application to the problem of developing an appropriate reference class against which to measure the probability that it will rain this afternoon or that a person exposed to toxins will develop cancer. For all of the foregoing reasons, I do not think there is any philosophical impediment to assigning probabilities in a rough and ready way to singular events. Thus the difficulty with choosing an appropriate reference class should not be an insurmountable obstacle to thinking of a person's chances of sustaining future injury as a kind of present harm. That harm is fully objective, even though it may yet turn out that the chance does not give rise to outcome harm.

CONCLUSION

The purpose of this Article has been to explore the idea that outcome harms and benefits may not be the only kind of harms and benefits that exist. In particular, I have tried to make the case for the idea that imposing a risk of harm on a person may itself be to harm him, and that exposing him to a chance of benefit may itself be to benefit him. I have suggested that there is support for the notions of risk harm and chance benefit both in our ordinary views regarding risk and chance as well as in the law. If these notions of risk harm and chance benefit prove compelling, there is no reason in principle why courts should refuse to make compensation awards based on exposure to risk alone, or why legislatures should not feel free to criminalize risky behavior that results in no outcome harm. If risk is *not* a harm,

however, we cannot expect to obtain these same results through other means. For, as I have suggested, tort law ought not to deter wrongdoing in the absence of compensable harm, and the criminal law ought not to deprive people of their liberty for the purpose of enhancing conformity with a set of purely moral norms in the absence of the infliction of harm on a victim.

As our discussion in Part II should have made clear, the Risk Harm Thesis, and the associated possibility of awarding compensation and punishment for risk, would solve a number of legal difficulties with which courts currently grapple. First, in toxic tort cases, problems of causation would not as often bar plaintiffs from recovery. If they can prove by a preponderance of the evidence that the defendant exposed them to a *risk* of harm, they could recover for the harm they suffered at the time of exposure, without having to wait for signs of actual illness to develop. The Absorption Thesis would prevent double recovery: If a plaintiff exposed to a risk recovered for the risk and then wished to sue again for outcome harms, the Absorption Thesis would allow him only to recover for his actual harms, minus the amount already received for the risk. And if the outcome harm developed immediately, he would not be able to sue for the initial risk to which he was exposed at all. One advantage of this approach, as compared with the "market share" approach to causation, is that we would not be required to waive normal causal requirements in order to compensate deserving plaintiffs. We can adhere to a strict causation requirement with respect to outcome harm, but accomplish the same good that the cases seeking to soften strict causal requirements have achieved by compensating risk directly. Even as it stands, the cases apparently relaxing causation requirements for outcome harm are more plausibly thought of as compensating exposure to risk by an indirect route.

Second, if compensating for risk harm were possible, plaintiffs arguably would no longer encounter the rather harsh restrictions on their ability to sue based on statutes of limitations, since a plaintiff exposed to a toxic but slow-acting substance who is presently barred from recovery would have the option of suing at the time of exposure for the risk harm he incurred. There might still be a difficulty if the plaintiff was not aware he had been exposed to the toxin in the first instance, if, for example, he only became aware of his exposure once the outcome injuries developed. But in that case we might adopt a variant of the rule that many have urged, and which some courts have adopted, namely that the statute of limitations is not tolled until the

plaintiff has had an opportunity to learn of his exposure.

In criminal law, there are many forms of risky behavior that we often attempt to punish by increasing the penalties for outcome harm resulting from that behavior. For example, we would like to punish people for dangerous driving, for improper handling of firearms and other dangerous items, and for engaging in risky gamesmanship, such as Russian roulette.⁸⁸ In general, however, the justification for punishment in these cases has eluded scholars and worried legislatures, prompting both to steer what they consider a safer course by simply increasing the punishment for the cases in which outcome harm results. But if the risk of harm is itself a harm, then we can punish risky behavior without having to regard such behavior as an instance of the controversial category of "victimless crimes." And, as I suggested above, there are already legal doctrines that might be best explained in terms of exposure to risk, such as attempts and reckless driving. Finally, the notion of risk harm would help to explain intuitions we have in constitutional criminal procedure to the effect that it is not fair to impose a chance on a defendant of receiving a biased criminal sentence. If risk is a harm, it would be clear why we have this intuition: imposing a risk on a defendant that his death sentence is the product of racial bias is itself a harm. We need not garner further evidence to prove definitively that his sentence was the product of such bias, since a risk that it was should, by itself, be sufficient to render it illegitimate.

The foregoing constitute *possible* benefits that the notion of risk harm could provide for the law. I have not attempted a defense of these uses of the risk harm idea, and it may be, as I said at the outset, that even if risk is a harm, there are reasons not to import that insight into the law. Furthermore, that we would find it beneficial from a legal standpoint to regard risk as a harm is not a reason to think of a risk of harm as itself a harm. Finally, we saw that there would be difficulties with the legal implementation of the risk harm idea. I have suggested answers to the difficulties we considered, but no doubt there are others waiting in the wings.

I end by acknowledging a risk that the notions of risk harm and chance benefit will not ultimately prove defensible. They are odd and presumably will be controversial notions. But unless theoretical errors by themselves create a setback to a reader's legitimate interests, I believe myself justified in thinking that I have not harmed my audience

⁸⁸ See *supra* Part II.B (discussing how the criminal law deals with such risky behavior).

by exposing it to as great a possibility of error as I have by defending these notions in this Article.