The widespread shift from contributory negligence to comparative negligence in the twentieth century has spurred scholars in Law and Economics field to examine the strength and weakness of alternative negligence rules in various contexts. The old wisdom on this issue was that contributory negligence is economically more efficient than comparative negligence. This troubling result has led to several scholars to investigate other environments in which efficiency of comparative negligence can be shown.

The central conclusions of this recent study on comparative negligence can be summarized as follows. First, in a full information environment, if the legal standard of care is set at the efficient level of care, then any form of the negligence rules provide correct incentives for efficient precaution. Second, in a limited information environment, comparative negligence can be more efficient than contributory negligence. Third, comparative negligence rule entails higher administration costs. Fourth, comparative negligence can be justified based on fairness or equity concern.

In a recent note of the *Journal*, Daniel Orr cast another vote for comparative negligence by providing a game theoretic analysis in which relative efficiency of comparative negligence and contributory negligence were examined. Orr showed that comparative negligence is more efficient than contributory negligence when (i) precaution is unilateral, and (ii) costs of taking precautions are the same to both parties. This result is puzzling because it was shown in a full information environment and thus it is not consistent with the first central conclusion of the existing literature. It is not clear whether the existing literature is flawed in some way or whether Orr identified a very special condition under which his
argument holds. Are those two assumptions made by Orr consistent with the ones made in the existing literature? Or is there something else that led Orr to make a seemingly contradictory conclusion?

The purpose of this Article is to clarify these issues by providing a correct game theoretic analysis of negligence rules. It is shown in this Article that Orr's model is seriously flawed and Orr's result does not hold when the analysis is done correctly. Specifically, Orr erred in naming two (pure) strategies of the parties as to be cautious, or to be negligent. They should have been taking a precaution, or taking no precaution. It is in the decision of the courts whether an action chosen by a party is negligent or not. As Orr correctly stated, negligence is a failure to take precaution in the presence of a duty to do so. When no such a duty is required, taking no precaution is not a negligent behavior.

This misnomer forced Orr to implicitly assume that the legal standard of care is set at the inefficient level of care, contrary to his intention of assuming that the legal standard of care is set at the efficient level of care. It is shown in this Article that when the flaw is corrected, comparative negligence is no more efficient than contributory negligence, and that this result continues to hold when precaution is interactive or when precaution costs are different.

The Article is organized as follows. A formal model of negligence is constructed in Section I. Orr's analysis is reconsidered and a serious flaw is identified in Section II. Section III provides correct analyses of cases in which legal standard of precaution is efficient. Subsection A considers cases in which precaution is unilateral and precaution costs are the same. Subsection B considers cases in which precaution costs are different. Subsection C considers cases in which precaution technology is interactive. Section IV contains concluding remarks.

I. Model
Consider two parties to an accident, called injurer (R) and injuree (E). Let $A$ denote the expected accident cost in the absence of effective precaution by either party. Each party can take some precaution to reduce the expected cost of the accident. For simplicity, consider two (pure) strategies for each party. The strategy $e$ for E is either taking a precaution (denoted by $e_1$) or taking no precaution (denoted by $e_0$). Similarly, the strategy $r$ for R is either taking a precaution (denoted by $r_1$) or taking no precaution (denoted by $r_0$). Assume that the parties make precaution decision independently and simultaneously. Thus, each party has to make his own precaution decision without knowing the other party’s choice.

Let $p$ denote the factor by which cost is reduced through precaution by either or both parties. In general, $p$ will be a function of both $e$ and $r$, i.e., $p(e, r)$. Taking precaution incurs some direct cost to parties. Let $c^E(e)$ denote the cost to E of taking precaution $e$. Similarly, let $c^R(r)$ denote the cost to R of taking precaution $r$. For notational convenience, let $c^E(e_1) = c_e$, and $c^R(r_1) = c_r$. It is assumed without loss of generality that $c^E(e_0) = 0$, and $c^R(r_0) = 0$.

A pair of precaution levels, denoted by $(e^*, r^*)$ is said to be socially efficient if $(e^*, r^*)$ minimize the sum of expected accident cost and precaution costs. Formally,

$$(e^*, r^*) \text{ minimizes } p(e, r)A + c^E(e) + c^R(r).$$

By definition, $e^*$ is a socially efficient level of precaution by E if R is choosing $r^*$. Similarly, $r^*$ is a socially efficient level of precaution by R if E is choosing $e^*$. Note that there could be multiple solutions to the minimization problem.

The goal of designing a legal rule in this context is to induce the parties to take efficient level of precaution to minimize the sum of expected accident cost and precaution cost. Different legal rules create different framework or "games" in which the parties interact in choosing their precaution levels. It is assumed that at the time of choosing precautions the parties know which legal rule will be $ex post$ used by the court to allocate accident costs. Without this assumption, the incentive effects of legal rules cannot be examined.
Two alternative negligence rules are considered: contributory negligence and comparative negligence. A party’s precaution decision is said to be negligent if it is short of a legal standard of care which is usually assumed to be a socially efficient level of precaution. Thus, R is said to be negligent if \( r < r^* \). Given that R is negligent, E is said to be contributorily negligent if \( e < e^* \). Thus, under contributory negligence, if \( r < r^* \) and \( e < e^* \), then E has to assume all the accident cost (in addition to his own cost of precaution). On the other hand, under comparative negligence, the cost of accident is shared between two parties when both parties are negligent. Let \( \gamma \) denote E’s share of the accident cost in that case.

II. Orr's Analysis

The purpose of this section is to clearly identify conditions which derived Orr’s result, and thus provide a basis upon which I examine the validness and robustness of his result in later sections. Consider three assumptions which Orr made in his analysis.

Assumption 1. Precaution is unilateral: formally, \( p(e_0, r_0) = 1 \) and \( p(e_1, r_0) = p(e_0, r_1) = p(e_1, r_1) = p \), where \( p \) is a constant whose value is strictly between 0 and 1.

Assumption 2. The parties face the same cost of precaution \( c \), i.e., \( c_e = c_r = c \).

Assumption 1 says that precaution is unilateral when it is equally effective whether provided by either party or by both parties to an accident. Alternative precaution technology, i.e., interactive precaution, is considered in Section V. Assumption 2 is a restrictive one. It has not been made in the existing literature.

To make the problem interesting, assume that \( pA > c > 0 \) and \( pA + c < A \). In words, taking precaution is cost-justified given that the other party does not take precaution. Assumption 1 and 2 together guarantee that the game to be played by injurer and injuree will
have two socially efficient outcomes (i.e., precaution taken by only one of the parties). Formally, both \((e_1, r_0)\) and \((e_0, r_1)\) are efficient. For example, if the injuree E did take precaution, then it is not negligent for the injurer R not to take precaution since it is a socially efficient precaution behavior. Note that it is inefficient for both parties to take precaution or for both parties not to take any precaution.

It is unfortunate that Orr named two (pure) strategies of the parties as *caution* and *negligence*. In other words, it amounts to saying that taking no precaution is always determined (by the courts) to be negligent. Therefore, Orr was forced to implicitly make the following unusual assumption.

*Assumption 3.* The legal standard of care is set at such level that both parties take precaution, i.e., \(r^* = r_1\) and \(e^* = e_1\).

The legal standard of precaution in Assumption 3 requires both parties to take precaution, which is an inefficient standard given Assumption 1 and 2. It could be an efficient standard, however, under some environment, e.g., with interactive precaution technology. Under Assumption 3, the contributory negligence rule says that R is negligent if and only if \(e = e_1\) and \(r = r_0\). This generates Game 1 in Orr’s note and supports his argument for comparative negligence.

Under these three assumptions, Orr showed that the game governed by contributory negligence does not have any pure strategy Nash equilibrium, and it has a unique mixed strategy equilibrium which results in socially inefficient precaution behavior. For both parties take precaution with a positive probability in the mixed strategy equilibrium. On the other hand, comparative negligence induces a pure strategy equilibrium which is efficient. Hence, Orr could argue that comparative negligence has decisive advantages over contributory negligence.
Assumption 3 is unusual given that most analysis of negligence rules in the existing literature assumed that the legal standard of care is set at an efficient level. It is shown in Section III that when the legal standard of care is set at an efficient level, contributory negligence is always efficient, and comparative negligence could be inefficient. Assumption 3 is also problematic because it supposes only one side of the inefficiency, i.e., too strict standards. It is shown in the next section that when legal standard of care is too loose, Orr’s result cannot be obtained.

In the following section, I consider Orr’s model under the alternative assumption that the legal standard of care is set at an efficient level and show that comparative negligence rule is no more efficient than contributory negligence rule.

III. When legal standard of precaution is efficient

The purpose of this section is to show that when legal standard of precaution is set at an efficient level, Orr’s argument for comparative negligence is no longer true. Furthermore, in some values of parameter of the model, contributory negligence can be more efficient than comparative negligence. Following the convention in the existing literature, Assumption 3 is replaced by Assumption 3N throughout this section.

Assumption 3N. The legal standard of care is set at an efficient level.

Subsection A shows that when the legal standard of care is efficient, contributory negligence is efficient, and comparative negligence may not be efficient. Subsection B and C extend this analysis to cases in which Assumption 1 and 2 are relaxed, and show that both negligence rules provide correct incentive for efficient precaution.

A. When precaution is unilateral and precaution costs are the same
This subsection compares efficiency properties of two negligence rules under Assumption 1, 2, and 3N. Therefore, the legal standard of care requires that only one of the parties takes precaution, i.e., \((e^*, r^*) = (e_1, r_0)\) or \((e_0, r_1)\). Under Assumption 3N, the contributory negligence rule is the same as the no liability rule. In particular, when E takes precaution and R takes no precaution, R is *not* negligent because his precaution is taken at an efficient level.\(^{13}\) Thus, the cost of accident must be assumed by E with final payoffs \(pA + C\) for E and 0 for R. The corresponding new game under Assumption 3N is shown as Game 1.

\[
\begin{array}{c|cc}
\text{Injurerc’s choice (R)} & r_1 & r_0 \\
\hline
e_1 & pA + c, & c & pA + c, 0 \\
\hline
\text{Injuree’s choice (E)} & e_0 & pA, c & A, 0 \\
\end{array}
\]

< Game 1 : Contributory Negligence with Efficient Standard of Care>

Game 1 has a unique Nash equilibrium in which R takes no precaution and E takes precaution.\(^{14}\) In particular, taking no precaution is a dominant strategy for R.\(^{15}\) Given this fact, taking precaution is optimal for E. The expected cost resulting from the equilibrium is \(pA + c\) for E and 0 for R. Thus, contributory negligence leads to socially efficient precaution behavior even though E must bear all the expected cost from the accident.

Now, consider the game created by the comparative negligence under Assumption 3N. The only difference from Game 1 will be in the case where both E and R take no precaution.

\[
\begin{array}{c|cc}
\text{Injurerc’s choice (R)} & r_1 & r_0 \\
\hline
\end{array}
\]
As Orr did, I assume that \((1 - \gamma)A > c\). In words, the liability cost to R when both parties are negligent under comparative negligence is greater than the common precaution cost. Then, Game 2 has a Nash equilibrium in which E takes no precaution and R takes precaution (its payoff is \(pA\) for E and \(c\) for R). If \(\gamma A < \min \{A - c, pA + c\}\), then it is the unique Nash equilibrium of Game 2. If \(A - c > \gamma A \geq pA + c\), then there are two more equilibrium: another pure strategy Nash equilibrium and a mixed strategy equilibrium. In that case, the existence of multiple equilibria poses a selection or coordination problem to the parties.

In the new pure strategy Nash equilibrium, E takes precaution and R takes no precaution with its payoff \(pA + c\) for E and 0 for R. Therefore, if the parties coordinate themselves to play one of the two pure strategy equilibria, then it leads to socially efficient precaution behavior. On the other hand, the mixed strategy equilibrium involves some inefficient behavior since both parties take precaution with a positive probability.

If \(\gamma\) is small enough, then comparative negligence rule leads to a socially efficient precaution. Note that the outcome under comparative negligence is not the same outcome as the one under contributory negligence. Therefore, the net effect from contributory negligence to comparative negligence is not a loss of efficiency, but different allocation of costs. On the other hand, if the injuree E’s share \(\gamma\) is so large that his liability cost when both parties are negligent is greater than the sum of accident cost and precaution cost (i.e., \(\gamma \geq p + c/A\), then there could be efficiency loss due to the mixed strategy equilibrium. This is a direct opposite result from Orr’s argument for comparative negligence.
Therefore, what Orr showed is the fact that comparative negligence could be more efficient than contributory negligence when legal standard of care is set at an inefficient level. This does not mean, however, that whenever legal standard of care is inefficient, comparative negligence is always better than contributory negligence. In fact, if it is assumed that legal standard of care is loose in the sense that $e^* = e_0$ and $r^* = r_0$, then it can be shown that contributory negligence induces the same efficient behavior as comparative negligence does.

It is worthwhile to note that there are other tort rule for accident which implement efficient outcomes, for example liability rules. In particular, it is shown in Appendix B that, under Assumptions 1, 2, and 3N, both no liability rule and strict liability rule lead to socially efficient precaution.

**B. When precaution costs are different.**

In this subsection, I consider cases in which precaution costs are different. Thus, Assumption 2 is replaced by Assumption 2N. Assumptions 1 and Assumption 3N are unchanged.

*Assumption 2N.* The injurer’s precaution cost is smaller than the injuree’s precaution cost, i.e., $c_e < c_r$.

The other case in which $c_r < c_e$ can be symmetrically analyzed and thus is not explicitly considered in this article. To make the problem interesting, assume that $pA > c_r$, and $c_e > 0$. Assumptions 1 and 2N together imply that it is efficient for only the injurer to
take precaution since it is less costly for R to take precaution than E does. Formally, \((e_0, r_1)\) is the unique efficient strategy pair. Hence, R is negligent if and only if \(r = r_0\). Now construct a (strategic form) game under the contributory negligence rule.

\[
\begin{array}{ccc}
\text{Injurer’s choice (R)} & r_1 & r_0 \\
\hline
\text{Injuree’s choice (E)} & e_1 & pA + c_e, c_r & c_e, pA \\
 & e_0 & pA, c_r & 0, A \\
\end{array}
\]

< Game 3 : Contributory Negligence with Different Precaution Costs >

Game 3 has the unique Nash equilibrium in which R takes precaution and E takes no precaution, i.e., \((e_0, r_1)\). In particular, \(r_1\) is a dominant strategy for R since \(c_r < pA\) and \(c_r < A\). Given this fact, \(e_0\) is the optimal strategy for E since \(pA < pA + c_e\). Therefore, the contributory negligence rule induces efficient precaution behavior by both parties.

The game created under comparative negligence is exactly the same one as created under contributory negligence. For there are no circumstances under which both parties are negligent due to the fact that \((e_0, r_1)\) is efficient. In other words, even if both parties did not take any precaution, i.e., \(e = e_0, r = r_0\), E is not negligent under comparative negligence as well as contributory negligence. Therefore, introducing comparative negligence does not change any aspect of the game from Game 4. Therefore, comparative negligence also induces efficient precaution behavior.

Summing up, I show that when precaution costs are different across parties, comparative negligence is no more efficient than contributory negligence (in fact, both rules are equally efficient in the first-best sense).
C. When precaution is interactive

So far, only unilateral precaution technology has been considered. The focus of this subsection is cases in which precaution is interactive. When precaution is interactive, precaution taken by one of the parties is effective (reducing the expected cost) even if the other party is also taking his precaution. Following Orr, I make the following assumption which replaces Assumption 1N. I continue to make Assumption 2 and Assumption 3N.

Assumption 1N. (Interactive precaution technology)

\[
p(e, r) = \begin{cases} 
1 & \text{if } e = e_0, r = r_0, \\
p & \text{if } e = e_1, r = r_0, \\
q & \text{if } e = e_0, r = r_1, \\
pq & \text{if } e = e_1, r = r_1.
\end{cases}
\]

To make the problem interesting, assume that \( p < 1 \), \( q < 1 \), and \((pq)A + c < pA, (pq)A + c < qA\) as Orr did. Given the assumption, it is efficient for both parties to take precaution. Thus, the legal standard of precaution, if set at an efficient level, must be \( e_1 \) for E and \( r_1 \) for R. Therefore, with the interactive precaution technology, Assumption 3 is not inconsistent with Assumption 3N. In fact, the formal analysis of this section will be exactly the same as Orr’s analysis under Assumption 3. The distinction would be on the interpretation of the results. Now, consider the game created under contributory negligence.

<table>
<thead>
<tr>
<th>Injurer’s choice (R)</th>
<th>( r_1 )</th>
<th>( r_0 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( e_1 )</td>
<td>((pq)A + c), ( c)</td>
<td>( c), ( pA)</td>
</tr>
</tbody>
</table>

| Injuree’s choice (E) | \( e_0 \) | \( qA\), \( c\) | \( A\), \( 0\) |
Game 4 has a unique Nash equilibrium \((e_1, r_0)\). In particular, \(e_1\) is a dominant strategy for \(E\) since \((p^q)A + c < qA\) and \(c < A\) by assumption. Given this fact, \(r_1\) is the optimal strategy for \(R\) since \(c < pA\). Therefore, contributory negligence rule induces efficient precaution behavior by both parties.

The game created by the comparative negligence rule is represented as Game 5. The only difference from Game 4 is expected costs when both parties are negligent, i.e., when \(e = e_0\) and \(r = r_0\).

Recall that it is assumed in Subsection A that \((1 - \gamma)A > c\). Given this assumption, \(r_1\) is a dominant strategy for \(R\) since \(c < pA\) and \(c < (1 - \gamma)A\). Given this fact, \(e_1\) is the optimal strategy for \(E\) since \((p^q)A + c < qA\). Therefore, Game 5 has a unique Nash equilibrium \((e_0, r_1)\) which is efficient. In fact, both games created by contributory negligence and comparative negligence predict the exactly same equilibrium. Thus, one cannot claim that when precaution is interactive, the comparative negligence rule is more efficient than the contributory negligence rule.
Let me emphasize again that my focus is only on the efficiency of the two negligence role, not because other goals like equity or distribution is unimportant, but because the desirable property in term of equity concern of comparative negligence is rather well understood in the existing literature. If one could show a clear and decisive advantage in term of efficiency of the comparative negligence, then it could reenforce the superiority of the rule.

Now, consider what Orr argued in his analysis of the interactive precaution case.

It [the outcome from comparative negligence] is an outcome that has all the merit of game 4 (contributory negligence) outcome, and in fact the incentive to [taking] caution is stronger (due to the fact that failure to take precaution is invariably costly to either party in the event of an accident). 18

Orr correctly observed that outcomes from both rules are the same. As I have already shown, there is a unique Nash equilibrium in each game. In Game 4 (contributory negligence), taking precaution is a dominant strategy for the injuree E, while in Game 5 (comparative negligence), taking precaution is a dominant strategy for the injurer R. On the other hand, it is difficult (at least to me) to understand why one rule provide stronger incentive to taking precaution. This summarizes again my point that moving from contributory negligence to comparative negligence does not improve efficiencies. Orr continued to argue:

Also by comparison to game 4, comparative negligence increases the burden of the legal duty to others imposed on the injurer, and it yields a more equal distribution of wealth, via a sharing of the costs of accidents when they occur. 19

This advantage of more equal distribution of wealth by comparative negligence is well understood in the literature. The game theoretic analysis does not provide any new
insight on this equity issues. Furthermore, if the game structure used by Orr predicts that both parties take precaution at the equilibrium, and thus sharing of cost implicit in comparative negligence could only occur at the out-of-equilibrium state.

IV. Conclusion

In summary, Orr’s result that, in a complete information environment, comparative negligence is more efficient than contributory negligence crucially depends on an unusual assumption that legal standard of precaution is set at an inefficient level. I have shown in various cases that if legal standard of precaution is set at an efficient level, then comparative negligence is no more efficient than contributory negligence.

This observation suggests that if comparative negligence has any advantage over contributory negligence, one should consider other environments such as limited information environments, or one should examine other aspects of the rules such as fairness concern.

APPENDIX

A. Existence of Mixed Strategy Equilibrium

To calculate the mixed strategy equilibrium, assume that \( A - c > \gamma A \geq pA + C \). In the mixed strategy equilibrium, the expected payoffs to both E and R must be invariant with their own strategy choice. Thus, regardless of R’s probability of taking precaution, denoted by \( \rho \), the equilibrium expected payoff to E is the same whether he is taking precaution or no precaution. This implies that

\[
pA + c = \rho pA + (1 - \rho) \gamma A
\]

from which I obtain
\[ \rho = 1 - \frac{c}{(\gamma - p)A} \]

Similarly, regardless of E’s probability of taking precaution, denoted by \( \varepsilon \), the equilibrium expected payoff to R is the same whether he is taking precaution or no precaution. This implies that

\[ c = (1 - \varepsilon)(1 - \gamma)A \]

from which I obtain

\[ \varepsilon = 1 - \frac{c}{(1 - \gamma)A} \]

From the above assumption, it can be easily verified that \( 0 < \rho < 1 \) and \( 0 < \varepsilon < 1 \). This completes the proof of the existence of the mixed equilibrium.

**B. Efficiency of Liability Rules**

Under Assumptions 1, 2, and 3N, it can be shown that both no liability rule and strict liability rule lead to socially efficient precaution. Specifically, under no liability rule, the game structure will be exactly the same as Game 1, and thus, no liability rule leads to socially efficient precaution as contributory negligence rule does.

The game created by strict liability rule is different, and can be depicted as follows.

<table>
<thead>
<tr>
<th>Injurer’s choice (R)</th>
<th>( r_1 )</th>
<th>( r_0 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( e_1 )</td>
<td>( c, pA + c )</td>
<td>( c, pA )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Injuree’s choice (E)</th>
<th>( e_0 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( e_0 )</td>
<td>( 0, pA + c )</td>
</tr>
</tbody>
</table>
In Game 6, $e_0$ (taking no precaution) is a dominant strategy for E since $c > 0$. Given this fact, $r_1$ (taking precaution) is optimal for R since $pA + c < A$ by assumption. Therefore, Game 6 has a unique Nash equilibrium in which R takes precaution and E takes no precaution with its payoff $pA + c$ for R and 0 for E. It is socially efficient precaution behavior.

**FOOTNOTES**

* Assistant Professor of Economics, University of Western Ontario.


3 Cooter & Ulen, supra note 2 (comparative negligence is superior to contributory negligence when injurers and victims bear risk and there is evidentiary uncertainty), Haddock & Curran, supra note 2 (even though firm conclusions cannot be made, as errors regarding efficient caretaking costs grow, the scale is tilted toward comparative negligence), and Daniel Rubinfeld, The Efficiency of Comparative Negligence, 16 J. Legal Stud. 375 (1987) (comparative negligence can improve on contributory negligence when the standard of care is the same for all injurers and when injurers differ in their costs of taking care).

4 Posner, supra note 1 (comparative negligence entails higher administration costs).
5 Cooter & Ulen, *supra* note 2 (the adoption of comparative negligence can be justified on grounds of horizontal equity).


7 This assumption justifies the use of simultaneous move strategic form games in modeling the situation.

8 To be consistent with Orr’s model, administrative costs of alternative negligence rules are ignored in the Article.


10 The negligence rule with a defense of contributory negligence is abbreviated as contributory negligence.

11 Unilateral precaution is sometimes called "alternative care", Landes & Posner *supra* note 2, at 60 - 61.

12 When either (i) precaution is interactive or (ii) precaution costs are different, there is a unique pair of efficient precaution levels.

13 This point has been observed by Posner *supra* note 2, at 155 (... the law defines due care as the care that is optimal if the other party is exercising due care...) as well as by Orr *supra* note 6, at 121 (at law, negligence is defined as a failure to meet the standard of precaution relative to the other party’s level of due care).

14 Nash equilibrium is defined as a pair of strategies such that each party’s strategy is an optimal response to the strategy chosen by the other party.

15 A strategy is called as a dominant strategy for one player if it is an optimal to him regardless of the other player’s choice of strategy.

16 See Appendix A for a calculation of the mixed strategy equilibrium.
17 Interactive precaution is sometimes called "joint care", Landes & Posner supra note 2, at 60 - 61.

18 supra note 6, at 127.

19 Id. at 127.

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3 Cooter & Ulen, supra note 2 (comparative negligence is superior to contributory negligence when injurers and victims bear risk and there is evidentiary uncertainty), Haddock & Curran, supra note 2 (even though firm conclusions cannot be made, as errors regarding efficient caretaking costs grow, the scale is tilted toward comparative negligence), and Daniel Rubinfield, The Efficiency of Comparative Negligence, 16 J. Legal Stud. 375 (1987) (comparative negligence can improve on contributory negligence when the standard of care is the same for all injurers and when injurers differ in their costs of taking care).

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Nash equilibrium is defined as a pair of strategies such that each party’s strategy is an optimal response to the strategy chosen by the other party.

A strategy is called as a dominant strategy for one player if it is an optimal to him regardless of the other player’s choice of strategy.

See Appendix A for a calculation of the mixed strategy equilibrium.

Interactive precaution is sometimes called "joint care", Landes & Posner supra note 2, at 60 - 61.
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