Intellectual Property in the Digital Age

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Thanks to Adam Holland and chillingeffects.org for DMCA takedown examples

The “hourglass” model
• Many underlying transmission technologies
• Many applications
• Connected by simple packet forwarding – Internet Protocol (IP)

• Enables rapid innovation -> social disruption

Rapid innovation ⇒ disruption
This lecture: disruption in intellectual property

Disclaimers:
• I am not a law professor (but I understand technology)
• This is political: I have opinions
• The lecture is US-centric, though similar fights are playing out all over the industrialized world

Intellectual Property
• Very different from tangible property

If you have this laptop, then I don’t (please don’t steal it)
But we can both have this presentation (intellectual property is not stolen, it’s infringed)

• Is really a limited monopoly protected by a set of statutes and court precedents

Tangible property: “Thou shalt not steal”
The Ten Commandments

Intellectual property: “Only one thing is impossible for God: to find any sense in any copyright law on the planet.”
Mark Twain

Types of Intellectual Property

• Patent: for new useful inventions
  – Gives exclusive right to make, use, sell
  – Requires public disclosure; proof of novelty/nontriviality; fees; lasts 20 years

• Copyright: for original creative writings/audio/video/art
  – Gives exclusive right to copy, distribute, make derivative works, perform
  – Requires a registration; lasts 14 years + a possible 14-year extension (1790)
  – Automatic; lasts 95 years if corporate, lifetime+70 years if personal (today)

• Trademark (not in the Constitution!): for naming products/services
  – Gives exclusive right to use a name in a particular market (e.g., Apple)
  – To enforce, have to prove consumer confusion or trademark dilution

• Trade Secret (not in the Constitution!): for inventions + business data
  – Gives exclusive right to use as long as no one else discovers the secret
  – Inappropriate use, disclosure, and receipt punishable by state and federal laws
  – But if someone honestly figures out your secret, you are not protected


Intellectual Property at the Founding of the U.S.
“...the benefit even of limited monopolies is too doubtful, to be opposed to that of their general suppression”
Thomas Jefferson (in a letter to Madison)

Eventually, with Madison’s help, he is convinced that monopolies may be granted to encourage inventions and creativity: for the public benefit.

That’s how we get the Constitution’s intellectual property clause (I.8):
“The Congress shall have Power […]
To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”
Fair Use

Not all copying requires copyright owner’s permission
If it’s fair use, it doesn’t. Fair use depends on
1. The purpose and character of the use of copyrighted work
2. The nature of the copyrighted work
3. The amount and substantiality of the portion used in relation to the copyrighted work as a whole
4. The effect of the use upon the potential market for or value of the copyrighted work

Source: Electronic Frontier Foundation’s “Teaching Copyright”
http://www.teachingcopyright.org/handout/fair-use-faq

The Betamax Case

Sony Corp. of America v. Universal City Studios, Inc. (1984)

• Question: is it legal to sell VCRs that have TV tuners?
  – Obviously, VCRs allow copying copyright material by recording TV off the air
• Held (by a 5-4 vote of the Supreme Court)
  – Many broadcasters don’t mind this kind of copying
  – Even those who mind can’t forbid private home use for time-shifting, because it’s fair use
  – Hence, VCRs have substantial non-infringing uses and can be sold
• Initially, justices felt 6-3 the other way. What if that view prevailed?
  – No VCRs?
  – No movie rentals?
  – No home camcorders?
  – No DVDs?
  – No Netflix?
  – No TiVo?

The Challenges for Copyright Today

• Copyright tries to control copying and distribution, but that’s what computers do all the time
  – Copying is no longer a conscious act for a person
  – Computers copy without human involvement
  – Impossible to tell which copying is authorized and who is at fault (e.g., http://www.playlist.com/)
  – Infringement on a massive scale is easy, fast, and cheap
• Information is not tied to physical medium
  – What do you buy when you buy bits (e.g., mp3 or ebook – who has control?
  – What happens to the first sale doctrine (can you resell/loan?)
  – Copying is essential to make it usable now and to preserve it for later
• Millions of works in the same place, with different copyright owners
  – Knowing who owns what copyrights is impractical
  – Who is responsible for policing infringement? Can web sites be held liable?
• Software is covered by copyright law (covered for 95+ years)
  – Yet it is a useful device [other devices covered for only 20 years by patents]
  – Copying is essential to make usable now and to preserve it for later

(Attempted) Remedies

• Digital Millennium Copyright Act, passed in 1998
  – Relieves third parties of liability and facilitates speedy takedowns via notice/counternotice regime
  – problem: shoot first, ask later; see EFF’s Hall of Shame http://www.eff.org/takedowns

DMCA § 512. Limitations on liability relating to material online

• (c) Information Residing on Systems or Networks at Direction of Users.
  – (1) In general. — A service provider shall not be liable for monetary relief […] for infringement of copyright [as long as]
  – (C) upon notification of claimed infringement […] responds expeditiously to remove […] the material that is claimed to be infringing
• So the copyright owner can file a DMCA notice to have the material removed (service provider must comply or else face liability)
• The party who posted the material can file a counter-notice to have the material reinstated (liability for noncompliance are unclear)
• Reinstatements can take up to two weeks. Service provider can’t adjudicate who is right or wrong – further fights go to court
DMCA and the power of Content Owners

• DMCA gives content owners the power to silence speech without having to prove their case in court (even if this speech is fair use, or even if they don’t own the content)

• In reality, content owners have even more power, because site operators are afraid of copyright lawsuits and need to play well with content owners in order to run their businesses.

• Even though DMCA requires sites to remove content only in response to requests, many sites (e.g., youtube) will remove content preemptively, without a DMCA complaint

Using NASA Imagery and Linking to NASA Web Sites

NASA still images; audio files; video; and computer files used in the rendition of 3-dimensional models, such as texture maps and polygon data in any format, generally are not copyrighted.

DMCA claim by someone who doesn’t own copyright

“YouTube Flags Democrats’ Convention Video on Copyright Grounds”

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“YouTube Flags Democrats’ Convention Video on Copyright Grounds”
“In an interview Tuesday afternoon, NASCAR Vice President of Digital Media Marc Jenkins made clear one point: ‘This was never a copyright issue for us,’ he said.”

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  • There have been recent attempts (first in other countries, now also in the US, despite the DMCA) to implement ISP-based policing of user behavior
  • “Three strikes” provisions that turn off your internet if they think you are infringing copyrights (no courts adjudicate those!)
  • May become part of the law in many countries if the Trans-Pacific Partnership Treaty becomes reality (currently being negotiated in secret, with input from content owners but not the public)

DMCA anti-circumvention provision: 17 USC § 1201
(a)(1)(A) No person shall circumvent a technological measure that effectively controls access to a [copyrighted] work

(a)(2) No person shall manufacture, import, offer to the public, provide, or otherwise traffic in
any technology, product, service, device, component, or part thereof, that –

(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a [copyrighted] work

U.S. Constitution, First Amendment
Congress shall make no law ... abridging the freedom of speech
### Two Competing Views

- Programs are bits
- In general, bits are information.
- In particular, programs convey creative information to programmers, students, and others.
- Information is protected by freedom of speech
  
  Therefore, programs are protected speech

- Computers are devices
- Purpose of programs is to make computers work
- In particular, programs can launch rockets, control the power grid, copy music, play movies, and forge documents
- Devices can be regulated by the government
  
  Therefore, programs are devices and can be regulated

### Implications of the Creative Speech view
- Government has almost no ability to restrict programs
- No “prior restraint” on publication
- Programs are protected by copyright law
  
  (Copyright = automatically granted monopoly to copy for lifetime + 70 years, or 95 years if corporate author)

### Implications of the Device view
- Government can regulate/ban programs just like it can regulate/ban nuclear weapons, guns, toasters, or toys
- Programs are protected by patent law
  
  (Patent = monopoly to distribute, but only if you disclose, prove novelty, and pay fees; lasts 20 years)

### Examples of speech vs. device problems

- What do you buy when you buy software if you can’t use it the way you want to: [https://www.eff.org/deeplinks/2010/12/mixed-ninth-circuit-ruling-mdv-v-blizzard-wow](https://www.eff.org/deeplinks/2010/12/mixed-ninth-circuit-ruling-mdv-v-blizzard-wow)


- Phil Zimmerman’s arrest for exporting crypto software: [https://w2.eff.org/legal/cases/PGP_Zimmermann/sussman.article](https://w2.eff.org/legal/cases/PGP_Zimmermann/sussman.article)

- Gallery of CSS Descramblers (arguing for code=speech and against DMCA) [http://www.cs.cmu.edu/~dst/DeCSS/Gallery/](http://www.cs.cmu.edu/~dst/DeCSS/Gallery/)


### Why the difference matters

#### “Current jailbreak techniques now in widespread use utilize unauthorized modifications to the copyrighted bootloader and OS, resulting in infringement of the copyrights in those programs.”

Comment of Apple, Inc.

In Opposition to EFF’s Proposed Exemption for Phone Jailbreaking

(note 1: the OS is available free on Apple web site)

(note 2: the copyright office granted the DMCA (a)(1) exemption July 2010; (a)(2) is not exemptable, so it’s legal to jailbreak, but not to distribute software that does so)

### (Attempted) Remedies

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- Anti-circumvention (problem: limits innovation, preempts fair use)
  
  - Jailbreaking your phone is legal, but distributing software to do so is not
  - Unlocking your phone to take it to another carrier may no longer be legal (copyright office removed exemption to DMCA in 2012)
  - DMCA (or worse) may get codified in an international agreement being negotiated in secret called the “TransPacific Partnership” (TPP)

#### Law enforcement action (domain name seizures)

- Gov't obtains a court order forcing the ISP to "unlist" the site from its directory (technically, to redirect a DNS entry; see megaupload.com, www.cs.cmu.edu, and www.eff.org/user-content/buy-a-lot)
- Problems: weak burden of proof, silences legitimate speech, broadens jurisdiction beyond borders
The scariest of all remedies

- **Computer Fraud and Abuse Act (CFAA)**
  - Written in 1984
  - Prohibits access without authorization (initial idea: stop people from breaking into systems); authorizes years in prison
  - Has recently been used by law enforcement for prosecuting people for not complying with terms of service
    - Should that really be a federal crime? Do you ever read terms of service?
    - Teenagers can be prosecuted for reading nytimes.com (age restriction in terms of service says you must be 18)?
    - "Under the government’s proposed interpretation of the CFAA...describing yourself as ‘tall, dark and handsome’, when you’re actually short and homely, will earn you a handsome orange jumpsuit" [Judge Koziński] (many sites require “truthfulness” under terms of service)
  - Has caused real damage
    - Aaron Swartz was prosecuted under it for downloading too much from a website that he was allowed to download from; was threatened with up to 35 years in prison; committed suicide

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  - Problems: weak burden of proof, silences legitimate speech, broadens jurisdiction beyond borders

- **Proposed SOPA/PIPA**
  - Would codify procedures for these domain seizures and search engine delisting
  - Additional problem: breaks Internet (DNS) on a technical level

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**http://www.rojadirecta.org**

*(ruled legal in Spain!)*

**SOPA/PIPA protests (Jan 18, 2012)**

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