RISK COSTS AND THE FIRST-BEST-ALLOCATIVE-EFFICIENCY OF STRICT LIABILITY, OF VARIOUS "COVERAGE-ENHANCED" NEGLIGENCE DOCTRINES THAT INCORPORATE EITHER THE TRADITIONAL HAND FORMULA FOR NEGLIGENCE OR SOME VARIANT OF THAT FORMULA, AND OF OUR CURRENT DAMAGE AND COURT-FEE RULES: A PRIMARILY NEARLY-FIRST-BEST-BEST ANALYSIS

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Economists have long recognized that potential victims of accidents or pollution may face risk costs related to these contingencies to the extent that they will not be fully compensated for the losses of this type they sustain and, relatedly, that the avoidance-moves that they or their potential injurers may make may reduce the accident-or-pollution-loss-related risk costs that potential victims face. Economists have also long recognized that potential injurers who may or will have to compensate their victims for any accident-or-pollution losses they impose on them may face risk costs related to this contingency and, relatedly, that the avoidance-moves these potential injurers or their potential victims make may affect the risk costs that the potential injurers bear on this account. In fact, such risk-cost considerations have played a significant role in analyses of the allocative efficiency of tort-loss insurance and tort-liability insurance and occasionally have been mentioned in analyses of the relative allocative efficiency of negligence versus strict liability (though—perhaps because of the prevalence of tort-liability insurance—analyses of the effect of strict liability on total risk costs have not given much attention to the risk costs that incompletely-insured potential injurers may face if they have to compensate their tort-victims for the losses they inflicted on them). Economists who have analyzed the allocative efficiency of the negligence doctrine or at least of that version of the doctrine that employs the $\text{BI}<\text{PL}_I$ definition of negligence derived from Learned Hand's opinion in *Carroll Towing* have also long recognized that—to be allocatively efficient—that doctrine must be adjusted in some way to reflect the effect of any avoidance-move rejection on risk costs.

However, in practice, neither Law & Economics scholarship nor Law & Economics teaching addresses this complication in a satisfactory way. For example, my admittedly-casual impression is that (1) most economists and academic lawyers who acknowledge the relevance of risk costs to the allocative efficiency of negligence doctrines that incorporate the traditional Hand definition of negligence or to the allocative efficiency of the strict-liability doctrine deal with it by taking the easy "out" of assuming that all relevant actors are indifferent to risk—that accident-and-pollution-related risk costs are zero and, concomitantly, that avoidance will not
reduce such risk costs—and that (2) even those economists who make some effort to consider the way in which a negligence doctrine that incorporates the traditional Hand formula for negligence would have to be altered to produce allocatively-efficient results in a world in which accident-or-pollution-related risk costs are positive think that only a small, straightforward revision needs be made in the Hand formula for negligence for this purpose: *viz.*, that the only change that is necessary is an alteration in the Hand formula that would result in its classifying an avoidance-move rejection as negligent if and only if $B_I < (\downarrow (PL+R)_I$ for the move in question where the referent of $\downarrow R_I$ is unspecified but probably is intended to be the amount by which the relevant avoidance-move would have reduced the potential victims' accident-or-pollution-related risk costs if the relevant potential victims knew that they would receive no compensation for any accident or pollution losses the potential injurer's rejection of the avoidance-move in question would inflict on them. Unfortunately, even if no problems arose because of the limited "coverage" of the negligence doctrine (because injurers [victims] can reject many types of avoidance-moves without having their choice assessed for negligence [contributory negligence]), this response would sometimes be paradoxical rather than straightforward and would not always produce a negligence doctrine that would secure allocative efficiency (even on the otherwise-Pareto-perfect assumptions that the relevant body of literature implicitly makes and this study will, for the most part, also adopt)—*i.e.*, would not produce a negligence doctrine that would both minimize the sum of the risk costs and risk-cost-avoidance costs that relevant parties bear and elicit the set of avoidance-decisions that are most allocatively efficient, given the fact that risk has been allocated in the most-allocatively-efficient way.

This study will analyze the allocative efficiency of strict liability and various Hand-formula-oriented negligence doctrines distinguished by the way in which they define negligence in a tort-law regime in which all avoidance-move rejections by a potential injurer other than his refusal (1) to reduce the extent to which he engages in his injurious activity, (2) to cease his activity altogether, (3) or to commit himself to compensating his victims for any accident-or-pollution loss he inflicts on them are assessed for negligence in a world in which accident-or-pollution-loss-related risk costs may be positive. I hasten to emphasize that this study will proceed on the assumption that none of the other current *de facto* restrictions in the set of avoidance-choices that are assessed for negligence is operative. To elaborate: in practice, courts in jurisdictions in which an injurer's liability depends on his being found negligent do not assess
the negligence of the failure of injurers to make many types of avoidance-moves other than lowering or eliminating their activity-levels. For example, although courts that are applying a negligence doctrine do assess the possible negligence of a manufacturer's rejection of a known, less-accident-and-pollution-loss-generating production-technique, they do not assess the possible negligence of a manufacturer's rejection of a known, less-accident-and-pollution-loss-generating location, his decision not to switch to the production of a product-variant whose production and consumption combined are less-accident-and-pollution-loss-generating, or his refusal to do research into less-accident-and-pollution-loss-generating production-techniques, locations, or product variants. Similarly, although courts that are applying a negligence doctrine do assess the possible negligence of a car-driver's decision to operate a vehicle with a known safety-defect or to drive in a particular manner under the conditions in which he is operating his vehicle, they do not assess for possible negligence a car-driver's decision to drive a non-defective car whose operation is more accident-or-pollution-loss-generating (to drive a dark gray car as opposed to an orange car, a non-shock-absorbing car such as Volvo rather than a shock-absorbing car such as a Deux Cheveaux, or a car that is more rather than less expensive to repair or replace or to drive under more dangerous conditions rather than less dangerous conditions or along more-accident-or-pollution-loss-generating routes rather than along less-accident-or-pollution-loss-generating routes). This study will ignore these further restrictions in the de facto coverage of our current negligence doctrine (which could be characterized either as part of the extant doctrine or as an error in applying that doctrine). That is why in the text that follows the various negligence doctrines whose allocative efficiency will be analyzed are sometimes denominated "coverage-enhanced" negligence doctrines.

In any event, my assumptions that a potential injurer's activity-level choices and refusal to indemnify his potential victims for any loss his activity will impose on them even if it is carried out in a non-negligent way will not be assessed for negligence play a critical role in my assessment of the relative allocative efficiency of the strict-liability and negligence doctrines. More specifically, as the standard literature has recognized for many years, the fact that activity-level choices are never assessed for negligence will tend to make strict liability more allocatively efficient than negligence to the extent that it would be allocatively efficient for potential injurers to reduce or eliminate their injurious activity. Moreover, as this study will point out, in a world in which potential accident-or-pollution-loss-generating injurers and victims may bear related
risk costs, the fact that a potential injurer's activity-level choice and failure to indemnify his potential victims for any accident-or-pollution losses his choices impose on them will not be assessed for negligence will cause the negligence doctrine to allocate such risks in a different way from the way in which they would be allocated by the strict-liability doctrine where the difference in question may either favor the allocative efficiency of strict liability over negligence (as it will when the risk-related costs that potential victims will bear if they know that their injurer will not compensate them for any accident-or-pollution loss he inflicts on them exceed the risk costs that the potential injurer (I) will bear if he is legally obligated to compensate his victims (V) for the accident-and-pollution losses he has imposed on his victims) or favor the allocative efficiency of negligence over strict liability (as it will when the relevant injurer's risk-related costs exceed the relevant victim's risk-related costs).

Before proceeding, I need to clarify the way in which this Article is using the expression "'best' avoidance-move" and point out two assumptions it makes that relate to the risk costs on which it focuses. I will begin by making two terminological points.

First, I fully realize that in reality it may be allocatively efficient for potential injurers in individual-care situations to make a series of different types of avoidance-moves. When this is the case, a potential injurer's "'best' avoidance-move" will in fact consist of his most-allocatively-efficient package of avoidance-moves of different types. In some cases, some of the members of this "best" package will be covered by the negligence doctrine, and some not. One way of responding to this reality would be to focus on avoidance-move packages and to refer to a "best" avoidance-move package as being "covered" by the applicable negligence doctrine if and only if each of its constituent members was covered by that doctrine. In this usage, a "best" avoidance-move package would be uncovered if one or more of its members were uncovered. I have chosen not to use this more accurate locution for two reasons. First, it enables me to ignore the fact that the non-coverage of some constituents of the "best" avoidance-move package may affect the identity of other members of the covered "best" avoidance-package. Second, it enables me to avoid confusion between individual-care situations (in which the most-allocatively-efficient response to the possibility of an accident-or-pollution loss' occurring is for either an injurer or a victim to make one avoidance-move or a package of avoidance-moves) and multiple-care situations (in which the most-allocatively-efficient response to the relevant possibility is for at least one avoidance-move to be executed by a potential injurer and at least one avoidance-move
to be executed by a potential victim—i.e., for a "package" of such moves to be executed in a way that may or may not be pre-arranged by both sorts of potential participants in the feared accident or pollution-event). For these reasons, the exposition that follows will often artificially and inaccurately imply that the "best" avoidance-move will involve the execution of a single type of avoidance-move. I should emphasize at the outset that none of my results turns on this location.

Second, the expression "best" avoidance-move elides the distinction between the avoidance-move that would be privately-best (most profitable or least unprofitable) for the actor in question if he would have to bear any losses his choice imposed on those that tort law classifies as legally-entitled victims and the avoidance-move that would be the most-allocatively-efficient avoidance-move the actor in question could make—i.e., the allocatively-best avoidance-move available to him. In the real world, in which some actual victims of non-avoidance will not be legally-entitled to recover and in which other Pareto imperfections will distort both the private cost and the private benefits of avoidance-moves to potential avoiders, the avoidance-move that is privately best may not be allocatively best. I am ignoring this possibility in this Article because the Article's (unrealistic) assumptions (1) that the law considers all accident and pollution victims to be potentially entitled and (2) that the economy is otherwise-Pareto-perfect renders it unimportant in the context of the current analysis.

Two risk-cost-related points should also be made. First, this study will assume that risk costs will always be minimized by placing all the relevant risk on either the potential victim or the potential injurer. I realize that, in some cases, a legal rule that divided the risk that an accident-or-pollution loss might be generated between the relevant potential injurer and potential victim might minimize the sum of their risk costs (though it would often fail to induce them to make allocatively-efficient avoidance-decisions on our facts). When this is the case, my claim that injurer liability (victim liability) will minimize the sum of injurer and victim risk costs should be read to imply that injurer liability will yield lower risk costs than victim liability (injurer liability). Second, this study assumes that the most-allocatively-efficient (or least-allocatively-inefficient) avoidance-move \( I \) can make (which, on our otherwise-Pareto-perfect assumption, will be his privately-best avoidance-move) would reduce \( V \)'s risk costs if neither \( I \) nor anyone else had to compensate \( V \) for the full amount of accident-losses (and tort-claiming costs) \( I \)'s rejection of the relevant avoidance-move caused \( V \) to incur. In fact, this assumption will not always be realistic. \( I \)'s rejection of an avoidance-move that would have reduced \( V \)'s
weighted-average-expected accident-or-pollution-losses or, indeed, his certainty-equivalent accident-or-pollution-losses if \( V \) would receive no compensation would increase \( V \)'s accident-related risk costs if it would increase the dispersion of the probability distribution of possible losses that \( V \) might sustain while reducing the mean of that distribution.\(^6\)

This study has two parts. Part I analyzes the significance of accident-or-pollution-related risk costs for the absolute and relative allocative efficiency of strict liability and various negligence doctrines distinguished by the variant of the Hand-formula-oriented definition of negligence they incorporate. It proceeds on the otherwise-Pareto-perfect assumption that the only relevant Pareto imperfections in the system other than its possible failure to take the relevant risk costs into account when determining liability are those caused by the failure of the negligence system to cover a potential injurer's activity-level choice and choice not to indemnify his potential victims for any losses he imposed on them "non-negligently"—\( i.e. \), by pursuing his activity to the extent he did with "due care."

Part II analyzes the implications of two additional Pareto imperfections our actual tort law contains: the facts that (1) an injurer who is found liable (A) will not have to compensate his victims for the transaction costs they had to incur to pursue their tort claim, (B) will not have to compensate his own and his victims' insurance companies for the transaction costs these companies incurred in the tort-claim process, and (C) will not have to compensate the government fully for the "private" transaction costs it incurs when processing the tort claims and any government-transfer claims the potential injurer's conduct causes or the allocative costs the government generates to finance the relevant transactions-cost or transfer payments and (2) an injurer who is found liable will also not have to compensate any of the above parties for any risk costs they bear in relation to these uncompensated transaction (or public-finance) costs.

A final admission and a spoonful of sugar to encourage you to take the medicine that follows. The admission: this Article is not only exhaustive but exhausting. You will have to read through some fairly tedious analyses to understand the basis of some conclusions that are important to appreciate. The spoonful of sugar—four significant conclusions this Article will establish for no-care situations and individual-care situations in which the potential injurer is the potential most-allocatively-efficient avoider, at least some of which you might not anticipate:

(1) The first set of conclusions applies to situations in which the risk costs that a potential injurer would impose on his potential victims by creating some possibility that they would suffer accident-or-pollution losses if they would not
receive any compensation for any such losses he inflicted on them exceed the risk costs that the potential injurer would impose on himself by creating in any way the possibility that such losses would occur because he was fully liable for any accident-or-pollution losses he inflicted on others. The relevant conclusion is that, in any such situations, any negligence doctrine that deserves that name will misallocate resources by failing to minimize the sum of the risk costs generated by allocating the relevant risk to the potential victims in two sets of circumstances:

(A) when the allocatively-efficient avoidance-moves available to the potential injurer would eliminate any possibility of his imposing any accident-or-pollution costs on others but some of those moves would not be covered by the negligence doctrine and

(B) when the allocatively-efficient avoidance-moves the potential injurer could make (the moves whose rejection would be deemed negligent) would not eliminate the possibility of his imposing accident-or-pollution losses on others;

(2) The second conclusion applies to situations in which the risk costs that a potential injurer would impose on his potential victims by creating some possibility that they would suffer accident-or-pollution losses if they would receive no compensation for any such losses the relevant potential injurer inflicted on them are lower than the risk costs that that potential injurer would bear if he would be fully liable to his victims for any losses he inflicted on them. The second conclusion is that, in such situations, strict liability will misallocate resources by failing to minimize the sum of the risk costs generated by allocating the relevant risk to the potential injurer if it would not induce the injurer to eliminate all such risk because it would not be allocatively efficient for him to do so.

(3) The third conclusion applies to situations in which the amount by which an injurer's "best" avoidance-move would reduce the risk costs he would inflict on his potential victims if he would not be liable for any accident-or-pollution loss his rejection of this move would inflict on them and they would receive no compensation for this loss from any source differs from the amount by which this move would reduce the injurer's own risk costs if he were liable for any accident-or-pollution losses its rejection imposed on others. The third conclusion is that, in such situations, the allocative efficiency of a potential injurer's "best" avoidance-move may be critically affected by whether he would be liable for any accident-or-pollution losses its rejection inflicted on others.

(4) The fourth conclusion applies to situations in which the cost (burden) of some avoidance-move to the potential injurer (a) is greater than the reduction it would generate in his potential victims' weighted-average-expected accident-or-pollution losses, (b) is greater than the sum of this reduction and the amount by which the relevant avoidance-move would reduce the potential injurer's risk costs if he would be liable for any accident-or-pollution loss its rejection imposed on others, but (c) is smaller than the sum of this reduction in weighted-average-expected
accident-or-pollution losses by which the relevant avoidance-move would reduce the potential victims' risk costs if they would receive no compensation for any accident-or-pollution loss the potential injurer inflicted on them. The fourth conclusion is that, when these conditions are fulfilled, even a negligence doctrine that covered the avoidance-move in question could not make it profitable for the potential injurer to make an allocatively-efficient avoidance-move decision unless it eschewed the traditional Hand formula for negligence and incorporated an alternative definition that declares an avoidance-move rejection negligent if and only if its cost is less than the sum of the reduction in weighted-average-expected accident-or-pollution losses the move would generate and the reduction it would generate in the potential victims' risk costs if they would receive no compensation for any accident-or-pollution loss the potential injurer's rejection of this move inflicted on them. This conclusion is paradoxical both (a) because this definition would in these cases yield a negligence and liability conclusion (viz., that the potential injurer would be negligent and liable for rejecting the relevant avoidance-move) that is in one sense inconsistent with the definition itself (i.e., with its assumption that the potential victims would not receive compensation) and (b) because the resulting liability-decision will induce the potential injurer to reject the avoidance-moves in question. In situations in which the above conditions are fulfilled, the replacement of the traditional Hand formula for negligence by a victim-risk-cost-supplemented Hand definition of negligence will secure the allocatively-efficient outcome by making the potential injurer liable for rejecting his "best" avoidance-move despite the fact that it will not induce him to make that avoidance-move because holding the potential injurer liable will render allocatively inefficient a given "best" avoidance-move that would otherwise have been allocatively efficient (will render the potential injurer's continuing refusal to make this move allocatively efficient).

I. **RISK COSTS AND THE ABSOLUTE AND RELATIVE ALLOCATIVE EFFICIENCY OF STRICT LIABILITY AND DIFFERENT VARIANTS OF THE NEGLIGENCE DOCTRINE IN A NEARLY-PARETO-PERFECT WORLD IN WHICH ACCIDENTS AND POLLUTION GENERATE NO PRIVATE OR ALLOCATIVE TORT-CLAIM-RELATED OR GOVERNMENT-TRANSFER-CLAIM-RELATED TRANSACTION COSTS**

Part I analyzes the way in which the absolute and relative allocative efficiency of strict liability and various negligence doctrines would be affected by the fact that potential injurers and/or potential victims may face accident-or-pollution-loss-related risk costs in a nearly-Pareto-perfect world in which the only Pareto imperfections are those related to the coverage of the negligence doctrine. The assumption that the economy is nearly-otherwise-Pareto-perfect entails *inter alia* an assumption that tort-claiming, tort-defending, and tort-processing activities and government-transfer claiming, processing, and financing activities generate no private or allocative transaction costs.
Four situations are distinguished. In all four, the potential injurer's rejection of his "best" avoidance-move will impose positive risk costs on his potential victims if they will receive no compensation for any accident-or-pollution loss this decision inflicts on them. Situation (1) is distinguished by its assumption that the potential injurer's rejection of his "best" avoidance-move would impose the same risk costs on him if he were legally obligated to compensate his victims for any accident-or-pollution loss it inflicted on them as it would impose on his potential victims if they would receive no compensation for any accident-or-pollution losses his rejection of this move inflicted on them. Situation (2) is distinguished by its assumption that the potential injurer's rejection of his "best" avoidance-move would impose no risk costs on him even if he were liable for any accident-or-pollution losses it inflicted on others though it would impose risk costs on his potential victims if they would receive no compensation for any accident-or-pollution loss it inflicted on them. Situation (3) is distinguished by its assumption that the risk costs the potential injurer's rejection of his "best" avoidance-move would impose on him if he were liable for any accident-or-pollution losses it inflicted on others (though positive) are lower than the risk costs his rejection of this move would impose on his potential victims if they would receive no compensation for any accident-or-pollution losses his rejection of his "best" move inflicted on them. And Situation (4) is distinguished by its assumption that the risk costs the potential injurer's rejection of his "best" avoidance-move would impose on him if he were liable to anyone on whom this decision inflicted accident-or-pollution losses exceed the risk costs his rejection of his "best" move would inflict on his potential victims if they would receive no compensation for any accident-or-pollution losses this decision inflicted on them.
1. Situations in Which (A)(i) V's Tort Claim Against I and the Processing of That Claim and any Related Government-Transfer Claims V Makes Will Not Generate any Private Transaction Costs and the Processing of the Claim(s) in Question Will Not Generate any Allocative Transaction Costs, (B) If I Is Found Liable on the Ground of Negligence, I Will Have to Compensate V Fully for the Accident-or-Pollution Losses That I's Negligence Imposed on V and If I Is Strictly Liable, He Will Have to Compensate V Fully for the Accident-or-Pollution Losses I's Conduct Inflicted on V, (C) V Will Incur Accident-or-Pollution-Loss-Related Risk Costs If He Will Not Receive any Compensation for any Accident-or-Pollution Losses I's Rejection of His "Best" Avoidance-Move Imposed on Him, and (D)(i) the Risk Costs That I Will Incur If He Must Compensate V Fully for any Accident-or-Pollution Losses I's Rejection of His "Best" Avoidance-Move Imposes on V Equal the Risk Costs That V Will Incur If He Will Receive No Compensation for any Accident-or-Pollution Losses I's Rejection of I's Best Avoidance-Move Imposes on Him

Situation (1) differs from Situations (2) through (4) in that, in Situation (1), (A) the amount by which I's "best" avoidance-move will reduce the risk costs V would bear if he would secure no compensation for any accident-or-pollution loss I's rejection of this move inflicted on him equals the amount by which I's "best" avoidance-move would reduce I's risk costs if I would have to compensate V fully for any accident-or-pollution loss I's rejection of this move inflicted on V and (B) both these amounts are greater than zero. The combination of other assumptions that define Situation (1) and our general otherwise-Pareto-perfect assumption imply that strict liability will maximize allocative efficiency in the situation in question. This conclusion follows from two facts:

(1) the fact that strict liability's shifting of the risk created by the possibility of an accident-or-pollution loss' being generated from V to I (in comparison with a no-liability regime) will have no impact on the sum of I's and V's risk costs on the risk-cost assumption that defines Situation (1) and

(2) the fact that the various assumptions we are making imply that in Situation (1) a strictly liable I will make all "best" moves that are allocatively efficient and reject all "best" (and a fortiori all "non-best" moves) moves that are allocatively inefficient.

More specifically, our assumptions guarantee the second outcome just delineated because they guarantee that

(A) the allocative efficiency of I's "best" avoidance-move will equal its private profitability to I—that

(i) \( B_I \) will equal the allocative cost of I's "best" avoidance move,

(ii) \( \downarrow PL_I \) will equal the allocative benefits I's "best" avoidance-move will generate by reducing \( PL \), risk-cost consequences aside,
(iii) I will correctly perceive the risk-cost benefits that his "best" avoidance-move will confer on him because he is strictly liable,
(iv) I's "best" avoidance-move will not generate any non-internalized allocative benefits by reducing the risk costs and/or transaction costs others incur (for which I would not be liable) because it will not generate any such benefits, and
(v) I's "best" avoidance-move will not confer any transaction-cost benefits on him (which our assumptions guarantee would equal their allocative counterparts and be correctly perceived by I in any event), and

(B) I will always make the avoidance-decision that is most profitable for him to make.

But what of the allocative efficiency of the various negligence doctrines that might be distinguished in Situation (1)? Since the placement of risk will not affect the sum of I's and V's risk costs in Situation (1), the allocative efficiency of the relevant negligence doctrines in Situation (1) will depend solely on whether they will induce I to make his "best" move when it would be allocatively efficient for him to do so without inducing him to make either his "best" move when it would be allocatively inefficient for him to do so or any "non-best" move that is available to him.

I will analyze this issue by focusing separately on three subcases that can arise in Situation (1)—henceforth Case 1A, Case 1B, and Case 1C (where the number "one" indicates that the case in question arises in Situation [1]). Case 1A consists of all cases in which B_I for I's "best" move is less than \(\downarrow PL_I\) for that move—e.g., a case in which \(B_I=\$70\) and \(\downarrow PL_I=\$100\). In case 1A, I's "best" avoidance-move will clearly be allocatively efficient—indeed, will increase allocative efficiency by \((\downarrow[PL+R_I]-B_I)\) where the \(\downarrow R_I\) term refers to the amount of risk costs that I's "best" avoidance-move will prevent I from having to bear (which is the relevant risk-cost figure, given that—as we shall see—I will be negligent for rejecting the move in question). Fortunately, it is equally clear that, in Case 1A, the negligence doctrine will induce I to make his "best" avoidance-move if it covers the "best" move in question, regardless of whether it incorporates the traditional Hand \(B_I<\downarrow PL_I\) formula for negligence or a variant of that definition that would declare I's rejection of his "best" avoidance-move negligent if and only if \(B_I<\downarrow(PL+R_I)\) where the \(\downarrow R_I\) term in question refers either (A) to the risk costs I's "best" move would prevent V from having to bear if V would receive no compensation for any accident-or-pollution costs its rejection would impose on him or (B) to the risk costs I's "best" move would prevent I from having to bear if I would be liable to V for any losses I's rejection of that move
inflicted on $V$. More specifically, the negligence doctrine will induce $I$ to make his "best" move in Case 1A regardless of the Hand-formula-variant definition of negligence it incorporates because the application of any of these variants will result in $I$'s being deemed negligent for rejecting his "best" move in Case 1A and $I$ will always prefer incurring avoidance-costs of (say) $70 to paying weighted-average-expected damages of (say) $100 and bearing the positive risk costs associated with the contingency of his having to pay such damages. Unfortunately, however, the negligence doctrine will not induce $I$ to make his "best" move in Case 1A (regardless of the definition of negligence it incorporates) if that move is an activity-level move (or, on more realistic assumptions, if it includes any of the large variety of moves whose rejection is not in practice assessed for negligence) because in that case it will not make $I$ liable for rejecting this move (or that constituent of this move-package) and he will obtain no benefits from incurring $B_I$ in avoidance-costs. Finally, and equally clearly, in Case 1A, the negligence doctrine will not make it profitable for $I$ to make any "non-best" move available to him because it will not deem him negligent or liable for rejecting any such "non-best" move, regardless of the variant of the Hand formula it uses to define negligence.

In Case 1B, $\nabla P_L < B_I < \nabla (P_L + R)_I$ where the $\nabla R_I$ term refers to the risk costs $V$ would incur because $I$ rejected $I$'s "best" avoidance-move if neither $I$ nor anyone else would compensate $V$ for any accident-or-pollution losses this choice imposed on $V$. To determine whether the three negligence doctrines just distinguished will induce $I$ to make allocatively-efficient avoidance-choices in Case 1B, I will first analyze the allocative efficiency of $I$'s "best" move in this case and then analyze whether each of these negligence doctrines will induce $I$ to make this move in Case 1B.

First, is $I$'s "best" move in Case 1B allocatively efficient? Since Situation (1) assumes that the risk costs just delineated equal the risk costs $I$'s execution of his "best" avoidance-move would prevent him from incurring if he would be legally obligated to compensate $V$ fully for any accident-or-pollution loss $I$'s rejection of his "best" move imposed on $V$, $I$'s "best" move will be allocatively efficient in Case 1B regardless of the rule of injurer liability. Second, will the negligence regimes I have distinguished induce $I$ to make his "best" avoidance-move (which is allocatively efficient) in Case 1B? An initial point: in Case 1B, none of the negligence doctrines under consideration (indeed, no negligence doctrine) will ever induce $I$ to make this "best" avoidance-move if his rejection of this move would not be assessed for negligence—e.g., if the
move were an activity-level reduction. Moreover, in Case 1B, a negligence doctrine that incorporated the traditional Hand formula for negligence would also fail to induce $I$ to make his "best" avoidance-move despite its allocative efficiency even if his "best" move were covered by this negligence doctrine because a negligence doctrine that incorporated the traditional Hand formula for negligence would not deem $I$'s rejection of this move negligent (given that $B_I > \downarrow PL_I$ in Case 1B). To create a negligence doctrine that would induce $I$ to make his "best," covered, allocatively-efficient avoidance-move in Case 1B, one would have to eschew the traditional Hand formula for negligence and incorporate either of the $B_I < \downarrow (PL + R)_I$ definitions previously distinguished. Both these definitions would secure the relevant avoidance since both would deem $I$'s rejection of his "best" move negligent in Case 1B and $I$ will prefer incurring $B_I$ in avoidance-costs to the prospect of paying $\downarrow PL_I$ in damages (on the weighted average) and incurring $\downarrow R_I$ in related risk costs.

Third, in Case 1B, would any of the negligence doctrines under consideration ever induce $I$ to substitute a "non-best," allocatively inefficient avoidance-move for his "best" avoidance-move? The answer to this question is "no" because under none of these negligence doctrines would $I$ be deemed negligent for rejecting such a substitution. Indeed, no "non-best" move would be profitable for $I$ even if he would be found negligent and liable for rejecting it since in Case 1B the cost of avoidance to $I$—$B_I$—is assumed to be higher than the cost of non-avoidance to a liable $I$—the weighted-average-expected damages he should expect to have to pay if he fails to avoid ($\downarrow PL_I$) plus the risk costs he would have to bear on that account (which in this case equal the victim-risk-cost-oriented $\downarrow R_I$ that appears in the inequality that partially defines Case 1B).

In Case 1C, $B_I > \downarrow (PL + R)_I$ where the $\downarrow R_I$ term refers to the risk costs $I$'s "best" move would prevent $V$ from incurring if $V$ could collect no compensation for any accident-or-pollution losses $I$'s rejection of this move inflicted on him. In this case, $I$'s "best" avoidance-move will always be allocatively inefficient, regardless of whether $I$ is liable for the consequences of his rejecting it since the risk costs the move would prevent $I$ from bearing if he were liable equal the risk costs it would prevent $V$ from bearing to which the $\downarrow R_I$ term in the inequality that partially defines Case 1C refers. In brief, none of the negligence doctrines under consideration will cause $I$ to misallocate resources in Case 1C by making his "best" avoidance-move both because none will result in $I$'s being deemed negligent for rejecting his "best" move in this case and because it
will not be profitable for \( I \) to make his "best" move in Case 1C even if his rejection of it would be deemed negligent.

Two conclusions are therefore justified. In Situation (1),

1. strict liability will be more allocatively efficient than the negligence doctrine regardless of the definition of negligence it incorporates if and to the extent that \( I \)'s "best" avoidance-move is or includes an allocatively-efficient activity-level reduction and

2. even in cases in which \( I \)'s "best" avoidance-move is covered by the negligence doctrine, that doctrine will in some cases that may arise in Situation (1)—viz., in Case 1B—be less allocatively efficient than strict liability when avoidance will reduce risk costs even when its possible relevant effects on injurer and victim risk costs are the same if the negligence doctrine incorporates the traditional Hand formula for negligence.

2. Situations in Which Conditions (A)(i), (B), and (C) of Situation (1) Are Fulfilled but (D)(ii) Neither \( I \) Nor Anyone Else (Say, His Insurer) Will Incur any Risk Costs If He Rejects His "Best" Avoidance-Move Even If He Will Have to Compensate \( V \) Fully for any Accident-or-Pollution Losses His Rejection of That Move Inflicts on \( V \) Though \( I \)'s Rejection of His "Best" Move Would Impose Risk Costs on \( V \) If \( V \) Would Not Be Fully Compensated for any Accident-or-Pollution Losses \( I \)'s Rejection of This Move Imposed on \( V \)

In at least some situations, potential injurers who know that they will have to compensate their victims for the losses they impose on them will face no risk costs related to this possibility though their victims will face risk costs if they will not be fully compensated for all or some of the losses the relevant potential injurers impose on them. Potential injurers who (1) do not make avoidance-decisions that guarantee that they will not impose any accident-or-pollution losses on their potential victims and (2) know that they will have to compensate their victims for the traditional accident-or-pollution losses their negligence or conduct imposed on them may not face risk costs on this account for any or all of four reasons:

1. they may know the precise amount of accident or pollution losses each of their accident-or-pollution-loss-generating acts for whose consequences they will be held liable will generate;

2. they may know the precise total amount of accident-and-pollution losses their "portfolio" of liability-causing accident-or-pollution-loss-generating acts will generate even if they do not know the amount of such losses each such act will generate;
(3) they may be indifferent to risk; or

(4) they may be fully insured for any tort damages assessed against them.

Moreover, if the potential injurer is fully insured, any rule that allocates liability to him will generate no risk costs on that account if his insurance company either has a portfolio of risks that eliminates all risk or has owners and other dependents who are indifferent to risk.

However, for three reasons, such a potential injurer’s potential victims may still face risk costs if they know that they will not be fully compensated for any accident-or-pollution losses the potential injurer may inflict on them:

(1) they may not know the amount of accident-or-pollution losses they will suffer as a result of all the accident-or-pollution-loss-generating acts that put them at risk;

(2) they may be averse to uncertainty or risk; and

(3) they may not be fully insured against such accident or pollution losses (and may be unable to secure transfer-payments from the government to cover any uninsured loss).

Moreover, even if the potential victim is fully insured, any legal doctrine that frees his injurer from full liability will yield risk costs on that account if the victim’s insurance company does not have a portfolio of risks that eliminates all risk and is not indifferent to risk.

In cases in which the $V$ will face accident-or-pollution-loss-related risk costs if he is not guaranteed full compensation for any such losses he suffers while the $I$ would face no such risk costs if he were legally obligated to pay such compensation to his $Vs$ despite the fact that his potential liability would not deter him from harming others, risk-cost considerations will favor the allocative efficiency of strict liability over negligence to an extent that will increase with the number of cases in which the $I$’s failure to eliminate his contribution to PL would be deemed non-negligent because it would not be allocatively efficient for the $I$ to prevent all the relevant losses and/or because the rejection of one or more of the allocatively-efficient avoidance-moves available to him would not be assessed for negligence. More specifically, risk-cost considerations will tend to make strict liability more allocatively efficient than negligence when some of the losses the $I$ imposes on the $V$ will not be attributed to the $I$’s negligence because strict liability will place any risk associated with such losses on the $I$ (for whom on Situation [2]’s assumptions such risk may be non-existent and will in any event be costless) while the
negligence doctrine will place any such risk on the V (for whom such risk will be positive and costly).

Of course, to secure allocative efficiency, a tort-law regime will have to do more than allocate risk in the way that minimizes total risk costs. It will also have to induce the relevant potential tort-loss co-generators to make allocatively-efficient avoidance-decisions (to make all avoidance-moves that are allocatively efficient [given the way in which risk has been allocated] and to reject all avoidance-moves that are allocatively inefficient [given the way in which risk has been allocated]).

I have already indicated that, in Situation (2), strict liability will allocate the relevant accident-or-pollution-loss risks so as to minimize the relevant risk costs—i.e., will allocate the relevant risks to I rather than to V. In Situation 2, strict liability will also induce I (who is assumed to be a sovereign maximizer) to make allocatively-efficient avoidance-decisions. This conclusion follows from three facts. First, our otherwise-Pareto-perfect assumption guarantees that (A) the $B_I$ for I's "best" avoidance-move equals the allocative cost of that move as well as its private cost to I, (B) the $\downarrow PL_I$ for I's "best" avoidance-move equals the allocative benefits that move will generate by reducing PL, and (C) I will make the choice that is profitable for him to make. Second, the assumptions of Situation (2) that I will not face any risk costs even if he is made liable to V and that V will not face any risk costs if I is strictly liable guarantee that I's perception of the profitability of his avoiding will not be distorted in any way by risk costs (i.e., by the fact that our damage rules do not obligate I's to compensate their potential victims for the risk costs the I's' choices imposed on the V's). Third, the assumptions of Situation (3) that I's rejection of his "best" move will not induce anyone to incur any transaction costs guarantee that the profitability of I's making this move will not be deflated by the failure of our law to internalize to I any allocative transaction costs his rejection of that move will induce others to generate.

Obviously, the fact that, on our current assumptions, strict liability will secure allocatively-efficient outcomes in Situation (2) does not imply that the same can be said for the negligence doctrine. I will investigate the allocative efficiency of the negligence doctrine in Situation (2) in two stages. First, I will inquire whether in Situation (2) a "coverage-enhanced" negligence doctrine that uses the traditional Hand formula to define negligence or any plausible risk-cost-adjusted variant of the Hand formula for negligence will induce I to make allocatively-
efficient avoidance-decisions in this situation. Then, I will ask whether, in Situation (2), any doctrine that deserves to be called a negligence doctrine will be able to allocate the risks that cannot be eliminated by allocatively-efficient avoidance in the way that will minimize the sum of the associated risk costs—viz., will allocate these risks to I rather than to V.

I will analyze the first of the above two issues by focusing separately on three subcases—henceforth Case 2A, Case 2B, and Case 2C—that are counterparts for the three subcases I distinguished in Situation (1). "Case 2A" consists of all cases in which \( B_I < PL_I \) for I's "best" avoidance-move—e.g., in which \( B_I = $70 < PL_I = $100 \). I will begin my analysis of whether the various negligence doctrines I have distinguished will secure allocatively-efficient conventional avoidance in Case 2A by assuming that I's "best" avoidance-move is a "covered" avoidance-move—i.e., is a type of avoidance-move whose rejection will be assessed for negligence. I will then examine the consequences of relaxing this assumption.

On this additional assumption, in Case 2A, a "coverage-enhanced" version of a negligence doctrine that incorporates the traditional Hand formula for negligence and assesses for negligence the rejection of all types of PL-reducing avoidance-moves other than activity-level reductions will, by deeming I's rejection of his "best" avoidance-move negligent, induce I to make all allocatively-efficient avoidance-decisions. To see why, note first that, in Case 2A, I's "best" avoidance-move will be allocatively efficient regardless of whether I or V bears the risk of any accident-or-pollution loss that is generated: regardless of whether I is liable for the losses that his rejection of his "best" avoidance-move would generate—regardless of whether the risk-cost-reduction term that is relevant for allocative-efficiency analysis is the injurer-oriented or victim-oriented \( \downarrow R_I \) term, \( B_I < (PL+R)_I \). Note second that, in Case 2A, a coverage-enhanced negligence doctrine that adopts the traditional Hand formula for negligence will hold I liable for rejecting his "best" avoidance-move if as I am now assuming this "best" move is covered by the negligence doctrine. Note third that since in Case 2A \( B_I < PL_I \), the victim-oriented \( \downarrow R_I \) term is positive, and the injurer-oriented risk-cost term is zero, \( B_I \) will be less than \( (PL+R)_I \) regardless of which \( \downarrow R_I \) term is added to the right-hand side of the traditional Hand formula for negligence inequality—that, in Case 2A, I's rejection of his "best" move will also be deemed negligent if either of these risk-cost-adjusted definitions of negligence is substituted for the traditional Hand formula. Note fourth that, regardless of which of these three definitions of negligence it incorporates, a negligence doctrine will make it profitable for I to make his "best" avoidance-
move in Case 2A. Note fifth that our otherwise-Pareto-optimal assumption that (inter alia) \( I \) is a sovereign maximizer implies that \( I \) will make all allocatively-efficient avoidance-moves in Case 2A. Finally, note sixth that, for the same reason that none of these negligence doctrines will induce \( I \) to make any "non-best" avoidance-moves in Situation (1), none will do so in Situation (2) either.

Of course, these conclusions do not imply that actual negligence regimes would always induce \( I \) to make all allocatively-efficient avoidance-choices in Case 2A. Regardless of the Hand-type formula for negligence it incorporates, no negligence doctrine that fails to cover an injurer's refusal to reduce his activity-level will induce him to make allocatively-efficient reductions in his activity level when such reductions would be allocatively efficient.

The coverage-enhanced version of a negligence doctrine that incorporates the traditional Hand formula for negligence is more likely to be misallocative in Case 2B than in Case 2A (indeed, will always be misallocative in Case 2B). In Case 2B, \( \downarrow PL_i \ll B_i < \downarrow (PL + R)_i \) where \( \downarrow R_i \) refers to the amount by which \( I \)'s "best" avoidance-move would reduce the risk costs \( V \) would bear if he would not receive compensation for any accident-or-pollution losses \( I \) inflicts on him either from \( I \) or from any other source. For example, a case in which \( \downarrow PL_i = $100 < B_i = $103 < \downarrow (PL + R)_i = $105 \) where \( \downarrow R_i \) is a victim-risk-cost-oriented term would belong to Case-Category 2B. We just saw that, in Case 2A, a negligence doctrine that incorporated the traditional Hand formula for negligence would induce \( I \) to make all conventional allocatively-efficient avoidance-move decisions if it covered his "best" avoidance-move. Unfortunately, this conclusion will not apply to Case 2B. To see why, note first that in Case 2B (1) \( I \)'s "best" move will be allocatively efficient if he would not be liable for rejecting it and \( V \) would not receive any compensation from any other source for any accident-or-pollution loss \( I \)'s rejection of this move imposed on him (since in this situation the \( \downarrow R_i \) term that is relevant for allocative-efficiency analysis is the victim-risk-cost-oriented \( \downarrow R_i \) term that appears in the inequality that partially defines Case 2B) but (2) \( I \)'s "best" move will be allocatively inefficient if he would be liable for any accident-or-pollution losses his rejection of it inflicted on \( V \) (since in this situation the \( \downarrow R_i \) term that is relevant for allocative-efficiency analysis is the injurer-risk-cost-oriented \( \downarrow R_i \) term, which in Situation [2] equals zero).\(^7\)

Note second that in Case 2B a coverage-enhanced negligence doctrine that incorporates the traditional Hand formula for negligence will not deem \( I \) liable for rejecting his "best"
avoidance-move (since, in Case 2B, $B_I \geq \downarrow PL_I$) and will not therefore induce $I$ to make his "best" avoidance-move in Case 2B despite the fact that it would be allocatively efficient for him to make that move when he would not be liable for rejecting it.

Admittedly, in Case 2B, one could prevent any inefficiency from arising if $I$'s "best" move were covered and would eliminate any possibility of his inflicting accident-or-pollution losses on $V$ by changing the definition of negligence that the negligence doctrine incorporates. In particular, if negligence is defined by a formula that deems it negligent for $I$ to reject any avoidance-move whose $B_I$ is lower than its $(\downarrow [PL+R_I])$ rather than its $\downarrow PL_I$ where the $\downarrow R_I$ in the former expression equals the reduction in $V$'s risk costs $I$'s avoidance would generate if those costs were measured on the assumption that $V$ would not receive compensation for any accident-or-pollution losses $I$'s rejection of his "best" avoidance-move caused him to suffer, $I$ will find it profitable to make the avoidance-decision that is most allocatively efficient for him to make when he will be liable to $V$ for any loss $I$'s rejection of his "best" move imposes on $V$ (will find it profitable to reject his "best" avoidance-move, which rejection is the efficient decision for him to make when he is liable for any accident-or-pollution losses he inflicts on $V$, given that $B_I=$$103, $\downarrow PL=$$100, and $I$'s execution of this avoidance-move will reduce neither $V$'s risk costs [since he will have none in any event when $I$ is liable] nor his own risks [which Case 2B assumes are zero]).

I should point out, however, that although this alteration in the Hand formula for negligence is instrumentally sound in Case 2B in that it has allocatively-efficient consequences it is actually more paradoxical than "natural" or "straightforward." The alteration is paradoxical because it involves measuring the reduction in $V$'s risk costs that it adds to the Hand formula on an assumption—viz., that $V$ will not receive compensation for the loss $I$'s failure to avoid imposes on him—that is inconsistent with the legal conclusion to which that assumption leads—viz., that $I$ will have to compensate $V$ for the loss his rejection of the relevant avoidance-move imposes on $V$. I should add that this result might also be thought to be paradoxical because, in this case, the conclusion that $I$'s rejection of the relevant avoidance-move is negligent makes the execution of that move both allocatively inefficient and unprofitable for $I$ (by creating a situation in which the move in question will reduce neither $V$'s nor $I$'s risk costs.).

The explanation for these apparent paradoxes is that in Case 2B doctoring the definition of negligence to make $I$ liable will prevent $I$ from generating avoidance-misallocation despite the fact that it will not induce $I$ to alter his
avoidance-decision (to avoid rather than to not avoid) because it will render the avoidance in which he will not in any event engage allocatively inefficient.

The final point that needs to be made about Case 2B is the counterpart to the final point I made about Case 2A. Although the above adjustment in the formula for negligence will prevent the negligence doctrine from misallocating resources in Case 2B by preventing I from making an allocatively-inefficient decision to reject an allocatively-efficient "best" covered avoidance-move, it will not prevent the negligence doctrine from producing conventional avoidance-misallocation in Case 2B when I's "best" avoidance-move is to reduce his activity-level.9

Cases 2C are those in which B↓>(PL+R)↓ even if ↓R↓ refers to the amount by which I's "best" avoidance-move would reduce the risk costs V would bear if he would receive no compensation for any accident-or-pollution losses I's rejection of his "best" move would impose on him. For example, a case in which B↓=$108 for I's least-allocatively-inefficient ("best") covered avoidance-move, ↓PL↓=$100, and ↓R↓=$5 for that move if V will not receive any compensation for any accident-or-pollution loss I's failure to make this move will cause him to incur would fall into Case 2C. However, although this implies that regardless of its coverage and regardless of which Hand-type definition of negligence it incorporates no negligence doctrine will ever induce I to make his "best" avoidance-move in Case 2C, this conclusion does not imply that the negligence approach will cause I to make allocatively-inefficient conventional avoidance-decisions in Case 2C because in this case I's "best" avoidance-move will always be allocatively inefficient.

As we have seen, to maximize allocative efficiency, a tort-law regime must not only induce all potential tort-loss co-generators to make all allocatively-efficient conventional avoidance-decisions, it must also allocate the risk of any accident or pollution losses that do eventuate so as to minimize the sum of the associate risk costs. As we have also already seen, in Situation (2), to accomplish this goal, a tort-law regime will have to allocate such risk to I rather than to V. Although strict liability will always produce this result in Situation (2), the various negligence doctrines we are considering will not always do so at least if their coverage does not extend to I's failure to indemnify V for any losses I inflicts on him or does not evaluate this "omission" on the assumption that the government would not indemnify V if I did not. In this situation, I's failure to make this "best" covered avoidance-move would not be held negligent under any possible risk-cost-adjusted version of the Hand formula because even if ↓R↓ in that
formula is calculated on the assumption that V will not receive compensation (from I or anyone else) for the accident-or-pollution losses I’s failure to make this "best" covered move imposes on him, $B_I = \$108 > (PL+R) = \$105$.

Three points are relevant in this context. First, in many Situation (2) cases, negligence doctrines that do not cover failures to indemnify will not minimize risk costs because they will not shift from V to I the risk of accident-or-pollution losses that I’s allocatively-efficient avoidance will not eliminate. It should be clear that some such risk will remain in all instances of Case 2C (in which I's "best" avoidance-move would be allocatively inefficient despite the fact that it would reduce PL regardless of whether he would be found negligent for rejecting it) and in those instances of Cases 2B in which I would be found negligent and liable for rejecting his "best" avoidance-move (since in these instances I's "best" avoidance-move would be allocatively inefficient). And a moment's reflection is all that is required to show that some risk will also remain in many instances of the subset of Case 2B cases in which I would not be deemed negligent for failing to make his "best" avoidance-move (because the relevant negligence jurisdiction adopted the traditional Hand formula for negligence)—i.e., in which I's "best" avoidance-move would be allocatively efficient—and in all instances of Case 2A—in which I’s "best" avoidance-move is allocatively efficient. Obviously, even when I is in a position to engage in some allocatively-efficient avoidance, his allocatively-efficient avoidance need not eliminate any possibility that he would inflict accident or pollution losses on others.

Second, even on the otherwise-Pareto-perfect assumption that I will make all avoidance-moves that are profitable for him to make, some negligence doctrines will sometimes fail to minimize risk costs by allocating to I the risk of accident-or-pollution losses his rejection of allocatively-efficient avoidance-moves generates. In particular, risk-cost misallocation will arise in Cases 2A-C when at least one of the avoidance-moves in I’s "best" avoidance-move package is an activity-level reduction (or more broadly, a move not covered by the applicable negligence doctrine). Similarly, risk-cost misallocation will be generated in Case 2B if the applicable negligence doctrine incorporates the traditional Hand definition of negligence since such a doctrine will not deem I’s rejection of his "best" avoidance-move negligent despite the fact that its execution would be allocatively efficient, given that I would not be liable for rejecting it.

Third, and relatedly, in Case 2B, a negligence doctrine that incorporates a risk-cost-reduction-adjusted variant of the Hand formula negligence will not cause risk-cost misallocation
since it will shift from $V$ to $I$ the accident-or-pollution loss risk $I$ will create by rejecting his "best" avoidance-move. In other words, in Case 2B, the incorporation of such a non-traditional Hand-type definition of negligence will prevent misallocation by eliminating risk-allocation misallocation as well by preventing $I$ from rejecting an allocatively-efficient avoidance-move (by rendering that move allocatively inefficient).

Short of switching from negligence to strict liability, I can see only one way to prevent the allocative inefficiency the negligence doctrine will cause by misallocating to $V$ the risk created by $I$’s carrying out his activity to an allocatively-efficient extent with due care: to change negligence law so that it applies not only to $I$’s rejection of conventional avoidance-moves, which change the probability distribution of possible accident-or-pollution losses, but also to $I$’s failure to agree in advance to compensate $V$ for any accident-or-pollution losses he inflicted on $V$. On our facts, $I$’s failure to indemnify $V$ would be found negligent if it were assessed for negligence on the premise that $I$ should assume that no-one else would compensate $V$ if he did not because the gain that $I$’s promise to indemnify $V$ would have given $V$ in such a world—($\downarrow[PL+R]_I$)—when the $\downarrow R_I$ term is victim-risk-cost-oriented will exceed the cost to $I$ of making and fulfilling that promise ($\downarrow PL_I$) since on the assumptions of Situation (2) the R-benefits to $V$ of $I$’s indemnifying him are positive while the R-cost to $I$ of giving this undertaking is zero. However, I recognize that many would conclude that this doctrinal-innovation would extend negligence law beyond not only its historical but even its "conceptually-appropriate" domain of courage—i.e., would conclude that this innovation would create a system that should not be designated a negligence system.\(^{10}\)

3. Situations in Which Conditions (A)(i), (B), and (C) of Situation (2) Are Fulfilled but (D)(iii) $I$’s Rejection of This "Best" Avoidance-Move Will Inflict Positive Risk Costs on Him If He Must Compensate $V$ for the Accident-or-Pollution Losses He Thereby Imposes on $V$, Though the Risk Costs $I$ Will Incur on These Accounts Will Be Lower Than the Risk Costs $I$’s Rejection of His "Best" Avoidance-Move Will Inflict on $V$ if $V$ Will Receive No Compensation for the Losses $I$ Will Thereby Impose on Him

This situation is similar to Situation (2) in six respects. First, because $I$’s risk costs if he is liable are lower than $V$’s risk costs if $I$ is not liable while neither $I$ nor $V$ will incur any risk costs if the other is liable, risk costs will be minimized by shifting any risk of an accident-or-pollution loss' being generated from $V$ to $I$. Second, in Situation (3) as in Situation (2), strict liability will maximize allocative efficiency because it will both shift all the risk $I$ creates of
accident-or-pollution losses from $V$ to $I$ so as to reduce the sum of all relevant parties' risk costs and make it profitable for $I$ to make an avoidance-move if and only if it is allocatively efficient for him to do so. Third, in Situation (3) as in Situation (2), even if it would not be allocatively efficient for $I$ to reduce his activity-level and the negligence doctrine would cover all allocatively-efficient avoidance-moves available to $I$, the negligence doctrine would misallocate to $V$ the risk that $I$ will generate accident-or-pollution losses by engaging in his activity to an allocatively-efficient extent with due care. Fourth, when it would be allocatively efficient for $I$ to reduce his activity-level, no negligence doctrine that fails to cover $I$'s activity-level choice will induce him to make all the avoidance-moves that would be allocatively efficient, regardless of the definition of negligence the doctrine incorporates. Fifth, in Situation (3) as in Situation (2), where the failure of the negligence doctrine to cover activity-level choices misallocates resources by causing $I$ to reject allocatively-efficient activity-level reductions, it will simultaneously misallocate resources by allocating to $V$ the risk of any accident-or-pollution losses that result. And sixth, even if it would not be allocatively efficient for $I$ to reduce his activity-level, whether the negligence doctrine will misallocate resources by misallocating any risks $I$ creates by rejecting his "best" covered avoidance-move or by inducing $I$ to make a misallocative decision on that move depends both on the relevant avoidance-facts and on the version of the Hand formula the jurisdiction uses to define negligence.

I will illustrate this last set of points by analyzing the same three cases I distinguished in the course of analyzing Situations (1) and (2). I should indicate in advance that some of the risk-misallocation points I will make manifest the third of the six points listed in the preceding paragraph.

In the first case—henceforth Case 3A, $B_I < \downarrow P_L_I$ for $I$'s "best" avoidance-move. In this case, $I$ would be held liable if he failed to avoid in a negligence jurisdiction that used the traditional Hand formula to determine negligence. Since in this case it will always be more profitable for $I$ to incur $B_I$ in avoidance-costs than not to avoid and face the prospect of paying weighted-average damages equal to $\downarrow P_L_I$ and incurring some positive risk costs because of this liability-contingency and since our otherwise-Pareto-perfect assumption guarantees that $I$ will always make the avoidance-decision that is profitable for him to make, a negligence doctrine that incorporates the traditional Hand formula for negligence will never misallocate to $V$ the risk of $I$'s failing to make his "best" avoidance-move in Case 3A both because it will allocate that risk to
I and because I will never fail to make this move on Case 3A's assumptions. To see why a negligence doctrine that incorporates the traditional Hand formula for negligence or either of its B<↓(↓[PL+R])_I variants and covers I's "best" avoidance-move will always induce I to make allocatively-efficient avoidance-moves in Case 3A, note that (1) I's "best" avoidance-move will always be allocatively efficient in Case 3A since (A) our otherwise-Pareto-perfect assumption guarantees that B_I equals the allocative cost of I's making his "best" avoidance-move and that ↓PL_I equals the allocative benefits I's "best" avoidance-move will generate by reducing PL and (B) the allocative benefits that I's "best" avoidance-move will generate will exceed ↓PL (which is bigger than the allocative cost of this move [B_I] in any event) by the amount by which it will reduce I's risk costs, (2) the fact that B_I<↓PL in Case 3A guarantees that it will be profitable for I to make his "best" avoidance-move in Case 3A—that the cost of making this move to him (B_I) will be less than the sum of the weighted-average-expected damages doing so will obviate his paying (↓PL_I) and the related risk costs it will obviate his incurring, and (3) our otherwise-Pareto-perfect assumption guarantees that I will make every decision that is profitable for him to make.

In the second subset of Situation (3) cases—henceforth Case 3B, ↓PL_I<B_I<↓([PL+R])_I where ↓R_I refers to the risk costs I's rejection of his "best" avoidance-move would inflict on V if V would not obtain any compensation for any accident-or-pollution losses such a decision by I imposed on him. In this set of cases, it is allocatively efficient to obligate I to compensate V for any losses I imposes on V by rejecting his "best" avoidance-move; if I is not going to be held negligent and hence liable for rejecting his "best" avoidance-move, I's "best" avoidance-move will be allocatively efficient (since the ↓R_I that is relevant to allocative-efficiency analysis is the victim-oriented ↓R_I term in the inequality that partially defines Case 3B); but once liability for such losses has been shifted to I, it may or may not be allocatively efficient for I to avoid. More specifically, once this liability has been shifted to I, it will be allocatively inefficient for I to make his "best" avoidance-move in this case whenever (B_I-↓PL_I) for that move is less than the amount by which I's making this move would reduce the risk costs I's duty to compensate V imposes on I—i.e., whenever (↓[PL+R])_I-B_I where ↓R_I refers to V's relevant risk costs exceeds the difference between the relevant ↓R_I for V and the (smaller) ↓R_I for I—while it will be allocatively inefficient for I to make his "best" avoidance-move whenever (B_I-↓PL_I) for that
move is smaller than the amount by which I's "best" move will reduce the risk costs I's duty to compensate V imposes on I.

To be allocatively efficient in Case 3B, a negligence doctrine must

1. induce I to make his "best" avoidance-move when it is allocatively efficient for him to do so and induce I to reject his "best" avoidance-move (and a fortiori all his "non-best" avoidance-moves) when that decision is allocatively efficient and

2. prevent risk-cost misallocation from being generated either by inducing I to make his "best" avoidance-move or by allocating to I the accident-or-pollution-loss risk that will be created by his rejecting his "best" avoidance-move.

I will now analyze whether negligence doctrines that incorporate respectively the traditional Hand formula for negligence, the buyer-risk-cost-oriented B_i < (PL+R)_I definition of negligence, and the seller-risk-cost-oriented B_i < (PL+R)_I definition of negligence will secure these two goals.

In Case 3B, a negligence doctrine that incorporates the traditional Hand formula for negligence will never result in the potential injurer's being found negligent and liable for rejecting his "best" avoidance-move even if it covers this move because in this case B_I always exceeds ↓PL_I for I's "best" avoidance-move. This conclusion implies that such a negligence doctrine will be allocatively inefficient in Case 3B on two accounts:

1. it will fail to induce I to make allocatively-efficient avoidance-decisions since it will fail to induce him to make his "best" avoidance-move, whose execution will always be allocatively efficient in Case 3B when I would not be liable for rejecting it (since in these circumstances the victim-risk-cost-oriented ↓R_I term that appears in the inequality that partially defines Case 3B is the term that is relevant for allocative-efficiency analysis) and

2. it will fail to minimize risk costs because it will both fail to induce I to make this "best" avoidance-move and fail to allocate to I the risk of his rejecting this move.

Fortunately, however in Case 3B, a negligence doctrine that covers I's "best" avoidance-move and incorporates the victim-risk-cost-oriented B_i < (PL+R)_I definition of negligence will both induce I to make allocatively-efficient avoidance-decisions and minimize risk costs because it will always deem I negligent and hence liable for rejecting his "best" avoidance-move. Three points are relevant in this connection.

First, such a negligence doctrine will always induce I to make his "best" avoidance-move when it is allocatively efficient for him to do so because the assumptions on which this analysis
is proceeding guarantee that (1) I will always make the avoidance-decision that is most profitable for him to make and (2) the private profitability of I's deciding to make his "best" avoidance-move will equal its allocative efficiency. This latter fact in turn manifests four other relationships:

(1) \( B_I \) equals the allocative cost of I's "best" avoidance-move (given our assumption that the economy is otherwise-Pareto-perfect),

(2) \( \downarrow PL_I \) equals the allocative benefits that I's "best" avoidance-move would generate by reducing V's weighted-average-expected accident-or-pollution losses (again a corollary of our otherwise-Pareto-perfect assumption),

(3) I will correctly evaluate the amount by which his "best" avoidance-move will decrease the risk costs he bears because I is liable to his victims for any losses he inflicted on them by rejecting his "best" avoidance-move (another corollary of our otherwise-Pareto-perfect assumption), and

(4) at the end of the day, I's avoidance-move will not affect V or anyone else at all (given I's legal obligation to compensate his victims for any loss I's rejection of his "best" move inflicts on them and our assumption that the accident or pollution that I's rejection of his "best" avoidance-move would generate will not induce anyone to incur private transaction costs or generate allocative transaction costs).

Second, although this negligence doctrine will also imply that I's rejection of his "best" avoidance-move is negligent when the move in question was allocatively inefficient, it will not induce him to make his "best" move when it would be allocatively inefficient for him to do so since I will not find it profitable to avoid when \( B_I \) is higher than \( \downarrow PL_I \) plus the amount by which I's avoidance would reduce his own risk costs—i.e., when (on our otherwise-Pareto-perfection assumption) the allocative cost of avoidance exceeds is allocative benefits.

Third, this negligence doctrine will always minimize the sum of I's and V's risk costs. This conclusion also follows from the fact that a negligence doctrine that covers I's "best" avoidance-move and incorporates a victim-risk-cost-oriented \( B_I < \downarrow (PL+R)_I \) definition of negligence will always deem I negligent and render I liable for rejecting his "best" avoidance-move since that fact implies that this doctrine will either induce I to make his "best" avoidance-move (will do so if [but only if] it is allocatively efficient for him to make this move) or shift to I the risk that his rejection of this move generates.

Finally, in Case 3B, a negligence doctrine that covers I's "best" avoidance-move and incorporates an injurer-risk-cost-oriented \( B_I < \downarrow (PL+R)_I \) definition of negligence will neither
induce $I$ to make allocatively-efficient avoidance-decisions in every instance nor minimize the sum of $I$'s and $V$'s risk costs. Three points are relevant in this connection.

First, when $\downarrow PL_I < B_I < (\text{the injurer-risk-cost-oriented } \downarrow (PL+R)_I)$ for $I$'s best avoidance-move, $I$'s "best" move will be allocatively efficient (regardless of whether he would be liable for rejecting it since the victim-risk-cost-oriented $\downarrow R_I$ term is higher than the injurer-risk-cost-oriented $\downarrow R_I$ term in Situation [3], though in fact he will be liable for doing so), and this last doctrine will induce $I$ to make the move in question (on our otherwise-Pareto-perfect assumption).

Second, when $(\text{the injurer-risk-cost-oriented } \downarrow (PL+R)_I) < B_I < (\text{the victim-risk-cost-oriented } \downarrow (PL+R)_I)$ for $I$'s "best" move, this negligence doctrine will not deem $I$ negligent or liable for rejecting his "best" move and therefore will not induce $I$ to make this move though it would be allocatively efficient for him to do so. This conclusion reflects the fact that, since $I$ will not be liable for rejecting this move, the $\downarrow R_I$ figure that is relevant for allocative-efficiency-analysis purposes is the victim-risk-cost-oriented $\downarrow R_I$ figure (which in Situation [3] exceeds its injurer-risk-cost-oriented counterpart).

Third, and somewhat relatedly, since this last negligence doctrine will not always deem $I$ liable for rejecting his "best" avoidance-move in Case 3B and therefore will not always induce $I$ to make his "best" avoidance-move in this case, it will also not always minimize risk costs in Case 3B by shifting to $I$ the risk his rejection of his "best" move generates.

In the third subset of cases—Case 3C, $B_I > (\downarrow (PL+R)_I)$ even where $\downarrow R_I$ is defined on the assumption that $V$ would not be compensated for any accident-or-pollution loss $I$ imposed on him by rejecting his "best" avoidance-move. This case resembles its counterpart—Case 2C—in that on the risk-cost facts it assumes total risk costs will be reduced by making $I$ liable. Case 3C also resembles Case 2C in that, regardless of whether $I$ is liable for any accident-or-pollution losses his rejection of his "best" move imposes on his victims, $I$'s "best" move will be allocatively inefficient. Thus, since in Situation (3) the amount by which the move in question would reduce $I$'s risk costs once he was made liable (the amount that is relevant for allocative-efficiency analysis under these conditions) is smaller than the amount by which it would reduce $V$'s risk costs if $I$ would not be liable (the amount to which the $\downarrow R_I$ term in the inequality that partially defines Case 3C), the fact that $B_I$ exceeds $\downarrow (PL+R)_I$ where the $\downarrow R_I$ term refers to $V$'s relevant risk costs.
costs guarantees that $B_I$ will exceed $\downarrow (PL+R)_I$ where the $\downarrow R_I$ term refers to $I$'s lower relevant risk costs.

Unfortunately, it will be no more possible in Case 3C than it was in Case 2C to develop a Hand-oriented formula for negligence whose incorporation into something that deserves to be called a negligence doctrine will make $I$ liable for rejecting his "best" avoidance-move. When—as in Case 3C—$B_I > \downarrow (PL+R)_I$ for $I$'s "best" avoidance-move regardless of whether the $\downarrow R_I$ term refers to the reduction in $V$'s risk costs $I$'s execution of his "best" move would generate if $V$ would not be compensated for the losses $I$'s rejection of that move would inflict on him or the reduction in $I$'s risk costs his execution of this move would generate if $I$ would have to compensate $V$ for any losses $I$'s rejection of this move inflicted on $V$, it will not be possible to create a negligence doctrine by "doctoring" the Hand-formula definition of negligence that will result in $I$'s being found negligent for rejecting his "best" avoidance-move and hence it will not be possible to create a negligence doctrine that will generate the allocatively-efficient transfer of risk from $V$ to $I$. (The fact that no negligence doctrine will induce $I$ to make his "best" avoidance-move in Case 3C is not directly problematic since in this case that move will always be allocatively inefficient.)

Admittedly, in Case 3C, it will be possible to maximize allocative efficiency by expanding the coverage of the negligence doctrine to include $I$'s failure to indemnify $V$ for any loss $I$ inflicts on $V$ by rejecting his "best" avoidance-move: this approach will shift risk in the allocatively-efficient direction without inducing $I$ to make his "best" avoidance-move (since $I$ will prefer the prospect of paying $\downarrow PL$ in weighted-average-expected damages and bearing $\downarrow R_I$ in associated risk costs where the $\downarrow R_I$ refers to the reduction in $I$'s own risk costs his avoidance would generate to incurring the higher $B_I$ in avoidance-costs). Of course, as I pointed out in the Introduction, this coverage-expansion seems to me to create a doctrine that no longer deserves to be called a negligence doctrine.
4. Situations That Are Identical to Situation (3) Except That (D)(iv) the Risk Costs That I's Rejection of any Allocatively-Efficient Avoidance-Move Will Impose on I If He Must Compensate Others for any Accident-or-Pollution-Loss It Inflicts on Them Exceed the Risk Costs Such Conduct Will Impose on Others If They Will Receive No Compensation for any Accident-or-Pollution Loss He Inflicts on Them and the Risk Costs That I's Pursuing His Allocatively-Efficient Activity to an Allocatively-Efficient Extent With Due Care Will Impose on Him If He Must Fully Compensate Others for any Accident-or-Pollution Loss He Inflicts on Them Exceed the Risk Costs Such Conduct Will Impose on Others If They Will Receive No Compensation for any Accident-or-Pollution Loss He Inflicts on Them

From the perspective of allocative efficiency, this situation is different in one or possibly two respects from Situation (3). The first difference relates to the goal of minimizing risk costs. Since in Situation (4) putting the relevant accident-or-pollution-loss risks on I rather than on V will increase rather than decrease the sum of I's and V's risk costs, conventional-avoidance-decision consequences aside, doctrines that allocate risk to V rather than to I will be more allocatively efficient when I does not eliminate any possibility of his imposing accident-or-pollution costs on V—in particular,

1. conventional-avoidance-decision consequences aside, a "no-liability" rule or a negligence doctrine that will yield the conclusion that the injurer is not negligent will be more allocatively efficient than strict liability and, relatedly,

2. conventional-avoidance-decision consequences aside, in jurisdictions in which injurer-liability is determined by a "negligence doctrine," it will be allocatively efficient to exclude from the set of choices that are assessed for negligence any choice available to the injurer whose rejection would otherwise be deemed negligent and/or to adopt a formula for negligence that will yield the conclusion that it was not negligent for the injurer to reject any avoidance-choice that was available to him whose rejection would be assessed for negligence.

Situation (4) may also differ from Situation (3) in a second way—viz., if I is liable to V for any accident-or-pollution losses he imposes on him, I's "best" avoidance-move may be more likely to be allocatively efficient in Situation (4) than in Situation (3). As we saw when analyzing Situation (3), assuming ad arguendo that the shift in liability from V to I will not change the identity of I's "best" avoidance-move, in cases in which B_{I} \geq P_{I} \text{ for I's "best" avoidance-move, I's "best" move will be allocatively efficient when I is liable to V for any accident-or-pollution losses he imposes on V if and only if } (B_{I} \geq P_{I}) \text{ is smaller than the amount by which the avoidance-move in question would reduce the risk costs } I \text{ bore in relation to his duty to compensate V. If it is fair to assume that } I \text{'s compensation-duty-related risk costs will be}
absolutely higher in Situation (4)—in which they are assumed to be higher than the risk costs $V$ would bear if $V$ would receive no compensation for the accident-or-pollution loss $I$ imposed on him—than in Situation (3)—in which the risk costs $I$ will face if he does not avoid and is fully liable to $V$ are assumed to be lower than the risk costs $V$ would bear if $I$ would not avoid and $V$ would receive no compensation for the losses he would suffer as a result, it would probably also be fair to assume that $I$'s "best" avoidance-move will tend to reduce $I$'s risk costs more in Situation (4) than in Situation (3) and that the probability that the reduction in $I$'s risk costs that $I$'s "best" move would generate in Situation (4) if he were liable to $V$ would exceed $(B_f \downarrow \downarrow PL_d)$ for that move will be higher than the probability that the reduction in $I$'s risk costs that $I$'s "best" move would generate in Situation (3) if he were liable to $V$ would exceed $(B_f \downarrow \downarrow PL_d)$ for that move. Admittedly, however, this second possible allocative-efficiency-related difference between Situation (4) and Situation (3) has no direct policy-implications since the same argument that led to the conclusion that on our otherwise-Pareto-perfect assumptions an $I$ who is liable to his $V$ will always find it profitable to make all allocatively-efficient avoidance-moves and reject all allocatively-inefficient avoidance-moves in Situation (3) will justify the same conclusion in Situation (4).

With this as background, we should be able to analyze the allocative efficiency of strict liability and various negligence doctrines in Situation (4) on the assumptions that (1) activity-level and victim-indemnification decisions will not be assessed for negligence, (2) the economy is otherwise-Pareto-perfect, and (3) the making, defending, and processing of any tort claims or government-transfer claims $I$'s rejection of his "best" avoidance-move will induce $V$ to make will generate no private or allocative transaction costs. Two points need to be made about the allocative efficiency of strict liability in Situation (4). First, in Situation (4) just as and for the same reasons as in Situations (2) and (3), strict liability will not cause any misallocation (on our current assumptions) by inducing $I$ to make any conventional avoidance-choice that is allocatively inefficient, given the way in which it allocates accident-or-pollution-loss-related risks. Second, in Situation (4) in contradistinction to Situations (2) and (3), strict liability will misallocate to $I$ the risk created by the possibility that he may inflict accident-or-pollution losses on $V$ by carrying out an allocatively-efficient activity to an allocatively-efficient extent in an allocatively-efficient way.
But what of the allocative efficiency of the negligence doctrine in Situation (4)? Once more, I will analyze this issue in three sub-sets of avoidance-situations—in Cases 4A, 4B, and 4C—each of which is analogous to a type of case I distinguished in Situations (1), (2), and (3). In Case 4A, $B_I$ for $I$'s "best" covered avoidance-move is assumed to be lower than $\downarrow PL_I$ for that move. In conjunction with our assumptions that (1) the economy is otherwise-Pareto-perfect and (2) $I$'s "best" avoidance-move will not increase the dispersion of the probability distribution of the accident-or-pollution losses that $I$ might inflict on $V$, this fact guarantees that $I$'s "best" avoidance-move in Case 4A will be allocatively efficient. This conclusion in turn implies that to maximize allocative efficiency in Case 4A, a tort doctrine must (perhaps inter alia) make it profitable for $I$ to make his "best" avoidance-move by deeming his rejection of this move negligent.

In Case 4A (as in all cases that may arise in Situation [4]), the risk costs that $I$'s rejection of his "best" avoidance-move will impose on $V$ if $V$ will secure no compensation for any accident-or-pollution losses $I$ inflicts on him are assumed to be lower than the risk costs that $I$'s rejection of his "best" avoidance-move will impose on himself if he is legally obligated to compensate $V$ for any such losses he inflicts on him. Obviously, this implies that to maximize allocative efficiency in Case 4A, a negligence doctrine must leave on $V$ the risk of any accident-or-pollution loss that $I$ inflicts on $V$ despite the fact that he has made his "best" avoidance-move.

These conclusions imply that if the negligence doctrine covers all the avoidance-moves that are part of $I$'s "best" package in Case 4A, that doctrine will maximize allocative efficiency regardless of whether negligence is defined (1) by the traditional Hand formula, (2) by a formula that classifies any avoidance-move rejection to be negligent if and only if the move's $B$ is less than the $\downarrow(PL+R)$ the move would generate where the $\downarrow R$ refers to the risk costs that $I$'s rejection of his "best" avoidance-move would impose on himself if he is legally obligated to compensate $V$ for any such losses he inflicts on him. This result follows from the facts that on any of these definitions of negligence, the negligence doctrine would
(1) induce I to execute his "best" covered avoidance-move by deeming his rejection of that move negligent and

(2) free I from liability for those accident-or-pollution losses he would impose on V despite the fact that he exercised due care—despite the fact that he made his "best" covered avoidance-move (which was allocatively efficient).

Unfortunately, but not surprisingly, the preceding conclusions also imply that, regardless of the definition of negligence a negligence doctrine incorporates, it will not maximize allocative efficiency in Case 4A if one of the avoidance-moves that is part of I's "best" avoidance-package is "reducing I's activity-level," at least if we maintain our assumption that I's refusal to reduce his activity-level will not be assessed for negligence (is not "covered by" the negligence doctrine). (On the other hand, in Case 4A, any of the above negligence doctrines will secure the allocatively-efficient allocation of any risk that I's activity might impose accident-or-pollution losses on V even if it were carried out to an allocatively efficient extent in an allocatively-efficient way—i.e., will allocate this risk to V, for whom it will be less costly on the distinguishing assumption of Situation [4].)

In Case 4B, \( \downarrow PL \prec B \prec (\downarrow (PL + R)) \) for I's "best" avoidance-move where \( \downarrow R_i \) is defined to equal the risk costs V would bear if he would receive no compensation for any loss I inflicted on him that I could eliminate by making his "best" avoidance-move. In Case 4B, the combination of (1) our general assumption that the economy is otherwise-Pareto-perfect and (2) Situation (4)'s assumption that the risk costs I's "best" avoidance-move would prevent him from bearing if he were liable for any accident-or-pollution losses he inflicted on V are higher than the risk costs his "best" avoidance-move would prevent V from bearing if V would receive no compensation for any such losses I's rejection of his "best" avoidance-move inflicted on V guarantee that I's "best" avoidance-move will be allocatively efficient regardless of whether I is liable for rejecting it. This conclusion implies that, to maximize allocative efficiency in Case 4B, a negligence doctrine will have to make it profitable for I to make his "best" avoidance-move by deeming his rejection of that move negligent (while making it unprofitable for I to make any "non-best" avoidance-move). Moreover, in Case 4B as in Case 4A, the fact that I will bear more risk costs if he is liable for any accident-or-pollution losses I imposes because I rejected his "best" avoidance-move on V than V will bear if he will receive no compensation for any such losses I inflicts on him in this way implies that, to be allocatively efficient in Case 4B, the negligence
doctrine will have to allocate to $V$ any risk that $I$ creates that $V$ may suffer an accident-or-pollution loss, regardless of whether $I$'s creation of that risk was allocatively efficient or allocatively inefficient.

Our question is: will the negligence doctrine maximize allocative efficiency in these ways in Case 4B if negligence is defined in any or all of the ways I have considered? Four points are relevant. First, at least on our assumption that an injurer's activity-level decision will never be assessed for negligence, no negligence doctrine will ever maximize allocative efficiency (will ever induce $I$ to supply his full set of allocatively-efficient avoidance-decisions) when one of the avoidance-moves in his allocatively-efficient "best" avoidance-move package is reducing his activity-level.

Second, a thin silver lining. In Case 4B, no negligence doctrine will ever cause allocative inefficiency by increasing the sum of $I$'s and $V$'s risk costs by assigning to $I$ the risk of the accident-or-pollution losses he failed to prevent by rejecting an allocatively-efficient reduction in his activity-level since no negligence doctrine will ever make $I$ liable for imposing risks on $V$ in this way.

Third, in Case 4B, even if all the avoidance-moves that would be allocatively efficient for $I$ to make are covered by the negligence doctrine, a Hand-formula-oriented negligence doctrine will induce $I$ to make all members of the set of avoidance-moves that would be allocatively efficient for him to make (a set that is coincident with his set of "best" avoidance-moves) if and only if it rejects the traditional Hand definition of negligence for one of the $B_I < \downarrow(PL+R)_I$ definitions I have distinguished. $I$ will not make his "best" avoidance-move in Case 4B in a negligence jurisdiction that adopts the traditional Hand definition of negligence because, in such a jurisdiction, $I$'s rejection of this move will not be deemed negligent in Case 4B (where $B_I > \downarrow PL_I$). $I$ will make his "best" avoidance-move in Case 4B in a negligence jurisdiction that adopts either of the $B_I < \downarrow(PL+R)_I$ definitions of negligence because in such a jurisdiction his rejection of that move will be negligent (since $B_I < \downarrow[PL+R])_I$ regardless of which $\downarrow R_I$ is the referent of the expression in the inequality) and, given that fact, the cost to $I$ of making that move ($B_I$) will be lower than the cost to him of rejecting it (the sum of the damages $I$ will have to reckon with paying $V$ on the weighted average because he inflicted accident-or-pollution losses on him $[\downarrow PL_I]$ and the risk costs $I$'s legal obligation to compensate $V$ for these losses would impose on $I$ [the $\downarrow R_I$ term that refers to the relevant risk costs of $I$]).
Fourth, regardless of which Hand-type definition of negligence it incorporates, no negligence doctrine will ever misallocate resources in Case 4B by inducing I to make an allocatively-inefficient avoidance-move—i.e., whose $B_I$ exceeds the sum of the reduction in PL it will generate and the risk costs it would prevent I from experiencing ($I$’s risk costs are the relevant risk costs in this context because a negligence doctrine could not induce $I$ to overavoid unless it would result in a rejection of his "non-best" move's being deemed negligent.) More specifically, a negligence doctrine that incorporated any of the three Hand-oriented formulae for negligence I have distinguished would never induce $I$ to overavoid because it would never make it profitable for him to make such a move because it would never deem his rejection of such a move to be negligent (since $B_I$ for any allocatively-inefficient avoidance-move would exceed not only $\downarrow PL_I$ but also $\downarrow [PL+R]_I$, where $\downarrow \{\}$ refers to $I$’s relevant risk costs and hence $\downarrow [PL+R]_I$ where $\downarrow R_I$ refers to $V$'s risk costs [since the $I$-risk-cost-related $\downarrow R_I$ exceeds the $V$-risk-cost-related $\downarrow R_I$ in Situation (4)]).

The preceding analysis implies two conclusions. First, in Case 4B a negligence doctrine that incorporates either of the two $B_I < \downarrow (PL+R)_I$ definitions of negligence described above (A) will be more allocatively efficient than strict liability if $I$’s "best" move does not include any activity-level reductions but (B) may be more or less allocatively efficient than strict liability if $I$’s "best" move does include some activity-level reductions. Second, in Case 4B, a negligence doctrine that incorporates the traditional $B_I < \downarrow PL$ Hand test for negligence may be either more or less allocatively efficient than strict liability—will misallocate resources by failing to induce $I$ to make his "best" avoidance-move, which is allocatively efficient, where strict liability would induce $I$ to make that move but will not cause allocative inefficiency as strict liability would by placing on $I$ the risk associated with the possibility that his decision to carry out his allocatively-efficient activity to an allocatively-efficient extent in an allocatively-efficient way may impose accident-or-pollution losses on $V$.

In Case 4C, (1) $B_I > \downarrow [PL+R]_I$ for $I$’s "best" avoidance-move where the term $\downarrow R_I$ refers to the amount by which $I$’s "best" avoidance-move would reduce the risk costs $V$ would bear if he would receive no compensation for any accident-or-pollution losses $I$ imposed on him and (2) the $\downarrow R_I$ just described is smaller than the reduction in $I$’s risk costs his "best" avoidance-move would generate if $I$ would be legally obligated to compensate $V$ for any accident-or-pollution losses $I$’s rejection of his "best" avoidance-move inflicted on him. Given our otherwise-Pareto-perfect
assumptions, it follows that, in Case 4C, it will always be allocatively inefficient for \( I \) to make his "best" avoidance-move when \( I \) will not be liable for the consequences of his rejecting this avoidance-move (since under these conditions the victim-risk-cost-oriented \( \downarrow R_I \) term that appears in the inequality that partially defines Case 4C will be the term that is relevant for assessing the allocative efficiency of \( I \)'s making this move). However, given our otherwise-Pareto-perfect assumption and our assumption that in Situation (4) \( I \)'s relevant risk costs if he is liable will be higher than \( V \)'s relevant risk costs if \( I \) is not liable, it also follows that, in Case 4C, it will sometimes be allocatively efficient for \( I \) to make his "best" avoidance-move—viz., it will be allocatively efficient for him to do so when the reduction in \( I \)'s risk costs this move would generate if \( I \) would be liable to \( V \) for the consequences of \( I \)'s rejecting this move exceed the reduction in \( V \)'s risk costs this move would generate if \( V \) could collect no compensation for any accident-or-pollution losses \( I \) inflicted on him by more than the amount \( B_I \) exceeds \( \downarrow[R_I+R] \) in the inequality that partially defines Case 4C where the \( \downarrow R_I \) term in the above inequality refers to the victim's relevant risk costs. Finally, in Case 4C, the Situation (4) assumption that the (different) risk costs \( I \) will bear if he must compensate \( V \) for any accident-or-pollution losses he inflicts on \( V \) negligently or non-negligently will exceed the counterpart (different) risk costs \( V \) will bear if he will receive no compensation for any accident-or-pollution losses \( I \) inflicts on him negligently or non-negligently implies that, avoidance-move consequences aside, allocative efficiency will be increased by placing the risk of any such losses on \( V \) rather than on \( I \). With this as background, it should be possible to analyze the allocative efficiency of strict liability and various versions of the Hand-formula-oriented negligence doctrine in Case 4C (on our otherwise-Pareto-perfect assumption).

I will begin with strict liability. On our otherwise-Pareto-perfect assumption, strict liability will always induce \( I \) to make all allocatively-efficient avoidance-moves and reject all allocatively-inefficient avoidance-moves in Case 4C, just as it did in all the other cases we have examined. However, in Case 4C as in Cases 4A and 4B, strict liability will misallocate the risk to \( I \) and away from \( V \) that \( I \)'s allocatively-efficient conduct will inflict accident-or-pollution losses on \( V \).

What of the allocative efficiency of the various Hand-formula-oriented negligence doctrines we have distinguished on the facts that define Case 4C? Six points need to be made in this connection.
First, in Case 4C, at least on our assumption that injurer activity-level decisions will never be assessed for negligence, no negligence doctrine will maximize allocative efficiency if it would be allocatively efficient for one or more of the injurers involved in situations that belong to Case 4C to reduce their activity-levels.

Second, in Case 4C, no negligence doctrine that incorporates the traditional Hand definition of negligence or the victim-risk-cost-oriented $B_i < (PL+R)_{i}$ formula for negligence will ever misallocate to $I$ the risk he creates by not reducing his activity-level both when the activity-level reduction in question would be allocatively efficient and when it would not be allocatively efficient because, in Case 4C, $B_i$ exceeds both $PL$ and the victim-risk-cost-oriented $(PL+R)_{i}$.

Third, in some instances of Case 4C, a negligence doctrine that incorporates the injurer-risk-cost-oriented $B_i < (PL+R)_{i}$ formula for negligence will misallocate to $I$ the risk that he will inflict accident-or-pollution losses on $V$ since the fact that $B_i$ exceeds $(PL+R)_{i}$ where the $R_{i}$ refers to the relevant risk costs of the victim is perfectly consistent with $B_i$'s being lower than $(PL+R)_{i}$ where the $R_{i}$ term refers to the higher relevant risk cost of the injurer.

Fourth, in Case 4C, although negligence doctrines that incorporate the traditional Hand formula for negligence or the $B_i < (PL+R)_{i}$ variant of that formula in which $R_{i}$ refers to the risk costs $I$'s avoidance would prevent $V$ from incurring if $V$ would receive no compensation for any losses $I$'s rejection of his "best" move might inflict on $V$ will not induce $I$ to make his "best" move (despite the fact that it would be allocatively efficient for him to do so if, counterfactually, he would be liable for the consequences of his rejecting this move) because neither of these negligence doctrines would deem $I$'s rejection of this move negligent, that fact does not imply that those negligence doctrines will be misallocative on this account because (1) it will not be allocatively efficient for $I$ to make the move in question when he will not be liable to $V$ for the accident-or-pollution loss his rejection of it inflicts on $V$ (since under these conditions the $R_{i}$ that is relevant to allocative-efficiency analysis is the $V$-risk-cost-oriented $R_{i}$) and (2) those negligence doctrines will leave the risk created by $I$'s non-avoidance on $V$, where it will reduce the sum of $I$'s and $V$'s risk costs.

Fifth, in Case 4C, if none of the moves in $I$'s "best" move involves his reducing his activity-level, the negligence doctrine that incorporates the $B_i < (PL+R)_{i}$ definition of negligence
in which the $\downarrow R_I$ term refers to the amount by which $I$'s "best" move would reduce $I$'s risk costs if he would be liable to $V$ for any accident-or-pollution losses his rejection of this "best" move inflicted on $V$ would result in $I$'s being held negligent for rejecting his "best" move when that move was allocatively efficient (because $B_I$ was less than $\downarrow [PL+R]_I$ where $\downarrow R_I$ refers to the relevant injurer-risk-costs) and would induce $I$ to make this move (since $I$ will rather spend $B_I$ in avoidance than expect to have to pay weighted-average damages equal to $\downarrow PL$ and incur $\downarrow R_I$ in risk costs related to his obligation to pay those damages).

Sixth and finally, none of the relevant negligence doctrines will ever induce $I$ to make an allocatively-inefficient avoidance-move in Case 4C. For any of the negligence doctrines to induce $I$ to make an allocatively-inefficient avoidance-move, it must at a minimum render it negligent for him to reject that move. But, as we have seen, a negligence doctrine that incorporates either the traditional $B_I<\downarrow PL_I$ definition of negligence or the victim-risk-cost-oriented $B_I<\downarrow (PL+R)_I$ definition of negligence will never deem a potential injurer negligent for rejecting his "best" avoidance-move in Case 4C, and a negligence doctrine that incorporates the injurer-risk-cost-oriented $B_I<\downarrow (PL+R)_I$ definition of negligence will deem a potential injurer negligent for rejecting his "best" avoidance-move only if that avoidance-move would be allocatively efficient were he deemed negligent for rejecting it.


I want to close this study by pointing out that our current damage rules and court-cost-fee rules would cause avoidance-decision misallocation in an otherwise-Pareto-perfect world in cases in which the injurer is strictly liable because they respectively limit the strictly liable injurer's liability to the actual accident-or-pollution losses his victims suffer and require him to pay court fees that do not cover the transaction costs or related "finance costs" the injurer's behavior caused government to incur. Because our damages-rules and court-cost payment-rules do not internalize to a potential injurer all of the allocative transaction costs his accident-or-pollution-loss-generating conduct should be expected to generate, strict liability will sometimes fail to induce potential injurers to make allocatively-efficient avoidance-moves. The frequency with which this result obtains and, in some cases, the amount of avoidance-misallocation that
will be generated when injurers would in any event have rejected an allocatively-efficient avoidance-move will also be increased by the fact that those who will incur uncompensated transaction costs will suffer risk costs on that account.

The analysis that follows will focus on situations in which

1. $I$ is strictly liable and will have to compensate $V$ fully for the accident-or-pollution losses that $I$'s lack of due care and non-negligent conduct impose on $V$;

2. $I$ will not have to compensate (A) $V$ for the private transaction costs he incurred to pursue his tort claim against $I$, (B) $V$'s insurer and his own insurer for the private transaction costs $V$'s tort claim caused them to incur, and (C) the government fully for the sum of (i) the transaction costs it incurred to process $V$'s tort claim or any related government-transfer claims $V$ made and (ii) the allocative "costs" it generated to finance those transaction costs and any related transfer-payments it made to or for $V$; and

3. $I$ will also not have to compensate these actors for any risk costs the prospect of their incurring such uncompensated costs imposed on them.

I will use three examples to illustrate the possibilities on which Part II is focusing. The first assumes that (1) $B_f$ for $I$'s "best" avoidance-move (which may be reducing his activity level) is $105$, (2) $\downarrow PL_f$ for that move is $100$, (3) $I$'s "best" avoidance-move would reduce the risk costs he faced given the fact that he was strictly liable by $2$ and would reduce the risk costs $I$'s potential $V$s would bear if he would not be liable to them by $2$ as well, and (4) $I$'s rejection of this move will cause him to incur $2$ in transaction costs and others to incur $8$ in transaction costs for which $I$ will not be liable where the private transaction costs in question equal their allocative counterparts. In this case, the non-internalization of the transaction costs $I$'s non-avoidance induces others to incur will cause $I$ not to make the avoidance-move despite the fact that—in a legal regime in which $I$ is strictly liable—$I$'s avoidance would increase allocative efficiency by $(100+2+8-105=5)$. In particular, a strictly-liable $I$ will not avoid on the facts of this case if he does not have to compensate others for the transaction costs this choice induces them to incur because the cost to him of avoiding ($B_f=105$) exceeds the cost to him of not avoiding in these circumstances ($104$=the weighted-average-expected amount of additional damages he should reckon with having to pay because he did not avoid [$\downarrow PL_f=100$] plus the sum of the additional risk costs and transaction costs he will bear if he does not avoid [$4=2+2$]). Of course, I realize that in this situation the strict-liability regime would itself be allocatively inefficient relative to a no-liability regime or a negligence regime that would not...
deem I's rejection of his "best" avoidance-move negligent (if I assume that the prospect of this ruling's being made would deter any victim from bringing a tort claim and that no government-transfer claims will be generated by I's negative avoidance-decision). In particular, strict liability would be allocatively inefficient if I did not have to compensate others fully for the transaction costs his rejection of his "best" avoidance-move would induce them to incur because (1) it would not affect I's avoidance-decision, (2) it would not reduce the sum of the risk costs generated by I's rejection of his "best" avoidance-move, and (3) it would cause $10 in private and allocative transaction costs to be generated. In fact, strict liability would even be allocatively inefficient in this case if our damage rules were changed to require I to compensate others for the transaction costs his injurious conduct caused them to incur (even if that compensation requirement did not change the amount of such transaction costs they generated). This change in damage rules would induce I to avoid because it would increase the cost to him of not avoiding from $104 to $112. In so doing, the change in damage rules would increase allocative efficiency by $5 on our otherwise Pareto-perfect assumptions—i.e., by the difference between the transaction-cost savings it would generate ($10) and (B_T↓PL_I=$105-$100=$5). (Remember that no transaction costs would be generated under the no-liability rule and that we are assuming that I's avoidance would not affect the sum of his and V's risk costs.) Nevertheless, it is still true that once we have opted for a strict-liability regime (regardless of whether we did so unjustifiably or to effectuate a legitimate set of distributional values), allocative efficiency would be increased by a change in our damage rules entitling actors who would be induced by I's injurious conduct to incur transaction costs to recover those costs from I (at least if this rule would not cause those actors to cause misallocation by incurring additional avoidance-costs, as it would not if one could costlessly limit the relevant recovery to the transaction costs that the relevant actors would have incurred anyway).

The second example adds to the first an assumption that (taken together) V, V's insurance company, I's insurance company, and the government would face a total of $.50 in risk costs in relation to the possibility that they might have to incur uncompensated risk costs as a result of I's rejection of his "best" avoidance-move. In this case, the existence of these risk costs will increase the amount of misallocation I's rejection of his "best" avoidance-move will generate from $5 to $5.50 by increasing the allocative benefits the move in question would generate from $110 to $110.50.
The third example illustrates the fact that our damage rules' failure to make an injurer compensate such actors for the transaction-cost-related risk costs his failure to avoid imposes on them will sometimes critically deflate a potential injurer's avoidance-incentives—\textit{i.e.}, will sometimes make it unprofitable for a potential injurer to execute an allocatively-efficient avoidance-move. To illustrate this possibility, one need alter the second example only by making $B_I$ equal $112.25$, which is more than $\downarrow PL_I = $100 plus the amount by which the relevant avoidance-move would reduce $I$'s risk costs ($2$) plus the amount of transaction costs the avoidance would obviate $I$'s and various others' incurring ($10$) but less than the sum of this $112$ and the risk costs the relevant avoidance would obviate $I$'s and various others' incurring in connection with the transaction costs $I$'s non-avoidance would cause them to incur ($50$ plus the risk costs $I$ would bear because he would have to incur uncertain transaction costs).

So far, this study has proceeded on otherwise-Pareto-perfect assumptions. In fact, our economy contains many Pareto imperfections in addition to those created by our tort-law doctrine's failure to respond "perfectly" to the fact that accident-and-pollution-loss co-generators bear risk costs and generate transaction costs. Unfortunately, in our actual, highly-Pareto-imperfect world, the failure of our damage rules to require any injurer who is deemed liable to compensate others for the transaction costs and transaction-cost-related risk costs he caused them to incur may well generate more misallocation than it would in an otherwise-Pareto-perfect world. At least, this conclusion will be justified if, as I suspect, the independent Pareto imperfections in the system (taken together) would independently deflate the private profitability of avoidance to a potential injurer—\textit{i.e.}, would independently cause the private profitability of his "best" avoidance-move to be lower than its allocative efficiency. If this is true, the additional deflation in the private profitability of avoidance to a potential injurer that will be generated by our tort-law doctrine's failure to make him compensate various others for the transaction costs and transaction-cost-related risk costs his rejection of an avoidance-move caused them to incur will induce the potential injurer to generate more misallocation when it critically affects his avoidance-decision than it otherwise would do.

A numerical illustration may make this point more understandable. Assume that our damage rules deflate the private profitability of avoidance to a potential injurer by $2$—\textit{i.e.}, assume that in an otherwise-Pareto-perfect world these rules would cause the private profitability of avoidance to a potential injurer who will be found liable to be $2$ lower than its allocative
If this deflation critically affected the profitability of one avoidance-choice, its presence would cause somewhere between $.01 and $1.99 in misallocation—*i.e.*, would render unprofitable an avoidance-move whose allocative efficiency were somewhere between (+$1.99)—in which case the distortion would render it ($1.99) unprofitable. Now assume that the economy is otherwise-Pareto-imperfect, that the relevant other imperfections would (taken together) deflate the private profitability of the potential injurer's avoidance-move by $11, and that (a simplifying assumption that will sometimes be realistic) the aggregate distortion in the profitability of avoidance to the relevant potential injurer equals the sum of the transaction-cost-related damage-rule distortion and this independent distortion. In this example as in its otherwise-Pareto-perfect predecessor, the (-$2) transaction-cost-related damage-rule distortion in the profitability of avoidance to the potential injurer will be critical if and only if the relevant avoidance-move would have yielded the injurer in question somewhere between $.01 and $1.99 in profits were it not for the transaction-cost-related damage-rule distortion. But in this example, in which those profits would be deflated by $11 even if there were no transaction-cost-related damage-rule distortion, the fact that the relevant avoidance-move would have yielded $.01 to $1.99 in profits but for the transaction-cost-related damage-rule distortion implies that its execution would have increased allocative efficiency by $11.01 to $12.99 and concomitantly that the transaction-cost-related damage rules had misallocated resources by $11.01 to $12.99 (rather than by $.01 to $1.99) by generating a critical, additional $2 deflation in the private profitability of the relevant individual avoidance-choice. If, then (as I suspect), the existence of a negative distortion in the private profitability of avoidance to a potential injurer that is independent of the transaction-cost-related damage-rule distortion does not alter the frequency with which the transaction-cost-related damage-rule distortion critically affects the profitability of avoidance to the injurer, the independent distortion will increase the amount of misallocation the transaction-cost-related damage-rule distortion causes.

Of course, to complete this argument, I need to explain why I think the independent imperfections in the system tend on balance to deflate the private profitability of avoidance to a potential injurer who is strictly liable. I will do so by providing a partial list of the imperfections that cut in this direction: the list includes human errors and transaction costs that deter some entitled victims from suing, the transaction-cost and risk-cost differences in the positions of
injurers and victims and the human errors that may lead entitled victims to settle for less than they would obtain at trial, tort doctrines that render some actual victims "non-entitled," the proximate-cause doctrine, trier-of-fact errors on cause-in-fact and proximate cause, and the tendency of triers of fact to underestimate victim losses.

I will close by illustrating this final point with the type of example this study has been employing. Assume

1. $I$ is strictly liable;
2. $B_I = $103;
3. $\downarrow PL_I = $110;
4. $I$ is indifferent to risk (is risk-neutral);
5. because of the various imperfections just listed, $I$ should reckon that if he does not avoid he will have to pay $100 in damages because of the weighted-average-expected $110 in losses his negative avoidance-choice will generate;
6. $I$'s potential victims incur $1.50 in risk costs because they will not be fully compensated for the accident-or-pollution losses he imposes on them;
7. the damage rules do not require $I$ to compensate others for any transaction costs or transaction-cost-related risk costs his rejection of his avoidance-move causes them to incur;
8. $I$'s rejection of his avoidance-move will induce others to incur $3 in transaction costs and $.50 in transaction-cost-related risk costs and result in his having to incur $2 in transaction costs;
9. the economy is otherwise-Pareto-perfect so that the allocative cost of $I$'s avoidance-move is $103 = B_I$, the allocative benefits associated with $I$'s reducing $PL$ by $110$ would be $110$ if risk-cost consequences could be ignored, and any private transaction costs $I$'s rejection of his avoidance-move causes to be generated equal their allocative counterparts.

On these facts,

1. $I$'s making the avoidance-move in question would increase allocative efficiency by $14$ since it would generate $103$ in allocative costs and $117$ in allocative benefits ($\downarrow PL_I = $110$ plus the transaction costs $I$'s avoidance would obviate $I$'s incurring $2$ plus the transaction costs it would obviate others' incurring $3$ plus the risk costs whose generation it would prevent $1.50 + .50 = 2$));
(2) I would not make the avoidance-move in question because its private cost to him ($103 = B_t) exceeds the private benefits it would yield him ($102 = [the $100 in damages it would prevent him from expecting to have to pay on the weighted average] + [the $2 in transaction costs it would prevent him from incurring]);

(3) I would make the avoidance-move in question if the damage rules (and court-cost-payment rules) in his jurisdiction required him to compensate others for the transaction costs his failure to avoid caused them to incur (in which case they would not incur any transaction-cost-related risk costs at least if I ignore the fact that the same imperfections that will result in their collecting $100 in damages for their $110 loss will cause them to collect less than 100 cents on the dollar for the transaction costs they incur) because in this instance the private cost to him of avoiding ($103) would be lower than the private benefits ($104.70 = $100 in damages he would escape having to pay because he would inflict $110 less in accident-or-pollution losses + $2.70 in damages he would escape having to pay because he would not be inducing others to incur $3 in transaction costs, given the assumptions that other imperfections would deflate these payments as well) + the $2 in transaction costs I's avoidance would prevent his having to incur).

In this case, then, because the $3.50 deflation in I's avoidance-incentives generated by our damage rules' failure to require a liable injurer to compensate others for the transaction costs and transaction-cost-related risk costs his liability-generating choice imposed on them came on top of an independent deflation in I's avoidance-incentives of $11.50 (the $10 deflation in weighted-average damages that avoidance would obviate I's expecting to have to pay by reducing the accident-or-pollution losses he should expect on the weighted-average to generate by $110 + the $1.50 in risk costs whose generation I's avoidance would prevent for which he would not in any event have had to pay damages), the above deficiency in the damage rules (and the $3.50 negative distortion it generated) caused $14 in misallocation when it critically affected I's avoidance-decision.

CONCLUSION

This study has examined two sets of issues. First, it investigated the way in which the fact that potential injurers and victims may incur risk costs related to the possibility of an accident-or-pollution loss occurring will affect the absolute and relative allocative efficiency of strict liability and various Hand-formula-oriented negligence doctrines (distinguished by the definitions of negligence they incorporate) in no-care situations or individual-care situations in which the only possible avoidance-move or avoidance-move package that would be more
allocatively efficient than no avoidance would be avoidance by the potential injurer in a world in which the only Pareto imperfection not generated by these doctrines' failure to respond in an allocatively-efficient way to the presence of such risk costs is the imperfection generated by the fact that in practice (and perhaps in principle) injurer activity-level decisions and injurer "decisions" not to indemnify their potential victims are never assessed for negligence. Second, it analyzed the additional amount of avoidance-decision-related misallocation that our actual damages rules and court-cost-payment rules will cause on the other assumptions described above because they do not obligate injurers who are found liable

1. to compensate their victims for any transaction costs the victims incurred to pursue their tort claim against their injurer,
2. to compensate their own and their victims' insurance companies for any transaction costs these companies incurred in any related dispute-resolution process,
3. to compensate the government fully either for the transaction costs it incurred to process any related tort claims or any related government-transfer claims the victims made or for the allocative costs the government had to generate to finance its related "private" transaction costs and any transfer-payments it made to the victim, and
4. to compensate any of the above actors for the risk costs they bore because they could not recover their transaction costs or transaction-cost-related allocative costs from the injurer.

This study has generated the following ten conclusions:

1. when a potential injurer's avoidance-move can affect the risk costs his potential victims and/or he bears, that fact can change the identity of his "best"—i.e., most allocatively efficient or least allocatively inefficient—avoidance-move since the move for which (PL-B) is largest may not decrease the dispersion of the probability distribution of possible accident-or-pollution losses as much as some alternative move (indeed, may increase the dispersion of this distribution when some alternative move decreased it);

2. when a potential injurer's avoidance-move can affect the risk costs his potential victims and/or he bears, that fact can critically affect whether his "best" avoidance-move is allocatively efficient—e.g., can change a no-care situation into an individual-care situation or vice versa—since his "best" move may increase the dispersion of the probability distribution of possible accident-or-pollution losses (and hence risk costs) at the same time that it reduces the mean of that distribution;
(3) not surprisingly, when the risk costs that a potential injurer's potential victims will bear if they will receive no compensation for the accident-or-pollution losses he imposes on them through either negligent or non-negligent conduct exceed the accident-or-pollution-loss-related risk costs he will bear if he must fully compensate his victims for the accident-or-pollution losses he inflicts on them respectively negligently or non-negligently, that fact will favor the allocative efficiency of strict liability over negligence by making it allocatively efficient to shift risk from the potential victim to the potential injurer, avoidance-decision consequences aside: the extent of the risk-cost-related superiority of strict liability will depend on the expansiveness of the coverage of the negligence doctrine (i.e., of the set of avoidance-move rejections that are assessed for negligence) and on the extent to which the definition of negligence takes the effect of avoidance on risk costs into account. Moreover, since no doctrine that deserves to be called a negligence doctrine will shift the risk to \( I \) of accident-or-pollution losses that he could not reduce efficiently by engaging in weighted-average-expected-loss-reducing avoidance, strict liability will always be superior to negligence in relation to risk costs under the conditions described above when the potential injurer's allocatively-efficient conduct does not eliminate the risk of his inflicting accident-or-pollution losses on others;

(4) not surprisingly, when the risk costs that a potential injurer's potential victims will bear if they will receive no compensation for the accident-or-pollution losses he imposes on them negligently or non-negligently are lower than the accident-or-pollution-loss-related risk costs the injurer will bear if he must compensate his victims fully for any such losses he inflicts on them respectively negligently or non-negligently, that fact will favor the allocative efficiency of a negligence approach to injurer liability as opposed to strict liability, avoidance-decision consequences aside, when the potential injurer's allocatively-efficient conduct does not eliminate the risk of his inflicting accident-or-pollution losses on others;

(5) even when potential injurers and/or potential victims face risk costs, strict liability will induce potential injurers to make allocatively-efficient avoidance-decisions on otherwise-Pareto-perfect assumptions—i.e., if, \( \text{inter alia} \), injurers must not only compensate their victims for the accident-or-pollution losses they impose on them but also must compensate their victims, their victims' and their own insurers, and the government for the transaction costs the injurer caused them to incur to make, defend, process, or pay tort claims and government-transfer claims related to the injurer's conduct;

(6) even on the above otherwise-Pareto-perfect assumption, a negligence doctrine that employs a Hand-formula-oriented definition of negligence will sometimes not be able to shift risk in an allocatively-efficient way regardless of the alteration that is made in the traditional Hand formula for negligence: more particularly, in some cases, the negligence doctrine will not be able to generate the allocatively-efficient shift in risk unless its "coverage" is expanded to permit the courts to find an injurer negligent for failing to reduce his activity-level or for failing to
indemnify his potential victims for any accident-or-pollution loss he imposes on them (a change in doctrinal coverage that many including me would claim yields a new doctrine that does not deserve to be called a "negligence doctrine");

(7) even on the above otherwise-Pareto-perfect assumption, there are three reasons why a negligence doctrine that incorporates the traditional Hand definition of negligence may not be able to induce a potential injurer to make his "best," allocatively-efficient avoidance-move:

(A) limitations in its coverage may preclude the rejection of that move's being assessed for negligence;

(B) where potential victims will incur positive risk costs if they are not guaranteed full compensation for the accident-or-pollution losses an injurer could prevent by making an avoidance-move that would be assessed for negligence, a negligence doctrine may not be able to induce a potential injurer to make an avoidance-move that is allocatively efficient (given the way in which the doctrine allocates risk) unless the traditional Hand formula for negligence is replaced by an alternative formula that is picked solely for instrumental reasons and that yields results that are somewhat paradoxical;

(C) in cases in which the cost (burden) of some avoidance-move to the potential injurer (i) is greater than the reduction it would generate in his potential victims' weighted-average-expected accident-or-pollution losses, (ii) is greater than the sum of this reduction and the amount by which the relevant avoidance-move would reduce the potential injurer's risk costs if he would be liable for any accident-or-pollution loss its rejection imposed on others, but (iii) is smaller than the sum of this reduction in weighted-average-expected accident-or-pollution losses by which the relevant avoidance-move would reduce the potential victims' risk costs if they would receive no compensation for any accident-or-pollution loss the potential injurer inflicted on them, even a negligence doctrine that covered the avoidance-move in question could not make it profitable for the potential injurer to make an allocatively-efficient avoidance-move decision unless it eschewed the traditional Hand formula for negligence and incorporated an alternative definition that declares an avoidance-move rejection negligent if and only if its cost is less than the sum of the reduction in weighted-average-expected accident-or-pollution losses the move would generate and the reduction it would generate in the potential victims' risk costs if they would receive no compensation for any accident-or-pollution loss the potential injurer's rejection of this move inflicted on them: this outcome is paradoxical both (i) because this definition would in these cases yield a negligence and liability conclusion (vìz., that the potential injurer would be negligent and liable for rejecting the relevant avoidance-move) that is in one sense inconsistent with the definition itself (with its assumption that the potential victims would not receive compensation) and (ii) because the resulting liability-decision will induce the potential injurer to reject the avoidance-moves in question; in this case,
the replacement of the traditional Hand formula for negligence by a victim-risk-cost supplemented Hand definition of negligence will secure the allocatively efficient outcome by making the potential injurer liable for rejecting his "best" avoidance despite the fact that it will not induce him to make that avoidance-move because holding the potential injurer liable will render allocatively inefficient a given "best" avoidance-move that would otherwise have been allocatively efficient (will render the potential injurer's continuing refusal to make this move allocatively efficient).

(8) even on the above otherwise-Pareto-perfect assumption, in jurisdictions that impose strict liability on those who inflict accident-or-pollution losses on others but not in jurisdictions in which the liability of such injurers depends on their negligence, the failure of our current damage rules to require injurers who are found liable to compensate their victims for the transaction costs the latter must incur to pursue their tort claims against them, to compensate their victims' and their own insurers for the transaction costs these companies incur in the tort-claiming process, and to fully compensate the government for the sum of the transaction costs it incurs to resolve the relevant dispute and process any transfer-claims the victim makes and the allocative costs it generates to finance these transaction costs and any transfers it makes will cause avoidance misallocation by deterring potential injurers from engaging in allocatively-efficient avoidance;

(9) for two reasons, in our actual, highly-Pareto-imperfect world, the amount of misallocation that is caused by the fact that our current damage rules and court-fee rules do not require a strictly-liable injurer to compensate others for the transaction costs (and public-financing costs) his injurious acts cause them to incur will be increased by the fact that those parties will bear risk costs because of their uncertainty about the extent of the uncompensated transaction (and public-financing) costs they will incur:

(A) in some cases, the fact that these uncompensated transaction-cost-related risk costs are positive will increase the misallocation caused by avoidance-move rejections that would have been misallocative and would have taken place in any event and

(B) in some cases, the fact that injurers who are held liable do not have to compensate their victims for the transaction-cost-related risk costs they imposed on them may render critical the distortion in the profitability of avoidance to injurers that is generated by our failure to require any liable injurer to compensate others for the transaction costs the injurer's injurious conduct caused them to incur (may create a situation in which this distortion makes it unprofitable for the potential injurer to make an avoidance-move he otherwise would have made that would have been allocatively efficient in any case)—i.e., the non-compensation of such risk costs may increase the number of allocatively-efficient avoidance-moves that are rejected; and
the fact that our actual economy is not otherwise-Pareto-perfect may well increase the amount of misallocation that is caused by the failure of our damage rules to require those tort-injuries who are liable to compensate various others for the transaction costs and transaction-cost-related risk costs the injurer's conduct imposed on them: at least, this conclusion will be justified if (as I assume) taken together those other imperfections or Pareto-imperfect doctrines also deflate the private profitability of even strictly-liable injurers' making the avoidance-moves that are available to them.

None of these conclusions relates to the effect of risk costs or the amount of misallocation that potential victims' avoidance-decisions generate because the study (1) focuses exclusively on no-care situations and individual-care situations in which the potential injurer is the only party in a position to engage in allocatively-efficient avoidance and (2) assumes away the three doctrinal imperfections that can make it profitable for potential victims to make allocatively-inefficient avoidance-moves that will increase the concrete legal avoidance-obligations of their potential injurers by rendering presumptively allocatively efficient one or more avoidance-moves the injurers can make that would not otherwise be presumptively allocatively efficient (by making it negligent for those potential injurers to reject avoidance-moves whose rejection would not otherwise be deemed negligent). However, risk costs would have analogous effects for analogous reasons on the allocative efficiency of the various doctrines that determine the liability-consequences of victim conduct (e.g., the contributory-negligence doctrine, the "last clear chance" doctrine, and the various comparative-negligence doctrines that have been adopted or proposed) in individual-care situations in which the most-allocatively-efficient response to the incompatibility of uses that could generate an accident-or-pollution loss would be for the potential victim to make his "best" avoidance-move or in multiple-care situations (in which some package of avoidance-moves by the potential victim and potential injurer would maximize allocative efficiency).
APPENDIX

On the Moral Legitimacy of the Common Law’s Failure to Apply Negligence Either to Activity-Level Choices or to Decisions by Non-Culpable Injurers Not to Indemnify Their Non-Culpable Victims

In my usage, a legal doctrine is morally legitimate if its use is consistent with the moral commitments of the society in which it plays a role. The moral legitimacy of our common law’s failure to assess for negligence an injurer's activity-level and victim-indemnification choices therefore depends on our society's relevant moral commitments. In my judgment, an appropriate "empirical" analysis of our society's members' moral conduct would reveal that our society is a rights-based society that is committed to the basic liberal principle that all of its morally-responsible agents must treat all moral-rights holders for which it is responsible with appropriate, equal respect and concern. The concrete tort-law implications of this conclusion depend on two other moral postulates. I call the first "liberal dualism." Liberal dualism holds that the moral duties of the individual members of a liberal, rights-based State depend on whether they are acting in political or non-political capacities. I believe that (1) liberal States have a moral obligation to provide those individuals for whom why are responsible who have the neurological prerequisites to lead lives of moral integrity with the wherewithal to actualize this morally-defining potential and (2) the individual members of such a State have a correlative duty when acting in political capacities to support their government's fulfilling this obligation. However, the "principle" of liberal dualism asserts that, when acting in their non-political capacities, the individual members of a liberal State do not have a duty to adjust their behavior to take account of variations in the extent to which additional resources would enable different individuals to secure their liberal-rights-related interests when the putative obligor is not morally responsible for the obligee's poverty or other attributes (e.g., physical or mental handicaps, poor education, etc.) that increase the "value" of additional resources to him. In relation to tort law, this principle of liberal dualism implies that, when acting in non-political capacities, each morally-responsible member of a liberal, rights-based society has a moral duty to make all avoidance-moves that he would conclude would reduce the equivalent-dollar losses he imposed on others (if he did the morally-appropriate amount of research into this issue) that he would find attractive to make if he counted the net equivalent-dollar benefits such moves would confer on others as if he would experience them himself. The second moral postulate that is relevant to tort law is the
"principle" of State moral integrity": this principle (in actuality, definition) postulates that, to have moral integrity, a State must live up to the moral commitments of the society in question. In the case of a liberal, rights-based State, this postulate implies that its government must do its best to secure the liberal rights of those for whom it is responsible. More concretely, in the case of tort law, the "principle" of State integrity implies that a liberal, rights-based State must take all those steps to deter its agents and subjects from violating their tort-related duties and to pay and secure compensation for victims of violations of these duties that are compatible with its overarching duty to maximally promote or secure the rights-related interests of all moral-rights holders for whom it is responsible.

It seems to me that this account of our society's moral commitments calls into question the moral legitimacy of the failure of jurisdictions that have adopted the negligence approach to injurer liability in some cases to assess the negligence of the failure of the injurers in these cases to reduce the amount of some activity they undertake or to cease their activity altogether. Assume, for example, that a court could determine at "non-prohibitive cost" that a manufacturer who had done the appropriate amount of research into this issue would have concluded that, had the equivalent-dollar pollution losses his production imposed on others been internalized to him, he would have found it profitable to reduce his output or go out of business altogether. On this assumption, on my account of our society's moral commitments, our State would be obligated (A) to establish regimes that (1) required or made it profitable for a manufacturer to avoid in this way and (2) required a manufacturer who failed to do so to compensate his victims or at least (B) to itself compensate victims of such culpable failures to avoid. Indeed, my understanding of the moral obligations of our State implies that its failure to establish one or the other of these programs would be morally legitimate only if

1. its failure to apply negligence to activity-level choices could be justicized (rendered just) by a demonstration that the allocative cost that courts would have to generate to make these sorts of negligence assessments with varying degrees of accuracy would be sufficiently high for the combination of the related decisionmaking-costs and decision-error costs to be prohibitively high, given the alternative uses to which the State would put the resources it would save by not assessing activity-level choices for negligence, and

2. the State's compensation of all victims who may have been harmed by negligent failures to reduce or cease activities would also dis-serve rights-related interests on balance, given the percentage of all victims who could not establish that they were harmed by negligent choices of sorts that would be assessed for negligence.

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who were harmed by activities whose execution was not negligent, the allocative cost the State would have to generate to compensate all victims who could not establish types of negligence covered by tort law (which allocative cost would include not only the allocative administrative cost of running such a scheme but the labor/leisure misallocation and other sorts of misallocation that would be generated by the financing of such payments), and the extent to which the State would or could use the funds in question in other ways that would secure rights-related interests.

I doubt very much that these conditions are fulfilled.

I also doubt the moral legitimacy of the failure of our law to assess for negligence choices by otherwise non-negligent injurers not to indemnify their victims when a decision by such an injurer to compensate his victims for the losses he innocently inflicted on them would be allocatively efficient because it would reduce the sum of the associated risk costs and risk-avoidance costs. I should note at the outset that this failure of our tort law is only partial. To the extent that injurers are strictly liable, our tort law will tend to allocate the risks created by the prospect of accident and pollution events that could not be prevented in an allocative-efficient way to injurers whose non-avoidance was not culpable but whose failure to indemnify their victims would be negligent if negligence were applied to this omission.

In any event, I can imagine two bases for concluding that it is morally legitimate for a liberal, rights-based State not to make an allocatively-inefficient allocation of accident-or-pollution-loss risks to injurers whose non-avoidance was non-culpable rather than to innocent victims. Unfortunately, both these arguments are problematic.

The first relies on the act/omission distinction. It would maintain that, even though the otherwise-non-culpable injurer did create the risk he could more efficiently bear, he had no obligation to accept that risk because his decision not to do so was an omission, which violated no obligation since he was a non-culpable cause-in-fact of the relevant risk. I will confine myself at this juncture to pointing out the contestability or dubiousness of the moral salience of the act-omission distinction.

The second argument for the justness of this feature of our positive law focuses on the following difference:

(1) an actor who rejected a conventional avoidance-move that would have yielded a positive \(\nabla \{PL+R\}-B\) difference if everyone else made allocatively-efficient avoidance-decisions where the relevant reduction in \(PL+R\) reflected the fact that the move would change the probability distribution of the accident-or-pollution
losses he might generate will usually (indeed, almost always) be better-placed than anyone else including the government to generate the increase in allocative efficiency he was capable of securing but

(2) the government is usually at least as well-placed economically as the injurer and always as well-placed morally as a non-culpable injurer to prevent an increase in R by indemnifying the victim against the risk of some or all losses the injurer's allocatively-efficient choices might inflict on him.

To see why this difference may be critical, note that, when the government could indemnify the victim at a lower allocative cost than could the potential injurer, the potential injurer's failure to indemnify his potential victim would not be deemed negligent by any plausible version of the Hand formula if the relevant calculation were based on the assumption that all other actors (including the government) would make the choices that represented their respective contributions to the most-allocatively-efficient set of avoidance-choices. To see why, note that if the government would make all allocatively-efficient indemnification choices that were not made by private parties, it would be allocatively inefficient for a potential injurer who could not engage in allocatively-efficient conventional avoidance to indemnify his potential victims: if the government would indemnify the relevant potential victims if their injurer did not, the B to the injurer of providing the indemnification would be higher than the relevant (∆[PL+R])—the cost to the government of supplying the relevant indemnification.

In fact, there may even be some basis for concluding that in this type of situation the relevant, otherwise-non-culpable injurer would have no moral duty to indemnify his victims even if the government would not supply the more-allocatively-efficient indemnification it could supply. At a minimum, one could point out that this conclusion would be consistent with the principle of liberal dualism, which is in turn consistent with the fact that the conception of negligence or due care that our tort law has adopted (and that the Hand formula makes explicit) is a monetized conception that, at least in relation to the culpability issue, frees potential injurers from the responsibility of responding to attributes of their potential victims or their potential victims' situations for which the potential injurers are not responsible even if the government has failed to respond appropriately to the potential victims' plights. One could also argue that the conclusion that an otherwise-non-culpable injurer has no duty to indemnify his victims is supported by the fact that the relevant injurer is unlikely to be better-placed and may be worse-placed to indemnify his victims than many other potential insurers who are no more risk-averse
or less risk-averse than he is, have portfolios of other risks that are equally or more "complementary" as his own other risks to the risk he is creating that is relevant in the case at hand, and would have to generate the same or lower transaction costs to obtain external insurance as he would have. Even if his being a (non-culpable) cause-in-fact of the relevant risk reduced to an acceptable level the risk that, in this type of situation, the State might choose to impose liability on him rather than on other equally-well-placed potential indemnifiers to punish him for his political opposition or for some other illicit reason, his being a non-culpable cause-in-fact provides no positive reason for a non-indemnifying State to impose the indemnification-duty on him rather than on some other, equally-well-placed potential indemnifier. This fact seems to me crucial: the absence of a positive reason to make non-culpable injurers as opposed to other private actors responsible for the relevant victims' losses seems to me to imply both (1) that non-culpable injurers have no moral obligation to indemnify their victims, and (2) that attempts by the government to impose a legal obligation on otherwise-non-culpable (economically-efficient) injurers to indemnify their victims would be morally and constitutionally problematic for equal-protection reasons.

Earlier, I argued that the fact that government could compensate victims of otherwise-non-culpable injurers more economically efficiently than could the injurers themselves might justicize our tort law's failure to assess for negligence decisions by such injurers not to indemnify their victims. Some readers have contended that this argument is undercut by its inconsistency with the fact that a driver who has caused an accident by driving his car negligently around a curve cannot escape liability by demonstrating that the most-allocatively-efficient response to the relevant potential accident would have been for the government to straighten the road. For two reasons, I do not think that this supposed counterexample is apposite. First, in the driving example unlike the indemnification case, the injurer's failure to avoid was culpable. Second, in cases in which the government's failure to straighten the road or engage in other types of avoidance was (or at least in egregious examples of this sort of case), the government and driver would both be joint tortfeasors—i.e., the victim could collect his loss from either or both the driver and the government in any proportion he wished. To the extent that the positive law of particular jurisdictions precluded victims from collecting from the government in these sorts of cases, this outcome would reflect either the operation of the "sovereign immunity" doctrine, which is not morally legitimate, our institutional concerns about the capacity of judge and jurors...
to assess the economic efficiency of government decisions that would require expenditures that
would have to be financed by imposing additional taxes or charges that would generate both
allocative administrative costs and labor/leisure and/or other types of non-administrative
misallocation or foregoing other economically efficient or socially desirable expenditures
(concerns that may or may not be justified or justicizing).

One might also object that my argument that the ability of government or other private
actors to indemnify victims of otherwise-non-culpable injurers more economically efficiently
than could their injurer justicizes not requiring such injurers to compensate their victims is
undercut by various tort-law doctrines that (1) assert that the failure of one party to make an
allocatively-efficient avoidance-move can increase the concrete avoidance-obligations of another
party by rendering allocatively efficient avoidance-moves that would not have been allocatively
efficient for the latter to make had the former made allocatively-efficient avoidance-choices
without (2) entitling the latter parties to recover from the former the additional avoidance-costs
the former's failure to avoid legally obligated the latter to incur. The relevant tort-law doctrines
include the "last clear chance" doctrine (which is admittedly on the wane in the United States)
and interpretations of negligence that restrict the coverage of the doctrine to choices not to incur
additional costs to reduce the amount of accident or pollution losses one generates (i.e., to
exclude from the category of "potentially-negligent choices" choices by potential victims or
others to make additional allocatively-inefficient expenditures that render it allocatively efficient
for potential injurers to spend more on avoidance that it would have been allocatively efficient
for them to spend had the first party made the cheaper avoidance-decision that constituted his
contribution to the most-allocatively-efficient set of avoidance-moves). For example, assume
that the most-allocatively-efficient response to a potential accident would be for the potential
victim to spend $50 in avoidance to reduce accident-losses by $70 and for the potential injurer to
engage in no avoidance at all. Assume that, if the potential victim spent $75 in avoidance, the
potential injurer would be able to reduce accident losses by $130 by spending $110 on
avoidance. My guess is that, if the potential victim did spend the additional $25 on avoidance,
the potential injurer would be held negligent for not making the complementary avoidance-move
in question. If so, at least if we ignore the private transaction cost to the potential victim of
suing, the potential victim would find it profitable to spend the additional $25 in avoidance since
doing so would reduce the amount of uncompensated accident losses he sustained by additional
($60=$130-$70), regardless of whether the potential injurer made the complementary avoidance-decision in question. This latter conclusion reflects my assumptions that

(1) the potential injurer's failure to execute that complementary move would make him liable for $130 to the potential victim (since the potential victim's overavoidance would not be held contributorily negligent) and

(2) at least our tort law would not require the potential victim to compensate the potential injurer for the $110 in avoidance-costs the potential victim's culpable failure to avoid legally obligated the potential injurer to incur.

Clearly, however, even though on the facts assumed the potential victim's decision to spend the additional $25 in avoidance would increase his profits by ($35=$60-$25), it would decrease allocative efficiency by substituting a pair of avoidance-moves that cost ($185=$75+$110) and would reduce accident-costs by $130 in comparison with a no-avoidance outcome (would decrease allocative efficiency by $55 relative to no avoidance) for individual care by the potential victim that would increase allocative efficiency by ($20=$70-$50). The reason that the profitability of the additional expenditure to the victims was inflated by $110 (was $35 when its allocative efficiency was [-$75]) is that the potential victim did not have to compensate the potential injurer for the $110 in additional avoidance-costs the potential victim's additional expenditure would induce the potential injurer to incur (since the potential injurer would rather pay $110 in avoidance-costs than $130 in damages).

I have two responses to this argument. The first is that as a matter of positive law its assumption that in the situation in question the potential injurer would not be able to recover his $110 in avoidance-costs may be wrong: the potential injurer may be able to recover these costs in a claim for restitution (though the potential injurer may be precluded from recovering his expenses if his avoidance-move was thought to impose an [unrecoverable] "purely economic—i.e., merely pecuniary—loss on him). The second is that, if this is the positive law, it is morally illegitimate and to my mind for that reason legally incorrect. There is every moral reason to conclude that an actor can behave culpably by spending too much on avoidance and that actors who suffer "purely economic losses" to fulfill additional concrete legal obligations that someone else's culpable behavior imposed on them are morally entitled to recover those losses from their culpable "injurer." This second argument manifests two basic premises of my approach to legal analysis:
(1) legal practice is neither self-legitimating nor self-validating because its moral legitimacy depends on its consistency with the moral commitments of the society in question and

(2) although a society's legal practice constitutes a part of the prescriptive-moral conduct from which one must infer that society's moral commitments, it constitutes a very small part of the relevant empirical universe and may be inconsistent with the best account that can be given of the total relevant empirical universe.

This APPENDIX has explained the problematic moral legitimacy of two features of our current positive tort law that this Article takes into consideration. The Article assumes that these features are in place (1) because they are and (2) because their possible moral illegitimacy does not affect the impact that they will have on the economic-efficiency consequences of various responses the law could make to the presence of non-zero accident-and-pollution-loss-related risk costs.

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1 Although the supposed loss-spreading advantages of strict liability are often mentioned, the standard justification for loss-spreading is not that it reduces the sum of all affected parties' risk costs but that it reduces the utility-loss (or inequality) the relevant accident-or-pollution loss would generate even if each of the potential victims and potential damage-payers knew precisely how much the accident or pollution would cost him or her in any given liability-regime—i.e., even if there were no risk to be spread or risk costs to be reduced.

2 In this formula, \( B_I \) stands for the burden (B) or private cost to a potential injurer (I) of the avoidance-move that on an otherwise-Pareto-perfect assumption would be the most-allocatively-efficient or least-allocatively-inefficient (henceforth the "best") avoidance-move available to him (at least in an "individual-care" or "no-care" situation—see below), \( P \) stands for the probability of the loss in question, \( L \) stands for the magnitude of the loss in question (or, more precisely, \( PL \) stands for the weighted-average-expected loss associated with the probability distribution of the various possible losses that might be generated), and \( \downarrow PL \) stands for the reduction in that weighted-average-expected loss that I's "best" move would generate. "Individual-care situations" are those in which the most-allocatively-efficient response that could be made to the incompatibility of uses that underlies the possibility of an accident-or-pollution loss' occurring is for one party and only one party to "avoid" (to make a move that would otherwise not be profitable to reduce weighted-average-expected PL [or weighted-average-expected (PL+R) where R stands for the risk costs all relative parties bear in relation to the accident's or pollution-loss' occurrence]). "No-care" situations are situations in which the most-allocatively-efficient response to the accident-or-pollution contingency is for no-one to avoid. Not all accident-or-pollution-loss situations are individual-care or no-care situations. Some are "multiple-care" situations—i.e., in some such situations, the most-allocatively-efficient response to the accident-or-pollution-loss contingency is for at least one potential victim to avoid. For expositional reasons, this analysis will assume that all the relevant situations are either (1) no-care situations or (2) individual-care situations in which I is the potential most-allocatively-efficient avoider, V cannot make any avoidance-move that on its own is more allocatively efficient than no avoidance, and I and V cannot put together a package of avoidance-moves that would be more allocatively efficient than no avoidance. I proceed in this way to eliminate the complications that may arise when V's failure to avoid is contributorily negligent. The analysis that follows will also assume that all injurers are "pure injurers"—i.e., that there is no chance that any injurer will injure himself. For an analysis of the relevance of this assumption, see Robert Cooter and Ariel Porat, Does Risk Cost to Oneself Increase the Care Owed to Others? Law and Economics in Conflict, 29 J. OF LEG. STUD. 19 (2000).

3 United States v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947).
For a discussion of the moral legitimacy of these features of our positive law, see APPENDIX A. For a detailed analysis of the protocols for determining (1) whether a society is rights-based, goal-based, or amoral and (2) the moral norm(s) to which a rights-based society is committed, see RICHARD S. MARKOVITS, MATTERS OF PRINCIPLE: LEGITIMATE LEGAL ARGUMENT AND CONSTITUTIONAL INTERPRETATION 13-34 (1998).

Although some of these injurer-choices may make the injurer liable under nuisance law or product-liability doctrine (under manufacturing-defect, design-defect, or generic-product-liability doctrines), these possibilities do not render the text’s point irrelevant for two reasons:

1) these doctrines do not promulgate a negligence test of liability (are not negligence doctrines in substance any more than they are negligence doctrines in name) and

2) not all negligence jurisdictions have these doctrines.

In cases in which I's "best" avoidance-move increases both the risk costs V must bear if he will not be fully compensated for any accident-or-pollution losses I inflicts on him and the risk costs I must bear if he does have to compensate V for any such losses I imposes on him, the risk-cost-raising character of I's "best" avoidance-move will (1) sometimes result in I's being held liable in a jurisdiction that employs a negligence doctrine that uses the traditional Hand formula to define negligence for rejecting an avoidance-move whose execution would not be allocatively efficient and would not be induced by the finding of liability and (2) sometimes result in the relevant risk's being shifted from V to I despite the fact that this reallocation of risk would increase the sum of I's and V's risk costs.

The following example illustrates the first possibility. Assume that Bₚ=$98 for I's "best" avoidance-move, that $PL=$100 for that move but that the move in question would actually increase V's risk costs by $3 if V would not receive any compensation for any accident-or-pollution loss I inflicts on him and would increase I's risk costs by $3 if he were obligated to compensate V fully for my accident-or-pollution loss I imposed on him. This result might obtain if the avoidance-move would simultaneously reduce the mean and increase the dispersion of the victim's possible-loss probability distribution. In this case, a court that determined injurer liability by applying a negligence doctrine that used the traditional Hand formula to define negligence would declare I's failure to avoid negligent though the related imposition of liability on I would not induce him to engage in avoidance since he would prefer the prospect of paying weighted-average-expected damages of $100 plus incurring $X in related risk costs to paying $98 in avoidance-costs and incurring $(X+3) in risk costs.

To illustrate the second possibility, the first example need be changed only by increasing to $5 the amount of risk costs I would bear if he were made liable for the losses he imposed on V but would not avoid despite that fact. Since, on these facts, I would be found negligent in a jurisdiction in which negligence was defined by the traditional Hand formula and would not avoid despite that fact (because he would prefer incurring [$100+$X] in costs to [$98 +$(X+5)] in costs), the relevant negligence doctrine would misallocate resources by increasing I's and V's total related risk costs from $(X+3) to $(X+5) without changing anyone's avoidance-decision.

I should also point out that, when the avoidance-move that would be associated with the biggest positive difference between ↓PLₑ and Bₑ will increase the risk costs V will bear if he will not be compensated for any loss it does not prevent and I will bear if he must compensate V for any loss the move in question will not prevent, this fact may convert what would otherwise be an individual-care situation into a no-care situation.

To my knowledge, the possibility that the allocative efficiency of an avoidance-move might depend on whether the potential avoider would be liable for rejecting it has not previously been recognized.

I suspect that the few Law & Economics scholars who recognize the need to adjust tort doctrine to reflect the fact that in this sort of case ↓Rₑ will sometimes not be zero assume that it is natural to change the Hand formula to include a ↓R that is calculated on the assumption that V will receive no compensation for any loss I's failure to avoid will impose on V because they think of the "↓R" that is relevant for allocative-efficiency analysis as a determinant of whether the I is negligent rather than as a consequence of whether the I is deemed negligent. The fact is that the value of this "↓R" is both a determinant and a consequence of I's being deemed negligent.

It may be useful to point out two additional features of Case 2B. The first is simply the converse of the point made in the text. Note that if ↓R in the Hand formula is measured on the assumption that V will receive full compensation for the accident-or-pollution loss (and tort-claiming costs) I's rejection of the relevant avoidance-move imposed on him, ↓Rₑ=0, I's rejection of that avoidance-move will not be deemed negligent (since $Bₑ=$103>[$PLₑ+Rₑ]=$100 if ↓Rₑ=0). This result is also a paradox since it manifests the fact that, if one assumes that V will be fully compensated, V will not be compensated at all (at least by I) and allocative inefficiency will result.
The second point is also a conundrum. I have just shown that if $\downarrow R_I$ in the $(\downarrow [PL+R_I])$ part of the risk-cost-revised Hand formula is measured on the assumption that $V$ will not be compensated for any accident-or-pollution losses that $I$'s non-avoidance imposed on $V$, $I$ will be required to compensate $V$ and allocative efficiency will be increased by the associated shift of the relevant risk from $V$ to $I$. I have also shown that $I$ will not avoid in this case regardless of whether he will have to compensate $V$ for the losses and risk costs $I$'s non-avoidance will impose on him. The second point is that, although the choice to measure $\downarrow R_I$ on the assumption that $V$ would receive no compensation for any accident-or-pollution losses $I$ will inflict on him—i.e., on the assumption that will make $I$ liable in this sort of case in a jurisdiction that employs a negligence standard of injurer-liability—not only will increase allocative efficiency by shifting risk from $V$ to $I$ but also will render $I$'s non-avoidance allocatively efficient (whereas it would be allocatively efficient if $V$ would not be compensated for the losses and transaction costs $I$ imposed on him), this second effect will not add to the allocative efficiency of measuring $\downarrow R_I$ on the assumption that $V$ will not be compensated for any relevant accident-or-pollution loss he suffers. In essence, the two effects are different sides of the same coin: $V$'s non-avoidance is allocatively efficient when it makes him liable because making him liable secures the relevant risk-cost-related allocative-efficiency gain in an allocatively-costless fashion whereas it would be allocatively costly (to the extent of $[B_I-\downarrow PL_I]$) to secure the same reduction in risk costs through $I$'s avoidance (though $I$'s avoidance would in this case be more allocatively efficient than the combination of no avoidance and no compensation).

10 The fact that no plausible alteration in the Hand formula for negligence could make $V$ negligent in Case 2C does not imply that the negligence doctrine will also misallocate resources by inducing $I$ to make an allocatively-inefficient decision in relation to his "best" covered avoidance-move in this case: although the negligence doctrine will not make it profitable for $I$ to make his "best" covered avoidance-move in this case, that conclusion is not problematic because the fact that $B_I>(\downarrow [PL+R_I])$ where $\downarrow R_I$ is measured on the assumption that $V$ will receive no compensation for any loss $I$'s failure to make the relevant move will impose on him implies that $I$'s making that move would be allocatively inefficient even if his rejection of that move would not make him liable.

11 As a preliminary matter, note that the avoidance-move that is $I$'s "best" avoidance-move when he is liable to $V$ for any accident-or-pollution loss he imposes on him may be different from the avoidance-move that would be $I$'s "best" avoidance-move if he did not have to compensate $V$ for any such loss he imposed on him (and $V$ would receive no compensation from any other source either). This conclusion reflects two facts: (1) on our otherwise-Pareto-perfect assumption, the allocative efficiency of $I$'s making any avoidance-move relative to no-one's avoiding at all equals not $(\downarrow PL_I-B_I)$ for that move but this difference plus the effect of the move on the sum of $I$'s and $V$'s risk-costs and (2) even if the shift in risk does not affect (as it might) $B_I$ or $\downarrow PL_I$ for any avoidance-move $I$ might make, the difference between $(\downarrow PL_I-B_I)$ for the move that would be $I$'s "best" move if he were not liable to $V$ and $(\downarrow PL_I-B_I)$ for some alternative avoidance-move $I$ would make might be smaller than the positive difference between the reduction in $I$'s risk costs the alternative move would enable $I$ to secure and the reduction in $I$'s risk costs the alternative move would enable $I$ to secure and the reduction in $I$'s risk costs that would be generated by the move that would be "best" if $I$ were not liable to $V$ for any accident-or-pollution losses he imposes on him and $V$ could not collect compensation for these losses from anyone else either. Because $I$ and $V$ may have different reactions to various parameters of risk, this second fact is not incompatible with the fact that the difference between $(\downarrow PL_I-B_I)$ for the avoidance-move that would be "best" for $I$ to make when $V$ could obtain no compensation for any accident-or-pollution loss $I$ imposed on him must exceed $(\downarrow PL_I-B_I)$ for the relevant alternative move by more than any positive difference between the amount by which the relevant alternative move and $I$'s "best" move would have reduced $V$'s risk costs if $V$ could not obtain compensation for the relevant loss. To simplify the exposition, I will ignore this possibility in the text that follows—i.e., I will assume that the shift in liability from $V$ to $I$ will not affect the identity of $I$'s "best" avoidance-move (though I will take account of the possibility that the shift might affect whether $I$'s "best" move was allocatively efficient).

I hasten to admit that our current damage rules and court-fee rules might be allocatively efficient even if they cause "avoidance-decision misallocation." The overall allocative efficiency of these rules will depend on their impact on the allocative efficiency of the various tort-law-related decisions that victims, litigant-insurers, lawyers, and government officials make as well as on the allocative efficiency of various tort-loss-related government-transfer-claim-process decisions victims and the government make. In the real world, these consequences will depend inter alia on the hard-to-predict impact of these rules on the number of valid claims that are not made, on the number of invalid claims that are made, on whether and the extent to which the outcomes of our tort dispute-
resolution processes and tort-loss-related government-transfer processes confer net external benefits or impose net external costs on non-parties who care about these outcomes for non-material reasons, on the amount of external benefits tort litigants generate by improving tort doctrine, revealing superior methods of establishing facts or persuading decisionmakers, or changing in other ways the avoidance-incentives of potential injurers and potential victims, etc.

13 The argument of this section will also apply in cases in which the injurer in question is liable because the loss in question was generated by his negligence.

14 For a more complete list of the various features of tort-doctrine imperfections, tort-claim-process imperfections, and other imperfections that can distort the private profitability of avoidance to both potential injurers who are strictly liable and potential injurers who are liable if and only if they are found negligent as well as an analysis of their relevance, see Richard S. Markovits, *The Allocative Efficiency of Shifting From a "Negligence" System to a "Strict Liability" Regime in Our Highly-Pareto-Imperfect Economy: A Partial and Preliminary Third-Best-Allocative Efficiency Analysis*, 73 Chi.-Kent L. Rev. 11 (1998).

15 For a discussion of these three doctrinal imperfections, see Richard S. Markovits, On the Allocative Efficiency and Distributional Desirability of Shifting From Contributory to Comparative Negligence: A Critique of the Literature and Some Very Partial and Preliminary Third-Best Analyses (unpublished manuscript, 2000).

16 The fact that I think that the required analysis is empirical manifests my view that such conclusions must be based on conventionalist as opposed to foundationalist analyses. The fact that the word "empirical" is enquoted in the text manifests the fact that my approach to such issues is "qualified conventionalist"—i.e., that the "empirical" analysis that I think must be executed is influenced by what might be termed foundationalist ideas about some essential attributes of the concept "moral norms" and "morally legitimate." For a further discussion of various foundationalist and conventionalist approaches to moral analysis, see Richard S. Markovits, *On the Relevance of Economic-Efficiency Conclusions*, 29 Fla. St. L. Rev. 1, 50-54 (2002).

17 For a detailed analysis of the protocols for determining (1) whether a society is rights-based, goal based, or amoral and (2) the moral norm(s) to which a rights-based society is committed, see Richard S. Markovits, *Matters of Principle: Legitimate Legal Argument and Constitutional Interpretation* 13-34 (1998). For an explanation of why liberal moral principles do not imply that someone who is an innocent cause in fact of another's loss has any special duties to indemnify his victim against the loss in question even when his doing so would be allocatively efficient, see id. at 378-79 at n.3. For an analysis of the justification of my claim that the basic liberal principle of equal, appropriate respect and concern implies that injurers and victims are obligated to place the same weight on the average net dollar benefit their avoidance confers on others as on the average net dollar it costs them, see Richard S. Markovits, On the Allocative Efficiency and Distributional Desirability of Shifting From Contributory to Comparative Negligence (unpublished manuscript, 2000).

18 This duty might be qualified to exclude moves whose execution would impose a significant risk whose execution would impose a significant risk of death or substantial physical or mental harm on the putative obligor. For a more detailed discussion of this concretization of the avoidance-duty implications of liberalism, see Richard S. Markovits, *On the Prescriptive-Moral Import of the Double-Distortion Argument and Its Extra-Distortion Analog: A Critique of Kaplow and Shavell’s “Double-Distortion Argument"* Articles 33-34 (unpublished manuscript, 2002).