TORT-RELATED RISK COSTS AND THE HAND FORMULA FOR NEGLIGENCE

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One of the earliest contributions of Law & Economics is its analysis of the economic efficiency of a tort-law regime that employs a negligence standard that is operationalized by the so-called Hand formula for negligence.¹ According to this formula, an injurer’s rejection of the avoidance-move that would be most profitable or least unprofitable for him to make if he would otherwise have to compensate his victims for any actual accident-or-pollution loss his rejection of this move imposed on them (henceforth, the injurer’s “privately-best” avoidance-move) is negligent if $B_I < (\downarrow PL)_V$ for the move in question. In this formula, “$B_I$” stands for the burden (B) or private cost to the potential injurer ($I$) of the avoidance-move in question, “$P$” stands for the probability of the loss in question, “$L$” stands for the magnitude of the loss in question (or, more precisely, “[PL]_V” stands for the weighted-average-expected loss associated with the probability distribution of the various possible losses the victim [V] might suffer), and “$(\downarrow PL)_V$” stands for the amount by which $I$’s “privately-best” avoidance-move would reduce the weighted-average-expected loss confronting the victim in question.²

This Article is concerned with the failure of economists to note or respond appropriately to the fact that this formula ignores the possibility that a potential injurer’s privately-best avoidance-move may affect

1. the risk costs that potential victims bear because they may not be fully compensated for any loss they sustain and any private transaction costs they have to incur to secure redress or compensation ($R_V$),

2. the risk costs that potential injurers bear because they may have to compensate their victims or incur private transaction costs to respond to tort claims made against them ($R_I$) and, most importantly,

3. $(R_V + R_I)$.³

Although Law & Economics scholars have recognized the existence of tort-related risk costs—for example, when investigating the possible impact of particular legal regimes or tort insurance on them, they have not thought through the implications of the fact that avoidance can affect the sum of such risk costs that potential injurers, potential victims, and various third parties bear for

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the formula whose application would induce potential injurers to make allocatively-efficient avoidance-choices⁴ (on the no-related-transaction-cost and otherwise-Pareto-perfect assumptions that standard Law & Economics [first-best-allocative-efficiency] analyses⁵ make and that, for simplicity, this Article adopts).

This Article has two parts. Part 1 focuses on three issues: (1) will the application of the standard Hand formula for negligence induce the potential injurer to make a first-best-allocatively-efficient avoidance-decision in all cases in which the potential injurer’s privately-best avoidance-move will affect the sum of his and his potential victim’s loss-related risk costs; (2) in cases in which the potential injurer’s privately-best avoidance-move will affect the sum of the risk costs that he and his victims bear, will it always be possible to induce the potential injurer to make the \textit{ex ante} first-best-allocatively-efficient avoidance-decision by adding a “change in risk cost” term to the right-hand side of the standard Hand inequality; and (3) when it is possible to secure this outcome in such cases by adding such a term, will the revision in the Hand formula that will do the trick be straightforward or paradoxical. For simplicity, Part 1’s first-best-allocative-efficiency analysis of these questions will focus exclusively on no-care situations (in which the most-allocatively-efficient response to the possibility of an accident-or-pollution loss’ being generated is for no-one to avoid) and potential-injurer individual-care situations (in which the most-allocatively-efficient response to the loss-possibility is for the potential injurer to avoid)—\textit{i.e.}, this Article will assume that potential-victim avoidance can make no positive contribution to allocative efficiency. None of Part 1’s conclusions depends on this feature of its analysis.

Part 2 focuses on four questions:

(A) in those cases in which the tort-law doctrine that would promote the public interest by increasing allocative efficiency would not be required by our corrective-justice commitments (say, because it would be paradoxical), would a common-law court be authorized to promulgate that doctrine and apply it retrospectively;

(B) in the above cases, morally-ought a common-law court promulgate such a doctrine and apply it retrospectively;

(C) morally-ought common-law courts be authorized to promulgate tort-law doctrines to be applied only prospectively that would promote the public interest by increasing allocative efficiency when those doctrines could not be said to effectuate our corrective-justice commitments, and
morally-ought legislatures promote the public interest by passing tort legislation that would increase allocative efficiency in ways not required by our corrective-justice commitments.

1. Tort-Related Risk Costs and the Content of the First-Best-Allocatively-Efficient Hand-Type Formula for Negligence

Before writing this Article, I asked several Law & Economics scholars who had analyzed the allocative efficiency of various tort-law doctrines how the Hand formula would have to be revised in light of tort-related risk costs for the resulting formula for liability to be first-best-allocatively-efficient. Without exception, these experts responded that this objective could always be achieved simply and straightforwardly by adding a “change in risk cost” term to the right-hand side of the standard Hand inequality.

Part 1 demonstrates that this proposed revision of the Hand formula for negligence is underspecified, that in some cases the required revision will be not only more complicated but far less straightforward than my collocutors suppose, and that in other cases one will not be able to induce potential injurers to make ex ante first-best-allocatively-efficient avoidance-decisions by adding to the right-hand side of the standard Hand inequality any of the “change in risk cost” terms that the economists with whom I spoke distinguished in the course of our conversations.

Let me be more specific. The revision of the Hand formula that the relevant economists initially proposed was underspecified in two respects: (1) they did not indicate whether the “change in risk cost” (∆R) term that they were proposing be added to the right-hand side of the standard Hand inequality was a ∆RI, ∆RV, or ∆(RI+RV) term, and (2) they did not specify the assumption about the percentages of any loss that would be caused by the potential injurer’s rejection of his privately-best avoidance-move that would be borne by I and V respectively on which the relevant “change in risk cost” figure would be based. This second omission is salient because, in some cases, (1) the absolute change the I’s privately-best avoidance-move will make in (RI+RV) will depend on the proportions of any resulting loss that will be borne by I and V respectively (henceforth, for simplicity, on whether I or V is liable) and relatedly (2) the critical character of the impact of (A) the change in (RI+RV) that the relevant avoidance-move would generate on (B) its allocative efficiency will itself be critically affected by whether I or V would be liable for any loss generated by I’s rejection of his privately-best avoidance-move. The claim that the revision...
of the Hand formula for negligence that will induce potential injurers to make *ex ante* first-best-allocatively-efficient avoidance-decisions will be straightforward is overbroad because in some cases in which it will be possible to induce potential injurers to make first-best-allocatively-efficient avoidance-decisions by adding a “change in risk cost” term to the right-hand side of the standard Hand inequality the required revision entails adding a *victim-liable* $\Delta(R_I+R_V)$ term to the right-hand side of the standard Hand inequality to generate the legal conclusion that *the injurer will be liable* for any loss that results from his rejection of his privately-best-avoidance-move (that his rejection of this move will be negligent). And the claim that on our standard first-best-allocative-efficiency-analysis assumptions it will always be possible to induce potential injurers to make *ex ante* first-best-allocatively-efficient decisions about risk-cost-affecting avoidance-moves by adding some $\Delta(R_I+R_V)$ term to the right-hand side of the standard Hand inequality is also wrong because—in some cases in which the critical character of the impact of (1) the change in $(R_I+R_V)$ generated by $I$’s privately-best avoidance-move on (2) its allocative efficiency is itself critically affected by whether $I$ or $V$ will be liable for any loss that $I$’s rejection of this move causes—no such revision in the Hand formula will be able to induce potential injurers whose privately-best avoidance-moves affect $(R_I+R_V)$ to make *ex ante* first-best-allocatively-efficient avoidance-decisions.

It is useful to distinguish eight subsets of the fairly-general set of cases in which $I$’s privately-best avoidance-move would affect $(R_I+R_V)$. Before delineating the distinguishing characteristics of each such subset of cases, I should point out that all will be defined and analyzed on the standard first-best-allocative-efficiency-analysis assumptions that the economy is otherwise-Pareto-perfect and that no private or allocative transaction costs will have to be generated either to satisfy the relevant Pareto-optimal conditions or (somewhat relatedly) to make, defend, or process any relevant tort claim. In the current context, these assumptions guarantee two sets of important relationships. First, they guarantee that all private figures equal their allocative counterparts: that the private cost of any potential-injurer avoidance-move—$B_I$—equals the allocative cost of that move and that the *ex ante* private benefits of any potential-injurer avoidance-move—its impact on certainty-equivalent accident-or-pollution losses (its impact on weighted-average-expected accident-or-pollution losses *plus* its impact on the sum of any related risk costs) equals the *ex ante* allocative benefits that move would generate. Second, and partially relatedly, the assumptions of first-best-allocative-efficiency analysis guarantee that
victims of negligence will have to bear none of the losses caused by their injurer’s negligence (that negligent injurers will have to bear all the accident-and-pollution losses their negligence causes) and that victims of non-negligent conduct will have to bear all the accident-and-pollution losses caused by their injurer’s non-negligent conduct (that non-negligent injurers will have to bear none of the losses their non-negligent conduct causes). The analyses that follow will also all assume that the potential injurer will be held liable if and only if the loss in question was attributed to his negligence and that the negligence of the potential injurer’s avoidance-decision will be determined by the application of a Hand-type formula.

In the text that follows, the statement that an I’s privately-best avoidance-move “will critically reduce \((R_I+R_V)\)” indicates that the fact that it will reduce \((R_I+R_V)\) renders it \textit{ex ante} first-best allocatively efficient when it would not otherwise be so. Relatedly, the statement that an I’s privately-best avoidance-move “will critically increase \((R_I+R_V)\)” indicates that the fact that it will increase \((R_I+R_V)\) renders it \textit{ex ante} first-best allocatively inefficient when it would otherwise have been \textit{ex ante} first-best allocatively efficient. Finally, the statement that an I’s privately-best avoidance-move “will not critically affect \((R_I+R_V)\)” though it will affect \((R_I+R_V)\)” indicates that the move’s impact on \((R_I+R_V)\) will not critically affect its allocative efficiency—\textit{i.e.}, will not render a move that would otherwise have been \textit{ex ante} first-best allocatively efficient \textit{ex ante} first-best allocatively inefficient or \textit{vice versa}.

I should now be able to delineate the eight subsets of the general set of cases in which a potential injurer’s privately-best avoidance-move will affect \((R_I+R_V)\):

1. cases in which I’s privately-best avoidance-move would reduce \((R_I+R_V)\) but would not do so critically, regardless of whether I or V would be liable for any losses I’s rejection of his privately-best avoidance-move imposes on V;

2. cases in which I’s privately-best avoidance-move would increase \((R_I+R_V)\) but would not do so critically, regardless of whether I or V would be liable for any losses I’s rejection of his privately-best avoidance-move imposes on V;

3. cases in which I’s privately-best avoidance-move would critically reduce \((R_I+R_V)\), regardless of whether I or V is liable;

4. cases in which I’s privately-best avoidance-move would critically reduce \((R_I+R_V)\) if and only if V is liable;

5. cases in which I’s privately-best avoidance-move would critically reduce \((R_I+R_V)\) if and only if I is liable;
(6) cases in which I’s privately-best avoidance-move would critically increase \((R_I + R_V)\) regardless of whether I or V is liable;

(7) cases in which I’s privately-best avoidance-move would critically increase \((R_I + R_V)\) if and only if V is liable; and

(8) cases in which I’s privately-best avoidance-move would critically increase \((R_I + R_V)\) if and only if I is liable.

The text that follows will examine each of these subsets of the more general set of cases in which a potential injurer’s privately-best avoidance-move would affect \((R_I + R_V)\) to determine into which of the following four “outcome-categories” of cases their members belong. Before delineating these “outcome-categories,” I want to make two points: (1) the text that follows will continue to use the expression “subsets of cases” to refer to the eight classes of cases previously distinguished and the expression “outcome-categories of cases” to refer to the four classes of cases I am about to distinguish and (2) different members of some individual subsets of cases will belong in different outcome-categories of cases as I have defined these two italicized concepts. The four outcome-categories of cases I will distinguish are:

(1) cases in which the standard Hand formula will induce the potential injurer to make the \textit{ex ante} first-best-allocatively-efficient avoidance-decision—the cases in subsets (1), (2), and (5) in the preceding list;

(2) cases in which application of the standard Hand formula will not induce a potential injurer to make a first-best-allocatively-efficient avoidance-decision and one will not be able to induce potential injurers to make first-best-allocatively-efficient avoidance-decisions by adding either an injurer-liable or a victim-liable \(\Delta(R_I + R_V)\) term to the right-hand side of the standard Hand inequality—some cases in subset (4) and all cases in subset (8) in the preceding list;

(3) cases in which the application of the standard Hand formula will not induce potential injurers to make a first-best-allocatively-efficient avoidance-decision but a straightforward alteration in the standard Hand formula would produce an operationalization of negligence whose application would induce potential injurers to make first-best-allocatively-efficient avoidance-decisions—all cases in subsets (3), (5), (6), and (7) in the preceding list; and

(4) cases in which the standard Hand formula would have to be altered in a paradoxical way to produce an operationalization of negligence whose application would induce potential injurers to make first-best-allocatively-efficient avoidance-decisions—some cases in subset (4) in the preceding list;
I will now proceed to analyze the eight subsets of cases previously distinguished to determine (1) whether the standard Hand formula would induce the potential injurer they involve to make the *ex ante* first-best-allocatively-efficient avoidance-decision, (2) whether—if the standard Hand formula would not achieve this objective—*ex ante* first-best allocative efficiency could be secured by adding or subtracting a $\Delta(R_I+R_V)$ term to the right-hand side of the standard Hand inequality, and (3) whether—when first-best allocative efficiency can be secured in this way—the required revision of the standard Hand formula should be characterized as straightforward or paradoxical.

In three subsets of the general set of cases in which the potential injurer’s privately-best avoidance-move would affect $(R_I+R_V)$ the application of the standard Hand formula would induce the potential injurer to make his first-best-allocatively-efficient avoidance-decisions—subsets (1), (2), and (5). Subset (1) contains all cases in which $I$’s privately-best avoidance-move would reduce $(R_I+R_V)$ but would not do so critically, regardless of whether $I$ or $V$ would be liable for any loss $I$’s rejection of this move generated. The following example illustrates this subset of cases. Assume that, for $I$’s privately-best avoidance-move, $B_I=$ $100, (\downarrow PL)_V=$ $105, (R_I+R_V)=8$ if the potential injurer is liable for any loss his rejection of his privately-best avoidance-move generates, and $\downarrow (R_I+R_V)=10$ if the potential victim is liable for any such loss On our first-best-allocative-efficiency-analysis assumptions, these numerical assumptions warrant the following five conclusions or sets of conclusions:

1. $B_I=$ $100$ is lower than $(\downarrow PL)_V=$ $105$, is lower than the value that $(\downarrow PL)_V+\downarrow (R_I+R_V)$ would have if $I$ were liable ($105+8=113$), and is lower than the value that $(\downarrow PL)+\downarrow (R_I+R_V)$ would have if $V$ were liable ($105+10=115$);

2. if the negligence of the relevant $I$’s rejection of his privately-best avoidance-move were assessed by the standard Hand formula for negligence, his rejection of this move would be deemed negligent (since $B_I=$ $100<\downarrow (R_I+R_V)=105$);

3. if the negligence of the relevant $I$’s rejection of his privately-best avoidance-move were assessed by a Hand-type formula in which either a victim-liable or an injurer-liable $\downarrow (R_I+R_V)$ term was added to the right-hand side of the standard Hand inequality, $I$’s rejection of his privately-best avoidance-move would also be deemed negligent (given that $B_I=$ $100<\text{both } (\downarrow PL)_V \text{ plus the injurer-liable } \downarrow (R_I+R_V)=105+8=113 \text{ and } ((\downarrow PL) \text{ plus the victim-liable } \downarrow (R_I+R_V)=105+10=115)$;
(4) the use of any of these three Hand-type formulae to assess the negligence of I's rejection of his privately-best avoidance-move would induce him to make this move: this conclusion reflects the fact that the private cost to the potential injurer of making this move (B_I=$100) is lower than the cost to him of rejecting it when he is legally obligated to compensate his victim for any loss his rejection of this move imposes on the V (the $105 of damages he should expect on the weighted average to have to pay his victims because he rejected the move in question plus the risk costs this liability would impose on him, which are $8 higher than the risk costs he would have borne in connection with any accident-or-pollution loss his non-negligent conduct might have imposed on his potential victims had he been strictly liable); and

(5) the avoidance-move in question will be ex ante first-best allocatively efficient since B_I=$100=the allocative cost of the avoidance-move is lower than ([PL]_V plus the injurer-liable (RI+RV)=$113).

In short, in all cases in subset (1), both the standard Hand formula and variants of that formula in which either an injurer-liable or a victim-liable (RI+RV) term is added to the right-hand side of the standard Hand inequality would induce the potential injurer to make a first-best-allocatively-efficient avoidance-decision (to make his first-best-allocatively-efficient, privately-best avoidance-move). I should note that although the addition of an injurer-liable (RI+RV) term to the right-hand side of the standard Hand inequality would be both conceptually warranted and straightforward in these cases (since the injurer would be liable in the cases in question if the resulting variant of the Hand formula were used to assess his negligence), the addition of a victim-liable (RI+RV) term would be somewhat peculiar since it would not affect the fact that the victim would not be liable (the fact that the potential injurer would be liable for his [negligent] rejection of his privately-best avoidance-move).

Subset (2) contains cases in which I's privately-best avoidance-move would increase (RI+RV) but would not do so critically. Before delineating an example that illustrates this subset of cases, I should point out that because the Δ(RI+RV) that the privately-best avoidance-move generates in this subset of cases is an increase in (RI+RV), the relevant change (↑[RI+RV]) must be subtracted from (↓PL)_V when calculating the private and allocative benefits that the avoidance-move in question will generate, and the revisions of the Hand formula that one might consider in these situations must involve the subtraction of an injurer-liable or victim-liable ↑(RI+RV) term from the right-hand side of the standard Hand inequality. The following example
illustrates this subset of cases. Assume that, for I’s privately-best avoidance-move, B_I=$105, (↓PL)_I=$100, ↑(R_I+R_V)=$8 if the potential injurer is liable for any loss his rejection of his privately-best avoidance-move generates, and ↑(R_I+R_V)=$10 if the potential victim is liable for any such loss. On our first-best-allocative-efficiency-analysis assumptions, these numerical assumptions warrant the following five conclusions or sets of conclusions:

1. B_I=$105 exceeds (↓PL)_V=$100, exceeds the value that [(↓PL)_V-↑(R_I+R_V)] would have if I were liable ($100-$8=$92), and exceeds the value that [(↓PL]-$\uparrow$(R_I+R_V)] would have if V were liable ($100-$10=$90);

2. the application of the standard Hand formula for negligence would fail to induce I to make the avoidance-move in question—i.e., would fail to make it conventionally profitable for him to make the move—because it would yield the conclusion that his rejection of this move was negligent (since B_I=$105>(↓PL)_V=$100); a fortiori

3. the application of a variant of the standard Hand formula in which either a victim-liable or an injurer-liable ↑(R_I+R_V) term is subtracted from the right-hand side of the standard Hand inequality would fail to induce the I to make the avoidance-move in question since both of these revised formulae would yield the conclusion that I’s rejection of his privately-best avoidance-move was not negligent (given that B_I=$105>both [(↓PL)_V minus the injurer-liable ↑(R_I+R_V)=$92] and [(↓PL)_V minus the victim–liable ↑(R_I+R_V)=$90];

4. regardless of whether the negligence of the relevant I’s rejection of his privately-best avoidance-move is assessed by the standard Hand formula or by either risk-cost-effect-adjusted variant of the standard Hand formula, he would not avoid since the cost to him of avoiding (B_I=$105) would exceed the cost to him of not avoiding (zero) since his rejection of the avoidance-move in question would be deemed not negligent and he would be liable only for the consequences of his negligence; and

5. the avoidance-move in question will be ex ante first-best allocatively inefficient (since B_I=$105=the allocative cost of the avoidance-move exceeds [(↓PL)_V minus the victim-liable ↑(R_I+R_V)=$90]).

In short, in all cases in subset (2), both the standard Hand formula and variants of that formula in which either an injurer-liable or a victim-liable ↑(R_I+R_V) term is subtracted from the right-hand side of the standard Hand inequality would induce the potential injurer to make a first-best-allocatively-efficient avoidance-decision (to reject his first-best-allocatively-inefficient, privately-best avoidance-move). Neither this conclusion nor its subset (1) counterpart should be surprising. Both reflect the fact that, in the two subsets of cases in question, neither (1) the legal
conclusion about the negligence of the potential injurer’s decision to reject his privately-best avoidance-move, nor (2) the potential injurer’s decision whether or not to make that move, nor (3) the first-best allocative efficiency of the move in question will be affected by whether the negligence of the potential injurer’s rejection of his privately-best avoidance-move is assessed by the standard Hand formula or by a variant of that formula created by adding or subtracting a victim-liable or an injurer-liable $\Delta(R_I+R_V)$ term to the right-hand side of the standard Hand inequality.\textsuperscript{8}

In one other subset of cases I have distinguished—subset (5), the standard Hand formula (as well as both risk-cost-adjusted variants of that formula) will induce the potential injurer to make a first-best-allocatively-efficient avoidance-decision. Subset (5) contains all cases in which $I$’s privately-best avoidance-move would reduce $(R_I+R_V)$ regardless of whether $I$ or $V$ is liable, $I$’s privately-best avoidance-move would reduce $(R_I+R_V)$ by more if $I$ is liable than if $V$ is liable, and (relatedly) the impact of $I$’s privately-best avoidance-move on $(R_I+R_V)$ will critically affect its \textit{ex ante} first-best allocative efficiency (\textit{viz.}, will render \textit{ex ante} first-best allocatively efficient a move that would otherwise have been \textit{ex ante} first-best allocatively inefficient) if and only if $I$ is liable. The following example illustrates this subset of cases. Assume that, for $I$’s privately-best avoidance-move, $B_I=$\$105, $(\downarrow PL)_V=$\$100, $(\downarrow (R_I+R_V))=$\$8 if the potential injurer is liable, and $\downarrow (R_I=R_V)=\$3$ if the potential victim is liable. On these assumptions, $B_I=$\$105 \textit{exceeds} both $(\downarrow PL)_V=$\$100 and $(\downarrow (R_I+R_V))=$\$8 if the potential victim is liable. But $B_I=$\$105 \textit{is lower than} $(\downarrow (R_I+R_V))=$\$108$. Given the fact that on our first-best-allocative-efficiency-analysis assumptions all private figures equal their allocative counterparts, the following four conclusions or sets of conclusions are warranted:

1. it will be \textit{ex ante} first-best allocatively efficient for the potential injurer to make the avoidance-move in question if he would have to bear the accident-or-pollution loss that the move might prevent (since the \textit{ex ante} allocative benefits of his making this move in the specified circumstances—$100+$3=$103—\textit{exceed} the allocative cost of his doing so—$B_I=$\$105);  
2. it will be \textit{ex ante} first-best allocatively inefficient for the potential injurer to make the avoidance-move in question if the potential victim would have to bear any accident-or-pollution loss the move might prevent (if $I$ would not have to compensate his victim for such losses) since on that assumption the \textit{ex ante} allocative benefits that the relevant avoidance-move would generate—$100+$3=$103$ (where $\$3$ equal the risk costs that $I$’s non-avoidance would impose on $V$ because $V$ would have to bear any loss caused by $I$’s rejection of his
privately-best avoidance-move) will be lower than the allocative cost of I's making the avoidance-move in question—B_I=$105;

(3) if the Hand formula is altered by adding the injurer-liable ↓(R_I+R_V) to the right-hand side of the standard Hand inequality, (A) the potential injurer will be found negligent for rejecting the avoidance-move in question (since B_I=$105<$↓PL>_V plus the injurer-liable ↓[R_I+R_V]=$100+$8=$108), (B) I will therefore avoid since the private cost to I of the relevant avoidance-move (B_I=$105) will be lower than the sum of the damages he will expect on the weighted average to have to pay V ($100) if he rejects the avoidance-move in question and the risk costs I will bear in relation to this obligation, which will equal the risk costs I would have borne had he been strictly liable in relation to his liability for the losses he might have imposed on V had he made his privately-best avoidance-move plus the additional $8 in risk costs he would bear if he were liable as a result of his rejecting this avoidance-move, and (C) the decision by I to make the avoidance-move in question will be ex ante first-best allocatively efficient since the allocative cost of his making the move in question (B_I=$105) will be lower than the ex ante allocative benefits the move would generate once it is clear that he would be liable for rejecting it ($100+$8=$108); and, by way of contrast,

(4) if the Hand formula is either not altered or altered by adding the victim-liable ↓(R_I+R_V) to the right-hand side of the standard Hand inequality, (A) the potential injurer’s rejection of the avoidance-move in question will not be found negligent (since B_I=$105 will exceed both ↓[↓PL]_V=$100 and ↓(↓PL)_V plus the victim-liable ↓(R_I+R_V)=$100+$3=$103), (B) the potential injurer will therefore not avoid, and (C) the potential injurer’s rejection of the avoidance-move in question will be ex ante first-best allocatively efficient since the move’s allocative cost (B_I=$105) will exceed the ($100+$3=$103) in ex ante allocative benefits it would generate in the specified circumstances, given that those benefits will include the $3 reduction in risk costs the move will generate if the Hand formula were either not altered or altered in the above way since in either event I’s rejection of the move in question will not be found negligent and V will therefore bear the risk the rejection created.

These conclusions imply that in subset (5), (1) the standard Hand formula will be able to induce the potential injurer to make an ex ante first-best-allocatively-efficient avoidance-decision and (2) the addition of either an injurer-liable or a victim-liable ↓(R_I+R_V) term to the right-hand side of the standard Hand inequality will not cause the use of the resulting formula to be misallocative. The only puzzling feature of these conclusions is that the addition of an injurer-liable term to the right-hand side of the standard Hand inequality will not be misallocative despite the fact that it will induce the potential injurer to make an avoidance-move he would have rejected if his negligence and liability were to be determined by the standard Hand formula.
because this alteration in the formula would critically affect the *ex ante* first-best allocative efficiency of the avoidance-move in question precisely by changing the legal assessment of its negligence and hence the risk-cost consequences of its rejection.

For both expositional reasons and to retain the interest of any readers who have come this far, I will now analyze the subsets of cases in which (1) the application of the standard Hand formula will not induce the potential injurer to make a first-best-allocatively-efficient avoidance-decision and (2) it may not be possible or will not be possible to secure such decisions by adding or subtracting either a victim-liable or an injurer-liable $\Delta(R_I+R_V)$ term to the right-hand side of the standard Hand inequality. All cases in subset (8) fall into this category. Subset (8) contains cases in which $I$’s privately-best avoidance-move would increase $(R_I+R_V)$ regardless of whether $I$ or $V$ is liable, $I$’s privately-best avoidance-move would increase $(R_I+R_V)$ by more if $I$ is liable than if $V$ is liable, and (relatedly) the impact of $I$’s privately-best avoidance-move on $(R_I+R_V)$ will critically affect its *ex ante* first-best allocative efficiency (*viz.* will render *ex ante* first-best allocatively inefficient a move that would otherwise have been *ex ante* first-best allocatively efficient) if and only if $I$ is liable. The following example illustrates this subset of cases. Assume that, for $I$’s privately-best avoidance-move, $B_I=95$, $(\downarrow PL)_V=100$, $\uparrow (R_I+R_V)=8$ if the potential injurer is liable, and $\uparrow (R_I+R_V)=3$ if the potential victim is liable. On these assumptions, $B_I=95$ *exceeds* $[(\downarrow PL)_V$ minus the injurer-liable $\uparrow (R_I+R_V)=100-8=92]$, but $B_I=95$ is *lower than* both $(\downarrow PL)_V=100$ and $((\downarrow PL)_V$ minus the victim-liable $\uparrow (R_I+R_V)=100-3=97]$. Given the fact that on our first-best-allocative-efficiency-analysis assumptions all private figures equal their allocative counterparts, the following five conclusions or sets of conclusions are warranted:

1. it will be *ex ante* first-best allocatively efficient for the potential injurer to make his privately-best avoidance-move if he would not have to bear (if the victim were “liable” for) the accident-or-pollution loss that the move might prevent (since the *ex ante* allocative benefits of his making this move in the specified circumstances—$100-3=97—exceed the allocative cost of his doing so—$95); 

2. it will be *ex ante* first-best allocatively inefficient for the potential injurer to make his avoidance-move if he would have to bear any accident-or-pollution loss the move might prevent (if $I$ would have to compensate his victim for such losses) since on that assumption the *ex ante* allocative benefits that the relevant avoidance-move would generate—$100-8=92$ (where $8$ equal the risk costs that $I$’s non-avoidance would impose on $I$ because $I$ would have to bear any loss
caused by his rejection of his privately-best avoidance-move) will be lower than the allocative cost of $I$’s making the avoidance-move in question—$B_I$=$95;

(3) if the Hand formula is altered by subtracting the injurer-liable ↑($R_I+R_V$) from the right-hand side of the standard Hand inequality, (A) the potential injurer will be found not negligent for rejecting the avoidance-move in question (since $B_I$=$95 > \downarrow \text{PL}_V$ minus the injurer-liable ↑($R_I+R_V$)=100-$8$=$92$), (B) $I$ will therefore not avoid since the private cost to $I$ of the relevant avoidance-move ($B_I$=$95$) will be higher than the cost to $I$ of rejecting his privately-best avoidance-move (zero), and (C) the decision by $I$ to reject the avoidance-move in question will be *ex ante* first-best allocatively inefficient since the allocative cost of his making the move in question ($B_I$=$95$) will be lower than the *ex ante* allocative benefits the move would generate once it is clear that $I$ will not be found negligent for rejecting his privately-best avoidance-move and concomitantly that $V$ would be “liable” for the consequences of $I$’s rejecting his privately-best avoidance-move ($100-$3$=$97$); and, by way of contrast,

(4) if the Hand formula is either not altered or altered by subtracting the victim-liable ↑($R_I+R_V$) from the right-hand side of the standard Hand inequality, (A) the potential injurer’s rejection of the avoidance-move in question will be found negligent (since $B_I$=$95$ will be lower than both $\downarrow \text{PL}_V$=$100$ and $\downarrow \text{PL}_V$ minus the victim-liable ↑($R_I+R_V$)=100-$3$=$97$) and (B) the potential injurer’s privately-best avoidance-move will be *ex ante* first-best allocatively inefficient since the move’s allocative cost ($B_I$=$95$) will exceed the ($100-$8$=$92$) in *ex ante* allocative benefits it would generate in the specified circumstances, given that those benefits will be reduced by the $8$ increase in risk costs the move will generate if the Hand formula were either not altered or altered by subtracting the victim-liable ↑($R_I+R_V$) term from the right-hand side of the standard Hand inequality since under both these variants of the Hand formula $I$’s rejection of his privately-best avoidance-move will be found negligent and $I$ will therefore be liable for any losses his rejection of this move imposes on $V$; and

(5) if the potential injurer’s rejection of his privately-best avoidance-move would be deemed negligent because its negligence would be determined by either the standard Hand formula or a variant of that formula in which a victim-liable ↑($R_I+R_V$) term was subtracted from the right-hand side of the standard Hand inequality, the potential injurer would make his privately-best (*ex ante* first-best-allocatively-inefficient) avoidance-move (allocatively inefficient given the fact that he would be liable for any loss his rejection of it caused) because the private cost of this avoidance-move ($B_I$=$95$) would be lower than the private benefits the move would confer on the potential avoider—the sum of (A) the weighted-average-expected amount of damages it would prevent him from having to pay ($\downarrow \text{PL}_V$=$100$) and (B) the risk costs it would prevent him from bearing by eliminating his liability to $V$, risk costs that would be $8$ higher than the risk costs he would bear because of his liability for any accident-or-pollution loss he
imposed on V if he were strictly liable for these losses and did not make his
privately-best avoidance-move.

These conclusions imply that, in subset (8), (1) neither the standard Hand formula, nor (2) the
Hand-type formula that would be created by subtracting a victim-liable ↑(RI+RV) term from the
right-hand side of the standard Hand inequality, nor (3) the Hand-type formula that would be
created by subtracting an injurer-liable ↑(RI+RV) term from the right-hand side of the standard
Hand inequality would be able to induce the potential injurer to make an ex ante first-best-
allocatively-efficient avoidance-decision.

Some of the cases in subset (4) also belong in this category. Subset (4) contains all cases
in which I’s privately-best avoidance-move would reduce (RI+RV) regardless of whether I or V is
liable for any loss caused by I’s rejection of his privately-best avoidance-move, I’s privately-best
avoidance-move would reduce (RI+RV) by more if V is liable than if I is liable, and (relatedly)
the impact of I’s privately-best avoidance-move on (RI+RV) will critically affect its ex ante first-
best allocative efficiency (viz., will render ex ante first-best allocatively efficient a move that
would otherwise have been ex ante first-best allocatively inefficient) if and only if V is liable.
The following example illustrates this subset of cases. Assume that, for I’s privately-best
avoidance-move, BI=$105, ↓(PL)V=$100, ↓(RI+RV)=$8 if the potential victim is liable, and
↓(RI+RV)=$3 if the potential injurer is liable.

On these assumptions, BI=$105 exceeds both ↓(PL)V=$100 and (↓PL)V plus the injurer-
liable ↓[RI+RV]=$100+$3=$103), but BI=$105 is lower than (↓PL)V plus the victim-liable
↓[RI+RV]=$100+$8=$108). Given the fact that on our first-best-allocative-efficiency-analysis
assumptions all private figures equal their allocative counterparts, the following five conclusions
or sets of conclusions are warranted:

(1) it will be allocatively efficient for the potential injurer to make the avoidance-
move in question if the victim would have to bear the accident-or-pollution loss
that the move might prevent (since the ex ante allocative benefits of his making
this move in the specified circumstances—$100+$8=$108—exceed the allocative
cost of his doing so—BI=$105);

(2) it will be allocatively inefficient for the potential injurer to make the avoidance-
move in question if he would have to bear any loss the move might prevent (if he
would have to compensate his victim for such losses) since on that assumption the
ex ante allocative benefits that the relevant avoidance-move would generate—
$100+$3=$103 (where $3 equal the risk costs that I’s non-avoidance would
impose on I because he would have to compensate V for such losses) will be lower than the allocative cost of I’s making the avoidance-move in question—\( B_I = $105 \);

(3) if the Hand formula is altered by adding the victim-liable \( \downarrow (R_I + R_V) \) term to the right-hand side of the standard Hand inequality, (A) the potential injurer will be found negligent for rejecting the avoidance-move in question (since \( B_I = $105 < \downarrow PL_V \) plus the victim-liable \( \downarrow (R_I + R_V) = $100 + $8 = $108 \)), and (B) a decision by I to reject the avoidance-move in question will be *ex ante* first-best allocatively inefficient since the allocative cost of his making the move in question (\( B_I = $105 \) exceeds the *ex ante* allocative benefits the move would generate once it is clear that he would be liable for the losses caused by his rejecting it ($100 + $3 = $103));

(4) if the potential injurer’s rejection of his privately-best avoidance-move would be deemed negligent because the Hand formula for negligence was altered by adding a victim-liable \( \downarrow (R_I + R_V) \) term to the right-hand side of the standard Hand inequality, the potential injurer might or might not make his privately-best (*ex ante* first-best-allocatively-inefficient) avoidance-move because the private cost of this avoidance-move (\( B_I = $105 \)) might be higher than or lower than the *ex ante* private benefits the move would confer on the potential avoider—the sum of (A) the weighted-average-expected amount of damages it would prevent him from having to pay his potential victims ($100) and (B) the risk costs it would prevent him from bearing by eliminating his liability to V, which would be $3 higher than the risk costs he would have borne in connection with any accident-or-pollution loss his non-negligent conduct might have imposed on V had I been strictly liable where the latter risk costs could be either lower than $2 or equal to or higher than $2; and, by way of contrast,

(5) if the Hand formula is either not altered or altered by adding the injurer-liable \( \downarrow (R_I + R_V) \) to the right-hand side of the standard Hand inequality, (A) the potential injurer’s rejection of the avoidance-move in question will not be found negligent (since \( B_I = $105 \) will exceed both \( \downarrow PL_I = $100 \) and \( \downarrow (R_I + R_V) = $100 + $3 = $103 \)), (B) the potential injurer will therefore not avoid, and (C) the potential injurer’s rejection of the avoidance-move in question will be *ex ante* first-best allocatively inefficient since the move’s allocative cost (\( B_I = $105 \) will be less than the ($100 + $8 = $108) in allocative benefits it would generate in the specified circumstances, given that those benefits will include the $8 reduction in risk costs the move will generate if the Hand formula were either not altered or altered in the above way since in either event I’s rejection of the move in question will not be found negligent and V will therefore bear the risk the rejection created.

Two conclusions are therefore warranted. First, in some cases in subset (4)—viz., when the risk costs the potential injurer would have had to bear had he been strictly liable in relation to
the accident-or-pollution losses his non-negligent conduct might impose on $V$ were sufficiently high to make it profitable for him to make a privately-best avoidance-move whose rejection would be deemed negligent by a revised Hand formula in which a victim-liable $(R_I + R_V)$ term was added to the right-hand side of the standard Hand inequality, the application of neither the standard Hand formula, nor the variant of that formula in which a victim-liable $\downarrow(R_I + R_V)$ term is added to the right-hand side of the standard Hand inequality, nor the variant of the standard Hand formula in which an injurer-liable $\downarrow(R_I + R_V)$ term is added to the right-hand side of the standard Hand inequality will induce the potential injurer to make the \textit{ex ante} first-best-allocatively-efficient avoidance-decision. Second, in other cases in subset (4) in which the above condition is not fulfilled so that one will be able to induce $I$ to make an \textit{ex ante} first-best-allocatively-efficient avoidance-choice by adding a victim-liable $\downarrow(R_I + R_V)$ term to its $(\downarrow_{PL})_V$ term, this “solution” is anything but straightforward. The contrived and paradoxical character of this response to accident-and-pollution-related risk costs is manifest in two facts. First, the response entails adding a \textit{victim-liable} $\downarrow(R_I + R_V)$ term to the right-hand side of the Hand inequality to produce a legal conclusion (that $I$’s rejection of the avoidance-move in question is negligent) that will result in the victim’s not being liable—\textit{i.e.}, in \textit{the injurer’s being liable}. Second, the required solution is paradoxical in that it induces the potential injurer to make an \textit{ex ante} first-best-allocatively-efficient avoidance-decision not by inducing him to avoid when he would not otherwise have done so (not by inducing him to change his avoidance-decision from the one he would have made under a no-injurer-liability rule) but by altering the \textit{ex ante} first-best allocative efficiency of his continuing decision not to avoid—\textit{i.e.}, by rendering \textit{ex ante} first-best allocatively inefficient a privately-best avoidance-move that would otherwise have been \textit{ex ante} first-best allocatively efficient. Hence, some cases in this fourth subset belong in the same category as all cases in subset (8)—\textit{viz.}, cases in which neither the standard Hand formula nor either of the two risk-cost-effect-adjusted variants of that formula we are considering will induce the potential avoider to make an \textit{ex ante} first-best-allocatively-efficient avoidance-decision—and some cases in this fourth subset belong in the third outcome-category of cases I previously distinguished—\textit{viz.}, cases in which the standard Hand formula will not induce the potential injurer to make an \textit{ex ante} first-best-allocatively-efficient avoidance-decision but in which the $I$ can be induced to make such a decision in a paradoxical way by using an appropriate risk-cost-effect-adjusted
variant of the standard Hand formula to assess the negligence of the \( I \)'s rejection of his privately-best avoidance-move.

The fourth outcome-category of cases contains cases in which the standard Hand formula would not succeed in inducing the potential injurer to make the \( \textit{ex ante} \) first-best-allocatively-efficient avoidance-decision but one will be able to secure first-best-allocatively-efficient potential-injurer avoidance-decisions in a straightforward way by adding or subtracting a \( \Delta(R_I+R_V) \) term to the right-hand side of the standard Hand inequality. All cases in subsets (3), (6), and (7) belong in this category.

Subset (3) contains all cases in which \( I \)'s privately-best avoidance-move would \textit{reduce} \( (R_I+R_V) \) regardless of whether \( I \) or \( V \) is “liable” for any loss caused by \( I \)'s rejection of his privately-best avoidance-move—indeed, that regardless of whether \( I \) or \( V \) is liable for any loss caused by \( I \)'s rejection of his privately-best avoidance-move, the fact that \( I \)'s privately-best avoidance-move would reduce \( (R_I+R_V) \) will critically affect its \( \textit{ex ante} \) first-best allocative efficiency (\textit{viz.}, will render this move \( \textit{ex ante} \) first-best allocatively efficient when it would otherwise not have been so). The following example illustrates this subset of cases. Assume that, for \( I \)'s privately-best avoidance-move, \( B_I+105 \) (\( \downarrow PL \)=100, \( \downarrow (R_I+R_V) \)=8 if the potential injurer is liable for any loss his rejection of his privately-best avoidance-move generates, and \( \downarrow (R_I+R_V) \)=10 if the potential victim is liable for any such loss. On our first-best-allocative-efficiency-analysis assumptions, these numerical assumptions warrant the following five conclusions or sets of conclusions:

1. \( B_I=105 \) \textit{exceeds} (\( \downarrow PL \)=100 but is \textit{lower than} both the value that \( (\downarrow PL)+\downarrow (R_I+R_V) \) would have if \( I \) were liable (\( $100+8=$108 \)) and the value that \( (\downarrow PL)+\downarrow (R_I+R_V) \) would have if \( V \) were liable (\( $100+10=$110 \));

2. the application of the standard Hand formula for negligence would fail to induce \( I \) to make the avoidance-move in question—\textit{i.e.}, would fail to make it conventionally profitable for him to make the move—because it would yield the conclusion that his rejection of this move was not negligent (since \( B_I=105>\downarrow PL \)=100); but

3. the addition of either a victim-liable or an injurer-liable \( \downarrow (R_I+R_V) \) term to the right-hand side of the standard Hand inequality would create a formula for assessing negligence whose application would produce the conclusion that \( I \)'s rejection of his privately-best avoidance-move was negligent (given that \( B_I=105 < \text{both } (\downarrow PL) \text{ plus the injurer-liable }\downarrow (R_I+R_V) =$108 \text{ and } (\downarrow PL) \text{ plus the victim-liable }\downarrow (R_I+R_V) =$110 \));
(4) The addition of either a victim-liable or an injurer-liable \(\downarrow(R_I+R_V)\) term to the right-hand side of the standard Hand inequality would create a formula for assessing negligence whose application would induce the potential injurer to make his privately-best avoidance-move by making it negligent for him to reject this move and therefore making him liable for any loss his rejection of the move in question caused: this conclusion reflects the fact that the private cost to the potential injurer of making this move \((B_I=$105)\) is lower than the cost to him of rejecting it when he is legally obligated to compensate his victim for any loss his rejection of this move imposes on the \(V\) (the $100 of damages he should expect on the weighted average to have to pay his victims because he rejected the move in question plus the risk costs this liability would impose on him, which are $8 higher than the risk costs he would have borne in connection with any accident-or-pollution loss his non-negligent conduct might have imposed on his potential victims had he been strictly liable); and

(5) The avoidance-move in question will be \textit{ex ante} first-best allocatively efficient regardless of whether \(I\) or \(V\) would be liable for the consequences of \(I\)'s rejecting the move since \(B_I=$105=\)the allocative cost of the avoidance-move is lower than both \((\downarrow PL)_V\) plus the injurer-liable \(\downarrow[R_I+R_V]=$108) and \((\downarrow PL)_V\) plus the victim-liable \(\downarrow[R_I+R_V]=$110).

In this case, then, it will be possible to induce the potential injurer to make the \textit{ex ante} first-best-allocatively-efficient avoidance-decision in a straightforward way—\textit{viz.}, by adding an injurer-liable \(\downarrow(R_I+R_V)\) risk-cost term to the right-hand side of the standard Hand inequality to make the injurer liable for rejecting the move in question. This addition of the \textit{injurer liable} \(\downarrow(R_I+R_V)\) term is “straightforward” because it operates by causing the potential injurer’s rejection of his privately-best avoidance-move to be found to be negligent—\textit{i.e.}, by making the potential \textit{injurer liable}. I should add, however, that, in this subset of cases, it will also be possible to induce the potential injurer to make the \textit{ex ante} first-best-allocative-efficient avoidance-decision in a somewhat paradoxical way—\textit{i.e.}, by adding a victim-liable \(\downarrow(R_I+R_V)\) term to the right-hand side of the standard Hand inequality. This alteration in the Hand formula would be paradoxical because it would entail the addition of a \textit{victim liable} \(\downarrow(R_I+R_V)\) term to produce the conclusion that the \textit{injurer} would be \textit{liable} for a loss caused by his rejection of his privately-best avoidance-move.

Subset (6) contains all cases in which \(I\)'s privately-best avoidance-move will \textit{increase} \((R_I+R_V)\) regardless of whether \(I\) or \(V\) is “liable” for any loss caused by \(I\)’s rejection of his privately-best avoidance-move—indeed, all cases in which, regardless of whether \(I\) or \(V\) is liable,
the fact that I’s privately-best avoidance-move would increase \((R_I+R_V)\) will critically affect its \textit{ex ante} first-best allocative efficiency (\textit{viz.}, will render this move \textit{ex ante} first-best allocatively inefficient when it would otherwise not have been so). The following example illustrates this subset of cases. Assume that, for I’s privately-best avoidance-move, \(B_I = 95\), \((\downarrow PL)_V = 100\), \(\uparrow (R_I+R_V) = 8\) if the potential injurer is liable, and \(\uparrow (R_I+R_V) = 10\) if the potential victim is liable. On our first-best-allocative-efficiency-analysis assumptions, these numerical assumptions warrant the following five conclusions or sets of conclusions:

1. \(B_I = 95\) is lower than \((\downarrow PL)_V = 100\) but exceeds both the value that \(((\downarrow PL)_V - \uparrow (R_I+R_V))\) would have if I were liable \((100-8=92)\) and the value that \(((\downarrow PL)_V - \uparrow (R_I+R_V))\) would have if V were liable \((100-10=90)\);

2. the application of the standard Hand formula for negligence would induce I to make the avoidance-move in question—\textit{i.e.}, would make it conventionally profitable for him to make the move—because it would yield the conclusion that his rejection of this move was negligent (since the private cost to I of making the move—\(B_I = 95\)—is lower than the private cost to him of rejecting the move, given that his rejection of it would be found negligent—the sum of the damages he would expect on the weighted average to pay V \((\downarrow PL)_V = 100\) and the risk costs he would bear in relation to this liability (which would be $10 lower than the risk costs he would bear if he were strictly liable and had made his privately-best avoidance-move [had behaved non-negligently] since this move would increase the relevant risk costs by $10); but

3. the subtraction of either a victim-liable or an injurer-liable \(\uparrow (R_I+R_V)\) term from the right-hand side of the standard Hand inequality would create a formula for assessing negligence whose application would produce the conclusion that I’s rejection of his privately-best avoidance-move was non-negligent (given that \(B_I = 95 < \text{both } ((\downarrow PL)_V \text{ minus the injurer-liable } \uparrow (R_I+R_V) = 92) \text{ and } ((\downarrow PL)_V \text{ minus the victim-liable } \uparrow (R_I+R_V) = 90)\));

4. the addition of either a victim-liable or an injurer-liable \(\downarrow (R_I+R_V)\) term to the right-hand side of the standard Hand inequality would create a formula for assessing negligence whose application would deter the potential injurer from making his privately-best avoidance-move since—by rendering his rejection of this move non-negligent—it would reduce the private cost of his rejecting this move (zero) below the private cost of his making it (\(B_I = 95\)); and

5. the avoidance-move in question will be \textit{ex ante} first-best allocatively inefficient regardless of whether I or V would be liable for the consequences of I’s rejecting the move since \(B_I = 95\) is the allocative cost of the avoidance-move \textit{exceeds} both \(((\downarrow PL)_V \text{ minus the injurer-liable } \uparrow (R_I+R_V) = 92) \text{ and } ((\downarrow PL)_V \text{ minus the victim-liable } \uparrow (R_I+R_V) = 90)\).
In this case, then, it will be possible to induce the potential injurer to make the first-best-allocatively-efficient avoidance-decision (to reject his privately-best avoidance-move) in a straightforward way—by subtracting a *victim-liable* $\uparrow(R_I+R_V)$ risk-cost term from the right-hand side of the standard Hand inequality to make the injurer’s rejection of the move in question non-negligent (*i.e.*, to make the *victim liable*). I should add, however, that, in this case, it would also be possible to induce the potential injurer to make the *ex ante* first-best-allocatively-efficient avoidance-decision in a somewhat paradoxical way—*i.e.*, by subtracting an *injurer-liable* $\uparrow(R_I+R_V)$ term from the right-hand side of the standard inequality. This alteration in the Hand formula would be paradoxical because it would entail the subtraction of an *injurer-liable* $\uparrow(R_I+R_V)$ term to make the *victim liable* for a loss caused by the injurer’s rejection of his privately-best avoidance-move (*i.e.*, to make the injurer’s rejection of his privately-best avoidance-move non-negligent).

Subset (7) also belongs in this outcome-category of cases. Subset (7) contains all cases in which $I$’s privately-best avoidance-move will increase $(R_I+R_V)$ regardless of whether $I$ or $V$ is liable for any loss caused by $I$’s rejection of his privately-best avoidance-move, $I$’s privately-best avoidance-move will increase $(R_I+R_V)$ by more if $V$ is liable than if $I$ is liable, and (relatedly) the impact of $I$’s privately-best avoidance-move on $(R_I+R_V)$ will critically affect its *ex ante* first-best allocative efficiency (*viz.*, will render *ex ante* first-best allocatively inefficient a move that would otherwise have been *ex ante* first-best allocatively efficient) if and only if $V$ is liable. The following example illustrates this subset of cases. Assume that, for $I$’s privately-best avoidance-move, $B_I=$$95, $(\downarrow PL)_V=$$100, $\uparrow(R_I+R_V)=$$8$ if the potential victim is liable, and $\uparrow(R_I+R_V)=$$3$ if the potential injurer is liable.

On these assumptions, $B_I=$$95 exceeds $(\downarrow PL)_V$ minus the victim-liable $\uparrow[R_I+R_V]=$$100-$8=$92), but $B_I=$$95 is lower than both $(\downarrow PL)_V=$$100 and $(\downarrow PL)_V$ minus the injurer-liable $\downarrow[R_I+R_V]=$$100-$3=$97). Given the fact that on our first-best-allocative-efficiency-analysis assumptions all private figures equal their allocative counterparts, the following five conclusions or sets of conclusions are warranted:

(1) it will be allocatively efficient for the potential injurer to make the avoidance-move in question if he would have to bear the accident-or-pollution loss that the move might prevent (since the *ex ante* allocative benefits of his making this move
in the specified circumstances—$100-$3=$97—exceed the allocative cost of his doing so—B_I=$95);

(2) it will be allocatively inefficient for the potential injurer to make the avoidance-move in question if he would not have to bear any loss the move might prevent (if the victim would have to bear these losses) since on that assumption the allocative cost of I’s making the avoidance-move in question—B_I=$95—would exceed the ex ante allocative benefits that the relevant avoidance-move would generate—$100-$8=$92 (where $8 equal the added risk costs that I’s non-avoidance would impose on V);

(3) if the Hand formula is either not altered or altered by subtracting the injurer-liable ↑(R_I+R_V) from the right-hand side of the standard Hand inequality, (A) the potential injurer would be found negligent for rejecting the avoidance-move in question (since B_I=$95<both ↓PL_V=$100 and ↓PL_V minus the injurer-liable ↑(R_I+R_V)=$100-$3=$97), and (B) any decision by I to make the avoidance-move in question will be ex ante first-best allocatively efficient since the allocative cost of I’s making the avoidance-move in question (B_I=$95) is lower than the ex ante allocative benefits the move would generate once it is clear that he would be liable for the losses caused by his rejecting it ($100-$3=$97);

(4) if the potential injurer’s rejection of his privately-best avoidance-move would be deemed negligent because its negligence is assessed by either the standard Hand formula or a variant of that formula in which an injurer-liable ↑(R_I+R_V) term is subtracted from the right-hand side of the standard Hand inequality, the potential injurer would make his private-best ex ante first-best-allocatively-inefficient avoidance-move because the private cost of this move to him (B_I=$95) would be lower than the private benefits it would confer on him—the $100 in weighted-average-expected damages it would prevent him from having to pay his potential victims plus any risk costs it would prevent him from bearing by eliminating his liability to V, which would equal the risk costs he would have borne had he been strictly liable in relation to the losses he might have imposed on V had he rejected his privately-best avoidance-move (which will be $3 lower than the risk costs the potential injurer I would have borne had he made his privately-best avoidance-move but been obligated to indemnify V regardless of whether he had made his privately-best avoidance-move since that move would have increased I’s risk costs by $3); and, by way of contrast,

(5) if the Hand formula is altered by subtracting the victim-liable ↑(R_I+R_V) from the right-hand side of the standard Hand inequality, (A) the potential injurer’s rejection of the avoidance-move in question would not be found negligent (since B_I=$95 exceeds ↓(PL)_V minus the victim-liable ↑(R_I+R_V)=$100-$8=$92), (B) the potential injurer will therefore not avoid, and (C) the potential injurer’s rejection of the avoidance-move in question will be ex ante first-best allocatively efficient since the move’s allocative cost (B_I=$95) will exceed the ($100-$8=$92) in allocative benefits it would generate in the specified circumstances, given that
those benefits will be reduced by the $8 increase in risk costs the move would generate if the Hand formula were altered in this way since under this altered variant of the Hand formula I’s rejection of the move in question would not be found negligent and V would therefore bear the risk the rejection created.

These results imply that in this sub-case one will be able to induce I to make an *ex ante* first-best-allocatively-efficient avoidance-choice by making a straightforward alteration in the Hand formula for negligence—viz., by subtracting a victim liable ↑(RI+RV) term from its ↓(PL)V term to make the potential injurer’s rejection of his privately-best avoidance-move non-negligent—i.e., to make the victim liable.

A summary is in order. I have asked several economists who specialize in analyzing the allocative efficiency of tort law how one would have to alter the Hand formula to induce potential injurers whose privately-best avoidance-moves would affect (RI+RV) to make *ex ante* first-best-allocatively-efficient avoidance-decisions. All responded that one could always achieve this result straightforwardly by adding a “change in risk cost” term to the right-hand side of the standard Hand inequality. Part 1 has shown that this response is both too simplistic and too optimistic. In particular, Part 1 showed that this response

1. failed to recognize the difference between an injurer liable and a victim liable “change in risk cost” term;

2. failed to recognize that in all cases in one of the eight subsets of cases I distinguished and in some cases in another of the subsets of cases I distinguished, neither the application of the standard Hand formula for negligence nor the application of a variant of that formula that included an injurer liable or a victim liable “change in risk cost” term could induce the potential injurer to make an *ex ante* first-best-allocatively-efficient avoidance-decision; and

3. failed to recognize that, in the rest of the cases in the second subset of cases to which I have just referred, the risk-cost-effect adjustment that would have to be made to the standard Hand formula to induce the potential injurer to make an *ex ante* first-best-allocatively-efficient avoidance-decision would be paradoxical rather than straightforward.

2. Effectuating Our Corrective-Justice Commitments *versus* Promoting the Public Interest in Other Ways: Some Implications for Common-Law Adjudication, Institutional Design, and Legislative Decisionmaking

Part 2 is a jurisprudential and institutional-design codicil to Part 1’s finding that in some cases the revision in the Hand formula that would induce potential injurers to make first-best-
allocatively-efficient avoidance-decisions would be paradoxical. As we shall see, this result raises the jurisprudential and institutional-design issues on which Part 2 will focus because it implies that the tort doctrine that will secure allocative efficiency is not a corollary of our corrective-justice commitments. Admittedly, the direct importance of Part 1’s conclusion that on its assumptions in some cases the tort-law doctrine that would be allocatively efficient would be paradoxical is undercut by the unrealistic character of Part 1’s first-best-allocative-efficiency-analysis assumptions. However, in the real world (as opposed to the unreal world whose existence first-best-allocative-efficiency analyses presuppose), in many cases, the tort-law doctrine that would provide actors with allocatively-efficient avoidance-incentives will not be required by our corrective-justice commitments. Part 2’s discussions do therefore have important real-world implications. In any event, the four subparts of Part 2 will respectively analyze (A) whether common-law courts are authorized to promulgate allocatively-efficient tort-law doctrines that do not effectuate our corrective-justice commitments that would be desirable for legislatures to promulgate, (B) whether common-law courts morally-ought to decide disputes about past conduct by promulgating and retrospectively applying tort-law doctrines not required by our corrective-justice commitments whose impact on future conduct would be both allocatively efficient and desirable if authorized and morally legitimate, (C) whether it would be morally permissible and otherwise desirable to authorize common-law courts to promulgate tort-law doctrines and that would apply only prospectively that are not required by our corrective-justice commitments but would promote the public interest by increasing allocatively efficiency, and (D) whether legislatures morally-ought to promulgate tort laws that would not effectuate our corrective-justice commitments but would promote the public interest by increasing allocative efficiency.

Before proceeding to analyze these four questions, I should articulate the moral and jurisprudential premises on which their analysis will be based. Part 2 will be based on the following four sets of premises:

(1) the United States is a liberal, rights-based society—i.e., a society whose members and government(s)
(A) draw a strong distinction between moral-rights discourse and moral-ought discourse (between the right and the good),
(B) are committed to the lexical priority of moral-rights conclusions over moral-ought conclusions—i.e., to securing rights even when one has to sacrifice legitimate goals or individually-valued norms to do so, and
are committed to deriving their moral-rights conclusions from a basic, liberal obligation to treat all moral-rights bearers (all creatures who have the neurological prerequisites to lead lives of moral integrity) for whom they are responsible with equal, appropriate respect and to show equal, appropriate concern for all such creatures, especially though not exclusively for their actualizing their morally-defining potential to lead lives of moral integrity (to take their moral obligations seriously and to take seriously as well the dialectic task of choosing the [aliberal] value to which they personally subscribe and leading a life that is consistent with this value-choice);\(^\text{12}\)

(2) the government(s) of liberal, rights-based societies have a \textit{prima facie} moral obligation to secure the specific moral rights, including the tort-related moral rights, of those moral-rights bearers for whom they are responsible—\textit{inter alia}, to do everything consistent with their overarching duty to secure the overall rights-related interests of those for whom they are responsible by preventing violations of those individuals’ concrete moral rights, by enabling victims of moral-rights violations to secure redress (corrective justice) from the wrongdoers who have harmed them, and—perhaps, failing that—to compensate such victims themselves;

(3) although rights-based States need not have a common law, for reasons that will be discussed below, if they do have a common law, its exclusive point is to protect the contract, property, and tort-related moral rights of those for whom the State in question is responsible; and more concretely,

(4) the point of the common law of torts of a \textit{liberal}, rights-based society is to protect the following four liberal tort-related moral rights of those for whom it is responsible:

(A) not to have their ability to lead lives of moral integrity compromised by choices made by other morally-accountable actors who had information that should have led them to conclude that the choice they made would disserve the on-balance interest of all relevant moral-rights holders in being in a position to lead a life of moral integrity\(^\text{13}\);

(B) not to suffer any other kind of loss (any “mere utility” loss) because of a choice made by a responsible agent who—given the information he possessed—would not have found his choice attractive or profitable had he not placed a lower weight on the average net-equivalent-dollar loss he believed it would impose on others than on the average net-equivalent-dollar gain he believed it would confer on him\(^\text{14}\);

(C) not to be injured because their injurer believed that his choice did not violate either or both of the first two moral rights just delineated because he failed to do the research into the set of avoidance-moves available to him and their consequences that the choice criteria that lie behind the above two rights imply he should have done,\(^\text{15}\) and
(D) to have an appropriate opportunity to obtain redress from anyone who has wronged them in one or more of the three tortious ways described above.

In my view, at least the monetized version of Hand’s definition of negligence was intended to or at least should be analyzed as an operationalization of the liberal duty of potential injurers in relation to choices that endanger others in ways that do not implicate their potential victims’ ability to lead a life of moral integrity. If this version of the Hand formula correctly operationalizes the second duty listed above and the related part of the third, research-duty listed above, a negligence doctrine that incorporated it would be a valuable component of a liberal, rights-based State’s common law of torts—i.e., would help secure the last three tort-related rights of participants in a liberal, rights-based State. For simplicity, the discussion that follows will assume that the loss that the avoidance-move in question might prevent is a “mere utility” loss—i.e., a loss that would not deprive any extant moral-rights holder of the opportunity to lead a life of moral integrity by killing him or destroying the neurological prerequisites for leading such a life (and perhaps would also not strongly militate against his leading such a life by affecting his self-conception [his belief that he is the author of his own life and hence is responsible for his own choices] in a way that strongly disfavors his taking advantage of what would otherwise be a meaningful opportunity to lead a life of moral integrity).

A. Are Common-Law Courts Authorized to Promote the Public Interest by Promulgating and Applying Retrospectively Allocatively-Efficient Tort-Law Doctrines That Are Not Warranted by Our Corrective-Justice Commitments?

On this Article’s first-best-allocative-efficiency-analysis assumptions, this question is salient in some cases in subset (4)—i.e., in some cases in which I’s privately-best avoidance-move would critically reduce \((R_I+R_V)\) if and only if \(V\) is liable. As we saw, in some such cases, on our first-best-allocative-efficiency-analysis assumptions, the only way to induce the potential injurer to make a first-best-allocatively-efficient avoidance-decision would be to add a victim-liable \(\downarrow(R_I+R_V)\) term to the right-hand side of the standard Hand inequality to make the potential injurer negligent for and hence liable for the consequences of rejecting his privately-best avoidance-move. In cases in which the relevant loss is a “mere utility” loss, the answer to the question—Is this doctrinal innovation required by our corrective-justice commitments?—turns on whether this adjustment in the Hand formula will result in the potential injurer’s being held...
liable if and only if he would not have found it attractive to reject his privately-best avoidance-move unless he discounted the equivalent-dollar impact of this decision on others.

Our earlier analysis of the relevant cases in subset (4) implies that the answer to this question is: “No.” As we saw, to induce the potential injurer in these cases to make an allocatively-efficient avoidance-decision, the Hand formula must be altered (by adding a victim-liable \( [R_I+R_V] \) term to the right-hand side of the Hand inequality) to produce the conclusion that the injurer’s rejection of his privately-best avoidance-move is negligent when, given this legal reality, he would find it profitable to reject that move even if he placed the same weight on the average certainty-equivalent equivalent-dollar loss his rejection of it would impose on others as on the average certainty-equivalent equivalent-dollar gain it would confer on him—a conclusion that accounts for the fact that in this situation the potential injurer will reject the avoidance-move in question despite his realization that he will have to fully compensate the victim of this choice.

In my judgment, this conclusion implies that common-law courts would not be authorized in these cases to make the alteration in the Hand formula that would induce future potential injurers who are analogously positioned to the potential injurer they involve to make allocatively-efficient avoidance-decisions even if it would be not only allocatively efficient but also desirable for a legislature to revise the standard by which courts will determine negligence in future cases of the relevant type in the indicated way. Four points are salient. First, the fact that the cases in question are common-law cases implies that their internally-right resolution cannot be derived from (1) legislation passed by official State legislative decisionmakers or (2) constitutional texts that do something other than articulate the moral rights of those for whom the relevant State is responsible and the moral duties that the relevant State has in relation to those rights. Second, the preceding point implies that any attempt by a common-law judge to resolve a common-law (tort) case in other than corrective-justice terms would amount to an exercise of legislative power by that judge. Third, since the resolution of a common-law case in favor of a plaintiff that is not based on the plaintiff’s pre-existing corrective-justice rights imposes a legal duty on the defendant that he did not have at the time he rejected the choice the court says he is legally obligated to have made, it seems accurate to conclude that defendants in such cases have been subjected to \emph{ex post facto} legislation. Fourth, \emph{ex post facto} legislation violates the liberal duty of appropriate, equal respect and concern for at least five somewhat-overlapping reasons:
(1) because *ex post facto* legislation is unauthorized, it fails to show the respect that is due to members of the society in question by denying them the ability to be the authors of the laws that constrain them;

(2) such legislation denies its victims political procedural-fairness—*i.e.*, various opportunities they would have to protect themselves in the normal legislative process;

(3) such legislation fails to show the society’s members appropriate respect and concern by denying its victims fair notice;

(4) such legislation denies the affected tort defendants appropriate, equal respect and concern because, even if the defendant could have predicted that the court would find him liable for making a choice that violated no pre-existing legal command, it would be unfair to hold him liable for the consequences of such choices; and

(5) such legislation fails to show the society’s members appropriate, equal respect and concern by facilitating the government’s punishing its political opponents and disadvantaging the targets of the prejudices of government officials and/or their constituents.

B. Morally-Ought Common-Law Courts Promulgate and Apply Retrospectively Doctrines That Are Not Required by Our Corrective-Justice Commitments That Would Be Desirable for a Legislature to Promulgate for Prospective Application Because They Would Promote the Public Interest by Increasing Allocative Efficiency?

In my usage, moral-ought conclusions are prescriptive-moral conclusions that derive from the evaluator’s personal moral convictions as opposed to the moral commitments of the society in question. Personally, I find rights-based societies of moral integrity more attractive than goal-bases societies of moral integrity, amoral societies, or immoral societies. Personally, I also find liberal rights-based societies more attractive than rights-based societies that are committed to instantiating various other types of decision-standards that I admit qualify as moral norms. Hence, the various considerations that Subpart 2A argued favor the conclusion that common-law-court decisions of the type described in the heading of Subpart 2B would violate various individuals’ moral rights persuade me that such courts also morally-ought not make such decisions both for the reasons I just referred to and because such decisions will tend to undermine the rights-based character of our society by blurring the related distinctions between adjudication and legislation on the one hand and between moral-rights claims and moral-ought claims on the other.
C. Is It Morally Permissible for Courts to and Morally-Ought One Authorize Courts to Promulgate “New Law” That Has Only Prospective Application When the Tort Doctrine That Is Warranted by Our Corrective-Justice Commitments Is Otherwise Undesirable Because Allocatively Inefficient?

I will make some brief comments about both the relevant moral-rights issues and the relevant moral-ought (rights-considerations aside) issues. The answer to the “moral permissibility” issue in a rights-based society turns on whether a decision by a “democratically-elected” legislature to delegate its legislative power to an appointed or perhaps even elected judge (or, for that matter, to an appointed administrative-agency official) violates the right of members of at least liberal, rights-based States to be the authors of the laws that will subsequently constrain them. I must say that the current American legislative practice of delegating legislative authority to administrative agencies (by authorizing them to make rules “in the public interest”) strikes me as highly problematic both morally and constitutionally on this account. However, since, these days, admitting this concern is close to disqualifying, I will say no more about this issue here.

However, I do want to make three points about delegations of legislative power to judges. First, delegations of power to judges to promulgate legislation with only prospective application seems less problematic on the above account when the judges are elected than when they are appointed. Second, although to steal Martin Shapiro’s aphorism, when the realities of our electoral-processes, legislative processes, judicial-nomination/confirmation processes, and judicial-tenure experiences are taken into account, St. George (elections) looks worse and worse and the Dragon (appointment processes) look better and better, I do not think that these realities eliminate the problematic character of (unauthorized) legislative delegations. Third, the moral-permissibility issue could be eliminated by a constitutional amendment or perhaps even by a plebiscite authorizing the legislature to delegate its authority to legislate prospectively to courts in instances in which the judges discover that the answer to a question warranted by our corrective-justice commitments is not the best answer a legislature could provide (especially since such judicial legislation could be reversed by the legislature). Indeed, the moral-permissibility issue might also be eliminated if the relevant delegations were made by a legislature whose members had been chosen in an election in which this delegation issue had been carefully debated and played a critical role.
The second issue to be addressed in this subpart is the rights-considerations-aside moral desirability of creating such court/legislature hybrids. I have two brief observations. The first relates to the relative abilities of courts, traditional legislatures, and administrative agencies to formulate legislation that is desirable for non-rights reasons that deal with the kinds of behavior covered by the common law. A full analysis of this issue would have to take into consideration (1) differences in the intellectual abilities, training, professional socialization, and professional histories of the relevant institutions’ official decisionmakers, (2) differences in the career-opportunities and career-tastes of the official decisionmakers in the various types of governmental institutions that may affect their vulnerability to interest-group capture, (3) differences in the abilities of those the relevant decisions affect to provide benefits to or impose costs on both the institutions themselves and the individuals who work for them, (4) differences in the staff available to legislators, administrative-agency officials, and judges, (5) differences in the procedures these officials can use to collect information, and (6) differences in any obligations these institutions’ official decisionmakers have to provide reasoned explanations for the decisions they reach. I want to make four points about these differences. First, the characteristics of state-court judges (to whom any tort-law legislative power is likely to be delegated) may vary significantly from state to state, depending inter alia on whether such judges are appointed, elected in a real contest, or elected in a process in which judicial seats are in effect assigned to particular parties. Second, although law schools are now providing more instruction in economic-efficiency analysis than formerly, I still suspect that judges and their clerks are less likely to be trained to execute such analyses than are the staffs of administrative agencies and even of legislatures, though this difference might diminish if judges were explicitly authorized to legislate. Third, unlike legislatures and administrative agencies, courts do not have the administrative staff needed to collect and process the empirical data that, in our highly-Pareto-imperfect world, may be necessary to the identification of economically-efficient policies: it also seems unlikely that courts could overcome this problem by appointing special court-masters, given the relevant economies of scale and the fact that the data one would need to resolve any common-law policy-issue would also be relevant to the assessment of a wide range of non-common-law policies. Fourth, although courts and court-personnel may currently be less subject to special-interest pressures than are legislatures and administrative agencies, a rule
authorizing common-law judges to pass interstitial legislation would almost certainly reduce this
difference.

The second set of observations I want to make about this proposal relates to the possibly-
corrupting effect of authorizing judges to promulgate legislation that has only prospective
application on the way in which they reach retroactively-applying conclusions about existing law
(regardless of whether that law derives from the relevant society’s moral-rights commitments or
non-moral-rights-related legislative or constitutional provisions). Evaluators who value moral
rights as an institution and the specific moral principle to which a given rights-based society is
committed in particular will be hesitant to support a proposal that creates a risk that the
distinction between legislation and adjudication will be undercut. Of course, judges who are
authorized to engage in both adjudication and legislation may be able to keep in mind the
distinction between them. But I am fearful that they will not and that decisions to create hybrid
(court/legislatures) will therefore further contribute to the ongoing erosion of the rights-based
character of our society and State.

D. Are Legislatures Authorized to and Would It Be Morally Desirable for Legislatures to
Pass Desirable Tort Legislation That Would Serve the Public Interest by Increasing
Allocative Efficiency When the Legislation Is Not Required by Our Corrective-Justice
Commitments?

My answer to this question is: “Almost certainly, yes.” Even if a relevant potential
injurer would not be violating anyone’s moral rights by rejecting his allocatively-efficient,
privately-best avoidance-move, he would be unlikely to have a moral right to reject this move.
If, therefore, from some non-moral-rights-related moral perspective, it would be desirable for the
State to induce a relevant potential injurer to make his privately-best, allocatively-efficient
avoidance-move, it would be entirely appropriate for its legislature to pass tort-law legislation
that would promote the public interest in this way even though it would be impermissible for a
common-law court to promulgate the doctrine in question.

CONCLUSION

This Article analyzes the implications of the following reality for the first-best-allocative-
efficiency of the Hand formula for negligence—viz., the fact that, in addition to affecting the
mean of the distribution of possible accident-or-pollution losses (i.e., the weighted-average-
expected loss), accident-or-pollution-loss avoidance-moves will usually affect the dispersion or variance of that distribution and hence the sum of the accident-or-pollution-loss-related risk costs that potential injurers and potential victims bear. The Article begins by pointing out that the standard “Hand formula for negligence” does not take account of this reality and that this omission will result in (1) its deeming non-negligent the rejection of some (risk/risk-cost)-reducing avoidance-moves whose private cost to the potential injurer was lower than the total weighted-average private benefits their execution should have been expected to confer on the relevant loss’ potential victims and (2) its deeming negligent the rejection of some (risk/risk-cost)-increasing avoidance-moves whose private costs were higher than the net weighted-average private benefits they should have been expected to confer on the relevant loss’ potential victims. The Article then reports that the standard academic analysis of the first-best-allocative-efficiency of the Hand formula (of its allocative efficiency on otherwise-Pareto-perfect assumptions) has failed to note this problem and that—when asked to comment on this problem—scholars in the field have unanimously responded by claiming that it could be fixed straightforwardly by adding a “change in risk cost” term to the right-hand side of the standard Hand inequality. Next, the Article argues that this response is both underspecified and overly optimistic. It shows that this response is underspecified in two respects: (1) it does not specify whether the “change in risk cost” term is a “change in potential-victim risk cost” term, “a change in potential-injurer risk cost” term, or (the correct variant) a “change in the sum of potential-victim and potential-injurer risk costs” term, and (2) it does not recognize that, when the potential injurer and the potential victims are not equally risk-averse and/or do not have portfolios of other risks that have the same impact on the contribution of the relevant accident-or-pollution-loss risk to the total risk they face, the impact of the avoidance-move in question on the sum of their risk costs will almost always depend on whether the injurer or the victim will be “liable” for any loss that eventuates (more specifically, on their weighted-average-expected prediction of how any actual loss will be allocated between them). The Article demonstrates that the response of the Law & Economics scholars with whom I have discussed this issue is also overly optimistic in two respects. Although in many categories of cases, it will be possible to create a first-best-allocatively-efficient Hand-type formula for negligence straightforwardly by adding (subtracting) a “decrease (an increase) in the sum of potential-injurer and potential-victim risk costs” term to (from) the right-hand side of the standard Hand inequality in which the change in risk costs in question is
measured on a placement-of-liability assumption that matches the liability-assignment that the use of the revised Hand formula in question will generate, in other categories of cases no such straightforward alteration in the Hand formula will induce the potential injurer to make allocatively-efficient avoidance-decisions in an otherwise-Pareto-perfect world. Thus, as the Article shows, in one category of cases, the alteration in the Hand formula that will induce the potential injurer to make a first-best-allocatively-efficient avoidance-decision will be paradoxical rather than straightforward—viz., will involve the inclusion of a victim-liable “change in total risk costs” term to the right-hand side of the standard Hand inequality that yields the conclusion that the injurer will be liable for (negligent in) rejecting the avoidance-move in question and secures allocative efficiency not by inducing the potential injurer to avoid but by rendering allocatively efficient his continuing rejection of the avoidance-move in question. Moreover, as the Article shows, in another category of cases, it will not be possible to induce the relevant potential injurer to make a first-best-allocatively-efficient avoidance-move decision by adding or subtracting a “change in risk costs” term of any type to or from the right-hand side of the standard Hand inequality. The Article concludes by arguing that (1) at least in our type of liberal, rights-based society, the internally-correct answer to any common-law legal-rights question is the answer that secures the liberal corrective-justice rights of the parties to the dispute; (2) in cases in which the alteration in the Hand formula that would induce the potential injurer to make an allocatively-efficient avoidance-decision is paradoxical, that alteration could not be justified in corrective-justice terms and would therefore be morally impermissible for a court to make and apply retrospectively; (3) unless specifically authorized to do so by a constitutional provision or by a plebiscite on the issue, it would also be morally and constitutionally impermissible for a legislature to authorize courts to promulgate non-corrective-justice-based, allocatively-efficient tort doctrines for prospective use only; and (4) rights-considerations aside, there are important reasons to doubt the desirability of legislatures’ authorizing bodies that also engage in adjudication to legislate in this way.

Some of these conclusions are important for straightforward, practical reasons. For example, I do think that parties to tort suits should be able to convince judges to declare that the negligence of a defendant’s rejection of any avoidance-move depends not only on the private cost of that move and the amount by which it would reduce weighted-average-expected actual, private accident-or-pollution losses but also on the impact that the move would have on the sum
of the potential injurer’s and potential victims’ tort-related risk costs. Relatedly, I do think that in those (admittedly-few) cases in which the rejected avoidance-move’s tendency to reduce the risk costs in question critically affected its negligence (properly defined)—i.e., made the rejection of the avoidance-move in question negligent when it would not otherwise have been so, the plaintiff should be able to convince the trier-of-fact to declare negligent the rejection of an avoidance-move whose rejection would be deemed non-negligent by the traditional Hand formula. Similarly, I do think that in those (admittedly-fewer) cases in which the rejected avoidance-move’s tendency to increase the risk costs in question critically affected its negligence (properly defined)—i.e., made the rejection of the avoidance-move in question non-negligent when it otherwise would have been negligent, the defendant should be able to convince the trier-of-fact to declare non-negligent the rejection of an avoidance-move whose rejection would be deemed negligent by the traditional Hand formula. I also think that defendants should be able to use this Article’s discussion of the implications of the corrective-justice orientation of the common law for the permissibility of common-law judges’ promulgating allocatively-efficient doctrines that cannot be said to instantiate our society’s corrective-justice commitments to convince courts not to engage in such legislation.

However, I want to close by suggesting that this Article’s most important contribution may be to academics and the policy audience in general. By pointing out various deficiencies in the Law & Economics analysis of the Hand formula that virtually all Law & Economics analyses of all issues share—viz.,

1. a failure to analyze competently the allocative efficiency of common-law doctrines or statutory provisions (usually, though not in this instance, a failure to execute second-best or third-best allocative-efficiency analyses),

2. a failure to analyze competently the prescriptive-moral relevance of allocative-efficiency conclusions, and relatedly

3. a failure to analyze competently the relevance of allocative-efficiency conclusions for judicial and legislative decisionmaking.

this Article may help academics improve their work and make the policy audience more critical readers of and better assessors of the reliability and relevance of the conclusions generated by standard Law & Economics analyses.
For a detailed explanation of why—for example—imperfections in price competition will cause the relevant private benefit and cost figures to differ from their allocative counterparts in ways that will perfectly offset each other only fortuitously and may well cause the privately-best avoidance-move to differ from the most-allocatively-efficient avoidance-move, see Richard S. Markovits, Efficient Tort Law: The Whys and Some Therefores

imperfect economy—the avoidance-decision that is "allocatively-efficient avoidance-decision available to him). It is important to recognize that—in our actual, Pareto-imperfect economy—the avoidance-decision that is "privately best" for the potential injurer may not be "most-allocatively-efficient" (allocatively best) (even if, as this Article assumes for simplicity, neither the relevant victim nor anyone else can make an avoidance-move that is more-allocatively-efficient than the most-allocatively-efficient avoidance-move available to the potential injurer). This conclusion reflects the fact that, in a Pareto-imperfect economy,

\[ B_i \text{ may not equal the allocative cost of the avoidance-move in question,} \]

\[ (\downarrow PL) \downarrow \text{may not equal the certainty-equivalent allocative benefits the move in question should be expected to generate (risk-cost consequences aside), relatedly} \]

\[ ((\downarrow PL)\downarrow (R_i + R_j) - B_i) \text{ may not equal the allocative efficiency of the avoidance-move in question, and relatedly} \]

\[ \text{the avoidance-move for which the preceding (private benefit minus private cost) sum is most positive (least negative) may not be the avoidance-move that would generate the most positive (least negative) (allocative benefit minus allocative cost) difference.} \]

For a detailed explanation of why—for example—imperfections in price competition will cause the relevant private benefit and cost figures to differ from their allocative counterparts in ways that will perfectly offset each other only fortuitously and may well cause the privately-best avoidance-move to differ from the most-allocatively-efficient avoidance-move, see Richard S. Markovits, Monopoly and the Allocative Inefficiency of First-Best-Allocatively-Efficient Tort Law: The Whys and Some Therefores, 46 CASE W. RES. L. REV. 485 (1993). For simplicity, this
Seven points should be noted. First, in a world in which no accident-or-pollution loss or accident-or-pollution-loss compensation duty is either privately insured or publicly “insured” through state disability-insurance, state unemployment-insurance, or state-run welfare programs, the amount of risk costs a party will bear in relation to the possibility that a potential injurer may generate some loss whose certainty-equivalent magnitude would be reduced by his privately-best avoidance-move will be

(1) directly related to the dispersion (say the variance) of the probability distribution of the possible losses in question,

(2) inversely related to the extent to which the other risks the relevant party faces reduce the contribution that the possibility of this loss makes to the variance of the probability distribution of his various possible overall wealth/income positions,

(3) directly related to the risk-averseness of the party bearing the risk in question.

Second and relatedly, in such a world, an avoidance-move that reduces weighted-average-expected accident-losses can therefore reduce \(\text{R}_I + \text{R}_V\) by reducing the variance of the probability distribution of the possible losses that the avoidance-move in question may prevent or reduce. Of course, an avoidance-move that reduces weighted-average-expected accident-losses can also increase \(\text{R}_I + \text{R}_V\) by increasing the variance of the possible-loss distribution.

Third, although, in the real world, accident-and-pollution losses and accident-and-pollution-loss compensation duties are both privately insured and publicly “insured” to some extent, consideration of this reality would be inconsistent with this Article’s otherwise-Pareto-perfect and no-transaction-cost assumptions—i.e., with the first-best character of this Article’s allocative-efficiency analysis—since both public and private “insurance” of this sort would distort avoidance-incentives in an otherwise-Pareto-perfect, transaction-costless world. I hasten to add that—in our actual, highly-Pareto-imperfect world—private tort insurance may actually reduce the amount of misallocation avoidance-decisions generate not only by reducing the risk-cost consequences of given misallocative avoidance-decisions but also by reducing the number of misallocative avoidance-decisions made—\textit{inter alia} (1) by leading to the quotation of insurance premiums whose publication reduces the extent to which potential injurers and victims misestimate the losses they will generate, (2) by giving someone (the insurance company) an incentive to induce the traditional injurer and/or victim to make avoidance-moves whose rejection would be negligent, (3) particularly when liability is strict or false-positive errors may be made on the negligence issue, by making it profitable for some actor (the insurance company) to do accident-and-pollution-loss-preventing research, and (4) by reducing the extent to which jurors and judges make false-negative findings of negligence and underestimate damages by making the insurance company rather than the “nominal” defendant the actual payor.

Fourth, to the extent that, in the real world, a relevant potential injurer or potential victim is insured against the accident-or-pollution-loss or duty-to-compensate in question, an avoidance-move rejection that would otherwise increase private risk-related costs simply by raising the risk costs the potential injurer or victim bore because he did not know how much of the \textit{ex post} loss he would bear or how much of his legal-claiming costs he would bear would also increase such a party’s risk-related costs by increasing the insurance premiums he paid, the transaction costs he incurred to take out additional insurance coverage and/or pursue his insurance claims, and the risk costs he bore because he did not know exactly how much compensation the insurance company would pay and/or how much transaction costs he would have to incur to take out the relevant additional insurance and pursue his insurance claims.

Fifth, in a Pareto-imperfect world in which \textit{inter alia} accident-and-pollution-related private insurance and public “insurance” is available, the amount of risk-related costs a potential injurer’s rejection of an avoidance-move imposes on himself and his potential victim depends \textit{inter alia} on the amount of public “insurance” provided, the transaction-costlessness of private and public insurance, the extent to which private and public risk-pooling can reduce total risk costs, and the extent to which potential injurers and potential victims make the insurance decisions that are in their own interest.
Sixth, in a Pareto-imperfect world in which relevant private insurance and public “insurance” is available, an avoidance-move’s impact on allocative risk-related costs will depend primarily on (1) the amount by which the move would reduce the private risk costs the traditional injurer and victim bore after they had taken out whatever relevant insurance they purchased, (2) the amount by which it would decrease (increase) the private risk costs that are borne by the shareholders, debtholders, and employees of the insurance companies whose insurance sales it would decrease, (3) the amount of allocative transaction costs whose generation it would prevent by deterring the sale/purchase of addition insurance and the making and processing of private-insurance and government-transfer claims, and (4) the amount of misallocation it would deter the government from generating by reducing the transfer-payments the government had to make and hence the misallocation the government would have to generate to finance its transfer-programs.

Seventh, and finally, the preceding references to the risk costs that various parties would bear did not address the following, difficult issue that may arise once one acknowledges that—in our actual, Pareto-imperfect world—parties may misestimate the risks they face and/or the equivalent-dollar cost these risks impose on them: if parties misperceive the risk costs they are bearing, do the associated allocative risk costs equal the risk costs they think they bear or the risk costs they would conclude they were bearing if they were sovereign maximizers? I have heard several supposed justifications for the economists’ failure to note the fact that the Hand formula for negligence ignores the possible impact of avoidance on the amount of risk costs that potential injurers and potential victims bear. The first is that Hand ignored such risk-cost consequences and that it is perfectly appropriate for economists to take legal doctrine as it is. Although both these propositions are true, they clearly do not justify the economists’ failure either to point out the relevance of the failure of the Hand formula to reflect the impact of avoidance on risk costs to its allocative efficiency or to explore the way in which Hand’s formula would have to be revised to be allocatively efficient in a world in which avoidance might affect accident-and-pollution-related risk costs.

The second—offered by several readers of this manuscript—is that the economists’ failure to question Hand’s use of a formula for negligence that ignores the impact of avoidance on risk costs is justified because this attribute of Hand’s formula is consistent with (indeed, is a corollary of) another of its features—viz., its ignoring the impact of potential-injurer avoidance on accident-and-pollution-related allocative transaction costs. This supposed justification fails for two reasons. First, the Hand formula’s implicit “no (impact on) allocative risk costs” “assumption” is not a corollary of its implicit “no (impact on) allocative transaction costs” “assumption”. Even if no transaction costs would have to be generated to resolve the compensation issues raised by accidents, (1) potential victims who know that they will not be able to recover some or all of any loss they sustain will face accident-and-pollution-related risk costs because they will not know ex ante the precise magnitude of the loss they will sustain and costs they will bear, and (2) potential injurers who know that they will have to compensate any victims of the accidents they cause will face accident-and-pollution-related risk costs because they will not know ex ante the precise magnitude of any loss they cause for which they will be liable. Hence, even on the unrealistic assumption that no transaction costs will have to be generated to make, defend, and resolve accident-claims, potential-injurer avoidance may affect R₁, R₂, and (R₁+R₂). Second, even if (contrary to fact—see below) the concept of negligence that our society is morally committed to employing to resolve some tort disputes would ignore the impact of avoidance on allocative risk and transaction costs, it would not be appropriate for economists who were analyzing the allocative efficiency of a doctrine that uses this concept to ignore these attributes of the employed concept: from the perspective of allocative efficiency, both the failure of the Hand formula to take account of the possible impact of avoidance on allocative risk costs and its failure to take account of the possible impact of avoidance on allocative transaction costs would be imperfections, and there is no reason to believe that these two imperfections would perfectly offset each other.

Third, two legally-trained Law & Economics scholars with whom I discussed this issue tried to justify the economists’ failure to consider the allocative-efficiency relevance of the failure of the standard Hand formula for negligence to reflect the impact of avoidance on allocative risk costs by citing the fact that positive tort law (1) does not entitle potential victims of accidents or pollution-events that did not occur to recover the risk costs that the possibility of such losses’ occurring imposed on them and (2) does not entitle actual victims of accidents or pollution-events that did occur who are entitled to recover some or all of the loss the actual accident or pollution-event imposed on them to recover the additional, related risk costs the defendant’s choice imposed on them. Admittedly, legal positivists might argue that this doctrinal reality justifies Hand’s creation of a formula for negligence to be used to resolve common-law tort cases that ignores the impact of avoidance on risk costs.
However, this doctrinal reality cannot justify economists’ who are analyzing the allocative efficiency of Hand’s formula ignoring the possible relevance of the formula’s failure to take account of the possible impact of potential-injurier avoidance on allocative risk costs.

In short, although I have heard at least three supposed justifications for the failure of economists to note the fact that the Hand formula ignores the possible impact of avoidance on risk costs to investigate the relevance of this omission for the allocative efficiency of a legal doctrine that employs this formula and to consider the way in which the standard Hand formula would have to be revised in the light of avoidance’s possible risk-cost consequences to secure allocatively-efficient avoidance-decisions, none of these arguments can bear scrutiny.

“First-best-allocative-efficiency” analyses proceed on the assumption that the only (relevant) Pareto imperfection in the economy is the possible imperfection on which the analysis is focusing. For a detailed account of why the type of first-best-allocative-efficiency analysis of a tort-law issue that this Article (like almost all Law & Economics analyses of tort law) executes is neither second-best nor third-best allocatively efficient, 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).

I have already noted (see the penultimate paragraph of note 2 supra) one consequence of the first-best character of this Article’s allocative-efficiency analysis—its assumption that the allocative efficiency of an injurer avoidance-move equals \( I(R_{i}+R_{e}) \) where the \( I(R_{i}+R_{e}) \) term indicates the reduction in risk costs that the relevant avoidance-move would generate in an otherwise-Pareto-perfect, transaction-costless world taking into account inter alia the identity of the party who would bear any loss the move’s rejection generated. Less globally, the first-best character of this Article’s allocative-efficiency analysis is manifest in its assumption that no potential injurer or potential victim has tort-loss insurance (see note 3 supra) and in its related assumption that (1) an injurer whose liability is governed by a negligence standard will bear all of the loss his negligence causes and no loss if he is not negligent and (2) a victim whose injurer’s liability is governed by a negligence standard will bear none of the loss his injurer’s negligence imposed on him and all of the loss his injurer’s non-negligent choices imposed on him (see the text in the paragraph preceding the paragraph in which note 8 appears infra).

The reference to allocative transaction costs might be thought to be redundant, but, as Calabresi has emphasized, the conventional set of Pareto-optimal conditions fails to list as an eighth condition “the preceding conditions can be fulfilled without generating any allocative transaction costs.” See Guido Calabresi, The Pointlessness of Pareto: Carrying Coase Further, 100 YALE L. J. 1211 (1991).

I am assuming that the victims are not employees of the injurers who have been injured in the course of their employment. This second set of textual conclusions reflects the analysis’ first-best-allocative-efficiency premises that (1) all actual victims of negligence are legally entitled to recover from their injurer all of the losses their injurer’s negligence imposed on them, (2) both negligence and contributory negligence will be defined and applied in first-best-allocatively-efficient ways, (3) no victim will be contributorily negligent, (4) cause-in-fact will be defined in a first-best-allocatively-efficient way and no mistakes will be made in applying this definition of cause-in-fact, (5) no case will be dismissed on proximate-cause (scope of liability) grounds, (6) damages will be accurately measured, (7) no actor will be covered by private or public accident-and-pollution-loss or accident-and-pollution-liability insurance, (8) all victims will bring and pursue the tort claims they are entitled to win (no such victim will be deterred from doing so by transaction costs [broadly understood], non-sovereignty, and/or non-maximization), (9) no entitled victim’s net recovery will be reduced by lawyer’s fees, expert-witness fees, or court costs, and (10) no victim or injurer will have to incur any other sort of (non-monetary) transaction costs to pursue or defend a tort claim.

I should add, however, that if the revision in question is to be judged not by its capacity to secure first-best-allocatively-efficient potential-injurier avoidance-decisions but by its consonance with the moral norm that I think we are committed to instantiating in tort cases involving potentially injurious conduct that does not compromise anyone’s ability to lead a life of moral integrity (see below), the choice between adding an injurer-liable and a victim-liable \( I(R_{i}+R_{e}) \) will be salient: at least on my current otherwise-Pareto-perfect and no-transaction-cost assumptions, in those cases in which the potential injurer’s rejection of his privately-best avoidance-move is (first-best) allocatively efficient, a victim-liable \( I(R_{i}+R_{e}) \) term should be added to the right-hand side of the standard Hand inequality (since the victim should and will bear the relevant risks in those instances), and (again on the above assumptions) in those cases in which the potential injurer’s rejection of his privately-best avoidance-move is (first-best) allocatively inefficient, an injurer-liable \( I(R_{i}+R_{e}) \) term should be added to the right-hand side of the standard Hand inequality.
Hand inequality (since the injurer should and will bear the relevant risks in these instances). Nevertheless, although such philosophical concerns make the “right revision” somewhat more complicated in this general case, the right revision in any given case in this set is still perfectly straightforward.

9 Indeed, one might say that this contradiction implies that the relevant purported “alteration of the Hand formula for negligence” really amounts to the imposition of strict liability (at least if one assumes that strict liability would be combined with contributory negligence).

10 Obviously, an analogous argument could be developed to demonstrate that, in some situations in which the relevant risk costs depend on whether the tort victim or tort injurer is liable, the alteration that would have to be made in the Hand formula for contributory negligence to induce a potential victim to make an allocatively-efficient avoidance-decision would have to be contrived and paradoxical rather than straightforward.

11 The text does not imply as is not intended to imply that all allocatively-efficient policies passed by officials authorized to adopt them will be desirable (will promote the public interest). For an analysis of the relationship between the allocative efficiency of a choice and its all-things-considered moral desirability, moral-rights considerations aside, as well as an analysis of the relationship between the allocative efficiency of a choice and our moral-rights commitments, see Richard S. Markovits, On the Relevance of Economic Efficiency Conclusions, 29 FLA. ST. L. REV. 1, 26-43 (2001).

12 I base this premise on a highly-qualified conventionalist (philosophically-informed empirical) analysis of the prescriptive-moral discourse and conduct of the members and governments of the United States. For a discussion of this type of analysis, of less-qualified conventionalist approaches, and various subtypes of purely-conceptual (Foundationalist) analyses of justice, see Richard S. Markovits, On the Relevance of Economic Efficiency Conclusions, 29 FLA. ST. L. REV. 1, 50-54 (2001). For the detailed protocols I use to determine respectively whether a society is rights-based and the identity of the norm to whose instantiation a rights-based society is committed, see RICHARD S. MARKOVITS, MATTERS OF PRINCIPLE: LEGITIMATE LEGAL ARGUMENT AND CONSTITUTIONAL INTERPRETATION 13-17 and 23-34 respectively (1998).

13 I believe that this right underlies and provides a moral justification for decision-criteria whose applications will produce conclusions that are very close to those yielded by strict liability. Admittedly, actors who make choices that compromise the ability of some others to lead lives of moral integrity (by killing them, depriving them of the neurological prerequisites for leading such a life, or inflicting life-dominating physical pain or frustrating disability on them) would be able to exonerate themselves by demonstrating that the choices they made that generated these consequences promoted the ability of people to lead lives of moral integrity on balance. For example, in theory, a pharmaceutical company whose production generated pollution that killed some victims could exonerate itself by demonstrating that the drug whose production generated the pollution saved more lives (or days of life of potential moral integrity) than its production cost and could not be produced (perhaps could not be profitably produced) through a less life-of-moral-integrity-endangering production process. I doubt, however, that many injurers will be able to make out such a “defense.” In any event, it seems to me that this branch of liberal tort duties underlies the American common-law practice of holding injurers strictly liable if their activity is “abnormally dangerous” and of low “value” to the “community.” See RESTATEMENT (SECOND) OF TORTS §§519-520. At least, this claim would be justified if, in legal practice, “abnormally dangerous” meant “life-of-moral-integrity-threatening” and “value” to the “community” meant “unlikely to preserve anyone’s ability to lead a life of moral integrity”—i.e., if those expressions have been used in distinctively liberal as opposed to standard economic (allocative-efficiency-oriented) senses.

14 This tort-law corollary of the duty of appropriate, equal respect and concern is monetized because the individual members of a liberal, rights-based society are not morally responsible for the variation in wealth/income positions and non-wealth-related abilities to secure utility from material resources that cause affected parties to derive different amounts of utility from marginal dollars.

15 I should add that an injurer who made his injurious choice because he discounted its net equivalent-dollar impact (ignored its net tendency to endanger lives of moral integrity) cannot exonerate himself by demonstrating that, had he done the research into the identity and consequences of the avoidance-options available to him he was obligated to do, he would have discovered that it was morally permissible for him to make either the choice he made or a choice that was more equivalent-dollar costly (life-of-moral-integrity-endangering) to others.

16 In a Pareto-imperfect world in which Bγ may not equal the allocative cost of the avoidance-move in question and (\[P_L γ + \text{appropriate } R_2 R_1\]) may not equal the allocative benefits that move would generate, the standard Hand formula does not conceptually and might not “empirically” capture this duty.
A non-monetized version of the Hand formula in which the relevant costs and benefits were measured by an “opportunity to lead a life of moral integrity” metric would correctly operationalize the first duty listed above and the related portion of the third, research-duty listed above.

For an elaboration both of this possibility and of the liberalism’s implications for tort law, see Richard S. Markovits, Liberalism and Tort Law: On the Content and Economic Efficiency of a Liberal Common Law of Torts (unpublished manuscript available from the author, 2004).

Martin Shapiro, __________________________ (19__). Shapiro made this statement in the context of comparing the democratic credentials of Supreme Court judges (judicial review) and Congress (legislation).

Because members of a rights-based society have a moral right to the enforcement of their non-moral-rights-based legal rights, the fact that courts already enforce non-moral-rights-based statutory rights does not undercut the importance of this distinction.


See Markovits, op. cit. supra note 12 at 26-43.

See id. at 43-49.