Law and Technology

Introduction


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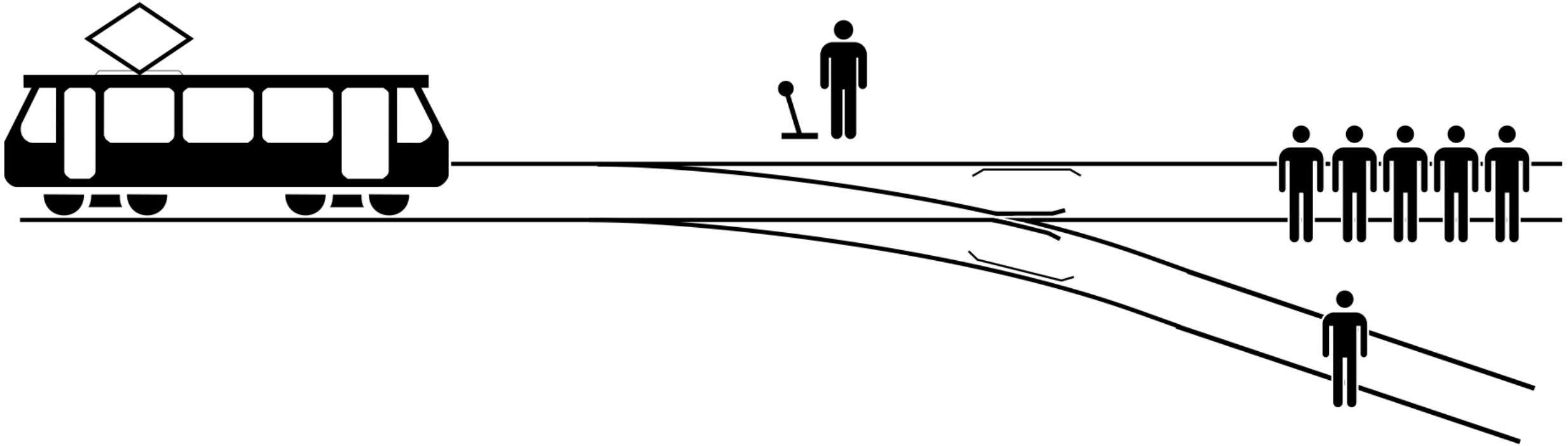
What's Technology's Role Here?



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In This Topic…

The Law of Tech

- Technology Regulation
- Historical Case Studies
- Platform Liability
- AI and Law

The Tech of Law

- Computers
- Web 1.0 and 2.0
- Blockchain
- Artificial Intelligence

Topic Objectives

1. Fine-tuning your legal senses towards detecting law and tech issues

2. Developing wisdom on key (law and) tech topics to impress your future clients and bosses

Approaching this Topic

- Do the readings, then watch the lectures, then come to class
- If you haven't done the readings, pause this video for now.
- Expectations and Exam Format

In this Video

1. What is “law and technology”?

2. A general framework for approaching the field

3. Examples of law and tech questions

What is Law and Tech?

Law and Technology

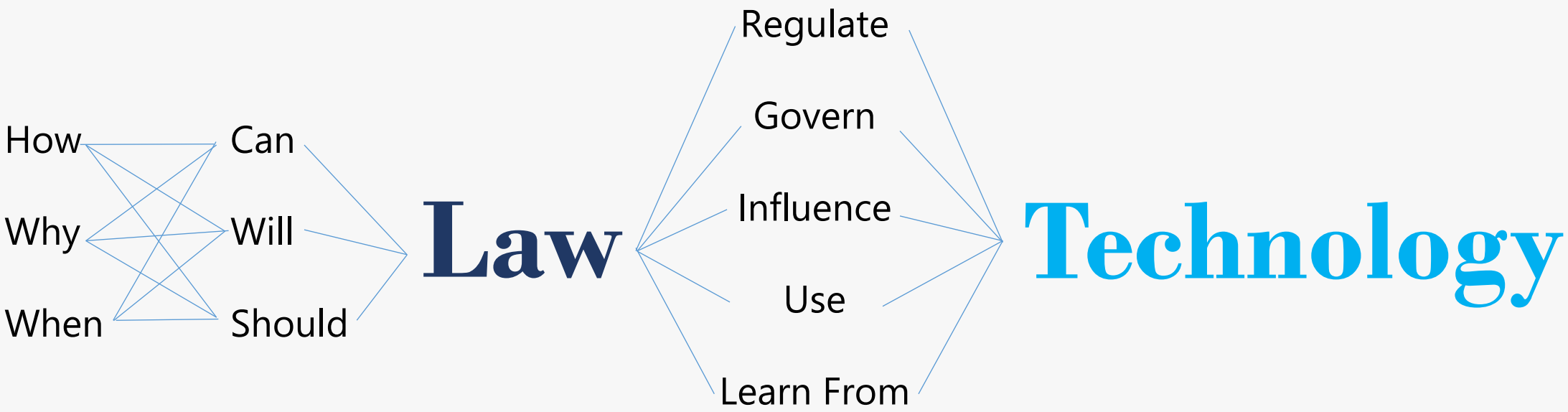
is about

Law

and also

Technology

As in,



...

Each path describes one sub-field

So, to understand L&T is to understand L, and also T.

Most of your education so far is solely about L.
In this course we shall look more closely at T.

Technology

/tekˈnɒl.ə.dʒi/

(the study and knowledge of) the practical, especially industrial, use of scientific discoveries

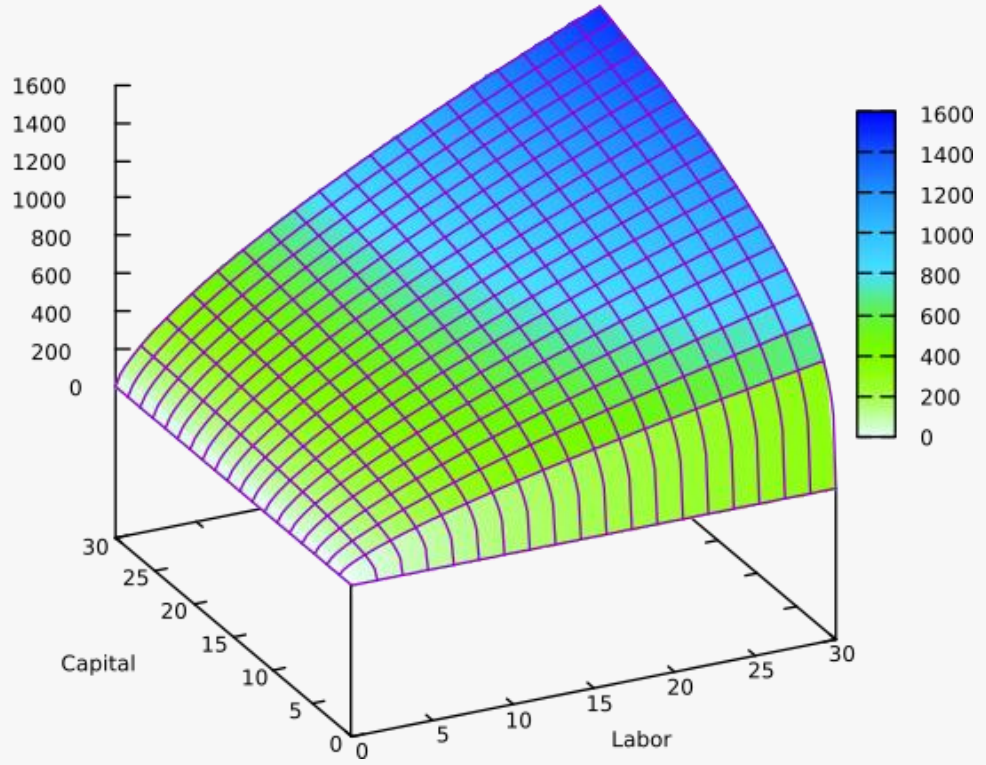
//

the methods for using scientific discoveries for practical purposes, esp. in industry

The Economic View of Technology

- Essentially, **anything** which
  - (a) increases production but
  - (b) not itself a factor of production
  - I.e., **shifts** the entire production possibility plane

- What counts?



Econowiki

Is Law a Kind of Technology?

Holmes's common law is a system of artificial intelligence as surely as any computer program. The **key feature that gives the common law the ability to learn about the environment is cybernetic feedback**: legal logic generates first approximations, which have a better than random chance of being tolerable to the community because they are based on analogies to solutions accepted in the past; external experience then operates to modify those results which the community cannot accept, thereby trans-forming the law for the future.''

In much the same way, an artificial intelligence program learns about the environment, to guide searches, and then uses the results of its internal model of the environment. Had Holmes cared less for the felicity of a phrase, he could have written: "The life of the law is the cybernetic process by which experience modifies the available logic".

Elliot, 1984

Ultimately, it depends on what we mean by ‘law’ and what we mean by ‘technology’.

General Framework

- The big question:

Is the issue with law, with technology, or both?

- An issue with the law (technology) is solved by changing or clarifying the law (technology)
- Law and Automated Vehicles:
  - Do we understand accident law enough? What are the loopholes/false assumptions it makes?
  - Do we understand how AVs work enough to judge the **applicability** and **application** of those laws?
  - What problems, if any, arise from interacting uncertainties?

Two ways of thinking about L&T

Focus on the Law

- What are the legal principles?
- What are the legal gaps?

- No “law of the horse”

Focus on the Tech

- What’s unique/novel?
- What are its implications?

- “What cyberlaw might teach”

Frank H. Easterbrook

- BA (Econs & PolSci), 1970
- JD, Chicago, 1973
- Law Clerk, 1st Cir, CA
- Dy SocGen, US
- Chicago Law Professor, 1979 – 1985
  - Antitrust
  - Law and Economics
  - Corporate
- Judge, 7th Cir CA, 1985 – present
- **1996: "Cyberlaw and the Law of the Horse"**

The Law of the Horse?

I am at risk of dilettantism, and I suspect that I am not alone. **Beliefs lawyers hold about computers, and predictions they make about new technology, are highly likely to be false. This should make us hesitate to prescribe legal adaptations for cyberspace.** The blind are not good trailblazers. …

… **the best way to learn the law applicable to specialized endeavors is to study general rules.** Lots of cases deal with sales of horses; others deal with people kicked by horses; still more deal with the licensing and racing of horses, or with the care veterinarians give to horses, or with prizes at horse shows. **Any effort to collect these strands into a course on "The Law of the Horse" is doomed to be shallow and to miss unifying principles …** Only by putting the law of the horse in the context of broader rules about commercial endeavors could one really understand the law about horses.

Develop a sound law of intellectual property, then apply it to computer networks. Problem: we do not know whether many features of existing law are optimal. … **Until we have answers to these questions, we cannot issue prescriptions for applications to computer networks.**

Proposition I: Sound rules and understanding of legal principles is necessary in L&T.
What is left unsaid?

What about Technology?

If we are so far behind in matching law to a well-understood technology such as photocopiers – if we have not even managed to create well-defined property rights so that people can adapt their own conduct to maximize total wealth – **what chance do we have for a technology such as computers** that is mutating faster than the virus in The Andromeda Strain?

Well, then, what can we do? By and large, nothing. **If you don't know what is best, let people make their own arrangements.**

Next after nothing is: keep doing what you have been doing. Most behavior in cyberspace is easy to classify under current property principles. What people freely make available is freely copyable.

Proposition II: Since we don't know tech, we should stick with law

Consider: is something like the Law of Contracts susceptible to Easterbrook's critique? Torts?

What about Technology?

A quick summary: Error in legislation is common, and never more so than when the technology is galloping forward. **Let us not struggle to match an imperfect legal system to an evolving world that we understand poorly.** Let us instead do what is essential to **permit the participants in this evolving world to make their own decisions.** That means three things: **make rules clear; create property rights where now there are none; and facilitate the formation of bargaining institutions.** Then let the world of cyberspace evolve as it will, and enjoy the benefits.

Echoes standard calls for minimum government and free markets that characterizes Chicago School Economics

Lawrence Lessig

- BA (Econs), BS (Mgmt), Penn Wharton
- MA (Phil), Cambridge, mid-1980s
- JD, Yale, 1989
- Law Clerk, 7th Cir CA (Posner), USSC (Scalia)
- Chicago Law Professor, 1991 – 1997
- Harvard Law, 1997 – 2000
  - **What Cyberlaw Might Teach, 1998**
- Stanford Law, 2000 – 2009
- Harvard Law, 2009 – present

What CyberLaw Might Teach

My suggestion is both that there is something new to think about there, and that what we learn there will teach us something about what we know from here.

[Real space regulation: law, social norms, markets, architecture (including code).]

That there is a highway and train tracks separating this neighborhood from that is a constraint on citizens to integrate. **These constraints bind in away that regulates behavior. In this way, they regulate.**

In all of these examples, **law is functioning in two very different ways. In one way, its operation is direct; in the other, indirect.** When it is direct, it tells individuals how they out to behave. It threatens a punishment if they deviate from that directed behavior. … law also has a way of regulating that is more indirect. When law regulates indirectly, it aims at changing the constraints of one of these other structures of constraint … When we think of regulation in this more general way, we see things that a less complete account might miss. One thing that we might see is **how one kind of constraint can be substituted for another.**

What is Lessig's definition of "regulation" here?

Code is Law?

And finally an analog to real space code — code — regulates behavior in cyberspace. The code, or the software that makes cyberspace as it is, constitutes a set of constraints on how one can behave. The substance of these constraints vary, but they are all experienced as conditions on one's access to cyberspace. … The code or software or architecture or protocols set these features; they are features selected by code writers; they constrain some behavior by making other behavior possible, or impossible. **In this sense, they too are regulations, just as the architectures of real space code are regulations.**

AOL example: screen names and parental control
Counsel Connect example: real names and professional selection
Two different "normative universes" resulting

To the extent that code can be made to regulate directly, **because code is plastic, code can regulate more.** Code in cyberspace can more easily substitute for law, or norms. **Code can more subtly control and discipline behavior.** Code is a richer alternative to these other forms of constraint, and hence it makes more real the sense in which the four constraints that I described can be traded off, one against the other.

Code is Law?

"My aim in the last two sections of this essay is to suggest … why, or how, that is, **government can and will regulate cyberspace** [and] that when we see the law in code, we see all the more reason why **law must regulate code, if public values, in particular constitutional values, are to be preserved."**

Key questions:

- What, ultimately, is Lessig's substantive reply to Easterbrook on the Law of the Horse?
- What are the assumptions made?
- What are the implications for studying L&T as a field in itself?

The Law of the Horse - Takeaways

- Lessig's essential answer was to suggest that cyberspace is **special enough** that specialised study is both useful and possible. Agree?
- L&T wasn't (isn't) always seen as a field
- Perennial tension between **applying** existing law to technology and treating technology as **special**
  - What is really new/unique about tech as to warrant dedicated law/analysis?
  - How do we know?
- More in next segments on **when** and **why** tech can be special

Recall the Big Question

Is it an issue with law, with technology, or both?

Some Examples

B2C2 v Quoine

- Q is a crypto-exchange with a proprietary "market-maker" algorithm Quoter, responsible for 98% of market-making trades
- Q allows margin trades (essentially, borrow to buy/sell) with forced automatic margin calls (close position to repay loan)
  - To do this, monitors each account's live P&L = $q \times (p_{buy} - E[p_{sell}])$
  - If spread too big, forces trades at best available price to close positions

- **What could possibly go wrong?**

Enter B2C2

- B2C2 trades on Q with a Software that implements a chain of 2 trading strategies that essentially looks at prices **of 20 best orders** on Q, does quick maths, and decides an offer price to buy/sell
- But if <20 (substantial) orders available, will introduce virtual prices so the algo can keep running
  - **Boonen hardcoded virtual price of 10BTC:1ETH for ETH sell orders (sell 1 ETH in exchange for 10 BTC)**

What went wrong

- 13 April 2017: Q botches a software update, Quoter goes down
- 19 April: Q's market thins abnormally
  - Live P&L falls, margin calls trigger on P and T's accounts
  - P & T forced to buy ETH to close out their position
  - This suggests Q's 'market' price for whatever P & T borrowed ETH to buy tanked
  - Meanwhile, B2C2's software put out 10:1 ETH sell orders
  - These eventually became the only ETH sell orders left, so P & T completed against them
  - 13 trades at 10BTC:1ETH completed; 'real' price then was about 0.04BTC:1ETH
  - P & T ended up with **negative** BTC. Urged Q to reverse trades.
- 20 April: Q reverses. Later B sues

What the majority said

98 As we have noted at [15] above, **a deterministic computer program or algorithm is bound by the parameters set by the programmer, and can (and generally will) only do what the programmer has programmed it to do.** Given a particular input, it will produce a particular output; on each occasion, the output should and will be the same if the former does not change. **Therefore, when it comes to assessing the state of knowledge that is to be attributed to the parties at the time of a contract made by way of deterministic algorithms, the relevant inquiry cannot be directed at the parties themselves**, who had no knowledge of or direct personal involvement in the formation of the contract. Rather, working backwards from the output that emanated from the programs, **we are driven to assess the relevant state of knowledge by examining that of the programmers**. **This approach is consistent with that which was advocated by Prof Goh.**

*How is knowledge of the **technology** relevant here?*

What the majority said

103 In our judgment, keeping the focus on these considerations enables us to address the authors' concern that the state of mind of the programmer when originally programming the algorithm could never have included knowledge of the particular manifestation of the relevant mistake. That is not and should not be the inquiry and we do not think it was the inquiry that the Judge pursued. **Rather, the relevant inquiry might be framed thus: when programming the algorithm, was the programmer doing so with actual or constructive knowledge of the fact that the relevant offer would only ever be accepted by a party operating under a mistake and was the programmer acting to take advantage of such a mistake?**

What the majority said

104 The second point which pertains to timing is resolved by the approach that we have set out at [99] above**. If at the point of programming, the programmer contemplated or ought to have contemplated that a mistake might arise on the part of a counterparty to a future contract and designed the algorithm to exploit such a mistake, then it does not matter for the purposes of establishing the requisite knowledge that the relevant mistake had occurred after the algorithm had been programmed.** Further, as we have noted, the framework we have developed also enables the court to examine and consider the knowledge actually acquired after the point of programming and the actual conduct of the parties up to the time of the contract. **However, we emphasise that this is directed at actual conduct. This is to be contrasted with the approach that Quoine urged upon us, which we have rejected (see [97] above), which was to analyse the matter by reference to a "hypothetical meeting on the trading floor that notionally took place just before the contract was concluded in the light of the information available at that time"**

Consider: What is the "point of programming"?

What the majority said

- Ultimately, no mistake in law or equity because the contracts were between P&T and B – the algorithms used "operated as they were meant to" (at [115]) → no mistake to begin with
  - The main mistake, if any, was the mistaken assumption that code would not fail, and this was not a mistake as to terms
  - **What do we mean by "operated as they were meant to"?**
- Cf Mance IJ (dissenting): test should be what reasonable trader knowing the particular circumstances giving rise to the transactions would have thought (at [200])
  - Anything wrong here?
- **Problem with law or problem with tech?**

Mistake in Software Contracts

- Vincent asks: What are the contract law consequences of a software mistake?
- Vincent argues: extending the 'objective theory' of contract can solve the "Contracting Problem"

- It depends on what we see software as: "mere tools" or "electronic agents"?
- What is the essential problem here?
  - With tech?
  - With law?
- Recall: approach from law vs approach from technology

Online Defamation – A Teaser

- Gutnick v Jones
  - What law(s) and fora apply to an online defamation claim?

- Must clarify legal "place" of
  - Publication
  - Damage
  - Residence

- Problem arising from law or technology? Or both?
- Will return to online defamation later

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