2020

Causation and Incentives in Updating Courts: Comment

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Comment

by

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1 Introduction

Hylton and Zhou (2020) study the interesting problem of tort cases in which an injurer fails to take a precaution that might have prevented the accident. They present a model in which negligence and factual causation are determined jointly. This model is motivated by an understanding of the law according to which courts must determine fault (lack of due care) as if the tortfeasor knew what would be the ex post realization of uncertainty, as seen by the court.

I will comment on two aspects of this problem. First, I want to point out that there is another possible interpretation of negligence law, in which fault is determined ex ante, independently of the question of causation, and in which causation is determined independently of the question of fault. I will explain this interpretation and then show that it is largely consistent with the five decisions cited by Hylton and Zhou (2020): *Grimstad*, *Reynolds*, *Perkins*, *Zuchowicz*, and *Palsgraf*.[1] Second, I raise the question of whether this is a situation of uncertainty.

2 Fault and Causation as Separate Elements

I begin with a simple model. There are two parties, an *injurer* and a *victim*. The injurer makes a decision under uncertainty, which is represented through a set of two states of the world, where the true state has not realized or is otherwise not known by the actor at time the decision is made. Let s_1 and s_2 be the two states of

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[1] *New York Cent. R.R. v. Grimstad*, 264 F. 334 (2d Cir. 1920); *Reynolds v. Tex. & Pac. Ry. Co.*, 37 La.Ann. 694 (1885); *Perkins v. Tex. & New Orleans R.R. Co.*, 147 So.2d 646 (LA. 1962); *Zuchowicz v. U.S.*, 140 F.3d 381 (2d. Cir. 1998); *Palsgraf v. Long Is. R.R. Co.*, 248 N.Y. 339 (1928).

Journal of Institutional and Theoretical Economics 176, 152–155 – ISSN 0932-4569
DOI: 10.1628/jite-2020-0017

the world, where s_1 occurs with probability p (and s_2 occurs with probability $1-p$). The probability p is known.

The injurer makes a binary decision, between choices *default* and *precaution,* and pays a cost x if precaution is chosen. An accident occurs in both states if the default is chosen, and in state s_2 if the precaution is chosen. (In other words, it is avoided only when state s_1 occurs *and* precaution is chosen.) If the accident occurs, the victim suffers a loss L.

For example, a doctor may face a choice of whether to prescribe a costly drug, which may cure an otherwise incurable disease. Here, the cost of the drug is x, the harm from the disease is L, the state where the drug prevents the disease is s_1, and the state where the disease occurs regardless of the drug is s_2.

With this simple model, it is straightforward to demonstrate how fault and causation can be thought of as separate. Suppose that the injurer took the default choice, and that an accident occurred.

Is there fault? Under the Hand rule, a court should compare the expected social harm from the two choices.[2] This follows *Carroll Towing*,[3] where Judge Hand used the ex ante probability of an accident, which he called "P," as opposed to the ex post probability, which was 1. Calculated in this way, the harm from the default choice is L, while the harm from precaution is $L(1-p)+x$. Thus there is fault if $Lp > x$.[4]

Is there causation? Yes, if we are in s_1, because the accident would not have occurred had the precaution been taken. No, if we are in s_2, because the accident would have occurred regardless. The measurement of the costs L and x is logically independent from the determination of the state, and thus it is possible that questions of fault and causation can be understood as being independent from one another.

The decisions in the cited cases are consistent with this interpretation. In *Grimstad*, the court did not ask whether a reasonable barge owner would have installed a lifebuoy, nor did it challenge the jury's finding that the failure to install one was negligence. Instead, the court argued that the installation of a lifebuoy would likely not have mattered in this case, because there were no experienced sailors on board who knew how to use one. In terms of the model, the court claimed that it is much more likely that the realized state was 2 than that it was 1. There is no suggestion that court would have (or should have) answered the causation question differently had lifebuoys been less expensive to install, as is implied by Hylton and Zhou (2020).

Reynolds clearly separated the issues of fault and causation. It first determined that there was not enough light, focusing on the general duties owed by the railroad to its customers. It then asked, separately, whether the lack of light caused the

[2] I use the Hand rule as an example, but a similar result would follow under other theories of negligence. See Miller and Perry (2012).

[3] *U.S. v. Carroll Towing Co.*, 159 F.2d 169 (2d. Cir. 1947).

[4] Hylton and Zhou (2020) raise the important point that courts may not be fully informed as to the correct probabilities, but this can be attributed to a lack of evidence rather than to a doctrinal limitation on what evidence can be considered.

injuries in the specific case. In terms of the model, the court argued that it is much more likely that the state was s_1 rather than s_2.

In *Perkins*, the court stated simply that it found negligence (fault) and then moved on to the question of causation. It found that due care would not have avoided this particular accident; in other words, that the realized state was s_2.

In *Zuchowicz*, fault was stipulated, and the court only concerned itself with the question of causation. Judge Calabresi described the law as set forth by Judges Cardozo and Traynor:

> "if (a) a negligent act was deemed wrongful because that act increased the chances that a particular type of accident would occur, and (b) a mishap of that very sort did happen, this was enough to support a finding by the trier of fact that the negligent behavior caused the harm. Where such a strong causal link exists, it is up to the negligent party to bring in evidence denying but for cause and suggesting that in the actual case the wrongful conduct has not been a substantial factor."[5]

Here, the questions of causation and fault are tied together, because the relationship between the type of fault and the type of accident allows the trier of fact to presume causation in the absence of evidence to the contrary. But fault and causation are still largely separate determinations. Fault is still determined from an ex ante perspective; an act is deemed wrongful because it increased the chance of a particular type of accident. Causation is still based on whether we are in state s_1 or s_2.

Lastly, *Palsgraf* deals with the existence of a duty and (in the dissent) the question of proximate cause. Neither fault nor factual causation is at issue: it is uncontested by both the majority and dissenting opinions that the railroad's employees may have been at fault, and that the accident was the factual cause of the injuries complained of in the case.

3 How Should we Think about Causation?

Next, I want to comment on how courts should think about causation in cases of this sort: where an injury resulted following a careless failure to take a precaution that might have prevented the accident. I will continue to use the model set forth in the previous assumption, and will assume that a failure to take precaution constitutes fault.

It is agreed that there is causation if we are in state s_1, and that there is no causation if we are in s_2. But if the precaution is not taken, the state is not revealed; consequently, there will be uncertainty as to which state prevails, which implies uncertainty as to whether there is causation. This uncertainty is what makes this an interesting problem.

However, the framework of uncertainty may be problematic. To see why, note that the only difference between states s_1 and s_2 is the consequence when the pre-

[5] *Zuchowicz v. U.S.*, 140 F.3d 381 (2d. Cir. 1998) at 391.

caution is taken – the accident occurs in s_2, but not in s_1. Because the state only matters when the injurer takes precaution, we can think of the randomization – the "roll of the dice" – as having taken place only after the injurer's decision has been made. If precaution is not taken, the dice are not rolled, and thus it is meaningless to talk about what would have been the result. All we know, and all there is to be known, is the probability of an accident, and (by the assumption of the model) we know this probability with certainty.

This is not the only possible interpretation. Alternatively, one might think of the randomization as occurring before the injurer's decision; that is, dice are rolled, and this determines whether there will be an accident, conditional on precaution having been taken. As before, the roll of the dice is hidden and is only revealed by the occurrence of the accident if it occurs after precaution has been taken.[6]

The latter interpretation makes sense if the states correspond to objective events, so that courts can reasonably ask whether they occurred. For example, we may know that a precaution only works if the wind is below thirty kilometers per hour, or, in other words, that s_1 is the event that the wind is below this speed. If the precaution was not taken, and no one measured the wind, the court faces uncertainty that it can try to resolve. Alternatively, if we may believe that a contested drug would have been effective only for patients with a certain gene, s_1 is the case that the patient has this gene. If the drug was not administered, and we are not able to test for the gene, the court again faces uncertainty.

In other settings, however, there is nothing to which the states correspond, other than whether the accident occurred or not, when the precaution was not taken. In these cases, it may be better to conclude that the question of "what would have happened" is not answerable, and that there is no information to be discerned beyond the probability that the precaution would have worked.

References

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[6] From the perspective of a game-theoretic model, these two interpretations are identical: it does not matter if the dice are rolled at the beginning of the game, or after; but from the perspective of the law it seems to matter.