The Necessary Myth of Objective Causation Judgments in Liberal Political Theory

Mark Kelman

Follow this and additional works at: https://scholarship.kentlaw.iit.edu/cklawreview

Part of the Law Commons

Recommended Citation

Available at: https://scholarship.kentlaw.iit.edu/cklawreview/vol63/iss3/9

This Article is brought to you for free and open access by Scholarly Commons @ IIT Chicago-Kent College of Law. It has been accepted for inclusion in Chicago-Kent Law Review by an authorized editor of Scholarly Commons @ IIT Chicago-Kent College of Law. For more information, please contact dginsberg@kentlaw.iit.edu.
THE NECESSARY MYTH OF OBJECTIVE CAUSATION JUDGMENTS IN LIBERAL POLITICAL THEORY

MARK KELMAN*

INTRODUCTION

We may be uncertain in at least two important ways about the causal judgments the tort system arguably calls on us to make whenever a party, a potential plaintiff, suffers injuries to her person or property.

First, given that the injury cannot have occurred unless the plaintiff (P), at a minimum, existed, that is P is invariably a necessary condition for the damage to occur, we can never causally attribute any injury solely to a second party, a defendant (D). It will never be the case that injury could occur without the plaintiff, such that the defendant is entirely causally responsible. We must inevitably be uncertain then, about any moral system that purports to predicate liability solely on causation of harm, since we can never fully causally attribute damage to any D, and there is no obvious way to distinguish, on purely causal grounds, the relative causal contributions of two wholly necessary parties. This aspect of causal uncertainty—the most basic Coasean insight that parties interact to cause harm,1 an insight which I intend to refine a bit in the course of this paper—has important implications for libertarian political and legal theory, but it is of next to no importance to efficiency-oriented wealth maximizers. It is my contention that the libertarian attempt to solve problems of legitimating initial entitlements by recourse to “objective” judgments of causation is futile, but at the same time, nearly inevitable.

Second, even if we ignore P’s causal role, by treating his conduct as wholly morally legitimate and/or legally privileged, but decide to measure D’s duty to compensate by assessing the change in the value of P’s (broadly defined) “holdings” that occurred as a result of D’s conduct, we will face both serious conceptual problems and insuperable and widespread empirical problems in determining the extent to which D damaged P’s holdings. These problems are most widely recognized in cases involving toxic exposure where the impact of D’s conduct is simply to change the ex ante probability that P’s “holdings” will lose value,2 but

---

there is no way to tell, *ex post*, whether P’s declining fortunes resulted from P’s conduct, nor any way to agree on what the shifts in *ex ante* probability of damage had been. If the tort system demands an *ex post* finding of causation with *any* threshold burden of proof, both libertarians and wealth maximizers should despair greatly; expropriative rights violations and/or inefficient risk-taking will clearly occur. If the tort system attempts to shift to a system in which Ds must compensate those people they subject to risks, the problems can be theoretically eliminated, but a host of insoluble practical problems will arise nonetheless.

The problem is far worse than those who focus on the toxic torts imagine. *All* torts cases involve these sorts of factual issues of causal uncertainty insofar as the damages caused by any injury include not just the out-of-pocket expenditures incurred in reversing or treating the immediate physical effects of an injury to property or person, but the psychic costs of the injury as well. It is possible, for instance, to say how much the doctor charged you to treat a broken arm that the assaulter caused; it is simply not possible either to say definitively that he caused your ongoing anxiety or to come up with a workable system to apportion damages on the basis of a hypothesis about risk-of-anxiety shifts. Similarly, in all “economic loss” cases, our *hypothesis* about damages must be based on uncertain counterfactuals about what P would have done with an opportunity D destroyed or whether he’d have followed all the damage-reducing opportunities he actually followed had D not destroyed some initially advantageous opportunity.

It is my central claim that the two liberal theories of the state dominating mainstream legal thought, libertarianism and efficiency-orientation, both rely to an alarming extent on the false premise that causal uncertainty is a peripheral issue. In Part I, I intend to trace the importance of the first sort of causal judgment, judgment about who causes harm, to libertarian theory and to attack the usual libertarian solution. In Part II, I will analyze the significance of being accurate in the second sort of causal judgment, judgment about the *extent* to which unprivileged conduct alters a baseline state, for both libertarian and efficiency-oriented theory. In Part III, I will criticize attempts to argue that the conceptual problems of *defining* factual cause are soluable. I will argue first that while it is correct to note that we instinctively feel that causation is an ex


post inquiry, an inquiry that explores not what might have happened to P
given what D did but what in fact did happen, that our instincts are
premised on the fact that the consequences of taking that view of cause
are benign in the most readily conceivable cases. These instincts disap-
pear, however, when the benign consequences disappear; thus, the “ex
post” definition is fundamentally grounded in a false generalization,
a misapplied rule of thumb. I will also argue that there is no persuasive
definition of ex post causation that copes adequately with the problems
that arise when distinct defendants take actions that raise the probability
of accident, but may either be irrelevant in fact or redundant (dupli-
cative) in fact. Finally, I will argue that wholly probabilistic ex ante theo-
rists cannot persuasively define what they mean when they say that one
of two actors raised the probability of harm when their independent con-
duct is either redundant or when their conduct interacts synergistically
to cause harms that would not occur if one or the other ceased to act. In
Part IV, I will deal with the problem that our factual understanding of
cause, however defined, is frequently weak in particular cases, and criti-
cize efforts to argue that one can evade or ignore that problem. In Part
V, I will offer, and then reject, a possible theoretical solution to the prob-
lem that factfinders’ causal judgments are uncertain, one that relies in-
stead on the disputing parties’ subjective beliefs about cause. In the
conclusion, I will remark briefly on the relationship between causal un-
certainty and “non-liberal” thought.

I. CAUSATION AND THE ESTABLISHMENT OF ENTITLEMENTS

In a liberal culture dominantly wedded in broad theory both to
granting its citizens equal regard and to the idea that values are subjec-
tive, individual, and arbitrary,4 the establishment of an initial entitlement
framework is inevitably problematic. When one party is barred by the
state from pursuing his own ends, he is rightly prone to believe either
that the equality principle or the subjective value principle has been com-
promised. Either his ends are being treated as illegitimate (thus implicit-
ly invoking ideas of objective value) or his arbitrary and subjective ends
are being discounted, given less weight or credit than the ends of those
with whom he clashes (thus implicitly establishing hierarchies of more
and less entitled citizens). The underlying theoretical problem is present
even in cases in which there is a factual social consensus in assigning

(liberal dialogue is defined as that dialogue which is neutral as between persons and ends); R. UN-
GER, KNOWLEDGE & POLITICS 38-46, 76-81, 104-142 (1975).
initial rights: from the *theoretical* vantage point, it poses a problem to use state power to squelch a batterer's (arbitrary) desire to batter in order to protect the victim's (equally arbitrary) desire not to be battered, at least so long as we purport to protect each citizen's interests equally.

Libertarians and wealth maximizers each attempt to deal with this problem in distinct ways. I will briefly sketch the efficiency-oriented theory and then dwell on the libertarian effort, since only the libertarians use what they take to be objective causal judgments to solve the difficulty.

Efficiency-oriented commentators embrace value subjectivism most thoroughly, refusing to flinch in the face of the charge that it is wholly counterintuitive to treat batterer and victim preferences as equally valid, or rather, as equally arbitrary, equally immune to inquiries into validity. Thus, battery is tortious for the efficiency-oriented not because the desire to be free from battery is morally superior to the desire to batter. Instead, one believes either that: (1) as a factual matter, the usual intensity of preferences for each activity is such as to make us suspect that if batterers were given the entitlement, many more needless, and costly, transactions would inevitably occur as victims purchased contracts to waive the battery right than would occur if batterers had to pre- or post purchase waivers from victims; or (2) if the entitlement were assigned in a transaction-costless auction, victims would outbid batterers for the right to be assigned as they desired. Giving the entitlement to the victims then simply facilitates the manifestation of arbitrary, subjective desire.\(^5\)

The equality problem is a bit trickier for the efficiency-oriented legal economists. The legal economist can indeed recommend *shifting* from a batterer-entitlement to a victim-entitlement, both to reduce transaction costs and/or to mimic the outcome that would occur in a transaction-costless market, but he would not require that the newly entitled victims compensate the batterers; a shift in assignment of entitlements need only be Kaldor-Hicks efficient, not Pareto superior.\(^6\) The contention that the batterer's claims are treated equally although they may seemingly entirely lose out in the resolution of a particular case, i.e. have their arbitrary desires thwarted without compensation, is a (quasi-) empirical one. If *all* entitlement decisions are made in the way the legal economists recommend, *and*, as a matter of fact, no party is atypically *likely* to be on the losing end of decisions, everyone will benefit from the decision rule, even if in particular cases, they would benefit more from its violation.

6. For a lucid discussion of the distinction between demanding only Kaldor-Hicks improvement and Pareto superiority in the entitlement assignment context, see Coleman, *Efficiency, Utility, and Wealth Maximization*, 8 Hofstra L. Rev. 509, 512-20 (1980).
Thus, the use of this decision rule will result in a Pareto superior set of entitlements, even if each move is simply Kaldor-Hicks efficient, and hence potentially violative of the equality principle. Now, of course, if one demands only Pareto superiority, one need not necessarily satisfy certain visions of the equality principle, since nothing is said about the division of surplus, but once more, a parallel (quasi-) empirical claim comes to the rescue: since winners and losers of these disputes are supposedly random, there is no reason to believe that surplus is systematically inequitably divided.

Libertarians generally find this economistic picture of the entitlement-assignment process descriptively preposterous and morally abominable. But they too must face the problem that they are rhetorically committed both to value subjectivism and equality of regard. The strong anti-paternalist strain of liberalism, that is in fact especially powerful among libertarians, makes it impossible to resolve the controversy between batterer and victim on the basis of the batterer's true interests, on the basis of a supposition that his true nature is unfulfilled by battery. Instead, libertarians instinctively try to mediate the inherent ideological problem by claiming that each party is equally entitled to act out his arbitrary desires, so long as he does not violate another's rights.

In this first formulation, which formally solves the problem of equal regard and value subjectivism, the rights-assignment problem is obviously simply wished away: we cannot choose rights by announcing that we will pick "them" in accord with the principle that "they" not be violated. Generally, then, libertarians must derive rights from a morally plausible general statement about what might constitute rights-violating behavior: prima facie, the obvious candidate is that one ought not to cause harm (at least without justification). We are all equally unentitled to cause harm; we are all equally entitled to pursue whatever other whimsical ends we desire.

The libertarian solution, alas, simply does not survive a refined vision of the Coasean challenge, neither in its developed, but muddled, Ep-
steinian form,11 nor in its palpably question-begging Hart-Honoré form.12 Coase's claim, that each party harms the other when they interact, makes it impossible to assign rights in the common cases where desires clash because each party would seemingly harm the other if he acted on his desire.

Let's take the standard economist's interactive harm case: spark emitting railroad (R) meets crop-growing farmer (F) or upstream polluter (P) meets downstream user (U). We are supposed to assign an entitlement to either emit or be free from emissions; to either pollute or to be free from pollution.

(1) Coase's basic point, right as far as it goes, was that if what we meant by causation was but-for causation, then both R and F were but-for causes of whatever damage is done, for there would be no fire unless the sparks were emitted and crops placed near the tracks.

The point only served to remind people that they probably meant something beside but-for causation when they spoke of causation; it seemed awkward to treat a party as a cause, even when the party was in no sense an actor, just because he was a necessary condition for damage to occur. While F has obviously acted (planting crops), it is an easy task to imagine but-for causes who are supremely passive non-agents: comatose patients stabbed to death by intruders are nonetheless but-for causes of their own deaths, since in their absence, no killing could occur. It may well have contributed to Epstein's misguided effort to focus on active, invasive harm-causing to consider that the most rhetorically potent counter to Coase's claim that no one party could ever be the exclusive but-for cause of an injury to another was to think of the utterly passive, invaded harm-absorber.

(2) The more sophisticated, and, in my view, ultimately unanswerable, reformulation of the Coasean insight is that the damage that we are really considering when we focus on the typical interactive harm case need not be, as a matter of actual social practice or normative theory, the physical damage that would occur if each party acted without restraint or knowledge of the other party's activity. Instead, the relevant "damage" is the social cost, the additional costs borne by the two activities because they interact, over and above the sum of the costs they would incur acting in isolation.

It might indeed be the case that if F and R were either unaware of

11. See Epstein, supra note 8.
each other or unrestrained, the damage that would occur would be a crop fire. If, however, they were aware of one another, the "damage" might either be added spark-suppression costs or lost profits by setting crops further back. It is possible to see why those (somewhat mysteriously) wedded to the idea that all relatively passive parties should be causally discounted would tend to attribute the fire to the active R party. But it is very hard to see how or why one would causally attribute spark-suppression costs to the railroad rather than to the farmer's crops, if one had to pick one out; moreover, it seems perfectly apparent that it is the interaction of the activities that results in the costs, since, if either actor were in isolation, the costs would be needless.

Epstein tries to avoid this problem by invoking his own quirky definition of causation: only those supplying, threatening, or forcing others to employ invasive force are deemed to cause an event.\(^1\) (Added spark-suppression costs are thus presumably not caused by anything at all, in any sense relevant to Epstein, although it is hard to see why we should abstain from explaining the "event" of the railroad adding features to its machinery it would not otherwise add.) His position is neither plausibly complete nor morally compelling. The incompleteness has been pointed out on innumerable occasions: if D leaves his unlit car on a busy highway, it is P's car that forcefully invades when it smashes into the car, but it is surely the case that discounting either D's causal or legal/moral responsibility is foolish.\(^1\) If P is abnormally frightened by routine invasive D activity, Epstein argues that P, not D, causes his fright, although he certainly does not forcefully invade himself.\(^1\) Finally, Epstein must make some truly preposterous distinctions: two Ds change the lighting (and valuable amenities) of P's property: D1 shines a mirror on the property, causing it to be too bright, and D2 builds a fence that renders it too dark. Only D1 is a causally relevant invader in Epstein's view since only D1 is forcefully invasive.

The incompleteness, however, is just a symptom of the system's moral puniness. It is indeed true that a particularly obvious way in which we harm others is to invade their morally protected space with force; it is doubtless easiest to teach a small child that he is doing harm when he hits or breaks something or someone. But our activities cause harm in many more complex ways (for instance, by congesting facilities;

---

15. Id. at 1753.
by tempting people to follow an unproductive course; or, to return to the Coasean insight at issue, by making it necessary for people to take expensive steps if they are to avoid more directly causing damage), and there is little reason to restrict our sights to toddler's paradigms.\(^\text{16}\)

(3) If we look again at what the sophisticated version of Coaseanism sees as causing an interactive harm, the compatibility of the libertarian solution with value skepticism becomes extremely doubtful. What, at base, interacts to cause social costs is clashing desire: the mere existence of the downstream user (U) would not engender social costs (whether it be the installation of anti-pollution filtration systems or U’s cessation of recreational activity), unless he desired to use the water a certain way. Likewise, it is the desire of the polluter (P) to make a certain use of the water that engenders social costs, not his presence. Once we see this, we realize we must, in fact, establish some non-skeptical moral hierarchy of desires in establishing rights.

Hart and Honoré, although hardly causal “maximalists” like Epstein, define cause in a fashion circular enough to seem to evade the need for straightforward moral objectivism. The relevant cause for them is the unusual actor; the but-for cause that cannot simply be taken for granted, treated as part of the (legally privileged) background.\(^\text{17}\) Of course, as has been noted before,\(^\text{18}\) the question of which actor is simply going about his business and which is interfering with the ordinary flow of events can hardly be used to determine the legal cause of an injury when it will be significantly determined by decisions about legal cause. If P is entitled to dump wastes into the water, U’s decision to try to use the water will be the (disruptive) cause of harm; if U is entitled to use, P will change the ordinary course of events. Straightforward dialogue about morally preferred desires and values is needed; straightforward dialogue about desires and values is precisely what value skeptical liberalism believes impossible.

II. THE IMPACT OF FACTUAL UNCERTAINTY ON LIBERTARIAN AND EFFICIENCY-ORIENTED THEORIES

Libertarians, then, seemingly require an unattainable certainty about which party has caused harm in order to justify an entitlements framework given their commitment to value subjectivity. But let us sim-


\(^{17}\) See HART & HONORÉ, supra note 12, at 72-73, 79-80, 112-14.

\(^{18}\) See, e.g., Wright, supra note 14, at 1745-50.
ply assume away this problem: perhaps God speaks (audibly), or consensus values solve the legitimacy problem. Or, perhaps, one is efficiency-oriented, and "legitimate" starting points are simply not a problem.

What problems are posed by the second variety of causal uncertainty, by the fact that even assuming we treat one (privileged) party's (hereinafter the Victim or V) conduct as given, we can neither say with certainty whether a particular level of damage resulted (ex post) from the scrutinized party's conduct (hereinafter the Active party or A) nor say what shifts in the ex ante probability of a certain harm occurred as a result of A's conduct. The difficulties in deciding that A is an ex post cause of V's injury may result in some cases from the insuperable conceptual difficulties in defining an ex post cause (see Part III). Additionally, there would be problems in reaching an empirical consensus on whether A had caused a particular level of damage even if we agreed on a definition of cause, as well as parallel empirical difficulties in assessing shifts in the ex ante probability of damage. (See Part IV for critiques of purported solutions.) For now, I simply wanted to describe briefly what significance it would have if my claims in the next two parts are correct that we cannot reach consensus on the meaning or applications of causal judgments.

A. Efficiency-Oriented Theory

If factfinders could not make any causal judgments, they could not engage in any meaningful cost-benefit calculations about harm-averting precautions. It would clearly not be possible to apply economic versions of "due care" or "reasonable person" standards which require that defendants take precautions whose marginal cost is less than the discounted marginal harm they avert unless we knew whether the absence of the marginal precautions in fact resulted in the harm.

Traditionally, of course, issues of the standard of care and of causation are radically dissociated; it is commonplace hornbook wisdom that the defendant must both fail to meet the standard of care and be both cause-in-fact and proximate cause of the plaintiff's particular injury before he is liable,19 but, in fact this dissociation is ill-advised since some consensus about causation is clearly needed if an economically defined due care standard is to be sensible.

Shavell is correct that it is conceptually possible to separate questions of causation (the scope of liability) from determinations of the stan-

dard of care. It would be possible, for instance, to define the standard of care the defendant must meet simply in terms of replicating the conduct of average community members. If, however, one wishes to define negligence as the efficiency-oriented commentators do, it is essential that accurate causal determinations can be made. (Thus, it is the case that we can neither hope, normatively, that tort law be efficient, nor believe, descriptively, that it has been, unless we believe that fact finders can or have decided causation issues "right.")

The problem is particularly acute as a practical matter, because the cases in which explicit efficiency analysis seems most plausible are ones in which it is most likely that factfinders will be least certain of their judgments about the connection between conduct and consequence. When a court considers whether a nuisance-limiting precaution is worthwhile, its task is more explicitly efficiency focused than the task of identifying, say, negligent driving, where it is quite peculiar to think of courts really weighing the affirmative value to the defendant of swerving or speeding against the discounted marginal accident damage such conduct causes. But information on the health effects of pollution, the impact of noise on property values, the sorts of judgments most needed in the nuisance-type case, is least available.

Not only will factfinders be unable to identify negligent behavior unless they know the benefits of precautions (i.e. know the harm caused by their non-use), but it is also the case that the standard accounts of the presumptive efficiency of an administratively costless strict liability system fail as well if fact finders falsely believe that defendants engaged in an activity are causally responsible for harms for which they are not responsible. Shavell correctly warns of the possibility of "crushing liability" if defendants must pay for harms they did not in fact cause.

Assume that we are worried that those who drive through the park injure bicyclists. If driver-defendants pay all injured cyclist-plaintiffs (including, to take an easy case of noncausation, those who fall off their bikes when there are no cars in the park), defendants may stop driving in the park even if it is "socially desirable" (in standard efficiency senses) that they drive. Perhaps more significantly, given that our existing tort system totally absolves defendants who are not more likely than not to have caused plaintiff's injury, it is also the case that defendants will not

22. See Shavell, supra note 20, at 465, 476.
cease at least some activities that are inefficient unless they pay for all harms they cause. 23

B. Libertarian Theory

Libertarian tort theorists, like Epstein, are of course not especially concerned with efficiency, or net accident cost minimization. They are, nevertheless, quite concerned that the tort system serve as an effective corrective justice device. Such a system must maintain some initial distribution of entitlements that we are hypothesizing, for now, is separately legitimated by requiring that those who make unprivileged interferences with legally protected claims restore the protected plaintiff to the status quo ante. 24

If, however, causal judgments are problematic, and indeterminate, one cannot be assured that the initial entitlements are protected: to the extent that factfinders incorrectly refuse to find a causal nexus between conduct and harm where the plaintiff’s interests would be protected if such a nexus were found, plaintiffs will be effectively expropriated. The opposite point, however, is perhaps less obvious. If factfinders are unduly lax in either defining or finding causal links, then defendants’ “rights” will be stripped: they will in essence, act as insurers, pay what amounts to a non-uniformly imposed tax simply for engaging in what ought to be protected activities. If Shavell’s driver pays for uncaused cyclist’s accidents, he will act as a universal health-insurer, and thus bear a surcharge for engaging in legitimate activity.

The libertarian’s position can be put in another way. Libertarians see ideological significance in distinguishing those who acquire their economic power through disapproved means (“force, fraud, and coercion” is a typical litany) from those who acquire power only through the purportedly universally beneficent practice of contract. If this is one’s view, the need for uncontroversial judgments about causation is strong. 25
system (or regulation) is designed to insure that all alterations of entitled positions are paid for, not just those where a party pre-contracts to induce activity that otherwise need not occur. In the apologetic picture, the wealthy man is not only the one who is paid a good deal for the factors of production he commands by those who directly contract with him, but is one who need pay out little, both to those with whom he directly contracts with and to those whom he harmed without pre-contracted permission. If, however, tort victims are systematically undercompensated because it is difficult to prove that the alleged victimizer in fact caused damage, victimizers get rich simply through the weakness of the protection of non-contracting third party rights. They are, in effect, expropriators protected by the reluctance of factfinders to transfer money in a world of ambiguity about cause.

III. DEFINING CAUSE

Even if we knew each and every fact that anyone interested in connecting defendant’s (D) conduct with plaintiff’s (P) injury might want to know, there are powerful reasons to suspect that we could frequently not come to any consensus in answering the question, “did D cause P’s injury?” because there is no single account of what we mean by causation that is especially persuasive. I want to contrast and criticize two conceptual approaches to defining causation. I will look at how the first, ex post approach confronts cases in which only D’s conduct is factually relevant (i.e. where P’s conduct is fully legally privileged and no other actions besides that of P and D factually affect the possibility of injury). I will also look, regarding both ex post and ex ante probabilistic theories, at cases in which we must look at both D’s conduct and the actions of others. Both of the broad categories of approaches with which I will deal assume that the answer to the question of whether D caused P’s injury is fundamentally factual; that while the issue of whether we want to hold a causally responsible D liable may well be a policy issue, the question of whether, or to what extent, D caused harm to P can be answered objectively.

Those who believe causation is a factual objective issue may take an ex post perspective asking not whether D’s conduct would have been expected to cause harm but whether it actually did, or an ex ante perspective asking how D’s conduct shifted the probability of harm at the

ed. 1982) for a discussion of the importance of causation judgments in the distributive ethics of the late 19th century classical legal scholars who are prominent among the lineal ancestors of today’s libertarian theorists.

moment the conduct occurred. My arguments in essence support the more skeptical Realists, who argued that causation judgments could not be factual because no single concept of causation was uniformly satisfactory.\textsuperscript{27} I believe the Realists were indeed correct, that one must be a causal skeptic not only as to the possibility of learning facts about the external world but in deciding what the concept of cause might mean.

\textbf{A. An Explanation and Critique of the Belief That We Can Define “Cause” Objectively from an \textit{ex post} Perspective}

1. Situations in Which Only D’s Conduct is Relevant

Those who believe that the question of whether D caused injury is, conceptually, an \textit{ex post} inquiry into whether D did in fact harm P, not whether he increased the \textit{ex ante} risk of injury, can readily note that the correct \textit{ex ante} probability of an occurrence can readily differ from an \textit{ex post} probability estimate of whether it occurred. A weather forecaster may be correct in saying there is a 50\% chance of rain tomorrow; when tomorrow is done, however, it either did or did not rain (the probability that it rained shifts to zero or one). To take an equally simple but more germane causal example, when D pulls the trigger of the pistol he aims at P, there is some probability he will kill P (cause P to die), some he will injure him (cause P to be hurt) and some he will not hurt him at all (cause no harm). The sum of these three probabilities will obviously be one if I’ve correctly exhausted all relevant states P can be in after D’s conduct. \textit{Ex post}, however, D may much more surely have caused P’s death (the probability that he did would be one minus the extremely remote chance that a natural cause of death not revealed by autopsy immediately preceded the bullet wound), or may much more surely have caused no injury (one minus the minimal probability that the P’s health deteriorated from, say, fear even if unstruck by the bullet).

There is also something of a tradition among devotees of \textit{ex post} accounts of cause to deny that valid \textit{ex post} causal statements are themselves probabilistic, preferring to see \textit{ex post} causal statements as stories or convincing narratives of what happened, statements \textit{internal} to the particulars of the events that unfolded rather than derivative of statistical generalizations. A piece of external evidence makes the disputed propo-

\textsuperscript{27} See Malone, \textit{Ruminations on Cause-in-Fact}, 9 STAN. L. REV. 60 (1956), an article whose skeptical conclusions about the factual nature of the causal inquiry I support, although few of his examples or explanations are especially helpful for me. For some examples of similar skeptical views, see Weinrib, \textit{A Step Forward in Factual Causation}, 38 MOD. L. REV. 518 (1975); Zweir, \textit{“Cause in Fact” in Tort Law—A Philosophical and Historical Examination}, 31 DE PAUL L. REV. 769 (1982).
sition more likely, but a piece of internal evidence, if true, explains the truth of the disputed proposition. Judith Thomson's eloquent examples illuminate this approach to defining cause quite well;28 well enough, I believe, to call into serious question its plausibility as a reasonable definition of cause.

Assume, parallel to Thomson and Wright,29 that one person (X) instantaneously shoots 99 bullets in the direction of the victim (V) while another (Y) shoots but one in V's direction. Assume, also, that after the fact, the single bullet that entered V's body and killed him is identified by markings as coming from Y's gun. While the ex ante probability, based on what Thomson calls external evidence, that X would be the killer appears to be 99%, assuming we know nothing at all about how each party aimed, internal evidence, particular to the event, tells us to say that he did not kill V.

Case settled on ex post causal grounds? Thomson seems to feel it is, but that hardly seems persuasive. Let us make a further, fairly realistic assumption: tests making positive identification matching bullets to guns by examining markings are only 80% accurate (there are 20% false positives and 20% false negatives). The probability on the basis of tests alone that X, not Y, killed V is the joint probability that Y would test falsely positive (1 in 5) multiplied by the probability that X would test falsely negative (1 in 5): thus, there is a 4% (1 in 25) chance that X is the killer based on the "internal" evidence, compared to a 1% chance that Y is the killer based on "external" evidence.

I think Thomson is correct that most of us instinctively trust the internal evidence more, but I believe we have gained that (occasionally misleading) habit because we correctly perceive that in the bulk of cases in which only "external" evidence is offered, additional evidence unfavorable to the proposition suggested by the external evidence has been squelched. If all P tells us is that 60% of the town's red buses are owned by D, and that he was hit by a red bus, we tend to revise our "prior" Bayesian estimates of probability of .6 that D hit P downward on the ground that had D really hit P, P should have found some corroborating evidence.30 But this reasonable rule of thumb intuition will simply mis-serve us in cases in which absolutely no evidence beyond the "external" and "internal" first proffered exists. Consequently, in the case I men-

29. Id. See also Wright, supra note 14, at 1825.
tioned, where we know nothing but the number of bullets aimed by each party at V and a ballistics test of the form I hypothesized, it would really be more probable, *ex post*, that X in fact *killed* V than that Y did, not simply more probable that he *would* be the killer if all we had seen were the guns being fired. Thomson seems to be confusing a reasonable practical rule of thumb with a principled definition.31

Assume, however, that we will treat *ex post* causal judgments as probabilistic as well; we must still inquire whether it is more appropriate to use these than *ex ante* ones. While the criminal law may punish (as an attempt) tortious activity that did not, *ex post*, cause any harm, tort law by and large requires both that a damaged plaintiff be found, and that D be the cause thereof before demanding any payment by D. This result may once again seem reasonably, intuitively compelling to most of us; what I would like to demonstrate is that it is, once more, intuitively compelling for bad reasons. It is "wrongly" compelling because while it happens not to mishandle the most commonplace prototypical cases we have in mind when we think through this problem, its application as *a principle* to less intuitive cases leads to bad results. It is also "wrongly" compelling because it rests on, but does not defend, a simplified Hohfeldian view of social life in which we think of social relations as the sum of dyadic relations, assuming without argument that we must match each rights-holder with a particular duty-holder.

a. Misleading paradigm cases

To see why a focus on *ex post* causation may generally seem more reasonable than it appears on reflection we should look at four distinguishable situations. First, there are situations in which the *ex ante* probability of the defendant causing the relevant harm very nearly approximates one. Second, there are situations in which there is a small *ex ante* probability of harming any particular P on any particular occasion but D exposes many "Ps" to risk, either because he repetitively exposes at least one actor to a risk that is remote on any single occasion or he simultaneously exposes many actors to a risk that only some will ultimately bear. I will contrast these cases—which I believe are unduly the source of our causal intuitions since they describe the more routine easily described sorts of dyadic torts—with a third and fourth type of case. In the third situation, an actor whose conduct does not recur exposes a sin-

31. Thomson acknowledges that external evidence may give us better probabilistic information than internal evidence. See Thomson, supra note 28, at 131. Because she does not explicitly focus on the probabilistic nature of internal evidence, though, the contrast she draws between the two varieties of inferences is dramatically overstated.
gle plaintiff to an *ex ante* risk of harm, but the harm simply does not occur. In the fourth type, the defendant repetitively exposes each and every member of a potential P class to an increased *ex ante* risk of harm, but there is no clear *ex post* distinction between plaintiffs, *no causal resolution*.

In the first situation, in which the *ex ante* probability of harm approximates one, it is quite obvious why it would not test whatever intuitions we may have that *ex post* causation must be proven to note that we formally require it, because if the *ex ante* probability of harm closely approached one, a finding of *ex post* causation would simply mimic a finding of *ex ante* causation. If *every* anaesthesiologist who administers 100 times the proper dosage of nitrous oxide can be *expected* to kill his patient, the number of anaesthesiologists who would escape liability because we require *ex post* causation would be monumentally tiny. (Only those Ps who happened to die of independent causes before the nitrous oxide could have acted on them in any way would be clearly immune under all prevailing *ex post* views.)

The second situation, in which D exposes a P or Ps many times to a small risk, is a bit more complex, but once more, it seems that the most powerful *reasons* we have to follow an *ex post* view have nothing at all to do with the appropriate *definition* of cause. Assume, to take an easy prototype of this sort of case, that D exposes 10,000 Ps to a 1 in 10 risk of dying and harms them in no other way and that we assess money damages equally for any P's death. For instance, D puts 1000 poison capsules into 10,000 different glasses of water that people are certainly about to drink; no one else is harmed, for instance, by fear, since no one learns of what is befalling or what befell the others. It is of no moment, from D's vantage point, if we could costlessly assess his liability from an *ex post* causation or *ex ante* risk creating perspective: he will either owe 1000 people the damages due on death or owe 10,000 people 1/10 those damages if he is instead responsible for an *ex ante* risk creation.32 Now, of course, it is likely the case that 1000 cases will be settled more cheaply than 10,000, so that a desire to save in administrative costs, all else equal, suggests the *ex post* approach. Moreover, to the extent that we want all Ps to wind up just where they had begun before their entitlements were invaded (a compensation or rights-protecting function), the *ex post* ap-

32. One can present cases within this broad prototype in which there is some possibility of divergence between *ex ante* and *ex post* judgments, if one picks a case where there is a probability distribution of harm, rather than a certain probability as there is in this case, but obviously even in those cases, as the sample size of potential Ps grows, the chance of significant divergence in results for D becomes smaller.
NECESSARY MYTH

proach may seem preferable. Now, of course, each P could protect his entitlements through insurance; if we assume that the Ps would in fact insure, the ex post causal system simply furnishes a form of administratively cheap insurance. It is important to rule out an unacceptable alternative: an ex post right to be compensated for having been subjected to risk, in addition to an ex post right to recover for actual injury if it occurs. Defendants would clearly overcompensate in such a legal world. In practice, of course, if a D is responsible for the total amount Ps would require to bear risks, his total liability may exceed total expected injury levels as a result of risk aversity.

If there is a principle, however, that demands that ex post causation be found here, rather than a habitual operative rule of thumb we acquire because it minimizes administrative costs while doing no more or less to either punish wrongdoing defendants, or deter those contemplating parallel activity, it must be one based on the claims of plaintiffs. Thus, proof of causation is a limit on liability that is imposed not so much to limit the liability of Ds—it does not do this in any interesting way in these sorts of cases—but to allocate damages among Ps. In other words, it must be premised on the idea that factually non-injured plaintiffs would receive a windfall and injured plaintiffs bear an unjustly uncompensated loss if we use an ex ante system.

There are several points worth noting if this observation is true: (1) Thomson’s statement that the requirement in tort law that one causes harm is likely based on the freedom of action of defendants—a statement that is quite implausible in any case given the fact that attempts, which are distinguished by consummated crimes solely by the absence of caused harm, are frequently criminalized—becomes extremely implausible. Where a single P is exposed to risk repeatedly, we would expect both P and D to be utterly indifferent between ex post and ex ante causal standards over the long haul if they did not bear transactions costs, and for the social decision to be grounded solely in administrative cost calculations. Where multiple Ps are exposed, the D should again be indifferent; it is only the Ps, inter se, who may care which rule is used; (2) In situations, like the fourth prototype I will return to, in which Ds will usually not be treated the same under either decision rule, causal instincts based on the supposition that nothing much is at stake other than the appropriate division of what amounts to a fine on defendant conduct among actual victims and those who now seem to be no more than erstwhile potential victims are apt to be misleading; (3) There may conceivably be

a libertarian corrective justice principle that demands that P entitlements be framed in terms of rights to full compensation for injury rather than full compensation for risk exposure, or, correlatively, a principle that no P could be entitled to protection from risk unless he is actually injured. However, I have trouble constructing such a persuasive principle. It might arguably be seen that a risk-compensating system “forces” people to purchase insurance to protect their initial welfare positions from wrongful diminution in value, but unless we beg the relevant question and assume that they are entitled to maintain the welfare position, rather than entitled to be paid for risks of losses, it does not force them to do anything at all to protect their entitlements. Perhaps the risk-compensation system looks illegitimate to the corrective justice advocate because the tort becomes an occasion for state-based redistribution; the relative shares of (uniformly uninsured) plaintiffs will be different after the tort, because of state action, than before. If the libertarian state treats the initial distribution of welfare positions as sacrosanct in the absence of voluntary shifts (contract, gift, bequest), then a risk-compensation system might seem to fail the libertarian test, not because it illegitimately redistributes between Ds and Ps but because it alters the shares held by risk-exposed Ps.

Even if this view were persuasive, it may suggest, however, nothing more than that factually damaged Ps have legitimate causes of action against undamaged ones (a kind of loose analogue to contribution suits among jointly responsible Ds). Once more, an ex post causal requirement simply serves to eliminate the administrative costs of such quasi-contribution suits, not to help us define why a tort intrinsically, conceptually, or factually demands that damage be done. But the view is ultimately question-begging in precisely the way the prior argument was. At the moment the hypothesized tort of risk-creation is committed, each potentially injured party is restored to the status quo ante position; if these Ps end up in different places, it is because they chose to insure or not against the fruition of the risk, but there is nothing intrinsically state-redistributive about this outcome, since it can be seen to rest entirely on private gambling decisions that postdate the restoration of the status quo ante.

The third paradigm case tests (and then refines) the proposition that I suggested in exploring the second sort of case that ex post judgments are acceptable only when Ds are treated the same regardless of the test. In the third sort of case, D exposes a single P to a risk which does not materialize. Here, the ex post focus releases a particular D, although if one looks at a group of similar Ds, each exposing Ps to a parallel risk, each D faces, at the moment of decision, the same expected “fine.” Once
more, administrative costs are saved. Moreover, to the degree that this is desirable, only injured Ps are compensated (and costly insurance markets for the potentially injured skirted); ex ante deterrence (for risk-neutral Ds) is unaltered.

If one believes that the ex post test is conceptually proper, one believes this is an easy case not only because we have saved administrative costs but because we have avoided capricious transfers from Ds entitled to their good luck to Ps. If one believes it is conceptually un compelling one sees that the best defense against the charge that the ex post focus affirmatively sacrifices justice to administrative efficiency is that the Ds are simply implicitly entered into a basically fair and socially efficient lottery. In other words, if one is drawn to an ex ante view of defining cause, one worries that the existing ex post tort system is fair to these Ds in only an ex ante probabilistic lottery ticket sense. Once more, libertarians who favor minimizing the occasions for state intervention in pre-injury distributions may be drawn to the fact that all non-injured risk-exposed Ps and all the lucky non-injuring Ds are allowed to continue through life without state scrutiny (assuming, heroically, the Ds have not attempted a crime). But this desire to minimize the number of interactions between state and citizens is hardly an intelligible principle, and there is very little reason to defend the post-judgment distribution between Ds that occurs. Obviously, libertarians are unmoved by the Rawlsian argument that one cannot be entitled to one's good fortune, whether the genetic capacity to be productive or the luck of being the object of a bountiful testator, but in situations in which one is choosing between two schemes setting out parties' duties, each of which is equally consistent with protecting recognized correlative rights, one is hardpressed to see why the fact that one system rewarded luck, and only luck, ought not to count rather heavily against it.

In short, this third case should seem a close one; administrative convenience and a desire to compensate only the factually injured Ps suggest that the ex post cause "rule" is a reasonable one, but its tendency to maldistribute the "fines" the Ds must pay makes its desirability questionable. If ex post views of cause were really generally conceptually compelling, the fear of maldistribution would simply vanish.

In the fourth class of cases, I believe the "instinct" that particularistic ex post cause must be shown to connect victim injury to defendant conduct is remarkably weak, precisely because it is in these cases that

34. See e.g., R. Nozick, supra note 9, at 213-27. See also M. Sandel, Liberalism and the Limits of Justice 66-103 (1982).
using it has some real adverse consequences. In the fourth class of cases, there is never any particularistic causal resolution. A polluting defendant increases the risk that each of a thousand pollutees will contract cancer, but no single case of cancer can ever be traced with certainty _ex post_ to the polluter. It may not be impossible to treat these cases in an _ex post_ probabilistic fashion, but it is probably unavailing for we must completely abandon not only particularism and internal evidence, but ultimately, and more definitively, _hindsight_. If we simply assert that because the population would have been expected to develop 50 cancers in the absence of pollution and 75 in its presence, that it _did_ in fact develop 75, although nothing we can see in examining the 75 dead enables us to link the disease to the conduct, we can _say_ that the pollution both was expected to increase the risk of cancer by 50% and that it _did_ so increase the risk. Obviously, however, most advocates of _ex post_ causation will justly consider this a confusion of _ex post_ and _ex ante_ concepts because our _judgment_ of P's causal role is by hypothesis unaltered by the passage of time; we learn nothing by looking back from the moment of injury that we did not already know at the moment the tortious "force" was unleashed.

If we contrast a tort system (like ours) that by and large demands _ex post_ particularistic causal connection in a case such as this, with one that does not, we see that in this case: (1) defendants are not indifferent to the choice between regimes as they were in the first two cases, but instead vastly prefer the _ex post_ system to the _ex ante_ one because they will never pay the "expected damage" that arises from their conduct; (2) all plaintiffs either prefer the _ex ante_ to the _ex post_ system or are indifferent between them; there is not simply the problem of distribution of compensation among the dead and physically unharmed Ps that we saw in case two but a redistribution from Ps to Ds; and (3) the state will have failed to protect the welfare positions of entitled Ps; action that no one will defend as privileged will have shifted the value of Ps' holdings.

The lack of causal resolution in these cases is more profound than the kind present in the famous market-share liability cases like _Sindell_, which simply fail one aspect of _ex post_ causal linking—an inability to map the particular P to the correct D source. _Sindell_ is really not an especially tricky case conceptually, however. Assume, first, a situation in which we are as close as possible to being absolutely certain that D

---

35. See _supra_ note 23.

caused, in an *ex post* sense, a harm to a member of the P class but can't identify which P he injured. Four shooters shot one bullet each at four victims and each died, but we can't in any way identify which victim any of the shooters injured. Even if one is wedded to the *ex post* view, attributing $\frac{1}{4}$ of the total damages to each D should hardly be especially offensive; one knows that harm was done, tortiously, that there is internal, particularistic, *ex post* evidence to connect harm to malfeasance. In *Sindell*, the *ex post* probability, given the large number of sales of identical drugs, that any manufacturer was especially lucky and caused, *ex post*, a disproportionately low number of compensable injuries and deaths is not zero, but given the sample size, sufficiently close to zero that operating on the assumption that each contributed to the pool of injuries in proportion to the pool of risky "invasions" they made is hardly any more exceptional.\(^3\)

What is infinitely trickier than abandoning particular connections between named Ps and Ds for the *ex post* theorist is to abandon the retrospective link between injury and conduct; to abandon hindsight altogether. But my claim is that when we do not abandon this link, in this fourth class of cases, results are so manifestly unacceptable that we should re-examine whether we were wedded to the "principle" that *ex post* cause must be shown in the first place, rather than that it was harmless or administratively convenient to look for *ex post* cause in the simpler tort cases we tend to focus on, whether because they were historically more common, easier to grasp, or fit a non-administrative bipolar legal model most readily.\(^3\)

In sum, even if one grants that we instinctively accept an *ex post* non-probabilistic view in defining what it means to say a party caused an injury, our instincts may be grounded largely in generalizations that adopting such a perspective will ordinarily have either beneficial or neutral consequences. We may be non-probabilistic because, as a rule of thumb, the failure of a plaintiff to proffer internal evidence is often probative of an absence of causal link. We may adopt an *ex post* view because in the simplest paradigm tort cases, it either does not matter at all or it

---

37. The precise rules for apportionment of damages established in *Sindell* are more complex than this description implies, in part because of problems the court perceived in allocating injuries that resulted from the conduct of actors no longer available as defendants to parties who are available. For a good discussion of the details of the *Sindell* "rule," see Robinson, *Multiple Causation in Tort Law: Reflections on the DES Cases*, 68 Va. L. Rev. 713, 717-36 (1982).

38. For the classic discussion of the traditional notion that the "law" resolves bipolar disputes about past conduct and restores particular parties to their initial entitled position through simple remedies, see Chayes, *The Role of the Judge in Public Law Litigation*, 89 Harv. L. Rev. 1281, 1282-88 (1976).
matters rather little and saves administrative costs. Where these general-
izations are false, however, and the consequences of sticking to the ex post view are less comfortable, the view itself holds no obvious appeal and seems to provide little independent weight for making a certain sort of decision.

b. Undefended dyadic reasoning

Most corrective justice advocates seem to assume away what seems to be a quite difficult problem, assuming that tort law ought to involve the resolution of conflicts between particular rights holders and those who have breached correlative Hohfeldian duties. It is a commonplace mistake to leap from a necessary, tautological truth in Hohfeld—that every right must give rise to a correlative duty—to a falsehood, that every individual right-holder's right can be vindicated by that person calling on a particular duty-holder to vindicate it, either through non-violation or compensation in something like a dyadic law suit.

This error is commonplace in libertarian distributive theory. Epstein, for instance, believes that we can argue against the right to receive welfare payments on the grounds that we can make good arguments against imposing a dyadically-vindicatable duty of beneficence on rich citi-
zens. But the right to welfare may be correlated with a taxpaying welfare-state supporting duty, not with a duty that can be vindicated by the would-be recipient of beneficence making claims against any particular duty-holder. In fact, most of the arguments routinely posed against a dyadic duty of beneficence—the difficulty of fully realizing the duty, the problems of stating the scope of the duty in reasonably administerable rule-like form, the problem of distinguishing duty-holders from those spared the duty on the horizontally inequitable basis that one may by chance encounter remediable suffering while another does not—seem to apply rather poorly to the non-dyadic taxpaying duty.

We live in a modified welfare state, where such non-dyadic support duties are not only contemplated but enacted; we do not assume that the operative legal distributive system must remain wedded to diadic form. There is likewise no reason simply to assume without argument that because our initial instincts in constructing a legal regime, and all its sub-

systems, are to imagine rights and duty holders neatly aligned, that we must do so. The point is both transparently obvious and deeply hidden: torts systems could obviously dissociate plaintiffs from defendants, just as the legal economists have tended to suggest. Defendant "fines" could be paid to the state, to deter wrongdoing/inefficient harm-causing; plaintiffs could be compensated out of general revenues, perhaps because we want to insure the whole class of misfortunes tort victims suffer, perhaps because we want to insure only those injuries suffered in a certain fashion. If we decide to link the fates of defendants and plaintiffs there must be a reason; it is insufficient simply to note that if one is accustomed to imagining all rights and duties dyadically, their fates will inexorably be linked.

2. Situations in Which D's Conduct Is Not Exclusively Relevant

Most cases readily recognized as posing difficult definitional problems for ex post causal theorists involve multiple relevant actors and actions. Thus, D's conduct, taken alone, would not have caused the relevant harm, but harm does occur subsequent to D's acts, in the presence of other acts and/or "conditions" (disregarding, again, the presence of the plaintiff whose conduct I will again treat as fully legally privileged for simplicity's sake). For the pure ex ante causal probabilist, D's actions cause harm only in the sense of increasing the probability given all expected conditions. Ex post probabilistic theorists could adopt a variant of that definition which I will call a modified ex post system (MEPS). The question a MEPS theorist would pose is this: given the conditions external to D's conduct that in fact occurred, rather than those that would have been anticipated, what shift in the probability of harm occurred as a result of D's action? To put it in a way that perhaps better captures the ambiguity of the test: if we knew at the time D acted which of the conceivable set of conditions external to D would in fact arise, how much would the ex ante probability of harm alter if D then acted? But this view is ex post in a very partial sense: while some issues are resolved—what forces will turn out to interact with D's conduct—the causal issue is fundamentally transposed into an issue of shifting probabilities, one that is simply unresolved by the passage of time.

More commonly, however, ex post theorists want to resolve the question of whether the particular act caused the harm. (If their ex post causal judgment is acknowledged to be probabilistic in any form, it is simply a concession to the harsh reality that fact-finding error is always possible. For instance, the ex post theorist may believe there is a 95% probability that X killed Y if the bullet marking tests that identified the bullet as fired from a gun that X fired is 95% accurate. In the absence of
the possibility of fact-finding error, however, the question of whether D caused P's injury should be conceptually wholly resolvable.)

The most plausible conceptual definition of cause that purports to make the ex post inquiry resolvable is the NESS (Necessary Element of a Sufficient Set) Test, best expounded on the philosophical literature by Mackie and in the legal literature by Wright.

The question we (try to) ask when using the NESS test is whether D's act was a necessary element of a, not the, set of circumstances that in fact existed and accounted for P's injury. One can distinguish it readily from the more ambiguous modified ex post probabilistic test by reference to an expanded version of an example used by Wright to illustrate the test: Assume that D1 wrongfully unleashes two units of pollution and D2 five, in a situation in which five units is sufficient to cause the damage. The NESS test seemingly implies that D1 (as well as D2) causes the injury because D1's pollution would be needed to cause the harm if D2 had unleashed only three units, and since three units is a subset of the five actually released, D1's pollutants are a necessary element of a set of the actually existing circumstances that gave rise to the harm. Assume now that at the time D1 acted, there was a 50% chance that D2 would unleash two units, a 40% chance he would unleash three and a 10% chance he would unleash five. Ex ante, the probability that P would be injured would be 10% in D1's absence and 50% in his presence, so his ex ante probabilistic contribution would be 40%. In the MEPS system, however, where we know that D2 in fact spewed forth five units, the probability of harm was one with or without D1's action and D1's causal contribution is therefore non-existent.

One might comprehend the NESS test even better by looking at the cases it seems designed to differentiate: redundant or duplicative vs. successive or preemptive causal cases. In the successive causal cases, harm has befallen P before the D1 we are focused on has acted. It is not simply the case that D1 has failed to alter the probability of harm; it is that there were no existing circumstances which required D1 to complete the harm (D2 acting later is, in this view, asserted to be not a subset of D2's actual acts but an entirely different act which might have, but did not occur.) In the redundant cause cases, D1 is invariably a necessary element of a set of existing circumstances sufficient to cause the harm, because we can always eliminate the redundancy (and thus create the appearance of D1

43. Wright, supra note 14, at 1788-1803.
44. Id. at 1792-93.
NECESSARY MYTH

necessity) by positing that all other actions were reduced in scope to a subset small enough to require D1's participation. Take another of Wright's examples. When D1 sets a small fire which merges with a D2 fire which is itself sufficient to do all the relevant damage, D1 is still a NESS cause since it is a necessary element of a set of actual antecedent conditions which include another fire at least large enough to be sufficient for the injury if it merged with the fire the size of the D1 fire.45

While I believe the NESS test is by far the most coherent effort to define causation in such a manner that it seems like the issue of causation is potentially factually resolvable, I believe it is a failure in at least three distinct ways, each of which standing alone is sufficient to render the test unpersuasive (and thus cause us to discard it). Although I expect most readers will find my second argument the most counterintuitive and unpersuasive of the three, I myself am convinced all three flaws are fatal. First, the NESS test is hopelessly vague and manipulable in defining what antecedent circumstances actually existed at the time of the accident as a hypothetical subset of the full-blown observed conditions that in fact existed. Second, there exists an ambiguity as to why it is permissible to hypothesize that sub-sets of existing conditions may have existed but not interpret or name prior conduct in terms of its intended effects, rather than in terms of its precise physical motions. Third, it falsely assumes that there will be causal resolutions in a variety of cases in which this seems implausible. It is simply not the case that a certain condition will inevitably either be seen to be needed or not after the fact. It may never be certain whether the condition was ever relevant.

a. The subset problem

The NESS test works to implicate causally a D1 when he is not a but-for cause of harm because he is redundant only on the assumption that redundancy can always be eliminated in contemplating what sets of circumstances existed at the time D1 acted. Redundancy can, indeed, always be eliminated in a purely formal matter, by assuming that a conceivable existing “subset” of D2's activity is some less “extensive” variant of that activity, such that D1’s conduct is the marginal, supplementary contribution to the less extensive subset which is necessary to result in damage. This technique appears reasonably plausible (at least at first blush) when dealing with cases like the pollution case in which it seems reasonable to imagine that “part” of D2's actual activity, rather than a wholly different hypothetical activity that simply did not in

45. Id. at 1793-94.
fact occur, is the less extensive activity that requires D1's acts to "complete."

The difficulty of this purely formal technique can most readily be seen if we think about cases in which our legal system has traditionally (and wisely) disclaimed a need to find a causal nexus between conduct and consequence. Imagine a principal (P) and accomplice (A) in a situation in which P murders V shortly after A shouted encouraging words like, "Kill the scum." Most of us would (wisely) say that the question of whether A in fact caused the killing is simply unanswerable, although we may have some (weak) opinions about probabilistic shifts. The formal NESS test, however, is so inherently manipulable that A must be deemed a cause; a formal, hypothetical subset of the actual principal, willing to kill V with or without A's encouragement, must be a P exactly willing enough to kill V that he would not do it without A's encouragement but would do it with the encouragement. If we can assure ourselves that formally hypothesizable P is an "actually existing condition" (because a subset or part of the actual conditions), then A is indeed a NESS cause.

But this formally available hypothetical P is surely a pure fiction; a person willing enough to kill V with A's added encouragement but unwilling to do so without it may not in any way be the actually existing P but a wholly different person and thus may not be a subset of reality but a different reality.

Even in the ostensibly easier pollution case, the premise that D2 could have actually, rather than hypothetically, spewed forth only three units of pollution simply need not be true; there may well be no actual circumstances in which that hypothesized subset could have existed (e.g., if D2 operates his pollution-spewer at all, he spews forth at least five units).

The NESS test is, in short, wholly manipulable and conceptually unacceptable as an ex post actual cause test if we make no effort to distinguish between hypothetical subsets and actual ones. Likewise, as the accomplice example illustrates, neither is the subset concept clear enough to administer the test.

b. Subsets vs. apt sets

NESS theorists find that D causes harm even when seemingly redundant by claiming that he is in fact needed, given the supposition that

46. Typical cases disclaiming the need to find that an accomplice caused the crime, rather than that he did something facilitative, are State ex. rel. Att'y Gen. v. Tally, 102 Ala. 25, 15 So. 722 (1894); Wilcox v. Jeffrey, [1951] 1 All E.R. 464. See, for a discussion of the traditional rule, G. Williams, Criminal Law, The General Part 381-83 (2d ed. 1961).
we can interpret other actors as doing not just what they actually did but exactly enough less so that they would have required D. The second question that must arise in examining the NESS test is whether we can not be precluded from finding that Ds cause harm, even when they were seemingly needed, by interpreting other conduct in such a way as to make their contribution unnecessary.

Assume that D1 starts a fire that is about to go out but still has a few flickers and D2 pours gasoline on it, so that the fire builds up again and destroys structure S. At first blush, D1 is a clear NESS cause: a set of actual antecedent conditions appears to be gas and preexisting fire and D1’s preexisting fire is necessary to cause the damage. The problem is that this method unreasonably assumes that D2’s activity has a single plausible interpretation: in this case, “pouring gas.” But D2’s conduct can also be interpreted or named differently: D2 can quite reasonably be described as doing whatever is needed to burn S down. If that interpretation/description of D2 is valid, the NESS theorist is then confronted with the rationally nonfalsifiable possibility that the appropriate ex post time frame disjoins D1’s activity from D2’s. If the time frame is disjoined, D1 first unsuccessfully attempted to burn S down, then D2 successfully did it. These two interpretive transformations—treating D2’s conduct as an instance of generally apt efforts to burn a structure and disjoining what NESS theorists must treat as a single narrative—are hardly either irrational or implausible. If the story I told you about the facts of this “case” were “D1 tried to burn a structure and failed, then D2 came along and did what he had to do to burn the same structure,” I would hardly be misdescribing the situation.

Mackie's basic argument, echoed by Moore, that we cannot characterize D2’s conduct in terms of its purpose (i.e., to use the jargon, describe it as an act-type rather than an act-token) seems to me ultimately unavailing. While it is tautologically true that one would violate “principles” of extensionality if it indeed altered the truth value of the expres-

48. This problem arises in criminal jurisprudence in the context of impossible attempts, in which, in temporal terms, the defendant has completed his conduct and yet has not done an act violative of any existing prohibitory norm. Unlike cases of interrupted conduct, where we try to infer what the defendant might do next in trying to answer the question of whether he intended to commit a crime, in impossible attempt cases, we must rename or reinterpret a defendant’s conduct in a less narrowly act-focused fashion if we are to convince ourselves he intended to commit a crime. If a defendant puts his hand in an empty pocket, and we can only understand his conduct in terms of the precise steps he took (putting his hand in an empty pocket), we are stuck believing he intended no crime. If we rename his conduct—defendant did what he could to pick a pocket, to take money—his acts bespeak an illicit intention. For a far fuller discussion, see id. at 620-24.
49. For a discussion of disjoined time frames in the criminal law context, see id. at 616-20.
sion “X caused Y” simply to re-describe the same X or Y, the problem is not in the interpretive reconstruction but in the use of the term “cause.” The problem may be that it is so inevitably underspecified that statements about cause will indeed be true or not depending on the description of the acts. More realistically, we might ultimately be able to specify a definition of cause that preserved extensionality, but the more specified definition would have no substantive appeal to those initially drawn to the effort to define causation.

Furthermore, Mackie ultimately must rest his case on an unconvincing supposition that one can objectively distinguish act-types from act-tokens, and that there is a single plausible level of individuation or specificity in looking at an event. Presumably, the reason that Mackie’s followers cannot describe D2’s act as “doing what was needed” is that if we use such a description, we will not have accounted for the precise fire that occurred, but some hypothetical fire. The problem with this view is that we may have to describe how precise we need be in naming the fire for which we must account. An even more precisely described fire may have required that the house be painted blue and thus give off blue paint fumes; in this view, the painter surely “caused” the very particular fire. But that level of individuation (fine-graining) seems to make causation inquiries utterly uninteresting; the relevant (and open) question is whether it is interesting to distinguish the fire we see (gas plus match) from any other structure-destroying fire. (This problem is most lucid if we believe that D2’s actual act, tossing a match, would have destroyed the house even without the presence of the gas, perhaps more slowly and “differently.” But the problem hardly goes away if we simply view D2 as not having had to complete his own destructive plans.)

We do not have strong conventions about when to conjoin and when to disjoin incidents and/or clear ideas about whether it is best to describe conduct in precise physical detail or in terms of its goal-oriented meaning. We will thus be unable to say whether a party was a NESS cause whenever we believe another actor would have succeeded in causing the harm in his absence.

c. Irresolution

Even if we ignored the serious problems that redundancy (overdetermination) is wished away as a problem by the NESS theorist’s false supposition that hypothetical subsets are actual antecedent conditions, the problem would remain that the NESS theorists assume away the equally serious problem of underdetermination. It may frequently be the
case that we cannot fully account for an accident; it will simply remain unclear, \textit{ex post}, whether or not a particular act was a \textit{necessary} element of a sufficient set.

Take the common case where $V$ is injured and $D$ failed to take a safety precaution; for instance, $V$ falls down a stairway that $D$ left unlit.\(^{50}\) It is not simply the case that $D$'s conduct may have been redundant—I do not mean merely to restate my complaint with a procedure that hypothesizes that $D$'s conduct supplements a hypothetical subset of actual $V$ and non-$D$ conduct which is described as $V$ and non-$D$ conduct sufficient to cause $V$ to fall if the stairway is unlit. It is also not the case that we would know, \textit{ex post}, whether $D$'s conduct is \textit{needed}. Assume that the only other factor in the fall is that $V$ was very drunk, so drunk that he would have fallen regardless of the amount of light, and that the supposedly plausible subset of his drunken state is that he was drunk enough to fall only if the stairway was unlit. There may well be no point at which we are sure that a slightly less drunk $V$ plus an unlit stair was needed to cause \textit{this} accident. The unlit stair may well increase the probability of falling at any level of drunkenness, but there is no level of drunkenness at which it becomes necessary to account for the actual fall. To further illuminate this point, if we imagine that $V$ was not drunk at all, presumably a subset of being fully drunk, we may believe the accident simply would not have occurred. In other words, to alter the subsets until $D$ is \textit{certainly} needed—since no other factor is present—is to fail to account for the occurrence. But as we increase the level of $V$'s drunkenness—raising the probability of the fall \textit{with or without} an unlit stair—we simply never get to a point at which the unlit stair is \textit{needed} to account for the fall, since at any point other than no drunkenness, there is some possibility that $V$ would have fallen on a lit stair.

One might try to blunt the force of this view of the case by asking factfinders to determine only that there is some imaginable level of drunkenness (a subset of $V$'s actual condition) at which it is more probable than not that the accident would not have occurred but-for the unlit stairway, and claim that one has simply then asked the factfinder to say that there is a preponderance of evidence that $D$'s conduct was necessary. This, however, is extremely strained. What the factfinder believes is \textit{not} that $D$'s conduct was necessary, but that it was risky. If the weatherman plausibly predicts a 51\% chance of rain, I do not think there is a preponderance of evidence that my umbrella is necessary but perfectly good evidence that it is more likely to be useful than not.

Unless falls look different when they solely result from V's drunkenness rather than when they are a joint product of drunken Vs and unlit stairs, there will simply be no causal resolution. Of course, one can hypothesize cases in which there is likely to be at least a probabilistic causal resolution. If a drunken V successfully navigates 100 stairs and falls on a defectively repaired step 101, we may reasonably believe we know that it is highly probable that the defective stair was necessary for the injury, even though ex ante we may not have known that the stair would cause an injury. But there will frequently be cases in which such causal resolution is unavailable: for instance, the bulk of nonsurgical medical malpractice cases and the bulk of cases involving defective precautionary or safety equipment will be causally unresolved in precisely the way that my initial hypothetical case remains unresolved.

B. Conceptual Problems in Openly Probabilistic Theories

Probabilistic theorists of causation do not claim that we can ordinarily say whether D was or was not the cause of a particular injury; they only claim that one can say he is at least partly causally responsible to the degree that he increased the probability of injury. In cases in which there is (near) zero probability of injury in the absence of D's action and (near) one probability in its presence, we can conveniently speak of D as the injury's cause, but such cases hardly require us to think in detail about what precise view of causation we adopt, since they are treated the same way regardless of our conceptual vantage point.

D, on the other hand, might simply increase the probability of harm, either in a pure ex ante sense (viewed from the point in time at which action was taken) or a MEPS sense (looking backwards from the vantage point of the injury, given that we will have resolved the question of whether some conditions which prospectively might or might not have occurred at the time of D's action either have or have not in fact occurred). In such cases, several openly probabilistic causal schemes are possible. First, D might be liable only for the ex ante expected damages (e.g., if there were a 20% chance that P would sustain $100,000 of damages given D's actions, he pays $20,000; if there is a D2 who acted in such a way that there is a 40% chance of P sustaining the $100,000 of damages, D2 will pay $40,000). Such a system seemingly overcompensates Ps for the risks they bear when D1 and D2 act independently, and it undercompensates them in many cases in which there are synergistic effects (i.e. the probability of harms when D1 and D2 both act is higher than the probability of harm that would exist if they were causally
Second, a single D might be liable as a MEPS cause for the whole damage P suffered, even if prospectively D only risked such damage, if no other legally relevant circumstances (including "natural" ones) could plausibly have caused the injury. Similarly, two (or more) causally relevant Ds might divide a whole damage judgment, although prospectively it was not certain that their joint conduct would lead to harm, if there were no other plausible explanations of injury. They will then each pay "in proportion to their causal responsibility."

Obviously, many of the difficulties that ex ante probabilistic theorists and MEPS theorists will face are factfinding problems rather than conceptual ones. Even if we agree that D causes harm only to the extent that he increases the probability of harm at the time he acts (ex ante) or increases the probability given both the actions that were actually taken by others and the non-human circumstances that actually existed, we will frequently have terrible probabilistic information. However, it is worth exploring the conceptual problems as well, using the following basic hypothetical. D1 cuts V with a knife. Assume there is a 20% chance that V would die from the sort of knife wound D1 inflicts. At the same time, D2 poisons V with some disgusting goo; there is a 40% chance that the goo will kill. Damages from death will hypothetically be set at $100,000, and we will assume for simplicity's sake that if V does not die, he is utterly unharmed. In the "independent action" scenario, neither the knife wound renders V more susceptible to the effects of goo poisoning nor does goo in any way weaken someone who is knifed. In the "synergy" scenario, the probability that V will die as a result of being stabbed and poisoned is greater than the probability that he would die if the two wounds acted independently.


   a. Independent action cases

   Assume that we know for certain that in the absence of other relevant conduct the independent knifer D1 raises the probability of P's death by 20% and the poisoner D2 raises it by 40%. Assume that our *ex ante* probabilistic system mandates that each D pay the expected damages he causes at the moment he acts. Can we say for certain that the expected damages from knifing is $20,000 (20% of $100,000) and from poisoning $40,000 (40% of $100,000)?

   The problem with this first blush assumption can be illustrated by hypothesizing that we knew for certain that when D1 acted, D2 would act as well. The probability that V will die if D1 and D2 simultaneously knife and poison is not 60% (i.e. the expected damages are not $60,000) but 52%, assuming no synergy. Those not used to thinking about probabilities can probably make it clear to themselves that this is the case in one of three ways: (i) P will *not* die only if both the goo does not kill and the knifing does not kill: there is a .6 chance that the goo will not kill, .8 that the knife will not. The probability that both would not occur is thus .48. If there is .48 chance P will not die, there must be a .52 chance he will; (ii) P can die either if (a) the knife kills but the goo does not [an event with a probability of (.2)(.6) or .12] or (b) the knife fails but the goo kills [.8(.4) or .32] or (c) they both kill [(.2)(.4) or .08]. The sum of these three probabilities is .52; (iii) The reason that the probability that V will die when someone unleashes one potentially lethal force and someone else unleashes another is not the sum (here .6) of the probabilities is that some of the actors' efforts will be redundant, or duplicative. In this case, redundancy will occur 8% [.2(.4)] of the time since on that proportion of occasions both forces, with independent killing power, will operate. The sum of the probabilities minus the "wasted" or redundant efforts [.6 − .08 = .52] is thus the probability of death.

   The appropriate *relative* division of expected damages between the actors raises the problem of defining relative causal contribution that I will return to below. For now, the only important point is that one cannot properly compute the expected damages caused by a number of independent activities without regard to the probability that other activities will in fact occur. It is simply ambiguous, when looking at the "appropriate" *ex ante* causal system, whether it is meant to account for the
probability of redundancy, or whether systematic *ex ante* overcompensation is to be permitted.

b. Synergy

The flip side of the problem that overcompensation will occur in a pure *ex ante* compensation system wherever redundancy is plausible is that undercompensation will occur wherever synergy is plausible. If knife and goo were independent, we have ascertained the probability of V’s death is 52%; if goo weakens resistance to knife wounds, the probability of death if both events occur could be higher, say 90%. Once more, if we were certain that each party would act, expected damages would be $90,000, while focusing on each party’s independent causal role, we would compensate for only $60,000. Once again, one could compute expected damages properly if one knew the *ex ante* probability of both actors acting (leaving one “only” with the causal apportionment problem), but the point for now is simply that there is nothing in the concept of *ex ante* cause that tells us whether or not to attempt to attribute synergistic effect to particular actors, just as there is nothing in the concept of cause that tells us whether or not to ignore causal contributions on occasions when some action is prone to be redundant.

2. We Cannot Define Relative Causal Contribution nor Apportion Synergistic Effects in a Fashion That Is Either Efficient, Presumptively Rights-Respecting, or Conceptually Compelling.

a. Relative causal contribution in cases of independent action

I want to compare the two most plausible ways of thinking about determining the relative causal contribution of two actors to indicate that no single general concept of relative causal contribution is likely to be persuasive. If our knifer and poisoner are independent actors, one view of their relative causal contribution to injury is that D2 should pay $\frac{2}{3}$ of damage and D1 $\frac{1}{3}$ because D2 is, independently, twice as likely to cause harm as D1.53

The other plausible view of relative causal contribution is a little less obvious, but nonetheless it cannot be readily dismissed. This second view54 can be derived in two ways. First, one might ask what *incremen*-

tal contribution to risk D1 makes assuming that D2 is acting, and compare that to the risk D2 adds assuming D1 is acting. Since the risk of death is .4 when D2 acts alone and .52 when D1 joins in the mad killing spree, D1’s marginal contribution is only .12. D2’s marginal contribution, however, is .32 (.52 – .2) and his percentage of causal contribution is, thus, .32/(.32 + .12). We can get this same result by simply removing from our sample those cases in which either actor is redundant and ask how likely it is that one party will be needed, compared to how likely it is that the other would be. In our case, D2 is needed only when he kills and D1 does not [(.4)(.8) or .32] and D1 is needed only when he kills and D2 does not [(.2)(.6) or .12]. Once more, D2 pays .32/(.32 + .12) percentage of the damages.

Assume, for simplicity’s sake, that we are in a MEPS system: the issue is whether D1 should pay 1/3 of the damages (roughly $33,000), or, 12/.44 of the damages (roughly $27,000). Rizzo and Arnold claim not only that the first solution is plausible but that it is clearly correct; D1 should owe 1/3 of the total damages because “the mere presence of B [D2] does not vitiate or neutralize A’s [D1] causal potency.”5 This statement seems so clearly conclusory, however, that one must wonder if it is a short-hand stand-in for efficiency, rights-based, or conceptual arguments.

In efficiency terms, however, it is clearly the case that there will be situations when D1 ought not to take into account anything but the incremental accidents he will cause because it is so obviously beneficial for D2 to harm P regardless of the proportion of damages attributed to him that he will certainly do so. Let us switch our hypothetical so that our Ds are unleashing dangerous chemicals, so we can imagine our Ds were behaving in a socially acceptable fashion in refusing to bear costs to avoid damages. If it would cost D2 more than $100,000 to avoid unleashing his chemical, and would cost D1 $15,000 to avoid unleashing his, the efficient result is that D1 should unleash his (since not unleashing it will save P only $12,000, in ex ante terms, but will cost him $15,000). However, if damages are computed as Rizzo and Arnold suggest, D1 will not unleash it since his MEPS damages, if injury occurs, will be $33,000, so that his expected damage if he unleashes will be roughly $17,000 (.52 X 33,000), which is greater than his $15,000 cost of not unleashing. If, on

55. See Rizzo & Arnold, Causal Apportionment: Reply to the Critics, supra note 53, at 225. Note too that if we are using a pure ex ante system expected damage can be properly computed only when one knows the probabilities of both actors risking P injury, so that redundant conduct is not added to expected damage. Thus, if we were sure ex ante that D1 and D2 would both act, expected damage would be $52,000. If we are using a MEPS system, D would pay 1/3 of $100,000 if V died, since we would know whether V in fact died, and would know as well that no other causes intervened.
the other hand, we used the alternative measurement, D1 would properly decide to go ahead and unleash since the expected MEPS damages, if he unleashes, will be roughly $14,000 (0.52 \times 27,000), which is less than the precautionary costs.

Generally speaking, efficiency-oriented commentators would expect that in a first-best, optimal setting, with no transaction costs, D1 and D2 would act as if they were a single actor. That single actor would obviously not double-count redundant harms; he would simply compare the marginal benefits to him of continuing to act with the marginal costs such steps impose on P. If the aggregate risks exceeded aggregate benefits, he would obviously then choose to diminish the risk from his activities in the way that minimized the cost of doing so; if the D2 activity were relatively more costly to cut back than the D1 activity, he would cut back on that activity but he would have no reason at all to apportion causal responsibility for redundant harms to one party, the other, or both. It would simply be the case that he could reduce the level of harm by reducing one or both activities. If he is asked to diminish the D1 activity, on the false assumption that it would not be cost-justified if D2 activity were absent, he would justly be puzzled: if the optimal combination of D1 and D2 activities is cost-justified, he will engage in it even if the level of D1 activity were non-cost justified under the false assumption that the optimal combination were unattainable.

There is no reason at all to think that a rule that simply assumes that the other actor party is absent will tend to induce parties to reach this efficient result. The opposite rule, in which parties explicitly focus on incremental damages, will be efficient however only on the very strong assumption that parties will be able to calculate, *ex ante*, how probable it is that the other relevant party (or parties) will act. To the extent that this rather strong supposition breaks down, parties may simply endanger Ps too much (hoping to be treated as relatively causally redundant). While it is plausible that there will be cases in which it is fair to assume a D1 will know what others do (e.g. if these others have committed themselves to a course of conduct), there is reason to believe that, in many cases, this is not a reasonable assumption. Assume, for instance, that a party who increases the chances of damage by 10% believes there is a 20% chance that another party who increases the probability of damages by 90% will act; he will expect to pay roughly $8200 of damages if he pays only for incremental damages. But if in fact there was only a 10%

---

56. D1 will expect that, if he acts, he will act alone in 80% of the cases; he will be responsible for all damages that occur in such cases. He believes there is a 10% chance he will in fact damage P
chance that the second party would act, then the appropriate level of damages that D1 would expect to pay would be roughly $9100; a relatively small mistake in probability estimates leads to a significant change in expected damages. The system that simply ignores the second party is less sensitive to these errors; the D1 who believes D2 is 20% likely to act will expect to pay $9800; if it turns out that the ex ante probability estimate was wrong, and 10% was right, the "appropriate" damages given this system would be about $9900, a far more negligible charge. When large probability estimate errors are possible, the chances of rampant inefficiency grow; if D1 were (wrongly) certain that D2 would act here, when there was actually only a 10% chance he would, D1 would expect to pay less than $1000 in damages (compared to the roughly $9100 he ideally should expect to pay given that D2 should in fact have been expected to act in only 10% of cases). Under the simpler causal system, in which the parties relative causal contribution is measured without regard to the possibility of joint action, the expected damages D1 contemplates is simply far less sensitive to his (by hypothesis, wacky) estimates of the probability of joint action; if he believed D2 would surely act, he would expect to pay $9100 if he rightly believed D2 would act in 10% of cases, he would expect to pay about $9910.

Rizzo and Arnold might conceivably argue that optimal, first-best efficiency calculations are simply beside the point. Perhaps they might argue, for instance, that in the absence of decent information about which sort of inefficiency is more likely to occur—"second best" inefficiency grounded in mis-estimates of the probability of joint action or "first best" inefficiency in ignoring the marginal nature of proper efficiency calculations—we ought to ignore critiques that their system has

if he acts. He believes there is a 20% chance that D2 will act; if D2 and he both act, there is a 91% chance that P will be hurt (there is only a 9% chance —.1 X .9—that neither's conduct will harm P); he believes that he will pay just a bit more than 1% of these damages however since his incremental contribution is .91 — .9 while D2's is .91 — .1. Thus, total expected damages are equal to [.8 X .1 X 100,000] + [.2 X .91 X .01 X 100,000] or roughly 8200.

57. [.9 X .1 X 100,000] + [.1 X .91 X .01 X 100,000] equals roughly 9100.

58. If relative causal potency is figured as Rizzo and Arnold do, D1 expects to pay [.2 X .91 X .1 X 100,000] + [.8 X .1 X 100,000] or roughly 9800, since he will pay .1/.9 or roughly 10% of damages in cases in which both actors act, and P is hurt, as he would expect him to be in 91% of cases. Given that there was but a 10% chance that D2 would act, D1 should have expected to pay [.1 X .91 X .1 X 100,000] + [.9 X .1 X 100,000] or 9910.

59. Expected damages if he acts will be .91 X .01 X 100,000 given that D1 is sure D2 will act as well.

60. See calculation supra note 57.

61. .91 X .1 X 100,000.

62. See calculation supra note 58.

63. See Rizzo, The Mirage of Efficiency, 8 Hofstra L. Rev. 641 (1980) for Rizzo's general negative views of legal economists' efforts to model optimal, first-best legal rule.
NECESSARY MYTH

no obvious efficiency virtues. If, however, they intend to substitute a strong natural rights argument, its precise form is hardly clear. It is surely at least as plausible to say that a “free” D should be privileged to take any steps that do not worsen P’s position as to say an “individualistic” D cannot “take advantage” of the conduct of others to minimize his responsibility for dangerous conduct. This is particularly the case because whenever there are two possible sources of harm, both the ex ante damages each party expects to owe and the damages he pays if P is injured will drop, even under the Rizzo-Arnold system. The expected damages when two parties independently attack one P are lower than the total expected damages if the two each attacked a separate P.\textsuperscript{64} Moreover, D\textsubscript{1} does not take advantage of D\textsubscript{2} in any non-reciprocal way; D\textsubscript{2} takes similar advantage of D\textsubscript{1}.

Ultimately, Rizzo and Arnold’s argument looks wholly formalistic and circular; they have simply defined a proper causal apportionment system as one based on the notion that the potency of one’s responsibility ought to be considered without regard to other actors; but this is an un-compelling conceptual argument. Cause is always situation-dependent. Simply because actors could act in one another’s absence does not mean we should pretend that they do. If I were a diehard, but generally well-repressed, pyromaniac, it is hard to see in efficiency, rights-oriented, or conceptual terms why I ought not get my jollies out of tossing a match onto a fire that will certainly burn whatever it is going to burn anyway; the idea that I have “caused harm” in such a case is hardly overwhelming.

b. Synergy cases

The problem with establishing a single compelling account of causal contribution is quite similar when D\textsubscript{1} and D\textsubscript{2} act synergistically. One can start by looking at the simplest, purest case of synergy: there is no chance at all that either D\textsubscript{1} or D\textsubscript{2}’s conduct, taken alone, will harm V, yet it certainly will if both act. Once more, Rizzo and Arnold claim there is a compelling allocation formula—each party is responsible for an equal share of synergistic harms, so that each would be responsible for 50\% of damages here\textsuperscript{65}—but there is little reason to agree it is

\textsuperscript{64} This is true regardless of whether we use a MEPS system or a system in which Ds compensate for expected loss only. If your knife-wielder acts alone, he expects to pay $20,000 if he compensates for risk; if the goo guy enters the picture, he expects to pay $52,000 or roughly $17,000. In a MEPS system he will pay $33,000 52\% of the time instead of $100,000 20\% of the time.

\textsuperscript{65} See Rizzo & Arnold, supra note 52, at 1411; Rizzo & Arnold, Causal Apportionment: Reply to the Critics, supra note 53, at 222, 226.
compelling.

Once more, the formula is almost surely inefficient; since it is clearly socially beneficial that one of the parties acts (since if one does and the other does not, there will be no harm), any damage allocation formula that poses a substantial risk of causing both parties to stop acting is inefficient. Since it obviously may be the case that half of the total damages will exceed the costs of each party ceasing his conduct, both parties may cease. Again, in first-best efficiency terms, if the total damages exceed precautionary costs, it is optimal for just one party to stop, and for that party to be the one for whom it costs less to stop.

This synergy rule may also fail to deter when it ought to deter as well. Assume damages are $100,000 but that it costs both D1 and D2 more than $50,000, but less than $100,000, to stop. Neither party will stop, although if one party were to stop, damages of $100,000 would be saved at a cost of less than $100,000. Again, the synergy rules fail to integrate the parties, to force them to approximate the decisions they would make in the absence of transaction costs, acting as a unified actor. Such unified decisions would be made on the supposition that the unified actor's damages should not exceed the marginal cost of eliminating the damages, and that the unified actor should minimize the marginal cost of eliminating the damages by removing the necessary synergistic cause that is cheaper to remove. Obviously, the analysis of the possibility of overdeterrence or underdeterrence is precisely the same when synergistic effects are less dramatic. For instance, when the probability of our knifer and poisoner killing is .9, if the effects are synergistic and only .52 if independent, the allocation of the expected synergistic damages (.38 × $100,000) must be made, and a $19,000 — $19,000 split might under or overdeter in exactly the manner I have just shown.

It is worth noting, however, that the first-best efficient solution can only be obtained by comparing relative costs of precautions, not through inquiry into relative causal potency. Conceptually, this turns the "causal" inquiry into a stand-in for the liability judgment (i.e. the person is deemed the cause if we hold him responsible, for he is the cause in the wholly circular sense that he is the "unusual" or culpable actor). But this obviously eliminates the need to use causal language at all.

Once more, I see no rights-oriented or conceptual reasons to allocate synergistic damages evenly among synergistic causes. A party whose conduct is ordinarily innocuous or beneficial in the absence of another party taking some extraordinarily worthless acts might well reasonably maintain a legal privilege to act. Conceptually, the argument must be
that if two acts are equally but-for causes of harm, it must mean that their causal punch is equally weighty. But this just assumes away the problem; if causal "weight" were an intuitive concept, problems of relative causal attribution would simply never arise. We must establish some reason why two equally but-for causes are equally "weighty." Otherwise, we are in a situation in which we simply pretend to have a concept before we have one; it is as if we had no precise measures (pounds, kilograms) for physical weight and asserted that if two objects were equally capable of lifting a feather when placed on the other side of a see-saw (the only measure we now have), they were obviously equally heavy.

IV. FACTUAL AMBIGUITIES IN ASCERTAINING CAusal CONNECTIONS

Let us turn now to the serious practical problems of factual ambiguity. To focus the problem as narrowly as possible, I will generally assume that only one D's conduct is relevant (so that both the tricky factual and conceptual problems of synergy and redundancy are eliminated) and that we use an ex ante probabilistic system of causally apportioned damages. That is, we hold D accountable only to the extent he increases the probability of harm; if P increased the chance that P suffers a $100,000 injury from 0 to 20%, he pays $20,000, just as he does if he increases it from 40% to 60%. (It is probably worth noting here why the ex ante system simplifies our inquiry. In the example I have just given, the first D looks, ex post, like the certain cause of injury, given that there was no chance of injury in his absence, while there may not be causal resolution in the second case, so that all we will ever know is that the second D increased the probability of harm by 20%. If we want to insure that these two Ds, who pose identical risks to Ps, pay the same damages, we must use a mercilessly uniform ex ante system, regardless of whether there is causal resolution in some cases.) We need not worry in this apportionment system about whether D has reached some threshold level of probability of harm (e.g. made it more probable than not that P be injured) or whether his causal impact is "superseded" by P's conduct, or "natural causes."

A. The Problem

The key problem we must deal with is that this "rule" we have established is applicable only when factual connections are readily known. Assume first that there is an urn with 25 red balls and 75 blue; the probability of picking a red ball is 25%. An actor (our hypothetical D)
then adds 25 more red balls (act X) and someone picks out a red ball (consequence Y). Act X "caused" Y in the sense that it increased the probability of Y by 15% (from 25% to 40%). If picking a red ball damaged P by $10,000, D could be readily asked to pay $1500 given our simple rules.

In most interesting cases, however, factual causal connections will not be so readily ascertained. When a plaintiff is exposed to carcinogens, we may all agree that the risk of her dying has risen, but the degree to which risk has risen will simply not be known with certainty.66 (The case is complex even if we have decided the "voluntary" conduct that in-

66. See, e.g., OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, ASSESSMENT OF TECHNOLOGIES FOR DETERMINING CANCER RISKS FROM THE ENVIRONMENT 108 (1981), summarizing fully reputable studies that indicate, for instance, that 8% of female cancer incidence is attributable to tobacco, while others report 18%; studies that report 5-10% of female cancer mortality is tobacco-caused, while there are others that report 26%. Compare MacMahon, Trichopoulos, Cole, & Brown, Cigarette Smoking and Urinary Estrogens, 307 N. ENG. J. MED. 1062, 1064 (1982) (suggesting that breast cancer rates may be decreased by 20% by smoking because smoking lowers estrogen levels in the luteal phase of the menstrual cycle) with Rosenberg, Schwingl, Kaufman, Miller, Helmrich, Stolley, Schottenfeld, & Shapiro, Breast Cancer and Cigarette Smoking, 310 N. ENG. J. MED. 92 (1984) (suggesting that epidemiological data shows no increase in breast cancer). These studies in essence come not just to different conclusions, but use fundamentally incompatible methods: MacMahon's study essentially gives a plausible physiological account of why breast cancer would be reduced, while Rosenberg's compares a population of women with breast cancer and women with cancers known to be unrelated to smoking and finds no difference in smoking rates in the two populations. Epidemiologists have tended to confirm Rosenberg's findings. See, e.g., Baron, Smoking and Estrogen-Related Disease, 119 AM. J. EPIDEMOL. 9 (1984); Le, Clavel, Hill, Kramar, Flamant, Letter to the Editor, 310 N. ENG. J. MED. 1532 (1984).

Even when one looks at a question that has been the subject of as serious study as any other, the impact of smoking on health, we find both widely divergent estimates of effects and insuperable methodological problems in making fully convincing epidemiological studies. Time path tests are invariably suspect because it is impossible to measure accurately all of the significant elements that have altered in the environment; retrospective studies have serious reporting biases. See Hammond, Smoking and Death Rates—A Riddle in Cause and Effect, 46 AM. SCI. 331 (1958). Moreover, given the fact that divergent cancer rates are often utterly inexplicable, it is always possible for a skeptic to claim that any suspected carcinogen is in fact innocuous, but happens to exist abnormally frequently in an environment in which some real (but unknown) carcinogens flourish. Such global skeptics can find support from findings like the following: the rate of lung cancer deaths through the 1950s was twice as high in England and Wales as in America, yet no existing epidemiological theories of environmental variation (smoking patterns, urbanization, pollution) seemed to account for the dramatic variation. See Hammond, Lung Cancer Death Rates in England and Wales Compared with Those in the U.S.A., 2 BRIT. MED. J. 648 (Sept. 13, 1958). Hammond, of course, was the premier epidemiologist of his time who was out to prove a smoking-cancer link, not someone trying to argue for causal skepticism.

Methodological problems invariably beset even well-designed studies. Assume, for instance, one is trying to study whether "passive smoking" poses health risks. See, e.g., Sandler, Wilcox, Everson, Cumulative Effects of Lifetime Passive Smoking on Cancer Risk, THE LANCET, 312, Feb. 9, 1985; Letters from Burch & Higgins, THE LANCET, 866-67, Apr. 13, 1985. Among the problems one will have is measuring the amount of passive smoke to which anyone has been exposed (the best surrogate measure seems to be to measure the impact of each additional household member who smoked in a non-smoker's lifetime on a party's cancer incidence). But the procedures that do this do not adequately differentiate present from absent household members (e.g., stay-at-home mothers from fathers), and do not seem to work properly if one treats a smoker as a passive as well as active smoker of his own cigarettes.
creases the risks of disease is fully privileged; it gets even more complex if we try to ascertain "objective" risk increases given the particular steps P took, since epidemiological samples of persons who precisely match P's lifestyle choices will be impossible to obtain.\(^6\) When a plaintiff is seriously assaulted, we may all agree that he is more likely to be anxious or sleepless or to mess up at work, but to know how much more likely he is to be so afflicted is far more difficult to know.\(^6\) (Once more, even if we try to measure the "risk" for a population of Ps with the range of human "dispositions," the case is staggeringly difficult; if we imagine, instead, that D is responsible only to the extent he increased the risk of, say, sleeplessness, for a more idealized P who took a more ideal level of care of himself, measuring D's responsibility gets even tougher.) When a plaintiff validly claims to have lost profitable business as a result of the defendant's tort, and we are trying to ascertain how much he inexorably lost as a result of the particular event for which the defendant is responsible (as compared to general business conditions or changes in his efforts),\(^6\) finding persuasive factual causal links will be equally difficult.

\(^6\) It is obvious, for instance, that even when a substance is fairly clearly carcinogenic, like tobacco, that it will be more toxic when the "victim" is exposed to other substances as well. See ASSESSMENT OF TECHNOLOGIES FOR DETERMINING CANCER RISKS FROM THE ENVIRONMENT, supra note 66, at 6, 8, 66-68 (asbestos, alcohol, and radiation are more carcinogenic if a person smokes; smokers exposed to these carcinogens are at unusual jeopardy).

\(^6\) For roughly analogous cases that involve differentiated emotional reactions to certain injuries, see Wyman v. The Monterey Club, 111 Cal. App. 3d 794, 168 Cal. Rptr. 878 (Ct. of App. 1980) (P contracts with D not to allow P’s wife to cash checks or gamble at D’s club; when D breached, P sued, claiming that among the foreseeable damages caused by the breach was the ultimate dissolution of the marriage, and that P should be compensated for the emotional trauma of the failed marriage.) See also Leasman v. Beech Aircraft Corp., 48 Cal. App. 3d 376, 121 Cal. Rptr. 768 (1975) (Plaintiff's complaint that emergency landing necessitated by Defendant's faultily designed aircraft has caused anxiety which interferes with “work, friends and marriage” presents a triable issue of fact). One should also consider cases in which broadcasters are sued for “causing” mimicking parties to harm others in the manner that the broadcast showed. See, e.g., Olivia N. v. Nat'l Broadcasting Co., 74 Cal. App. 3d 383, 141 Cal. Rptr. 511 (1977).

\(^6\) See, e.g., Dundee Cement Co. v. Chem. Labs Inc., 712 F.2d 1166 (7th Cir. 1983); General Foods Corp. v. United States, 448 F. Supp. 111 (D. Md. 1978); Nebraska Innkeepers, Inc. v. Pittsburgh-Des Moines Corp., 345 N.W.2d 124 (Iowa 1984); Richards v. Sun Oil Co., 23 N.J. Misc. 89, 41 A.2d 267 (1945). When damages are "more direct"—when plaintiffs can demonstrate that they incurred a particular additional expense because of defendant's conduct—courts are somewhat more likely to award damages. See, e.g., In re Lyra Shipping Co. Ltd., 360 F. Supp. 1188 (E.D. La. 1973). This is especially true when plaintiff suffers a physical injury as well as additional expenses. See, e.g., Hormel & Co. v. Maez, 92 Cal. App. 3d 963, 155 Cal. Rptr. 337 (1979). It may well be the case, as Rabin suggests, that the courts justly fear disproportionate "limitless liability" if they impose damages for all lost profits caused by negligence. See Rabin, Tort Recovery for Negligently Inflicted Economic Loss: A Reassessment, 37 Stan. L. Rev. 1513, 1534-38 (1985). The courts often speak too, of fearing increased litigiousness. See, e.g., Dundee Cement, 712 F.2d at 1170-72; Richards, 41 A.2d at 269. For supportive commentary, see Rizzo, A Theory of Economic Loss in The Law of Torts, 11 J. Legal Stud. 281 (1982). More plausibly, I suspect, the courts despair, whether consciously or not, both about performing an adequate general equilibrium analysis of an accident's impact and about the fact that those benefitted by the defendant's negligence owe her nothing, have no legal duties to her. Thus, assume, somewhat parallel to the facts in Nebraska Innkeepers, and
Rizzo is the only commentator who seems to recognize this severe problem but he assumes its most difficult aspect away by deciding that the “best informed” belief about probability constitutes “objective” probability for liability purposes\(^7\) without inquiring into how well-informed the fact finder must be, or how certain he must be that his probability judgment would not waver as human understanding of technical cause-effect relations altered or “progressed” before he finds the causal link adequate to ground a state-backed demand for compensation.

It may be the case, for instance, that the fact finder, forced to state her best subjective probability estimate, believes pollutant X increases the probability of brain tumors by 20\%. She may believe this with radically different degrees of confidence, however, on the basis of radically different levels of “knowledge.”\(^7\) Her belief may be based on one of many unreflective prejudices about pollution (perhaps of the anti-technological form, perhaps of the “only pinkos worry about this stuff” form, perhaps of the “I’m a balanced moderate pragmatist” form). It may be grounded on simple quasi-epidemiological studies which compare tumor levels before and after the pollutant was widely used or more credible multivariate epidemiological studies. It may be grounded on laboratory experiments in which the pollutant induces cancer in animals (and the critiques of the applicability of such experiments). It may be based on a

---

\(^{70}\) Rizzo, supra note 52, at 1008, 1017.

\(^{71}\) See generally, J.M. Keynes, A Treatise on Probability 77 (1963).
convincing cell-based molecular biological theory of why the pollutant would be carcinogenic.

While the belief that the actor who added red balls to the urn increased the probability of picking a ball from 25 to 40% is unavering and certain, a belief that X increased the probability of cancer by 15% may be far less confident; the fact finder may well believe that a 0% increase in the chances of cancer is plausible, and that a 100% increase is also plausible.

Some of the complexity of the fact finder's judgment is captured by the notion of differing confidence intervals in one's subjective probability judgments. This "layering" effect can be readily understood if one thinks about asking a juror to be sure beyond a reasonable doubt that X increased the probability of Y by 15%. Rizzo does not make clear what degree of confidence in our probabilistic causation judgments we ought to have before taking money from the defendant and giving it to the plaintiff. To say the plaintiff must prove causation by a preponderance of the evidence (since it is an "element" of the prima facie case) does not really alleviate the problem; if one says to oneself, at the end of trial, that one's best subjective probabilistic estimate is that the marginal damage product of X is 15% of the total Y in the world, one must (tautologically) be persuaded by the preponderance of the evidence then available that such degree of linkage exists. Thus, we are not dealing with situations in which a juror simply had a preliminary, pre-trial subjective probability estimate that pollutant X increased the chances of tumors and then hears no further evidence; presumably, the failure of the plaintiff to adduce any evidence of linkage will cause the reasonable juror to adjust his prior probability estimate downward in such a case. The problem is what one does when one thinks that everyone has presented as much evidence as one can reasonably expect, given information costs, and one realizes that a wide range of causal conclusions are still plausible. Perhaps the pollutant is linked with cancer; perhaps the plaintiff's insomnia is a result of watching his kid being run over. We must be able to pick out a best bet about the links, but it remains a very open, politically charged question whether we should (or do) take a particular defendant's money and give it to a particular plaintiff at that point.

**B. Purported "Solutions" to the Problem**

There are a number of strategies that could be adopted to maintain

72. See Rizzo, supra note 52, at 1021.
73. See supra note 30.
the belief that the tort law is socially efficient or non-expropriative, even in the absence of consensus accounts of causal nexus between conduct and consequence. Some of the strategies have already been tried, some I will construct.

The first strategy is to argue that damages should be limited to those the plaintiff most clearly sustained as a result of the defendant's conduct. Shavell explicitly argues that potential defendants' behavior will not be altered if people are held liable for non-proximately caused, non-foreseeable accidents. Assessing liability after the fact has deadweight loss administrative costs which we would want to avoid unless the imposition of liability influences subsequent behavior so as to reduce accidents. In a parallel fashion, Calabresi points out that if compensation of victims were the only aim, first party insurance, not hard-to-resolve tort suits, would be preferred. Posner makes a similar point about restricting the scope of liability to situations in which behavioral impact can be expected.

These arguments seem to raise the possibility that even though we may know little about actual causal relations, we can efficiently assess liability by holding defendants liable only when we believe that persons situated similarly to the defendant would readily see the connection between the penalized behavior and consequence. Announcing, in effect, through judgments of non-liability, that there is some considerable burden of proof of certainty of causal link, will discourage costly suits by would-be plaintiffs in circumstances where a plaintiff's victory in the suit would have limited future impact. Shavell and Calabresi both analyze most of the traditionally tricky proximate cause cases (surprising manner of injury, remoteness in time and place) as foreseeability problems.

Shavell's argument, however, seems inadequate in two ways. First, and foremost, it seems to apply only to cases in which causal links are invisible, not to the cases in which they are uncertain. It is one thing if the polluter never considers cancer (as, for instance, the nineteenth century polluter might not have). It is quite another if he simply awaits a social policy judgment of what will henceforth be presumed to be pollution's relationship to cancer. The decision to include or exclude a harm from the scope of liability will influence conduct so long as the defendant would think of checking whether similarly situated parties have had to pay for the harm that like conduct is deemed to cause. Unless the harm

74. See Shavell, supra note 20, at 490-92.
is so removed from the contemplation of potential defendants that those defendants would be unlikely even to check on the prevailing policy decision on cause, the harm’s inclusion on the scope of liability should, after the initial decision round, effect behavior, even if it were a relatively remote consequence of conduct. Thus, foreseeability limits can neither explain nor justify the standard judicial reluctance to find causation when the connection between harm and conduct are highly mediated, or the more occasional exclusion of uncertain psychological damages.

Second, Shavell assumes, without much evidence or argument, that people systematically under estimate the probability of all sorts of events, depending on the framing of the hypothesis; yet the experimental evidence from which he draws his conclusions suggests to a greater extent that people both over and underestimate the probabilities of all sorts of events, depending on the framing of the hypothesis.

Calabresi suggests a second, rather minor, reason for restricting the scope of liability to cases in which causal nexus is apparent, rather than controversial or obscure. One goal of tort law, given risk aversity, is to spread losses: at times, injurers may be better loss spreaders than first-party insurers if they are better able to purchase insurance. Calabresi claims that injurers may well be poor loss-spreaders when it comes to non-foreseeable accidents, since they are unlikely to realize it is necessary to insure against any but the obvious harms they might cause. This point is not just relatively unimportant, but is unconvincing as well. Calabresi provides no evidence that would-be injurers purchase liability coverage against causing certain precise harms rather than coverage which pays out whatever court judgments are rendered against them. In fact, Calabresi’s model of liability insurance seems wrong. He implies that insured parties essentially build a policy from the ground up, insuring against particular foreseen liabilities, rather than insuring against a broad category of events (damage judgments or out-of-court settlements) and then excluding easily foreseen subcategories where there is a particular

77. Shavell, supra note 20, at 491. Shavell’s argument is perhaps a bit more tautological than I imply in the text; he may simply be stating that we call an accident unforeseeable (and hence excuse D from liability) in those cases of low-probability accidents whose probability is in fact underestimated, not that we believe that there is some “class” of low probability accidents whose probability is in fact generally discounted. If this is his argument, it is not readily denied, but it is rather unhelpful.

78. Generally speaking, in Kahneman and Tversky’s “prospect theory,” people generally overestimate the likelihood of low probability events, although one could of course conceivably frame issues in such a way that the probability of such events is underestimated as well. See, e.g., Tversky and Kahneman, The Framing of Decisions and the Psychology of Choice, in QUESTION FRAMING AND RESPONSE CONSISTENCY, (R. Hogarth ed. 1982).

79. Calabresi, supra note 75, at 75.
desire to alter the behavior of the insured to avoid damage. Looking at
typical policies in the medical malpractice and homeowners' liability area
reveals that the prevalent practice is not in fact the "ground up" one that
Calabresi's theory demands.\(^8\) If his claim is that "unforeseen" damages
will systematically tend to exceed dollar coverage limits, he would have
to demonstrate both a link between traditional jury judgments on the
"proximity" issue and the size of claims, and that the behavior of insured
parties would not be sensitive to expanding dollar awards based on a
widened scope of liability.

One of the two most potentially convincing attempts to rescue tort
law from the accusations that efficiency may not be attained in the ab-
sence of perfectly determinate causation judgments is suggested indi-
rectly by Shavell's work.\(^8\) It is also suggested by some of the traditional
cost-benefit public administration commentators.

The first stage of the argument is relatively straightforward (and
rather clearly correct), although this first stage point is rather minor in
ways that I am not sure have been clearly understood. Information is
generally costly. Gathering information about the causal nexus between
conduct and consequence is costly. At some point, in fact, the costs of
gathering more information about causal nexus would not only exceed
the value of greater certainty about causal relationship, but could even exceed the losses that would be caused by conduct if, in fact, the conduct
caused harm. To take a simple example: assume that we have no idea
whether pollutant Y destroys all the paint on houses in a one-mile radius
of the plant that produces it and that repainting costs in that area have a
present value of one million dollars. Further assume that it would cost
more than a million dollars to determine whether the pollutant destroys
paint. It would obviously be irrational and inefficient to gather the infor-
mation needed to satisfy a "high" second-order burden of proof on cause
(i.e., to be "highly" certain about whatever causal probability judgment
one had as a fact finder before we would find liability). Thus, it would be
possible to say that fact finders will (and should) refuse to find a causal

\(^8\) See, e.g., W. Young, Insurance: Cases and Materials 654 (1971). Section II of
Home Insurance Company's standardized homeowner's policy states that "The Company agrees to
pay on behalf of the insured all sums which the insured shall become legally obligated to pay as
damages." The policy indeed has exceptions, but the company excepts not the payment of unfore-
seeable damages, but categories of damages that it foresees perfectly well, but believes that moral
hazard problems preclude insuring: the homeowner cannot collect when the judgment is rendered as
a result of an intentional harm, or an accident in a high-risk sort of activity (involving aircraft, golf
(medical malpractice insurance covers doctors for "[a]ll sums which the insured shall become legally
obligated to pay as damages. . .").

\(^8\) See Shavell, supra note 20, at 499-500.
neccessary myth

The problem with this first line formulation is that it confuses and conflates two utterly separable decisions. While it is clearly irrational to gather more information when the cost of doing so exceeds the benefits, one need not say that the defendant is relieved from liability if we do not reach some "high" degree of certainty when we have gathered as much information as it is rational to gather.

To make the case that we ought to require some "high" degree of certainty before imposing liability, one needs to make a second stage argument that has simply not appeared in the literature. The argument must be that since all suits are administratively costly, we ought to discourage as many suits as possible, except when we are certain that suits change behavior in an efficient way. If we tell potential plaintiffs that they will lose suits unless we are fairly confident that we are neither over nor underestimating causal links (and therefore neither inducing excessive nor inadequate "precautions," including shifts in the level of activity), then they will not bring suits when they see that our costs of acquiring increased certainty are excessive. Hence, the number of (costly) suits can be diminished by establishing that fact finders have a "high" degree of certainty before transferring funds.

There is a serious problem, however, with this formulation of an efficiency rationale for this particular causation requirement; that is, the rule of non-liability in the absence of consensus and certainty on cause.

A decision to award no damages on the supposition that excessive damages will be ordered as frequently as overly restrictive damages, insures that defendants will, in efficiency terms, be underdeterred and, in libertarian terms, expropriate plaintiffs. Assume that our best estimate is that D increases the probability of a $100,000 injury by 50% or $50,000. We may seemingly respond to the worry that the $50,000 figure may well be too high in two ways: first, by assessing zero damages on the supposition that we should not award damages when we are uncertain; or second, by assessing the lowest level of damages that we are "highly" confident D caused (e.g. $30,000, on the supposition that we should not award marginal damages that we are uncertain about). In either case, however, we have protected ourselves against the possibility of overdeterrence and defendant expropriation or underdeterrence and plaintiff expropriation by insuring more radical underdeterrence; remember that the $50,000 judgment figure may itself well be too low, not just too high, so
dropping damages to $0 or $30,000 will only exacerbate that potential underdeterrence/plaintiff expropriation problem.

V. TORT JUDGMENTS MIMICRY OF HYPOTHETICAL CONTRACTS

Even if factfinders could not link defendant conduct with plaintiff injury, so that they had no assurance that they had actually placed those whose rights had been infringed in the precise position they had been prior to infringement or appropriately deterred inefficient activity, a claim might still plausibly be made that the tort system were working properly if it were the case that ex post damage judgments did or could precisely reflect the ex ante contract price that would have been reached had the defendant and plaintiff bargained over defendant’s choice-of-conduct. Presumably such bargains would be based, in part, on the plaintiff’s subjective beliefs about the extent to which the defendant’s proposed conduct would cause him harm.

To put a simple illustration of the model forward: assume that we have no idea whatsoever whether a plaintiff’s post-tort inability to sleep well is causally linked to the defendant’s past tortious assault. The contract-mimicking notion would be that the fact finder ought simply to ask himself what the plaintiff would have offered to avoid the assault or would have had to be offered to suffer it. The plaintiff’s valuation of freedom from assault must already account for and reflect her subjective beliefs about causation: if a presumed consequence of the assault includes the loss of future sleep (as well as, say, hospital bills), the ex ante hypothetical contract price obviously rises. The “rights” oriented theorist might accept this sort of tort system by simply restating a tort right as a right to be compensated as if one had entered into a contract with the plaintiff to waive protection from tortious infringement, not to be made factually whole. The efficiency theorist might argue that the role of tort law is to induce market-mimicking conduct in the presence of transaction costs, and this rule of liability explicitly essays to treat the parties as if they were in a transaction-costless bargaining position.

It strikes me that there are a number of both practical and theoretical difficulties with this “solution” to the causal skepticism problem that are worth noting. First, it is obviously extremely inaccurate if it is intended to serve as a description of actual practice. Jurors are instructed to look to the actual damages the plaintiff has sustained, not what he would have had to be paid to undergo some risk of sustaining damages he believed he would suffer.82

82. See, e.g., Cal. BAJI §§ 14.00 et. seq. (§ 14.10 talks of compensating for “expenses incurred’
Second, it is not at all clear whether factfinders would have any reasonable way of ascertaining at trial what the \textit{ex ante} judgments of plaintiffs would have been. At least under the current system, we can hope to reasonably accurately measure the value of those misfortunes we decide to attribute to defendant conduct; while there are obviously certain problems in measuring the value of lost life and health,\textsuperscript{83} the process of constructing after the fact that a plaintiff or plaintiff class really thought the \textit{chances} of losing life, health, or emotional stability were is far more difficult. Presumably, we can imagine some situations in which factfinders would be able to observe "similar" actual pre-contracts between plaintiff-surrogates and defendant-surrogates, but these situations would seem exceptional. We would need to examine situations in which there are low transaction costs in a particular setting, although high transaction costs dominate and a setting in which we are sure that contracting parties are similar to the plaintiffs and defendants.

Third, even if we \textit{could} ascertain what a particular plaintiff would have demanded/offered to bear a certain risk, the systematic rule that should be applied is ambiguous. If only plaintiffs who are in fact damaged may sue, and plaintiffs who are in fact damaged receive only compensation for the expected (discounted) \textit{ex ante} value of risk-bearing, aggregate compensation will be unduly restricted. Ten risk-neutral people would require $100 a piece to bear the subjectively perceived one in ten risk of $1000 of damage; if the one who in fact gets hurt and sues gets only $100, the injurer will overproduce injurious activity and expropriate the defendant class. Yet the first alternative decision rule, that allows plaintiffs to recover the \textit{undiscounted} compensatory value, assumes cause when the whole point of adopting the what-would-a-contract-have-looked-like model is to avoid having to make technocratically difficult

\begin{footnotes}
\end{footnotes}
causal judgments. The second alternative, in which all plaintiffs would have a claim against a party that was not an injurer in fact simply on the basis that the plaintiffs would genuinely have required compensation to bear a risk to which they were exposed (or been willing to pay to avoid one), is not only foreign to the tort system as we know it, but quite difficult to construct. Such suits seem to require speculative and irresolvable inquiries into whether a plaintiff would genuinely have required compensation to bear a risk, and such inquiries into subjective motivation would be grounded entirely both in difficult-to-resolve hypotheticals and in recourse to accurate confessions by plaintiffs.84

Finally, and perhaps most important theoretically, if not practically, there is no way of dissociating the chosen liability rule from the subjective judgments of the injured party in such a way that we can ground the rule in these judgments. While our decision rule is supposedly to award damages that reflect the price that P would have paid or had to have been paid to subject himself to D's activity, there are strong reasons to believe that our answer to the question of how P would value freedom from D's activity will vary, depending on whether we assume in the first instance that P must pay D or D pay P. (This is true even if we completely disregard both wealth effects85 and asymmetry effects86 of the sort in which parties routinely must be paid more to bear a harm than they would pay to avoid bearing it.) Let us take four different situations in which the problem arises: in all these cases, a would-be defendant (D) may use production technique X or Y, and using Y costs D $100 more.

In the first case, the would-be plaintiff P believes subjectively, in the first instance, that his incremental damage caused by X is less than $100, say, $80. However, D believes that P is in fact damaged less; that P's damage is only $50. If our causally skeptical rule is to compensate P at

84. For a discussion of the general problems that our legal system has in situations in which there are no objective externally discernable behavioral correlates that enable us to know what we feel we must know, something about particular motivation, see Heller, Is the Charitable Exemption from Local Property Taxation an Easy Case? General Concerns About Legal Economics and Jurisprudence, in ESSAYS ON THE LAW AND ECONOMICS OF LOCAL GOVERNMENTS, 183 (D. Rubinfeld ed. 1979).

85. If P must pay D, D is wealthier and hence will tend to value freedom from harm more highly, assuming that the demand for safety is a normal good. For a discussion of the interaction of wealth effects and Coasean analysis generally, see Bebchuk, The Pursuit of a Bigger Pie: Can Everyone Expect a Bigger Slice?, 8 HOFSTRA L. REV. 671, 679-80 (1986). It is generally assumed that the demand for safety is a normal good. See, e.g., W. K. Viscusi, Risk by Choice, 28-32, 45-53 (1983); Peltzman, The Effects of Automobile Safety Regulation, 83 J. POL. ECON. 677, 693 (1975).

86. If P will pay out less to attain a good than he would have to pay to part with the same good that he already has, the choice of liability rules will affect the "valuation" of the end-state. See Kelman, Consumption Theory, Production Theory, and Ideology in the Coase Theorem, 52 S. CAL. L. REV. 669 (1979).
the price at which he would have been indifferent between X and Y in the absence of a tort rule compensating him for damages, it is plausible that this price is $80 (the price P would pay D) although if we assume instead that D knows he will have to compensate P according to his subjective belief (i.e., in the implied presence of this tort rule), D may invest in information that convinces P that he has subjectively overestimated the causal link between X and harm. Assume, first, that it is rational for D to purchase the information—e.g., it costs less than $30 to convince P that he ought to tolerate X for $50, not $80. In that case, the stable hypothetical contract price is $50, which mandates a damage measure of $50 if we have assumed that D must compensate P. If we reverse the implied legal liability rule, however, and assume that P would have had to buy out D, P would have had no incentive to purchase information that could lower his estimate of causal link. Since he would be unable, in any case, to stop D from adopting technique X (since it costs D $100 to shift), he would maintain the subjective belief that he was damaged by $80. Thus, if our assumption is that the appropriate compensation is the hypothetical demand price that P offered when he failed in settings in which D is privileged to act to dissuade him from acting, we get a different compensation figure than if we were to assume that D must pre-contract for permission and look to see what price he would ultimately pay to get that permission.

I take this to be a violation of a quasi-Coase theorem proposition that legal rules affect distribution but not substance, information about cause is or is not rationally obtained depending on the legal rule. The choice of legal rule will thus affect two important factors, the second of which is non-distributive. First, it will affect what "tariff" the judiciary should set for the activity in question, and second, and more significant, it will affect the amount of information produced in the world.

Of course, once a court decides that P's uninformed judgment can frame the basis of D's (now-higher than inevitable) liability, Ds will always purchase information on our hypothetical facts and disseminate it

87. Obviously, the pure idealized Coasean world is one in which there are zero transaction costs, hence one in which information is perfect, so that it may seem odd to argue that the impact that a legal rule may have on the substantive production of information violates a theorem in which no information need be produced, because it is all already available. But the information here is not the sort that need be present to eliminate traditional transactional barriers (e.g. about the availability of alternative suppliers, alternative means of reducing damages) but rather information needed to form preferences. Thus, in any situation in which spending on anything can alter party preferences, whether spending on "information" or a behavioral psychologist or an ad man, that sort of spending may well alter depending on what legal rule is chosen. Presumably, there is no reason to hypothesize that a zero transactions cost model is one in which preferences are absolutely fixed, in which nothing at all can be done to alter them.
when it turns out that presumed causal links are overstated. But that result is quite problematic as well: Ds must then bear a cost (information acquisition) based on what now comes to seem increasingly like a very peculiar decision rule—that P has some “right” to his quirky beliefs about cause.\textsuperscript{88} The rule seems distributionally unjustifiable; why should D bear the cost of convincing P that he is not damaged? It is arguably inefficient as well. Given our observation that if we flip around the liability rule and assume that P must bribe D not to harm, the information would not have been purchased, we cannot readily know that it is efficient that it be purchased.

The quasi-Coase theorem violation may be more thoroughgoing: the choice of productive technique itself can be affected by the hypothesized liability rule procedure. Consider the following hypothetical: D believes X damages P by $90 and can persuade P of that belief by purchasing $5 of information; in the absence of the information, however, P believes damage from X is $110. If we assume that P must pay D, P would indeed be willing to pay D enough to shift to technique Y ($110 is greater than $100); if we believe that damages from using X must be set at the level of the contract price of abstaining from X, then damages will be set at $110 and D will switch to technique Y. If, on the other hand, we assume that D must pay P, he will pay $95 total and continue to use X; if we set damages so as to mimic the amount D would actually pay P to get him to tolerate X ($90), then technique X will be used because damages would be less than the gains to D from employing the technique.

The problem becomes tougher if we consider cases in which a rational D would not purchase information to persuade P that his causation judgments are wrong, although he genuinely believes that they are. Let us assume (case 3) that in the first example, information that would persuade P that he had only been harmed $50 cost $40, not less than $30, to obtain. Then, let us finally posit a situation (case 4) in which P might rationally purchase information under certain liability rules while D would not; in the first instance, P believes that the marginal subjectively-measured damage of X is $500, while D believes it is $90. But it would cost D $20 to purchase information that would convince P of that, and it

\textsuperscript{88} See, e.g., Gutierrez v. Alvarado, 24 Cal. App. 3d 327, 101 Cal. Rptr. 1 (1972). In this case, the court found that the plaintiff could recover damages from a defendant who shot at her, physically injuring her very slightly, because she believed the shooting caused her to miscarry, although the miscarriage was not, the court found, in fact caused by the shooting. While the court stated that her belief was “not unreasonable,” it states as well that the “defendant took his victim as he found her,” suggesting that her genuine belief that she was harmed by the defendant’s conduct sufficed to predicate liability, at least in a case in which the conduct was not obviously worthy of protection.
is thus cheaper for him simply to shift to technique Y (since Y costs just $100 more and he would have to bear $90 of damage costs plus $20 of "convincing" costs to use X). In case 3, the problem is that if we simply hypothesize an actual contract price, given the information that in fact would have been purchased, compensation is set at $80; in other words, according entirely to P's subjective beliefs about cause, although factfinders' and (D's) views may be less expansive.

It is not at all clear why a factfinder should ask herself whether P would have in fact been persuaded to share her own causal judgments, given the high cost of persuasion. In effect, such a system turns prejudices into entitlements, at least as long as we believe the prejudices would have been too costly to shake had pre-contracting gone on. This seems to establish a rather peculiar entitlement framed entirely in terms of a protected welfare position, rather than a right (i.e., the implicit rule is that no P can be made subjectively less well off by change, without any reference to his entitlement to the status quo ante). Worse, if the jury requires only that a D could have convinced P to alter his causal judgments for less than the otherwise higher compensation costs, but does not require that D actually do so, then only certain Ps will actually have their first line welfare positions protected. The basis of the distinction between those who do and do not have their welfare positions protected—the cost of persuading V that he has not been expropriated—seems both awfully arbitrary and perverse in effect; we let people feel expropriated only when the costs of convincing them that they are not would be low, although presumably a rational cost-benefit calculator would want to eliminate such "demoralization costs" when those costs could be eliminated more cheaply. 89

In the last case, the problem of liability rule-demand price interaction recurs. If the efficiency-oriented decision rule is applied under the assumption that Ps must buy out Ds, then using the "contract price" formulation in measuring harm will never, in an idealized competitive market, produce a clear signal that a program ought not to be undertaken. If it costs D but $100 more to use Y than X, P should never pay more than $100 to preclude X; thus, if we ask ourselves what P in fact would pay D, we must note that the price of not-X is only its opportunity cost, regardless of the subjective value of not-X (which, if not-X is adopted, is simply D's "surplus"). But we are, in the classic Kaldor-

89. For a standard account of the significance of accounting for demoralization costs in deciding when to compensate a party who is damaged by a state decision, see Michelman, Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law, 80 HARV. L. REV. 1165 (1968).
Hicks efficiency and tort judgment settings, dealing with a decision-making rule to use when contracts will not occur so Y is not necessarily adopted through private adjustment whenever P subjectively values not-X above $100. It is inane to think that the “loss” to P of D adopting system X is the stable hypothetical contract price of not-X, when the price is inevitably simply the cost of not-X. The efficiency-oriented Hand formula is supposed to compare that very cost to some benefit (the unsuffered loss), but by hypothesizing that the benefit is equal to the price of obtaining the benefit, we should always have equalized these. Benefits of precautions cannot exceed costs if we measure benefits by reference to the price of obtaining them.

We might try to measure P's consumer surplus not by imagining the hypothetical competitive contract price but by attempting to ascertain what P would pay if D were a perfectly discriminating monopolist, able to threaten plausibly to use technique X. If that is the “rule” we use, however, we must face the fact that P, although not D, would have an incentive to invest in information that might lower his subjective estimate of X's harm-causing capacity. Once again, then, the information that would be available in “the” hypothetical contract situation varies, according to how one defines “the” situation. Under our hypothesized facts, fear-allaying information will not be purchased either if the hypothetical contracting situation is framed by a legal rule in which P buys out D in a competitive market or if, as we shall see shortly, D must buy out P. It will only be obtained if damages are set on the supposition that “the market price” is the price that would be obtained in a legal regime in which a P must buy out a D who is able to capture the gains from the D-P trade.

If we shift the background hypothetical legal regime so that we measure “contract price” by asking how much P would have to be paid by D before he was indifferent between X and Y, we not only get a different first-line result (here that X is inefficient in that P seemingly would not be bribed into accepting it), but the “proper information level” problem reappears once again. If the sum of the information gathering costs needed to lower P's subjective estimate of causal links and the price needed to make P indifferent between X and Y once these estimates are lowered exceeds the cost of the shift from X to Y, as we have hypothesized, the information would not be gathered by either party before contracting regardless of who was liable or protected in the first instance. Once more, however, there is no reason to believe that such a situation makes the Y to X move inefficient from the perspective of the factfinder, although it would not have been contracted for ex ante. Although skep-
tical of her own capacity to make technically accurate causal explanations, the factfinder has little reason simply to swallow the plaintiff’s unjustified causal views whole.

**CONCLUSION**

Problems of factual uncertainty about cause will hardly disappear if we abandon libertarian or efficiency-oriented visions of the state. Regulators with no commitment at all to those liberal visions of state function must also face a world in which we simply do not know how bad it is to emit fluorocarbons which might or might not destroy the ozone layer or toxic wastes which may or may not kill us. If regulators try to assess the costs and benefits of a free trade policy, they cannot really know what will happen to laid-off workers or to property values in industrial ghost towns and new boom towns.

Causation judgments in liberal theories, however, are different, both in ideological and profoundly practical terms. Ideologically, the belief that causation judgments are fundamentally factual (conceptually) and resolvable (practically) permits the maintenance of the fantasy of decentralized harmony; the fundamental liberal fantasy. "Objectivity" about cause permits the harmony myth to flourish: fully selfish people can go about their merry way, so long as they pay for the damage they do, and they will then have harmed no one in a socially unacceptable fashion. Collective judgment is restricted to a single objective fact-finding question: how much damage does a particular activity cause? Once, that collective "judgment" is made—and it really is only marginally a judgment, rather than a "discovery"—private actors use their own judgments in evaluating whether their conduct is worthwhile. The social optimum is just a summation of the decentralized decisions; social welfare is maximized when individuals pursue their own ends, taking account of “objective” resource costs. Pollution need not be permitted or forbidden; it must simply be asked to pay its way. The regulator may recognize that we simply cannot make a very good estimate what the pollution in fact costs, and must judge instead what sort of society we will inhabit if we are willing to tolerate the possibility of one sort of error (falsely lax causal judgments) or another (falsely strict ones).

Presumably, the regulator facing uncertainty about cause assesses her problem differently than the libertarian or the efficiency-theorist. She must, in essence, weigh error costs, evaluate the consequences of “over-restrictive” or “overlax” regulation in particular cases. Take our simplified case of carcinogenic toxins. The liberal fantasy is that we can assess
straightforwardly the expected damage the polluter causes and let him decide whether to damage or not; the expected damage is simply the shift in the probability of damage multiplied by the money value of the damage. The regulator must at a minimum recognize, given the possibility that she has under or overestimated causal linkage, that she should first attempt to estimate how likely she believes more adverse and less damaging consequences are, and how she evaluates the prospect of the more adverse ones and the costs of banning an activity that is in fact not damaging.

Even ignoring for the moment the problems of evaluating outcomes, given different attitudes about risk, even a risk-neutral regulator must first not try to evaluate expected damages simply by reference to her best probability estimate of harm but by dealing with the whole range of the probability distribution. If a jury believes that its best estimate is that a toxin increased the incidence of cancer by 20%, it will award damages based on that supposition, whether it believes there is a small chance that it increased cancer by 500% or whether it believes that if it did not increase it by 20%, it did not increase it at all. The jury is asked not to assess rational social policy but to settle a dispute between two parties on the basis of its best factual supposition about what one did to the other.

Even if we asked jurors to decide cases on the basis of an elaborated expected damages judgment grounded upon a probability distribution rather than a simple one founded on a best judgment of what damages were, we would still have the problem that distinct juries would then have to express attitudes about risk. There is no reason to believe that a regulator should be risk-neutral in assessing a small chance of a calamitous harm, but there is no systematic way that any particular jury's judgment about the value of posing such a threat is entitled to weight (since it is in no sense a factual judgment, but an evaluative one).

The regulator, in short, would use a social welfare function that not only compared the benefits of operation to the costs she thought most likely, but would evaluate the relative error costs of underestimating and overestimating causal linkage, given both her best judgments about how likely she is to have made each sort of error (if she can quantify that at all) and how bad each error is given risk attitudes. If the net value of operation (benefit minus harm) given the probable damage is positive, the activity should still be banned if the sum of that net value and the sum of additional expected damages (the error cost if causal linkage estimates are too low) and reduced expected damages (if they are too high) is negative. If the net value of operation is negative given the probable damage, the activity should still be undertaken if the error cost of overestimating
damages so exceeds the opposite error that the total net expected benefits are positive.

She may, however, have little confidence that she can assess these figures (establish even rudimentary probability distributions) and then her judgment must be a rougher calculation of error costs; given her relative evaluation of the outcomes that will occur if her causality judgments are wrong, so that she wrongly bans (or permits) conduct given her initial cost-benefit calculation, does the added harm from one sort of wrong judgment so outweigh the harm that occurs from the other sort as to render an otherwise reasonable decision to ban (or permit) unreasonable?

The social welfare function might also (or might not) contain imbedded distributive judgments; judgments that are affected by knowing who will benefit and who will be harmed from under and overregulation. It might (or might not) allow for judgments about the capacity of actors to adjust (either technologically or socially, i.e. in their perceptions or tastes) to restrictions on their conduct. In the "objective" liberal view of cause, it does not matter whether a polluter could readily, in our minds, innovate around the polluting process or not; if he can bear "expected damages," he simply need not innovate. But a regulator may, without being inefficient, reasonably ban an activity because her own estimates of the benefits of the activity are lower than the actors'. She may be quite confident that there would be little loss if an activity is banned which turns out to be less harmful than she initially imagines and simply need not worry much that she cannot figure out what the expected damages are. (Conversely, she may be so confident that damaged parties will avoid the first line worst-damage cases and that a wrongful ban will wreak social havoc that her inability to calculate any meaningful probability figures will be of no moment to her in her decision to permit conduct.)

Rizzo is surely right that particular juries could not conceivably be asked to assess damages so as to insure that behavior is prospectively value-maximizing given this sort of fully specified social welfare function. A jury would probably not even be reasonably expected to set expected damages by summing up their whole probability distribution of possible harms rather than suggest the best estimate of the probability of harm. It could certainly not transform whatever estimates it might make of the probability of particular events into expected utility judgments, which require not only knowing the probability of an outcome and the value of that outcome but also knowing the social attitudes about risk. It is entirely inconceivable that a jury unable to assign even rudimentary probability estimates to different outcomes could instead assess damages
by directly comparing the error costs of a wrongful (implicit) ban (i.e. a damage judgment it knows will be at least high enough to deter the activity) and a wrongful (implicit) permission (i.e. a damage judgment it knows will not deter the activity).

The libertarian efficiency-oriented fantasy should be anathema to the traditional conservative social theorist as well, even if such a theorist believes political failure will thwart any regulatory efforts to correct the failure of private selfishness to maximize wealth. The message to the would-be tortfeasor that the liberal paradigm of choice presents is that she can harm if she can pay her way; in a world of causal uncertainty, the more appropriate message is that we must inevitably decide, ourselves, both individually and collectively, keeping in mind our ties to community, our capacities for self-restraint and our moral sentiments, whether to subject others to risks or ourselves to privation. The “errors” of causal judgment cannot be summed neatly in any social welfare calculus: the moral citizen must calculate the degree to which she is willing to jeopardize others for her own sake, given that she will violate no formal rights in so doing, given that any formal right will, at its most expansive, balance her own expected gains with others’ expected losses, although her gains may simply be more certain, not actually more extensive. Concepts of duty, of self-control and discipline, frequently strongly preclude just such judgments; the fact that we may inevitably balance risks and certainties in dealing with our own prospects does not normatively entitle us to do a parallel balancing act where the losses fall on others.90

Liberal theory is grounded in the dream that a fully just and efficient state can be attained without the exercise of collective judgment. The amount of damage a party does if he acts a certain way can be discovered collectively, and then the world of private actors adjusts to the news, neither expropriating others nor taking non-cost-justified risks. But we cannot even really decide what we mean when we say that a party has done damage. This is true in cases in which causal issues are unresolved ex post. (A regulator may surely forbid conduct that may not give rise to damages. A just person may surely believe himself bound to desist from such conduct.) It is particularly true when more than one party was either necessary or when each unleashed independently harmful forces.

90. Those to the left of our hypothesized “post-liberal regulator” or our conservative moralist are apt to believe that unjustified risk-causing will occur until we expose ourselves to risks under conditions of complete autonomy and equality. People in such a situation might in fact still prefer to bear different levels of risk, but radicals firmly deny that distinctions in risk preference, rather than hierarchical social organization, explain most current disparities in risk exposure. For a far fuller account of these points, see Abel, A Socialist Approach to Risk, 41 Md. L. Rev. 695, 702-44 (1982).
(A regulator must decide in cases in which synergy causes non-cost-justified harm whose conduct is best eliminated, and not allow private actors to adjust their conduct to damage judgments which might over or underdeter their conduct. In cases in which independent actors cause harm, the sensitive regulator might on occasion take some conduct for granted and focus on the incremental impact of another actor.) Moreover, we cannot know how much damage is caused, even if we know what it means to cause damage, and no damage figure that we choose will avoid expropriation or sub-optimal decisions if we are collectively exposed to risks that are unwarranted, in terms of a fuller social welfare function calculus. The liberal dream is a nightmare; it is time to wake up.