Session 14

Thomson, 'Liability and Individualized Evidence'

1 The basic questions

1. What's the role of purely statistical evidence in determining legal liability?

2. If there's something wrong with relying on purely statistical evidence in determining liability—what exactly is wrong with it?

2 Examples

2.1 Example 1: *Smith v. Red Cab*

A wildly swerving cab causes Smith to crash into a parked car, breaking both of her legs. Smith sues Red Cab company. Unknown: which company the cab was from: either Red Cab or Green Cab. Known facts: a cab was at fault in causing the accident. (We can suppose that a witness corroborates that a cab was at fault but also couldn't determine the cab's color.)

A piece of purely statistical evidence: 60% of cabs in this city are Red Cabs and 40% are Green Cabs.

If we have no other information about which kind of cab it was, this entails that it's more likely than not that the cab was Red Cab's. Since we know that a cab was a fault, it is more likely than not that Red Cab was at fault.

(1)   It is .6 likely that Red Cab was at fault.

Standard of proof in a tort suit: "more probable than not" i.e. > .5

Question: Should we impose liability on Red Cab on the basis of the available evidence?

2.2 Example 2: *People v. Tice*

Tice and Simonson simultaneously shoot at Summers. Tice fires ninety-five pellets and Simonson shoots five. Only one pellet hits Summers and it kills him.

This setup is meant to ensure:

(2)   It is .95 likely that the pellet that hit Summers was Tice's.

Standard of proof for a murder conviction: it should be "beyond a reasonable doubt" that Tice did it; and .95 probable seems sufficient for something's being beyond a reasonable doubt. (If you disagree about the necessary probability, increase the proportion of bullets that were Tice's.)

Question: Should we convict Tice of murder (rather than attempted murder) on the basis of this evidence?[1]

- A common intuition about these cases: This evidence is somehow inadequate for imposing liability. But why?

3 Kinds of evidence

Thomson's hypothesis: There are different kinds of evidence: merely statistical (quantitative, probabilistic) evidence and "individualized" evidence.

Thomson's further hypothesis: causal evidence is "individualized" evidence.

3.1 Causal evidence

H = The (putative) fact that the defendant caused some harm

E = Some piece of evidence supporting H

E is causal evidence if E plausibly has some close causal connection with H.

For different kinds of causal connection, we can distinguish different kinds of evidence:

Backward-looking causal evidence: E's existence is best explained by the hypothesis that H caused it.

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[1] The fact that both Simonson and Tice were attempting murder can skew intuitions here. Consider a somewhat cleaner case: Tice and Simonson are both hired as assassins. Their employer threw a fair 20-sided die to determine who to send to kill Summers: if it lands on 11, he sends Simonson, otherwise, Tice. There's no way to find out for sure which one was sent.
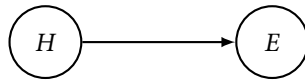
For example: suppose (counterfactually) that Smith had noticed that the cab looked red to her. Then this piece of evidence (that the cab at fault looked red to Smith) was plausibly *caused by* the (putative) fact that Red Cab was the cab agency at fault.

Forward-looking causal evidence: *E* plausibly *caused H*.
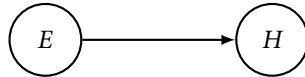
For example: suppose Red Cab had thrown a party the same night of the accident, and its drivers all drank an enormous amount before driving home. This piece of evidence (that many Red Cab drivers were drunk driving that night) would plausibly have caused a Red Cab driver to have brought about Smith's accident.

Common cause evidence: *E* and *H* plausibly have a common cause *X* that makes *H* likely if *E* exists.
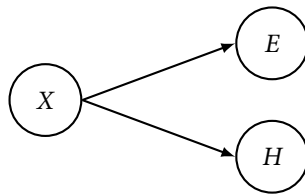
For example: suppose a few blocks past Smith's accident, a drunken Red Cab driver ran into a parked car. The fact that the driver was drunk is plausibly the common cause of both our evidence (the fact that a drunken Red Cab driver hit a parked car nearby) and *H*.

In *Smith v. Red Cab*, our only evidence that Red Cab was responsible is that most cabs out that night were Red Cab's. That piece of evidence has no causal connection with the accident.

3.2   Non-causal evidence

Mere statistical/probabilistic evidence: statistical or probabilistic evidence where there's no suggestion of a direct causal relationship between the existence of such evidence and the putative fact that the accused caused some harm.

Are there other kinds of non-causal evidence?

4   Some complications in the distinction

The distinction between causal and mere statistical evidence is more complicated than it seems, so we need to be careful.

Complications:

○ Causal evidence that supports some accusation generally doesn't *prove* that the accusation is correct.

▷ So the difference between individualized and mere statistical evidence is *not* that the former **proves** an accusation true or false while the latter only makes it **likely** that the accusation is true or false.

○ Causal evidence can be weaker or stronger.

▷ For example: Suppose some witness had thought the cab looked red to her. This piece of evidence would be weakened if the witness was colorblind, using hallucinogens, a compulsive liar, etc.

○ Not all statistical evidence is *mere* statistical evidence! Some statistical evidence does have a causal connection with the facts for which it is evidence.

▷ Example: Smith claims that a large company refused her a job on the basis of her race. As evidence she shows that the company's workforce is racially homogeneous, while the local population is not at all.

▷ Smith's evidence is statistical. But it is still a form of causal evidence: there's evidence of a common cause between the company's racial homogeneity and its refusal to hire her on the basis of her race, namely the company's racist bias in hiring.

○ Furthermore, there are apparently some forms of merely statistical evidence that intuitively *should* carry some weight in determining liability.

▷ The fact that Red Cab owns 60% of cabs is a mere fact about its market share and facts about market share don't cause accidents.

▷ But what if Red Cab owns 100% of cabs? Isn't that equally a fact about Red Cab's market share?

▷ What if Red Cab owns 99.9% of cabs?

Certainly *some* statistical evidence should be taken into account. But in this cases, can we plausibly say that the statistical evidence has some causal connection with the allegations under consideration? Why

should changing market share facts change anything about whether a piece of evidence is causal?

5   Why is individualized evidence better?

5.1   First hypothesis

Individualized evidence is better because it makes it more probable that an allegation is true than mere statistical evidence does.

Three problems:

1. Individualized evidence comes in different strengths and often raises the probability of a hypothesis by only a little.

2. Merely statistical evidence can sometimes be pretty strong and can raise the probability of a hypothesis by a lot!

3. Anyway, if, as in most civil cases, the burden of proof is simply to show that one's claim is more likely than not (i.e. has probability $> .5$), then why shouldn't statistical evidence be equally appropriate?

Let's abstract away from these complications. Consider two cases:

- **Case 1:** We have is no statistical evidence, but an eyewitness who we know to be 70% reliable about such matters claims that the cab was red.

- **Case 2:** There is no eyewitness, but Red Cab owns 70% of the cabs on the streets.

It should be equally probable in these two cases that the cab involved was Red Cab.

Nevertheless, to many people, it obvious the evidence we use in Case 1 is appropriate to consider in imposing liability, whereas the evidence in Case 2 is not—or at least it should have substantially lesser weight.

- So is there something valuable about individualized evidence that doesn't have to do with its ability to probabilify hypotheses?

5.2   Second hypothesis

There are different moral requirements for believing a hypothesis about a defendant's guilt, or mentioning it offhand to a friend, than there are for officially pronouncing the defendant guilty.

- Because the stakes are higher, you need to have stronger reason to believe the defendant is guilty in order to be justified in saying so.

- Importantly: it shouldn't be just **luck** if the verdict comes out correct.

Thomson: In *Smith v. Red Cab* and *People v. Tice*, if we rule in favor of the plaintiff on the basis of merely statistical information, we do so unjustly.

The reason: it is *just luck* if it turns out that Red Cab was at fault or Tice's pellet did kill Summers.

A worry

- We've been trying to understand what, if anything, makes individualized evidence more valuable than mere statistical evidence—something that's evidentially valuable for some other reason than that it raises the probability of a hypothesis. Thomson says that individualized evidence some sort of "*guarantee*" that verdicts won't be turn out to be correct out of mere "*luck.*"

- But offhand it seems like our understanding of what would count as *luck* or a *guarantee* has a "mere" quantitative or probabilistic basis: roughly,

  ▷ It's lucky that if p turns out to be true just in case the probability that p would turn out to be true is not greater than .5.

  ▷ There's some guarantee that p is true if the probability of p is 1 (or approximately 1).

- Obviously this isn't what Thomson has in mind for "luck" or "guarantee." So we would need to have some independent grip on what those two things amount to.

- So we might worry we've just moved the bump in the rug; we've resolved one mystery only by creating another.

A question for Thomson

- Consider again our minimal pair from above: in Case 1 we have individualized (eyewitness) evidence that makes it 70% likely that Red Cab is at fault; in Case 2 we have merely statistical evidence that makes it 70% likely that Red Cab was at fault. Suppose in both cases Red Cab is held to be at fault, and in fact is at fault.

- Does it seem intuitive to you that in Case 2, it's just luck if the ruling is correct, whereas in Case 1, there's some guarantee (though obviously not an infallible one) that the ruling is correct?

6   Some further hypotheses for the friend of individualized evidence

6.1   Non-epistemic considerations

So far we've looked mainly for explanations for why individualized evidence seems to be more *epistemically* valuable—that is, why it would give us better *reason to believe* that, for example, a defendant is guilty.

But maybe the explanation for why merely statistical evidence doesn't (and individualized evidence does) seem appropriate for court cases is that the latter is more *pragmatically* valuable—that is, it gives us reasons to favor one verdict over another that that aren't *epistemic reasons* (reasons to believe).

(An example of epistemic reasons versus pragmatic reasons: I might believe that I will be able to hit the baseball for good epistemic reasons (because I have good evidence that I'll be able to). Or I might believe it for good pragmatic reasons: Believing that I will be able to hit the ball makes it much more likely that I *will* hit the ball.)

An instrumental hypothesis[2]

- Suppose we do rely on merely statistical evidence in determining legal liability. Now consider Green Cab's predicament: Red Cab owns a greater market share, and so whenever civil cases are brought in where all witnesses are sure that some cab is at fault but have no idea which company the cab belongs to, then Red Cab can be held liable.

- This is great news for Green Cab! Now they have no incentive to bother training their drivers, punishing them for driving irresponsibly, etc. Indeed—they have incentive not to bother, since training can be costly.

- Similarly for Simonson: he might think to himself, *Since Tice is already shooting all those bullets at Summers, and I only have a tiny quantity of bullets compared to Tice, I might as well join the effort and shoot at Summers too! Ater all, Tice will be held responsible.*

- Clearly, we don't want our legal system to create this kind of incentive. But admitting statistical evidence does so! So this seems like a good reason not to admit statistical evidence.

An objection

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[2]   A version of this is defended in David Enoch, Talia Fisher, and Levi Spectre, "Statistical Evidence, Sensitivity, and the Legal Value of Knowledge." (Manuscript.)

This is Louis Ortiz. He too has a vendetta against Summers. He looks just like Obama, so that any eyewitness who saw him shoot Summers would conclude that the much more famous Obama was the one who shot Summers.

Therefore Louis has some incentive to shoot Summers, incentive created by our legal system's reliance in eyewitness testimony.

So offhand it doesn't seem like this sort of pragmatic consideration cuts one way or the other in determining which kinds of evidence are appropriate to take into consideration.

6.2   Another epistemic consideration: informed v. uninformed uncertainty

There is a feature of these cases that Thomson doesn't discuss: it seems like in, e.g., *Smith v. Red Cab*, we should be more confident than not that Red Cab was at fault—but our degree of confidence, though justified, is fairly *uninformed.*

Compare two scenarios. In both I want to determine who gets the last slice of pie, me or my sister, and I want to do so as fairly as possible (so that neither of us is favored).

1. Case 1: I flip a coin that may or may not be a trick coin: it could be biased either towards heads or tails; it could be heads on both sides or tails on both sides; I have no idea. Given how totally ignorant I am of the facts about this coin, as far as I know it could as easily come up heads as tails, so I'm .5 confident that it'll come up heads.

2. Case 2: I flip a coin that I know to be a fair coin (it's not biased or anything); so I'm .5 confident that it'll come up heads.

My degree of confidence—i.e., my degree of uncertainty—the same in both cases. But in Case 1, my uncertainty is very uninformed, whereas in Case 2, my uncertainty is fairly informed.

There's some sense in which, in Case 2, I can feel confident that I'm giving my sister a fair chance at getting the last slice of pie.

A hypothesis

- Perhaps what we find problematic about some cases of merely statistical evidence is that ruling on the basis of it seems to be ruling from a comparatively uninformed uncertainty: it seems like there must be some important, more informative facts that we're ignorant of.

- Note that this sort of distinction doesn't map onto the distinction between causal and statistical evidence—it would be a separate diagnosis of the intuitions in *Smith v. Red Cab* and *People v. Tice*.

- If there were ten eyewitnesses to Smith's accident, and six said a red cab was at fault while four said a green cab was at fault, would we more easily impose liability on Red Cab? What if we suppose further that we have good evidence that all eyewitnesses are equally reliable at distinguishing red and green cabs at night?

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