Due Care

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Too many accidents will result if people and firms take inadequate precautions to ensure the safety of their neighbours. Drivers should take care not to hit pedestrians, shopkeepers not to allow their floors to become treacherously slick, and warehousers not to drop barrels from windows on the heads of passing pedestrians (see Byrne v. Boadle). Certain things are obvious.

Tort law must answer a more difficult question, though, and decide how much precaution is enough. After all, precautions, just as accidents, are costly; too much precaution would paralyse society. A second question, closely connected to the first, is what the legal standard of care should be. Due care is a cut-off for liability, and although it seems natural to make it coincident with the socially desirable level of caretaking, in practice, actual liability cut-offs sometimes diverge. We will show that at times they can diverge without loss, and other times they must diverge to avoid loss. The nature of the divergence, desirable and actual, will vary with the context and with the liability rule, as explained here.

This essay takes the law and economics approach to determining the best legal standard of due care, setting the standard to minimize the sum of prevention and accident costs. It largely neglects issues of distribution, in this respect resting on the work of Shavell (1981), and Kaplow and Shavell (1995). Furthermore, it assumes that injurers and victims cannot contract in advance, a sensible assumption for many tort cases.

We begin with the canonical case of bilateral care with risk neutral parties and perfect courts and then proceed to consider the limitations of courts and
to a lesser extent risk aversion.

1 The Basic Model

The basic tort model has two parties, Injuror and Victim, who represent two fairly homogeneous classes. The probability and magnitude of injury depend upon caretaking expenditures $i$ and $v$ of Injuror and Victim, respectively. Let the expected damages to Victim be $D(i, v)$. Both parties are risk-neutral in the basic model, which eliminates insurance considerations. Let $i^*$ and $v^*$ denote the caretaking expenditures that would be required by a benevolent dictator who minimized $D(i, v) + i + v$, the sum of accident and prevention costs.

The question for tort law is how the damages $D(i, v)$ should be apportioned between Injuror and Victim. Most U.S. states have a basic liability rule of comparative negligence. Under this rule, the court sets some standard of due care for both Injuror and Victim: $\tilde{i}$, $\tilde{v}$, respectively. If they take too little precaution, so that $i < \tilde{i}$, or $v < \tilde{v}$, then they have breached their respective duties and are negligent. When both parties are negligent, they share liability, with the share depending upon a comparison of their relative negligence. If only one is negligent, that party bears all the damages. If neither is negligent, damages rest with Victim.

Most other liability rules are effectively special cases of comparative negligence. Some rules set the standard of care for Injuror or Victim equal to 0. Others set the standard of care for Injuror equal to $\infty$. Table 1 gives
the standards of care under six liability systems, setting the “free” standards equal to desirable levels of care.

*Insert Table 1.*

Sometimes Injurer has no duty of care, such as in cases of omission or of a trespassing Victim on poorly maintained land (see *Buch v. Amory Mfg.*). Such a rule of no liability is equivalent to a comparative negligence rule with \( \tilde{\mu} = 0 \). The difference between saying there is no duty and saying that the standard of care is so low that Injurer is never negligent is a difference of nomenclature, not substance (note, though, that the judge rules on duty and leaves the negligence determination to the jury). Regardless of terminology, in this liability regime, damages rest with Victim no matter how little care Injurer takes. Strict liability, in contrast, is equivalent to comparative negligence with \( \tilde{\mu} = \infty \) and \( \tilde{\nu} = 0 \): Injurer is liable no matter how careful he is or how careless Victim is. Under Rules 3 and 5, when \( \nu < \bar{\nu} \), Injurer may use a contributory negligence defence against overly careless victims to escape liability. These rules involve a limiting case of comparative negligence where damages are shared in a very unequal way when both are negligent — in particular, Victim has no recovery and so bears all her damages.

It seems natural to set Victim’s due care standard \( \bar{\nu} \) equal to \( \nu^* \) and Injurer’s standard \( \bar{\mu} \) equal to \( \tilde{\mu}^* \), since these are the socially desirable levels reflecting all cost-effective caretaking. These cut-offs are suggested by the famous Carroll Towing case in which Judge Learned Hand proposed that negligence
was a failure to take an action whose expected benefits ($pL$) exceeded its burden ($B$) (see US v. Carroll Towing Co.). Indeed, such standards are sensible, since as we show below, they give both Injurer and Victim efficient incentives to take care. It turns out, however, that both standards need not equal desirable care levels to provide good incentives. In particular, we show below that although simple negligence sets $\tilde{v} = 0$, both Victim and Injurer have efficient incentives if $\tilde{t} = i^*$ as in Rule 4. Likewise, under strict liability $\tilde{t} = \infty$; but both parties have efficient incentives if Injurer can escape liability with a contributory negligence defence whenever $v < v^*$, as in Rule 3.

We proceed first to demonstrate that comparative negligence gives efficient incentives when $\tilde{t} = i^*$ and $\tilde{v} = v^*$. (The argument does not depend upon how damages are shared when both are negligent, so it applies to both Rules 5 and 6). Observe first, that if Injurer chooses $i^*$, then he is not negligent, so Victim bears all accident costs and will take all cost-effective measures of care, choosing $v = v^*$: technically $v^* \in \arg\max\{v + D(i^*, v)\}$ since $(v^*, i^*) \in \arg\max\{v + i + D(i, v)\}$. Observe second, that if Victim chooses $v^*$, Injurer will take all cost-effective measures, choosing $i^*$, because he bears all losses whenever $i < i^*$.

Victim’s due care standard can be set equal to 0, as under simple negligence (Rule 4), without loss. After all, this change does not alter Victim’s care problem when Injurer takes care $i^*$, and Injurer has the same problem as under Rule 6 provided Victim chooses $v = v^*$. Rule 3, which sets Injurer’s standard at $\infty$, must likewise be efficient since it is symmetric to Rule
4, simply reversing the roles of Injurer and Victim. (Under strict liability with a contributory negligence defence, the basic rule is that Injurer pays, whereas under simple negligence it is that Victim pays; payment is reversed in each case if the other party fails to take efficient care.) Rules 3 and 4 show that it is possible to provide good caretaking incentives without setting both negligence cut-offs at the efficient level of care.

Rules 1 and 2, however, will only be efficient in special cases. Strict liability, Rule 2, gives no incentives to Victim to take care, so it is only efficient if Victim caretaking is not cost effective, i.e., when \( v^* = 0 \). Likewise, it is only efficient for Injurer to have no duty of care, as in Rule 1, if \( i^* = 0 \).

A careful reader will note that we have only shown that there exists an efficient equilibrium under Rules 3-6, and if other equilibria exist as well, co-ordination problems might create poor incentives. One might imagine that under either comparative or contributory negligence other equilibria would be possible, particularly if the caretaking activities of both parties were highly complementary. Shavell (1987), however, demonstrated that the unique equilibrium in all of these cases involves efficient caretaking.

If we extend our analysis beyond the basic model, however, then Rules 3-6 may become inefficient. It may then be possible that strict liability (Rule 2) is more efficient than the negligence rules (Rules 4-6), or that Rule 1 is more efficient than Rule 3. For example, suppose that \( i \) and \( v \) represent brake maintenance expenditures of an automobile driver and a bicyclist, respectively. Then, under the negligence rules, the driver will maintain his brakes
efficiently, but he may drive even when the social cost of driving exceeds its benefit because he doesn’t bear the full cost of his driving. Specifically, if his benefits from driving are less than the full cost, \( i^* + v^* + D(i^*, v^*) \), but greater than \( i^* \), then the driver would drive even though it is inefficient. A strict liability rule would have the advantage that the driver internalizes a larger portion of the total accident and prevention costs, so that he is less likely to engage in activities whose benefits don’t justify their cost. The disadvantages of such a rule are that bicyclists have inefficient caretaking incentives and that the bicyclist may engage in her activity too often. In some cases the added internalization by Injurer will be worthwhile and strict liability will be preferred to the negligence rules. Strict liability is likely to be preferable, for example, if \( v^* = 0 \), there is no reason to give Victim caretaking incentives, and strict liability provides full internalization, although it does not regulate victim’s activity level. Since caretaking is generally efficient for victims as well, however, allowing a contributory negligence defence as in Rule 3 seems better still. Alan Schwartz (1988) provides sound arguments for this proposition in the products liability context. See Shavell (1987) for more extensive discussion of the problem of parties engaging in higher than optimal levels of activity.

One might object to adding activity levels to the analysis in the way we have. Caretaking expenditures could, in principle, include the opportunity cost of foregoing an activity. If they did, then the due care standard could implicitly include activity levels. For instance, engaging in certain activities,
such as riding a unicycle down a superhighway, might be negligent, even if done with extreme care. Engaging in other activities might be negligent if done too frequently.

At various times, authors have argued that even in the basic tort model of this section one or all of liability Rules 3-6 do not provide efficient incentives. Such arguments result from choosing standards different from those listed in Table 1, although this fact is sometimes not brought out sufficiently. For instance, although Brown (1973) concluded that comparative negligence would be inefficient, Cooter and Ulen (1986) have pointed out that what he calls “comparative negligence,” is more aptly labelled “comparative precaution.” In Brown’s model, damages are proportionate to the relative marginal accident reductions from precautionary expenditures for Injurer and Victim. Since extra precaution will almost always reduce accidents somewhat, one can view this system as setting $\bar{I} = \infty$ and $\bar{\tau} = \infty$.

The inefficiencies in Posner (1977) and Landes and Posner (1980) similarly result from considering standards of care that differ from Table 1. Posner’s (1977) example is an accident whose expected cost of $1000 can be avoided if either Victim spends $50 in precautionary measures or Injurer spends $100. If either does not take precaution, she is negligent. Posner argues that in such a situation, contributory negligence is efficient because Victim will take precaution and Injurer will not. The reader can check that this result is the only Nash equilibrium. Under comparative negligence, on the other hand, if Injurer pays more than 10% of damages when both are negligent, then
there are two Nash equilibria: an efficient equilibrium in which only Victim takes care, and an inefficient equilibrium in which only Injurer takes care. (Posner argues that the inefficiency might be even more severe, since the players might be unable to coordinate on either equilibrium and might both take care.)

In this example of “alternative” care, it is efficient that only the least cost accident avoider be required to take care; then, incentives under both systems will be efficient. This is not to say that Posner (1977) or Landes and Posner (1980) got it wrong because of the care standards they considered. As Posner (1992: 170) hints, courts may require both parties to be careful in practice, even though that requirement leads to inefficiency under comparative negligence in this example. It should be understood, however, as Posner (1992: 169-170) explains, that the fact that contributory negligence can outperform comparative negligence in their example, results because both parties are subject to being found negligent, even though efficient standards of due care would imply that only one could be negligent.

2 Uncertain Standards or Uncertain Care

In the basic model discussed above, courts observe parties’ care levels and parties know the standard courts will apply. Here, we consider the more likely case that courts and juries observe only a signal of caretaking, as in Shavell (1987: Chapter 4), Cooter and Ulen (1986), and Edlin (1994), or alternatively that parties have uncertainty about the standard of care
that courts will apply, as in Calfee and Craswell (1986). These two types of imperfect information are fundamentally the same: both mean that the chance that a party is found negligent is no longer 0 or 1 but may lie between 0 and 1. This section will be phrased in terms of evidentiary uncertainty, but our arguments apply equally well to the case that Calfee and Craswell considered.

When there is evidentiary uncertainty, even if both parties are careful, the court may sometimes err and find them negligent, so it is important how damages are shared in this event. Cooter and Ulen contend that comparative negligence (Rule 6) is often superior to contributory negligence (Rule 5) because its sharing rule provides more balanced caretaking incentives. Although they argue that both cause too much precaution, they suggest that the problem is typically worse under contributory negligence.

Shavell (1987: Proposition 4.4) shows that when courts’ errors are small, and could be either positive or negative, then Injurer will take too much precaution when standards of care are set at \( i^* \), \( v^* \). The essential intuition is captured by the case where errors are distributed uniformly on some small interval. Then, by taking a very small amount of extra care, Injurer can avoid all liability, which must be attractive if the required extra care is sufficiently small. (This logic will not hold if errors are large).

Efficient standards of care should therefore not necessarily be set at efficient levels of care, but instead should be set to provide parties with the incentive to take efficient care. Edlin (1994) presents a model where eviden-
tiary errors are substantial and shows that it is possible to set such efficient standards of care. Surprisingly, these standards may be equal to, less than, or greater than the efficient levels of care (unlike the Shavell example above, excessive precaution need not occur if care is difficult to observe).

Generally, appropriate standards of due care will depend upon how, and whether, damages are shared when both parties are found negligent. To understand this dependence, observe that the cost of the accident to Victim equals

\[
\text{Victim’s Share of Damages} \times \text{Total Damages}
\]

so that Victim has two incentives to take care:

1. To reduce her share of damages by reducing the chance that she is found negligent.

2. To reduce the total damages.

Consider an example from Edlin (1994: 31). Let Victim’s cost of care equal \( v^2 \), Injurer’s cost of care equal \( i^2 \), and expected damages equal \( \max \{20 - 4u - 4i, 0\} \). Then, efficient care levels are \( v^* = 2 \) and \( i^* = 2 \). Assume that the court observes each party’s true care level plus some error \( u \) with a uniform cumulative distribution function \( F(u) = .5 + u, u \in \left[-\frac{1}{2}, \frac{1}{2}\right] \). If Victim takes care \( v \) and the standard of care is \( \overline{v} \), then she will be found negligent with probability \( F(\overline{v} - v) \); injurer will likewise be found negligent with probability \( F(\overline{i} - i) \). Assume that if both parties are found negligent, then Injurer must pay a share \( \alpha \) of damages (\( \alpha = 0 \) for contributory negligence).
Suppose that both standards of care are set as in the basic model: $\tilde{r} = 2$ and $\tilde{\tau} = 2$. When $i = 2$ and $v = 2$, Victim’s net marginal payoff to caretaking turns out to be $1 - 3\alpha$. If $\alpha = \frac{1}{3}$, Victim has no incentive to change his caretaking from $v = 2$. On the other hand, when $\alpha = 0$, as it does under contributory negligence, Victim will be more cautious. For higher $\alpha$, Victim has less to gain from taking extra care and avoiding a negligence finding, because more damages are shifted when both are negligent. That is, incentive #1 becomes weaker as $\alpha$ increases (it is weaker under comparative negligence than under contributory negligence). Note that unlike in Shavell’s analysis, evidentiary uncertainty does not necessarily lead to overprecaution when errors are large, as in this example. For large $\alpha$, there may in fact be underprecaution for $\tau = \tilde{r} = 2$.

Edlin (1994) showed that if standards of due care are chosen judiciously, then both Victim and Injurer can be given efficient incentives to take care. Efficiency requires that standards of care for both Victim and Injurer be more lenient under contributory negligence than under comparative negligence (i.e., both $\tilde{r}$ and $\tilde{\tau}$ decline as $\alpha$ increases). To understand why, observe first that Victim’s incentives are a weighted average of what they would be if she knew that Injurer would be found negligent and what they would be if she knew Injurer would be found “not negligent.” Observe second, that if Victim knew that Injurer would be found not negligent, Victim would bear all damages and have first-best incentives under either system, so to make a negligence system efficient, Victim’s standard of care must be set so that she
would take efficient care knowing that Injurer would be found negligent.

Conditional on a finding of Injurer negligence, Victim’s gains from reducing the chance of being found negligent are less under comparative negligence than under contributory negligence. Since incentive #1 is smaller under comparative negligence, incentive #2 must be made larger if Victim is to take efficient care under both systems. Incentive #2 is the product of Victim’s share of damages and the rate of reduction in total damages from Victim’s care. For Victim to have a larger share of damages conditional on Injurer negligence requires that Victim be found negligent more often: often enough to overcome the fact that Victim bears a smaller share of damages under comparative negligence when both are negligent. Victim’s standard of care must be more stringent under comparative negligence than under contributory negligence, so that when Victim takes efficient care she has a larger chance of being found negligent under comparative negligence. Edlin (1994) shows that, for general damage functions, Injurer’s standard must likewise be set more stringently under comparative negligence than under contributory negligence.

Although neither horn books nor jury instructions provide much foundation for varying the due care standard with the sharing rule, juries probably do so on their own, as Wittman (1986) suggests, giving victims the benefit of the doubt on the negligence question in contributory negligence jurisdictions, because the penalty for contributory negligence is a complete bar to recovery. Hence, a jury’s penchant for equity may contribute to efficiency.
This analysis implies that if litigation costs are higher when more is at stake, then comparative negligence may lead to higher litigation costs than contributory negligence, because if due care standards are set to induce efficient care under both systems, more damages will be shifted from Injurer to Victim under comparative negligence. (Note that this result depends upon due care standards being set appropriately under both systems). On the other hand, if more damage shifting is desirable, perhaps because Victim is risk averse, then comparative negligence may have advantages.

The fact that in Edlin (1994) both standards of care needed to be chosen judiciously suggests that Rules 3 and 4 typically provide inefficient incentives when it is important that both parties take care. Consider simple negligence, for example. Victim always meets her care standard, so her only caretaking incentive comes from incentive #2. However, since Injurer will typically be found negligent some of the time, Victim’s share of accident losses is less than 1, so unless $v^* = 0$, Victim will take too little care according to Edlin and Shannon’s (1996) Strict Monotonicity Theorem 1. Similarly, under strict liability with a contributory negligence defence, Injurer is always negligent so incentive #1 is inoperative. Injurer would have good incentives if Victim were never negligent, but evidentiary uncertainty implies that Victim will typically be found negligent some of the time in equilibrium. Therefore, we can again conclude that Injurer will take too little care.
3 Heterogeneity

As in other areas of law, tort cases encompass enormous heterogeneity. There is heterogeneity among both injurers and victims in their cost of care, or equivalently, in the effectiveness of their caretaking expenditures. Consequently, the optimal standard of care will typically be different for each injurer and victim.

Determining each individual’s cost of care and efficient standard would be prohibitively costly, or simply impossible, as pointed out by Posner (1992), Diamond (1974), Holmes (1881), Rubinfeld (1987), and Shavell (1987). This has driven the law to adopt a “reasonable man” standard, under which one is supposed to exercise the care of a “reasonably prudent person.” In the words of Harper, James, and Gray (1986: 389-90), “this reasonably prudent person is not infallible or perfect. In foresight, caution, courage, judgement, self-control, altruism and the like he represents, and does not exceed, the general average in the community.” The reader should refer to Shavell (1987) and Warren Schwartz (1989) for discussions of the trade-offs in choosing a uniform standard.

Certain distinctions are cheap and seem worthwhile. Thus, a surgeon can be held to a reasonable surgeon standard and be required to have more skill at surgery than an ordinary person. Likewise, as Holmes (1881: 109) wrote:

A blind man is not required to see at his peril; and although he is, no doubt, bound to consider his infirmity in regulating his
actions, yet if he properly finds himself in a certain situation, the neglect of precautions requiring eyesight would not prevent his recovering for an into himself, and, it may be presumed, would not make him liable for injuring another.

Shavell (1987) has proposed another justification for a uniform or objective standard. A uniform standard, at least one that is not based upon the least common denominator, should tend to keep the particularly inept out of activities where they pose a danger. Consider that if a standard is unattainable, as it will be for those sufficiently inept, then a uniform standard looks like Rule 2 or Rule 3, so that particularly inept injurers will internalize more activity cost, as discussed in considering the basic model. This added internalization may be better than setting due care standards individually. On the other hand, the activity bias results from an unwillingness to incorporate into a negligence determination the nature or level of an activity. To the extent that the law is willing and able to determine the “propersness” of an activity, as Holmes was willing to do for the blind man, then Shavell’s point loses some weight. It is beyond this essay’s scope to consider the extent to which activity levels or the propersness of an activity itself enters the negligence determination, but we note that Shavell has argued that activity levels are seldom considered in practice.
4 Cases

Buch v. Amory Mfg. Co. 69 NH 257, 94 A 809 (1897)


United States v. Carroll Towing Co., 159 F2d 169 (2d Cir. 1947)

5 Bibliography


<table>
<thead>
<tr>
<th>Liability rule</th>
<th>Injurer’s Care Standard $\bar{i}$</th>
<th>Victim’s Care Standard $\bar{v}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No Liability</td>
<td>0</td>
<td>Arbitrary</td>
</tr>
<tr>
<td>2. Strict Liability</td>
<td>$\infty$</td>
<td>0</td>
</tr>
<tr>
<td>3. Strict Liability with Contributory Negligence Defense</td>
<td>$\infty$</td>
<td>$v^*$</td>
</tr>
<tr>
<td>4. Simple Negligence</td>
<td>$i^*$</td>
<td>0</td>
</tr>
<tr>
<td>5. Negligence with Contributory Negligence Defense</td>
<td>$i^*$</td>
<td>$v^*$</td>
</tr>
<tr>
<td>6. Comparative Negligence</td>
<td>$i^*$</td>
<td>$v^*$</td>
</tr>
</tbody>
</table>