

CS 280

Risk and Reward in the Information Society

Intellectual Property

Intellectual Property: General Topics

- Overview of Patents, Copyright, Trademark
 - ▶ Some history, differences, consolidation
- Copyright Law and the Internet
 - ▶ history; software; media piracy
- Solutions
 - ▶ DRM, DMCA;
- Open Source and Creative Commons

Patents

- A tradeoff between an inventor and society
 - ▶ The inventor gets exclusive rights to use the invention for a limited time
 - ▶ In exchange, the inventor explains the complete details of the invention to society, so others may use it after the patent expires
- Seems to have existed in some form for thousands of years
- Currently 10-20 years protection depending

Patents

- Patents may be valid even if someone later independently comes up with the same idea
- “patented” on an object is not required
 - ▶ warns others not to copy
 - ▶ illegal to fraudulently mark something as patented
- “patent pending” has no legal effect
 - ▶ warns others that you have already applied for a patent

Patents: Applying

- To be granted a patent, the invention is subject to tests of *novelty*, *utility* and *inventiveness*.
 - ▶ Novelty: you are the inventor, it is the first time it has been done
 - ▶ Utility: invention must work or have a useful function
 - ▶ Inventiveness: must be a non-obvious improvement over the current technology
- Software patents? we'll come back to that...

Patent Consolidation

- Patent laws differ from nation to nation
- Patents are filed in individual countries
 - ▶ PCT (Patent Cooperation Treaty) allows registration of a patent application with member countries, but patent must then be filed individually.
 - ▶ PCT is under WIPO (World Intellectual Property Organization)

Copyrights

- protects the *form* of a work rather than the content
 - ▶ Sole right to produce, copy, perform, publish
 - ▶ Right to translate, record, or transmit
 - ▶ "moral rights": author associated; prevent changes by others who copy or otherwise use the work
- Defended or asserted on a case-by case basis
 - ▶ Infringement is decided in the courts

Copyrights

- Any original literary, dramatic, musical, or artistic work
 - ▶ software source code is subject to copyright
- Copyright is Automatic (no registration required)
 - ▶ Registering your copyright with the copyright office can make it easier to defend
 - Copyright office does not evaluate claims, just records claims
- Marking (© author year) not required

Copyrights Terms

- Canada: Life of the author, plus 50 years
 - ▶ US, europe: life+70 years
 - ▶ 75 - 95 yrs from the date of creation, for corporate-created works
- Fair Dealing: limited permission to make copies for:
 - ▶ Research or private study; Criticism or review (with citation); News reporting; Educational Institutions (various); Personal software backups
 - ▶ Education, parody and satire added in 2011 (Copyright modernization act)

Not covered under copyright laws

- Facts, ideas, or news
 - ▶ The expression of these facts, ideas and news is protected (i.e. the book, movie clip or news article)
- Titles, plots or characters, or Names of software
 - ▶ These may be protectable under trademark
- Mathematical formulae
 - ▶ algorithms may be patentable, depending on jurisdiction

Trademarks

- Identify the provider of a specific good or service
- Slogans, words, packaging, colours, sounds
 - ▶ <http://mentalfloss.com/article/27396/9-trademarked-colors>
- Only applies to a *specific industry*
- Registration not required.
 - ▶ But you must be seen to defend it or you might lose it
- Valid for 15 years, renewable in 15-year terms

Trademarks

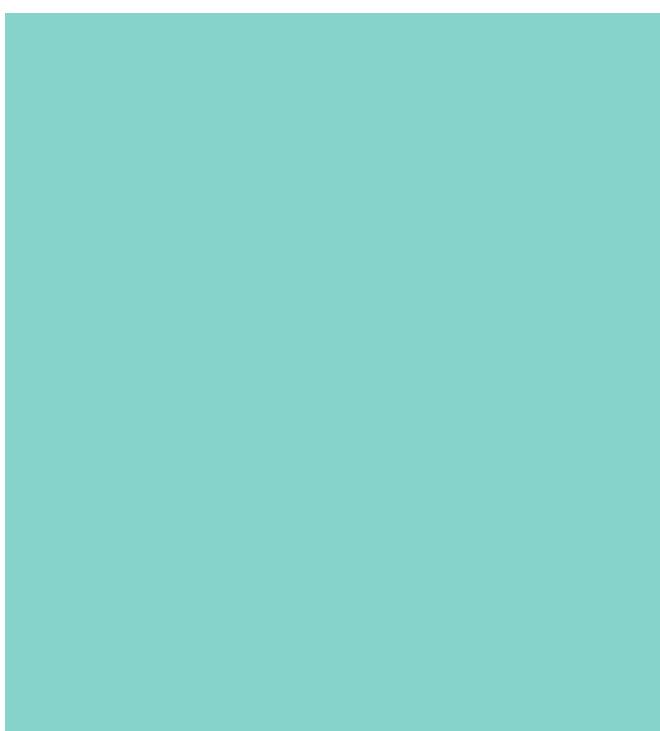
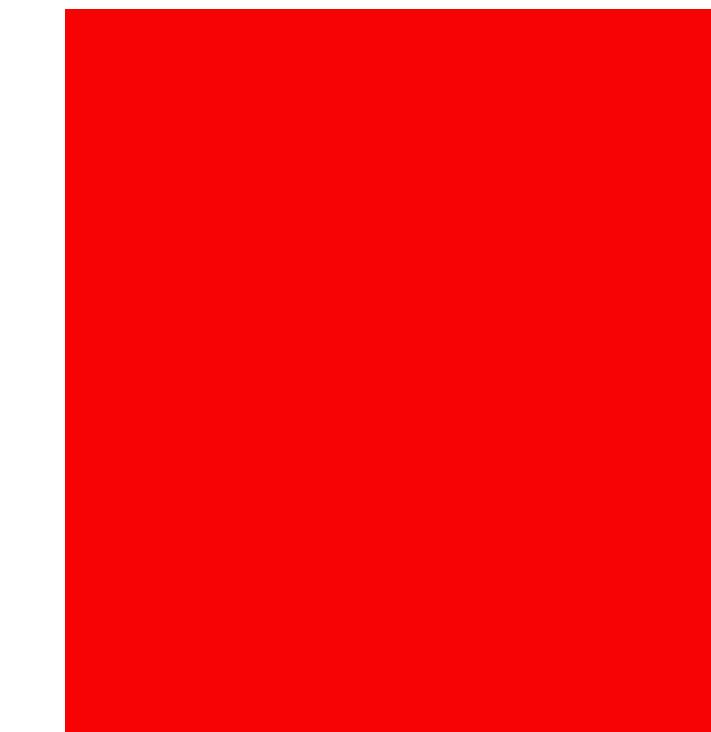
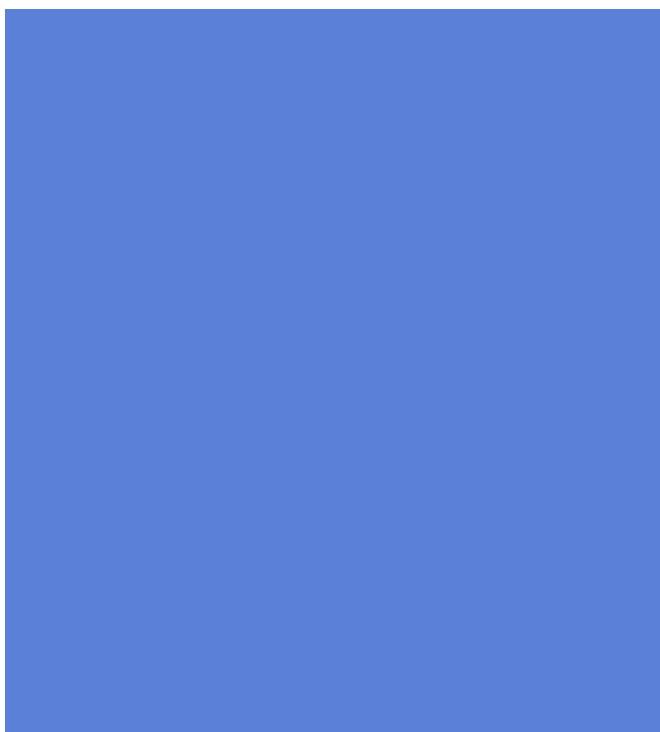
- No “marks” required (but it’s a good idea)
 - ▶ Trade-Mark ™ symbols can be used without registration
 - ▶ Symbol for registered ® trademarks
- Requires maintenance
 - ▶ must be seen to be using the trademark
 - why trademarks are strongly defended in court cases that seem ridiculous to the average viewer

Not trade-markable

- words that are clearly descriptive (e.g. "delicious" ice cream);
- terms that are misleading;
- words that designate a place of origin (e.g. "Atlantic" cod);
- terms or symbols that are too similar to an existing trade-mark in a specific industry; and
- terms and symbols that are expressly prohibited under the Trade-marks Act.

Trademarking Colours

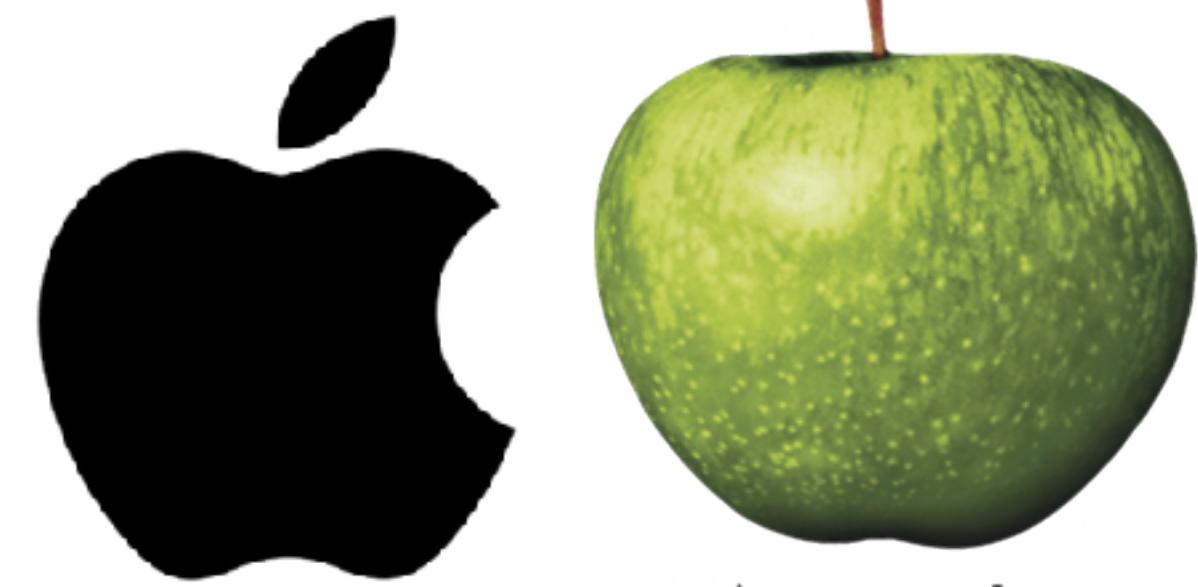
- These colours are trademarked. What are they?



Trademarking Colours

- Owens-corning trademarked “pink” insulation in 1985
 - ▶ If a colour is functional or generally preferred by the market, it can’t be trademarked
- UPS brown, T-mobile Magenta, Tiffany Blue etc
- Cadbury purple and 3m purple are both trademarked, but it’s OK because they are in different industries.

Apple Computers vs Apple Corps



Apple
Corps

- Apple Corps owned by the Beatles
 - ▶ Music, film, electronics, publishing, media
- Apple sued apple for trademark infringement
 - ▶ Small money settlement and right to use, as long as apple computer didn't enter the music industry
 - ▶ 1989: apple sued apple: Macs could play back MIDI. Won
 - ▶ 2006: apple sued apple for itunes. Lost. (selling music is not making music)
 - ▶ 2007: apple took ownership of all trademarks, licensed some back to apple

APPLE PATENTS ROUNDED RECTANGLES



FIG. 3



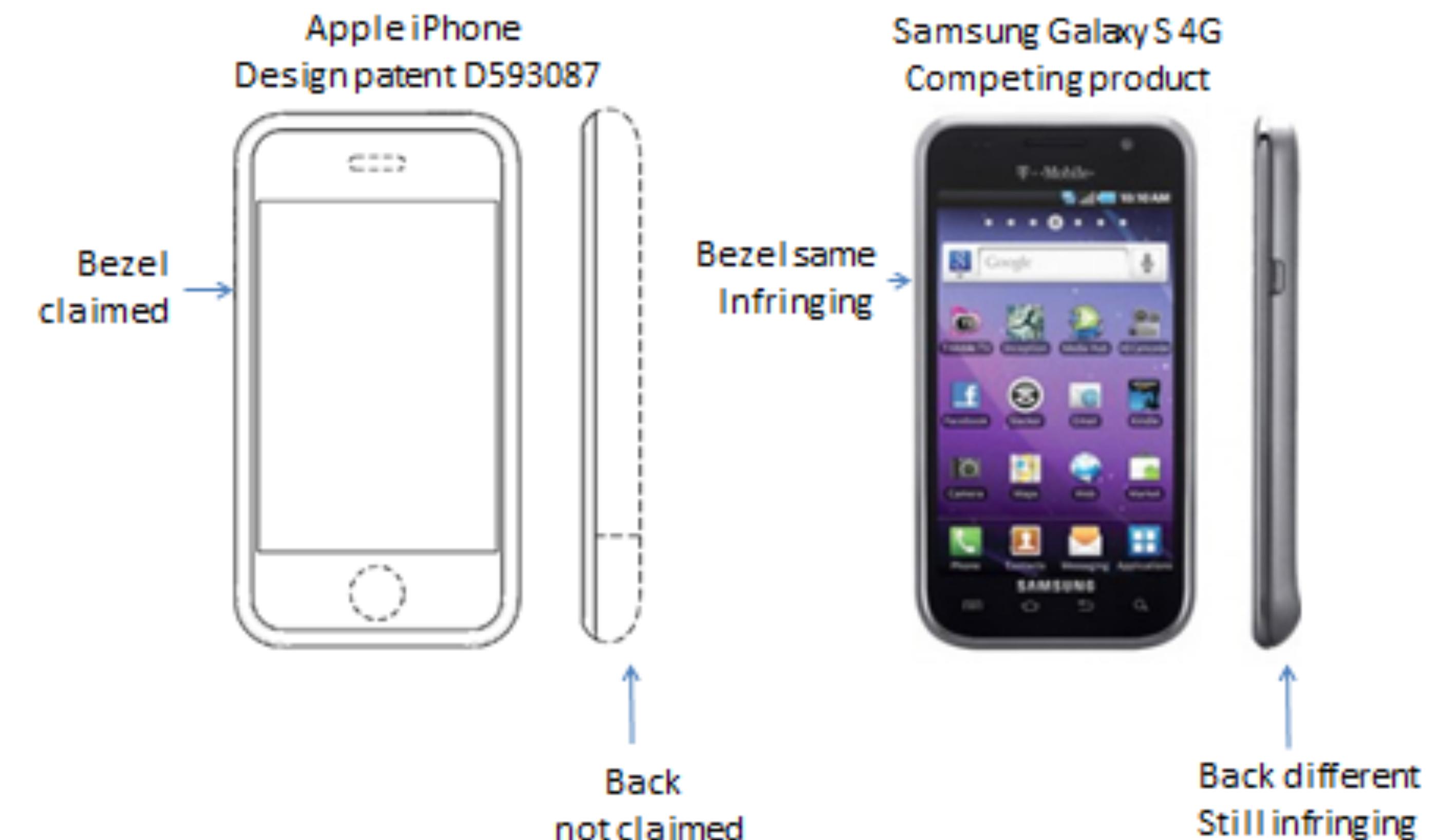
FIG. 4

Apple patents rounded rectangles

- No, they didn't. They were issued a design patent
 - ▶ Design patent is more like a trademark than a patent
 - ▶ The ornamental shape of your product, as a market differentiator
 - ▶ Coke bottle is a famous design patent
- Design patents are a U.S. thing
 - ▶ Other countries have “industrial design” protection
 - ▶ Not required to show intent to copy (like copyright infringement). If it's the same for any reason, it infringes.

Apple V Samsung (2011, 2012, ongoing)

- Apple accused Samsung of various infringements
 - ▶ Copyright
 - ▶ Trade Dress
 - ▶ Trademarks
 - ▶ Packaging
 - ▶ Design Patent
 - ▶ Software Patent
 - ▶ Software Copyright



Apple and Samsung Smartphones

Apple and Samsung Smartphones

Samsung Products Before iPhone



Apple iPhone
Announced

Jan. 9, 2007

Samsung Products After iPhone



2004

2005

2006

2007

2010

2011

Hard to prove copying, Unless you have proof

Translation

Confidential

Relative Evaluation Report on S1, iPhone

March 2, 2010

Product Engineering Team
SW Verification Group



HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

SAMNDCA00203880

<https://www.scribd.com/doc/102317767/Samsung-Relative-Evaluation-Report-on-S1-iPhone>

10. Browsing _ Web Browser

Other countries cannot be added in the Weather app

- i-Phone: Users can easily add other countries using the option key on the screen
- S1: There is no menu for selecting additional countries for checking the weather

i-Phone



서울
최고: 14°C 최저: 4°C
목요일 11°C 4°C
금요일 13°C 2°C
토요일 7°C 1°C
일요일 9°C 1°C
월요일 4°C 1°C
화요일 9°C 1°C
업데이트: 10. 2. 25. 오전 11:38

S1



Seoul
27.2° 5.1°
More
10°C 12°C 0°C
2월 28 3월 1 3월 2
13°C 4°C 10°C -3°C 8°C -4°C
Hour by Hour Radar/Set Forecast Details
Last updated: 2013-02-27 07:44

Cities can be easily added using the "i" key at the bottom right corner of the city screen for the country that you wish to check the weather for

There is no menu to add cities other than the one you had initially configured to check the weather for

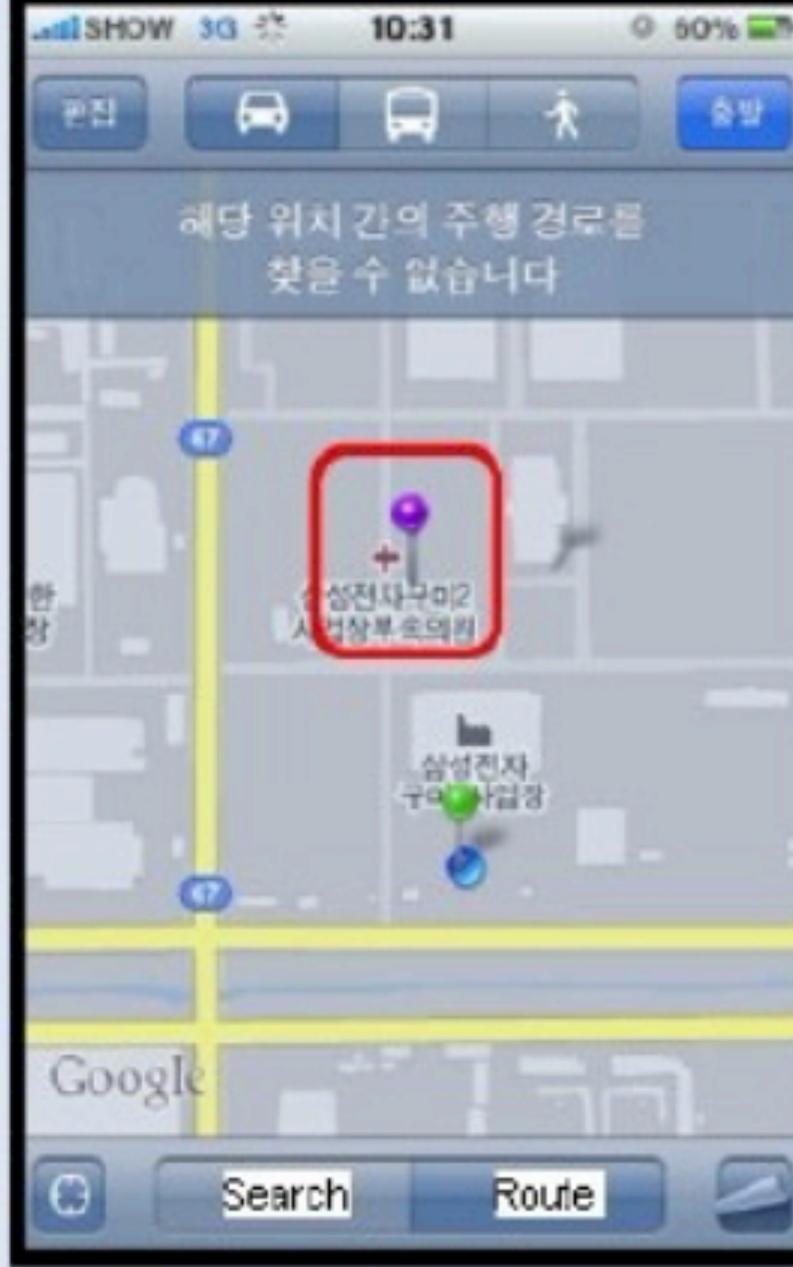
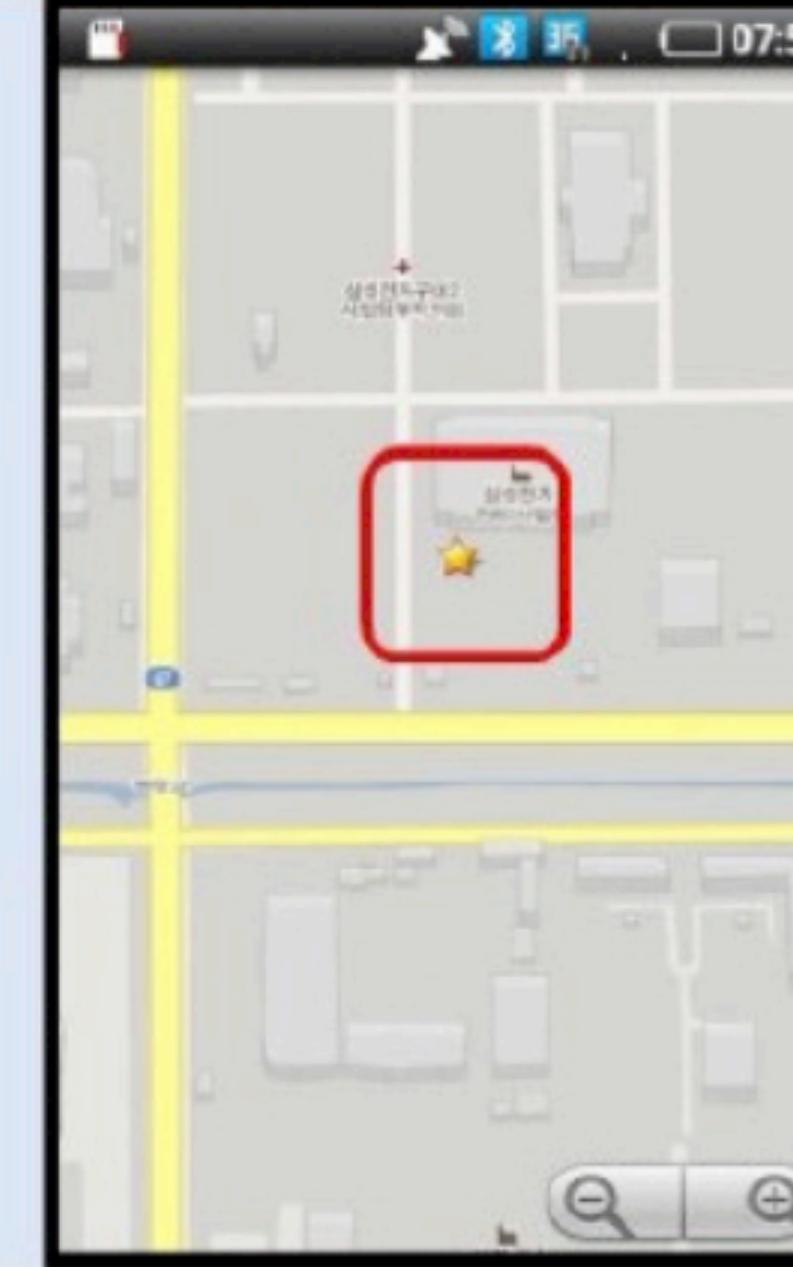
Directions for Improvement

Need to add a menu for conveniently adding more cities on the screen

112. Visual Interaction Effect _ Maps

No animation effect when designating PIN from Maps application

- i-Phone : Added animation showing pin dropping from the upper screen and hitting the ground when it is designated
- S1 : Animation not supported

i-Phone	GT-i9000(S1)
 <p>After launching Maps App, when PIN drop from Option is selected, animation of pin dropping from the upper screen and hitting the ground is shown, making it fun for the user</p> <p>Directions for Improvement</p>	 <p>Animation not supported</p> <p>Need to develop UX that can deliver not only functional operations but also fun factor</p>

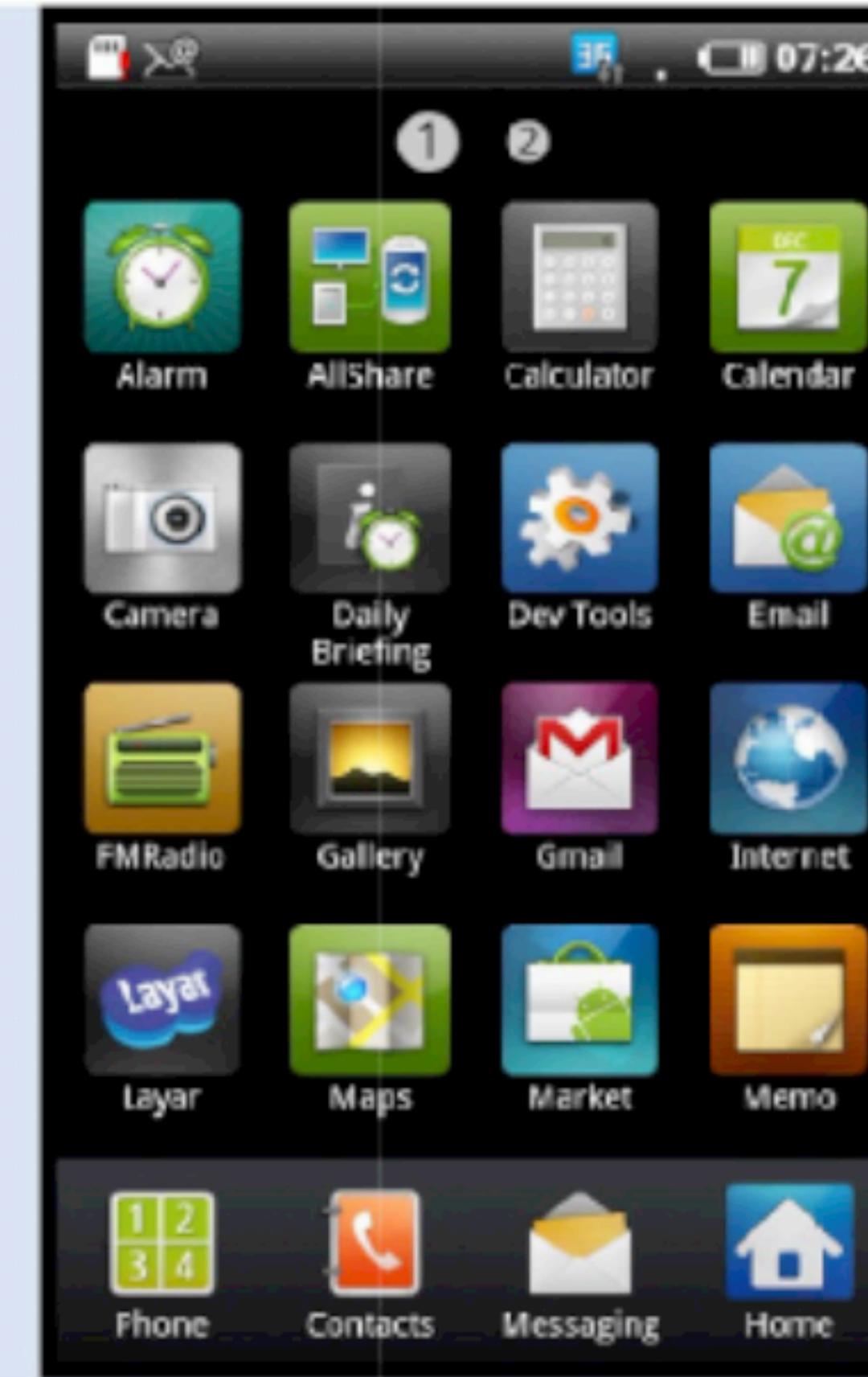
i-Phone



Light used for a three dimensionality; gives a luxurious feel.

Curves are fluid to give a soft and comfortable feel.

GT-i9000



Menu icons lacking in three dimensional effect using light.

Icon edge curvature not fluid.

Strong impression that iPhone's icon concept was copied.

Directions for Improvement

Insert effects of light for a softer, more luxurious icon implementation.
Make the edge curve more smooth to erase the hard feel.
Remove a feeling that iPhone's menu icons are copied by differentiating design.

aside: Notch

- A not-great (IMO) design compromise for edge-to-edge screens, that android phones are copying en mass.
- Apple gets away with it because all notches are the same and software can know about and compensate for it end to end
- All android notches are different and the software may or may not know about it.



Apple's claims

- Samsung stole the results of billions of dollars of UI research, design, development, testing, and refinement
 - ▶ Probably true
 - ▶ Lower price hurt apple's sales
- Users are confused by the similarity
 - ▶ Apple's success hurt them here: Most users said “it's like an iphone, but not as good” which means they do know the difference
- Case still going back and forth today

Other Canadian IP protection

- Industrial Design
 - ▶ Requires registration
 - ▶ shape, pattern, ornamentation or configuration applied to a finished manufactured article.
- Integrated Circuit Topologies
 - ▶ Requires registration

Overlapping IP types

- Patents, Trademarks, Copyright are for different things
 - ▶ Some try to use one where another fails
 - ▶ Lego vs MegaBlocks
 - Lego's patent expired, MegaBlocks and others begin selling similar interlocking toys
 - Lego tries to sue based on trademark violation
 - Canada courts dismiss the claim (Kirkbi AG v. Ritvik Holdings Inc. 2005)





3d-printing and design patents

- Many issues around 3 printing:
 - ▶ If I print a coke bottle, am I infringing? What IP form?
 - ▶ If I print a piece of lego, what IP am I infringing?
 - ▶ If I share or download a 3d model of a coke bottle?
 - ▶ If I share or download a 3d model of a printable gun, am I an arms distributor?
 - ▶ When all information is digital, how do different types of IP protection work?

International Patent and TM treaties

- ▶ for patents and trademarks, you must file in every country for which you want protection
- Patent Cooperation Treaty (PCT)
 - ▶ Makes the initial filing of the application universal
- Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)
- World Intellectual Property Organization Copyright Treaty (WIPO-CT)
 - ▶ US's implementation is the DMCA (more later)
 - ▶ Bill C-11 is Canada's ratification. (more later)

International IP treaties: Copyright

- Several international copyright treaties:
 - ▶ Berne Copyright Convention, the Universal Copyright Convention, the Rome Convention, and the World Trade Organization (WTO)
- Member countries share copyright registration
 - ▶ some countries require registered works to be marked ©

ACTA

- Anti-counterfeiting trade agreement (2011)
- Applies to physical products
 - ▶ Not just fake lego. Fake coach bags too!!
- Signatories: North america, europe, Australia
- Not signatories: China, Indonesia, (also Russia, Africa, south america)
- Japan ratified, Most (including Canada) still have not although parts of it were in bill C-11

SOPA, PIPA

- Applies to digital products
- Stop online piracy act, Protect IP Act
 - ▶ Two US attempts to enact stronger legislations for online sharing of content
 - ▶ Targeted “The Pirate Bay” among others
 - ▶ Rules were broad and overreaching
 - ▶ Internet companies went dark in protest
- Both failed, but MPAA, RIAA continue to lobby for stronger rules and ability to unilaterally block content
 - ▶ Related: net neutrality (more later)

TPP: Trans Pacific Partnership

- Signed in Feb 2016
- Among other things, plan to unify IP protection (Patents, trademarks, Copyright)
 - ▶ Life+70 for copyright, punishment for breaking DRM
 - ▶ Litigation could be launched without a formal complaint

TPP and CPTPP

- Canada resisted the change to Life+70 years
- US has pulled out of TPP as of 2017
 - ▶ US was the reason for many of the TPP clauses
- Canada and the original other countries are making a new TPP
 - ▶ Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)
 - ▶ Talks still ongoing today.

Ownership of intellectual property

- Intellectual property is *perpetual*
 - ▶ doesn't wear out or get used up or consumed
- *Limited duration* for initial ownership
- After duration, passes into public domain
 - ▶ Anyone can use, copy, publish, perform
- Owner of copyright can sell, transfer or change
 - ▶ Copyright law is both a protection for the author, and a restriction on what the author can require.

Public Domain

- No legal restrictions on use
 - ▶ “owned by everyone”
- Works created before IP law existed
- Works for which limited IP protection has expired
 - ▶ trademarks can be renewed
- Works placed in the public domain by the copyright owner
- Facts, news, formulae, and other things not protected

Brief History of Copyright terms

- Printing press (1445) made copying possible
- Statute of Anne (1709)
 - ▶ Authors (not publishers) rights to determine copying
 - ▶ 21 yr term for existing works, 14 yr term for new
 - ▶ Established rights for the public as well as owners
- UK Literary Copyright Act of 1842
 - ▶ Life+7 years or 42 years, whichever is earlier
- 1911: extended to life+50 years
- Berne convention: minimum life+50
- Sonny Bono act (US): Life+70

General copyright term controversy:

- Samuel Clemens:
 - I am aware that copyright must have a term... because that is required by the Constitution of the United States, which ... says that you shall not take away from any man his property. But the laws of England and America do take away property from the owner. They select out the people who create the literature of the land ... I do not know why there should be a limit at all. I am quite unable to guess why there should be a limit to the possession of the product of a man's labor.

General copyright term controversy:

- Richard Stallman:
- I think the term of copyright should be around 10 years after publication for novels, and maybe 20 years for feature films, to provide sufficient incentive. Nowadays, most books are remaindered soon, and out of print in three years. Very few books remain in print for 10 years, and those that do have already been big successes. So a 10-year copyright term would be enough to keep the publishing business going and to keep authors getting paid.

General copyright controversy:

- The main questions: What is copyright *for*?
 - ▶ Motivate / Remunerate authors?
 - ▶ Limit creator's rights?
 - ▶ Provide for works to enter the public good?
- Who benefits?
 - ▶ Authors?
 - ▶ Corporations?
 - ▶ Public?
- Is there a balance between creator rights and fair use?

Star Wars versus Cinderella

- Most fairytales were written under copyright law, but have passed into the public domain
 - ▶ They become part of our culture, owned and remixed by everyone
- Starwars is part of our culture, and should be owned and remixed by everyone
 - ▶ But it has not passed into the public domain
- Disney's versions of fairytales are not in the public domain
 - ▶ As they become the definitive version, those ideas pass out of the public domain into private ownership again.

Copyright law and new technology

- New technologies have always challenged copyright ideas
 - ▶ Printing press
 - ▶ photocopier, VCR, high-speed dubbing
- Laws appropriate for one method of copying may not be appropriate for others
- Some relevant cases

Fair-Use Cases

- *Sony v. Universal City Studios*
 - ▶ 1984: U.S. Supreme Court ruled that non-commercial copying (recording) of a movie for viewing at a later time was fair use.
 - ▶ Court ruled that copying devices (in this case, Betamax VCR) should not be banned if they have ***significant legal uses***.
- *Sega Enterprises, Ltd. v. Accolade, Inc.*
 - ▶ 1992: Reverse engineering a complete program in order to produce new, creative work was ruled fair use.

Fair Dealing (Fair Use in US)

- Copyright should not result in an undue restriction of users' rights
- User must prove that the dealing was fair
 - ▶ *Copyright is decided in court*
- Decision is based on the dealing itself
 - ▶ A small snippet of the work for personal use for study is probably OK
 - ▶ A complete copy of the work to avoid buying it is probably not OK

Access Copyright

- Corporation created to assist universities in navigating copyright
- Beyond the scope of this course but worth looking up
 - ▶ There were ... issues.

Copying Music, Movies, Software

- Media in digital formats means copying is trivial and free
- Connectedness of computers means distribution is trivial and free
- Copying ranges from individuals “testing” a game before they buy to groups creating and selling counterfeit products
- Organizations & copyright holders fighting this
 - ▶ legal, social, and technical means
 - ▶ MPAA, RIAA, software companies, individuals

Online Music & Movie Copying history

- Pre-napster
 - ▶ files indexed on websites, downloaded
 - ▶ Copyright infringement was “obvious”
- Napster (1999, Shawn Fanning)
 - ▶ P2P index service
 - Allowed individual users to swap directly, computer-to-computer
 - maintained a central server index of files available for sharing

MGM Studios, Inc. v. Grokster, Ltd.

- US supreme court decision (2005)
 - ▶ re-visits 1984 Sony v Universal VCR case
 - ▶ “...one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringement by third parties.”
- How does this relate to the sony case?

Bittorrent



- Trackers: list available torrents
 - ▶ Target of litigation
- Google was a tracker itself
 - ▶ Hard to find trackers on google anymore too
- US Govt seize domains of infringing sites
 - ▶ even if they have significant non-infringing uses
- Resiliency of the PirateBay
- If you download and also upload, it's commercial infringement

**HOME TAPING IS
KILLING MUSIC**



Blank media levy

- 1998: recordable media subject to a levy
 - ▶ similar levies collected in US, EU etc
- Making a copy of a musical sound recording for the private use of the copier is **legal** in Canada regardless of the source.
 - ▶ levy is redistributed to member musicians based on their market share
 - Justin Bieber, Neil Young, Sarah McLachlan etc.
- "*Blank audio recording media*", "*regardless of the purchaser's end use of the media*."

Digital downloads in Canada

- 2003: court says uploading copyrighted material is illegal but downloading is legal
 - ▶ BitTorrent: upload and download at the same time
- Hard Disk Media Levy (2003)
 - ▶ up to \$25 charge on ipod-like devices
 - ▶ to compensate for downloaded music
 - ▶ ruled unconstitutional in 2004, OK in 2007, no go in 2008, back and forth.
- Only applies to audio, not software or movies.

Justifications for downloading

(... spot the fallacy ...)

- I can't afford to buy it
- They are charging more than it's worth
- I wouldn't have bought it, so they aren't losing a sale
- The company is large and can handle the loss
- Making a copy for a friend is a morally good thing to do
- Counterfeitors / Pirates are a bigger problem
- Everyone does it
- *... more?*

Legal online music services

- ▶ record companies license music to providers, who must guarantee security
- Purchase model (eg iTunes)
 - ▶ consistent price scheme (\$0.99 per song)
 - ▶ download, keep, play on compatible machines
- Subscription model (eg Spotify, Apple Music)
 - ▶ annual fee gives access to any music
 - ▶ Music disappears when you stop paying the fee
- Advertising model (eg Songza, google music)
 - ▶ Free streaming with ads.
 - ▶ Free Downloads with ads was a thing but no more.

Legal Music services

- Problem: competing copyright protection methods
- Different DRM methods may or may not work on different platforms
 - ▶ Most sales platforms now offer DRM-free options.
- Music Ownership
 - ▶ do you prefer to “own” the music library rather than license it? Has Netflix and other streaming services changed this?

Solutions to Illegal downloading

- Legal:
 - ▶ change laws to reflect new technology
 - ▶ Prosecute those who aid copyright infringement
- Social:
 - ▶ reasonable alternatives; “value-added” marketing
 - ▶ Make ethical arguments (carrot, stick)
 - ▶ engage in FUD (“downloads are full of viruses!!!”)
- Technological:
 - ▶ Encrypt/protect copyrighted material: DRM

DRM: Digital Rights Management

- Restrict content to one individual
- usually makes use of encryption (music, movies)
- Allows the legal purchaser to use, but not to copy, the purchased media
 - ▶ DVDs, downloaded music, games etc
 - ▶ Often restricts fair dealing usage
 - ▶ Illegal to break DRM, overriding fair dealing law.

General objections to DRM

- Removes ability to engage in “fair dealing”
- doesn’t allow me to re-sell my copy (not allowed for digital copies anyway)
- doesn’t allow the copyright to expire
- Doesn’t work anyway (easy for criminals to break)
- “reduction in sales” has not been proven
 - ▶ Many quoted numbers are contradictory
- Anticompetative: player-A won’t play B’s DRM

DRM Examples: Sony Rootkit

- in 2005, some Sony CDs:
 - ▶ when inserted, would install a “rootkit”
 - change the way Windows plays CDs
 - Silent install, not in EULA, no uninstaller
 - ◆ illegal in some jurisdictions
 - ▶ Intent: prevent ripping of CDs except by Sony software
 - ▶ Poorly written, exposed security holes
 - ▶ many considered it “spyware”, “malware”

Ironies in the Sony case

- Sony had earlier sued for *fewer* restrictions
 - ▶ in the VCR case
- Sony broke software copyright when it used an open-source MP3 encoder called “LAME”
- Sony broke software development laws when the rootkit was installed without warning or confirmation
- “rootkit” is a term used for a “black-hat” hacker tool to conceal running processes
 - ▶ And was the word used by Sony

DRM Examples: DeCSS

- DVDs have DRM called CSS, built into the hardware
- CSS was reverse-engineered in 1999, distributed (DeCSS)
- MPAA Cease-and-desist letters to remove distribution
 - ▶ Code is copyright but the idea and algorithm is not
 - ▶ Remixed into tshirts, music, poetry.

```
/* editor.c Author: Charles H. Hannum */
#define n(i) ((i)<0?0:(i))

unsigned char x[5]      ,y,s[2048];main{
    int i=0,x,z      ;read(0,x,n=2048
        ,y,write(1,s,n))if(s
    [12]>=20) /1644 ==1 )int
    z=n(
        1)17 ^256 *n(0)  0,k
        =n(2)
    0,j=
        n(4)  17^ n(3)  9^k*
        2-k18
        ^8,a
        =0,o  -26;for (s[y]
        ==16,
    --c;j
        ==2)x=
        =2^i&
        1,i=i /2^j<1
    <<24;for(j=
        127,
        +i<n)c>>
        y)
        o
        +y=i^i/8^i>>j^i>>12,
        i=i>>8^y<<i7, s=c>>14,y=x^x+8^x<<4, a=a
        >>8^y<<9,k=s(j),x
        =n(780^"e \216"(k
        47)+2^x*x3xfw6v,+k>>/n, "(x>>4)+2^k+257/
        8,s(j)=k^((k&k+2439)*6^c+y
        :1)
```

Now help me, Muse, for
I wish to tell a piece of
controversial math,

for which the lawyers
of DVD CCA
don't forbear to sue:

that they alone should
know or have the right to teach
these skills and these rules.

...
You need two things here:
An encrypted disk key, which
is just six bytes long.

(Only five of those
are the key itself, because
"zero" marks the end.

DeCSS and the DMCA

- DeCSS was two issues
 - ▶ Circumventing the encryption on DVDs
 - ▶ distributing the method of circumvention
- Both of these are illegal under the DMCA
 - ▶ reverse-engineering was previously legal
- What exactly does the DMCA say?

DMCA and WIPO-CT

- WIPO Copyright Treaty (1996)
 - ▶ Computer programs and databases are protected as literary works
 - ▶ Gives authors exclusive rights of distribution and rental of software
 - ▶ Prohibits circumvention of copyright protection mechanisms for any reason, even in cases of fair use
 - ▶ Ratified by 95 states
 - ▶ CMA is Canada's ratification of WCT

Aside: international copyright treaties

- Canada is party to 4 of the 5 international copyright treaties
 - ▶ 1886 Berne convention (ratified 1928)
 - ▶ 1952 Universal Copyright Convention Geneva (ratified 1962)
 - ▶ 1994 Trade-Related Aspects of Intellectual Property Rights (TRIPS) (ratified 1995)
 - ▶ 1996 WIPO CT (ratified 2014)

DMCA: Safe Harbour

- ISPs, websites, and other third parties who host infringing material may be liable for hosting said material
- Safe Harbour provides a method for protecting organizations who unknowingly host infringing material:
 - ▶ If you take the material down as soon as you are informed it is infringing, you won't be liable for hosting the infringing content.
- Problem: infringement claims can come from anyone. They can be challenged later, but the material has already been removed.

Youtube and Safe Harbour

- 2007: Baby dances to Prince song
- Universal Studios orders takedown,
Youtube complies
- 2015: original poster wins lawsuit against universal,
claiming the takedown was illegal under fair use



Youtube and Copyright

- Youtube uses content algorithms to automatically detect infringing content
 - ▶ Used to remove it
 - ▶ Now offers to replace it (usually soundtracks) or demonetizes the video
- Youtube channels now get three chances (“strikes”)
- Major copyright holders have changed from attacking the platform to leveraging it by posting their own content

Youtube and Copyright: ContentID and Strikes

- Content ID is the system youtube uses to detect infringement
 - ▶ Easy to defeat with digital manipulation
 - ▶ Easy to get wrong with misattribution
 - ▶ “Please note that youtube does not mediate copyright disputes” <https://petapixel.com/2016/02/20/how-i-turned-a-bs-youtube-copyright-claim-back-on-the-real-infringer/>
- Many people are making a living on youtube now, and a single strike takes away their income
 - ▶ Anyone can issue a strike for any reason
- *Chilling Effect*: people create “safe” content and avoid “risky” topics so they don’t get taken down

DMCA Issues

- DMCA: It is illegal to make or distribute devices that can break digital locks.



DRM today

- Acquiring copies of content today is so easy, digital locks are almost a non-issue
 - ▶ Movies are streamed, torrented or otherwise acquired without the breaking of digital locks
 - ▶ Many media companies make material available without DRM
 - ▶ Original digital locks are broken offshore.
- DRM is still a big problem for games

Bill C-11 (Copyright Modernization Act)

- Canada's ratification of the WCT (2011)
- Adds provisions for digital locks
 - ▶ As problematic as the DMCA
- Adds several reasonably balanced clauses
 - ▶ Expanded fair dealing to include parody, education
 - ▶ Notice and notice
 - ▶ Limits personal liability
 - ▶ Makes photographers and performers the owners of commissioned work
 - before, if you pay a photographer you own the work

Notice-and-notice

- A provision of Bill C-11 that came into force on January 2nd, 2015
- A copyright holder who suspects an IP address of infringement sends a letter to the ISP (first notice). ISP must send the letter to you (second notice) or be liable.
 - ▶ As opposed to notice-and-takedown, the “safe harbour” DMCA provision
- Canadian copyright owners can sue you after you receive your notice.
 - ▶ Copyright law is decided in court.

Regarding SaskTel requirement to forward unauthorized use of The Cartoon Network Inc. property. Notice ID: 4ea32cee48f1f729cb77 Notice Date: Sun 25 Feb 2018 04:07:48 +0000 Dear [REDACTED] Companies that produce copyrighted materials such as movies and music monitor online activity to see if their content is being improperly used or shared. SaskTel has received notification from The Cartoon Network Inc. informing us that activities associated with the SaskTel IP address [REDACTED] has violated the copyright on The Cartoon Network Inc. property. We have identified this IP address to belong to your SaskTel Internet Account # [REDACTED]. As your Internet Service Provider, SaskTel is legally required to forward you notice of this copyright infringement. SaskTel does not have any further information regarding this infringement. If you have any inquiries regarding this notice, you must contact IP-Echelon - Compliance at: 6715 Hollywood Blvd Los Angeles CA 90028 United States of America p2p@copyright.ip-echelon.com +1 (310) 606 2747 For more information about Canadian Copyright Law and the role of Internet Service Providers, visit sasktel.com/copyright. Sincerely, SaskTel =====

===== Copyright infringement details from The Cartoon Network Inc. Infringing Property: Title: Steven Universe Filename: [AliQ] Steven Universe Season 3 [1080p;WEB-DL x264] Date and Time: 2018-02-25T04:07:47Z IP Address: [REDACTED] We urge you to take action to address this copyright infringement, including: (1) Remove or delete all unauthorized copies of the infringing property from your computer or other systems; (2) Ensure your Internet account is not used to copy or distribute the infringing property in the future; For more information regarding the potential penalties you may incur, please visit the Government of Canada website - Copyright Modernization Act Fact Sheet(1). Use of The Cartoon Network Inc. property in the manner described herein is not authorized by IP-Echelon - Compliance, its agents or the law. We hereby state that the information in this notification is accurate and, under penalty of perjury, that IP-Echelon - Compliance is authorized to act on behalf of The Cartoon Network Inc. with respect to this matter. Please be advised that this letter is not a complete statement of the facts or law as they may pertain to this matter, rights or remedies, legal or equitable, all of which are expressly reserved. If you require additional information regarding copyright infringement, Canadian Copyright Law or SaskTel's role in sending this communication please visit sasktel.com/copyright. This email is for notification purposes only. We respect your online time and privacy(2). No personal information will be provided to copyright holders without a court order. (1)<http://www.balancedcopyright.gc.ca/eic/site/crp-prda.nsf/eng/rp01184.html> (2)<http://www.sasktel.com/wps/wcm/connect/content/home/about-sasktel/legal-and-regulatory/privacy-policy/privacy-policy> NOTICE: This confidential e-mail message is only for the intended recipients. If you are not the intended recipient, be advised that disclosing, copying, distributing, or any other use of this message, is strictly prohibited. In such case, please destroy this message and notify the sender.



Limitation of Damages

- Statutory damages per proceeding for non-commercial infringement in Canada are minimum \$100, and do not exceed \$5,000.
 - ▶ Used to be up to \$20,000 per file
- Most companies would pay more than that in legal fees to take you to court
- The letters can say what they want, but the reality is, for personal use, it's unlikely you'd be sued
 - ▶ If you share or sell the content, though, it's commercial infringement and personal limits do not apply.

Legal, Ethical, Punishable

- Just because you probably won't go to jail for downloading a movie, it is still illegal? Unethical?
- How do you justify your streaming/downloading?
- Do you compensate creators for their work?

Open Source and Creative Commons

- Open Content
 - ▶ History, Concepts
 - ▶ Creative Commons
- Open Source
 - ▶ History, concepts
 - ▶ Gnu and Linux
 - ▶ Free software

Introduction

- There is an assumption in the IP debate
 - ▶ Authors want protection and remuneration
- Not always the case
 - ▶ Some create for the sake of creation
 - *Nice work if you can get it*
 - Can you make money as a musician without remuneration from copyright works?
 - ▶ Early days of computers, software was shared
 - people wrote little solutions and gave them to the group
 - Also received little solutions from the group

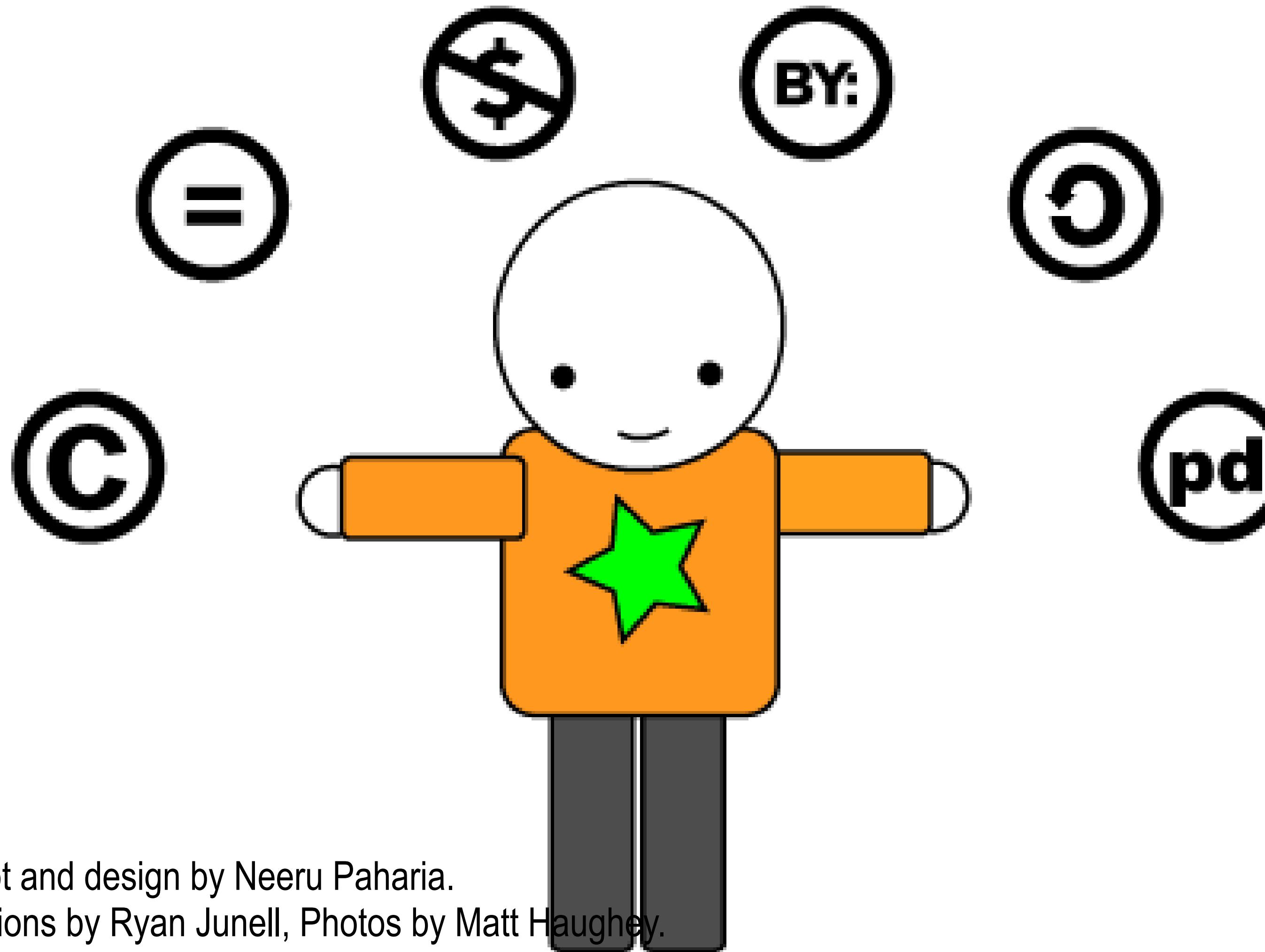
Motivating “open-content”

- Copyright is automatic
- Default copyright is strong protection
 - ▶ Life of the author plus 50 years is a *long long time*
- Many works are “orphaned”
 - ▶ Author has died, no-one is actively protecting the copyright, but it hasn’t passed into the public domain
- New laws for new technology have been one-sided, strengthening copyright further at the expense of user rights
- Many works are litigated by publishers, not authors

Creative Commons

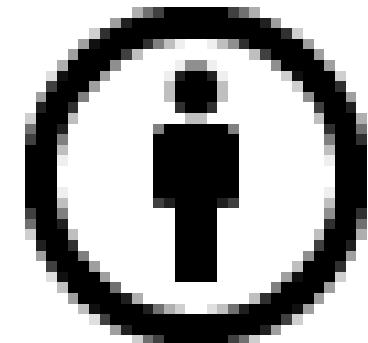
- A set of legal copyright licenses that are *less restrictive* than standard copyright
 - ▶ “some rights reserved”
 - ▶ allows authors to grant permission for sharing, modification, copying etc
- Doesn’t solve the “orphan” problem
 - ▶ Some laws are emerging that allow limited copying of orphaned works after “diligent search”
 - ▶ Abandonware (video games)
 - DMCA amendment allows reverse-engineering or DRM cracking for historical preservation

CREATIVE COMMONS WANTS TO HELP DEFINE THE SPECTRUM OF POSSIBILITIES BETWEEN FULL COPYRIGHT -- ALL RIGHTS RESERVED -- AND THE PUBLIC DOMAIN -- NO RIGHTS RESERVED. OUR LICENSES HELP YOU RETAIN YOUR COPYRIGHT WHILE ALLOWING CERTAIN USES OF YOUR WORK. THEY HELP YOU OFFER YOUR CREATIVE WORK WITH SOME RIGHTS RESERVED.



Cartoon concept and design by Neeru Paharia.
Original illustrations by Ryan Junell, Photos by Matt Haughey.

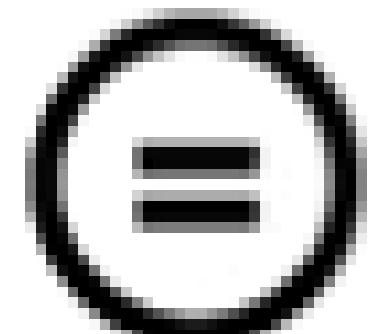
Creative Commons licenses (alone or in combos)



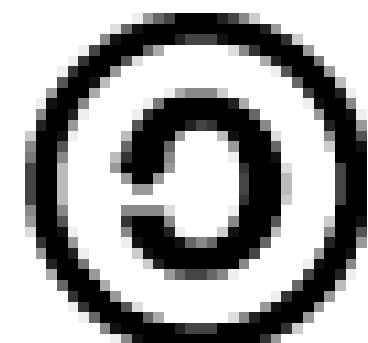
1. Attribution: copy, distribute, display, perform your work and derivatives *iff they give you credit.*



2. Noncommercial: copy, distribute, display, perform work and derivatives *for noncommercial purposes.*



3. No Derivative works: You let others copy, distribute, display, perform *only verbatim* copies of your work.



4. Share alike: distribute derivative works only under a license identical to the license that governs your work.

Aaron Schwartz (Nov 8, 1986-Jan 11, 2013)

- Many internet projects including markdown, TOR, wikipedia
- Advocated for open access
 - ▶ Research results from public funds should not be behind publisher paywalls
 - ▶ Downloaded and distributed articles
 - ▶ Arrested, charged with felony computer fraud
 - ▶ Died by suicide at age 26



Open Source and Free Software

- Brief history
 - ▶ Early computers and mainframes
 - Companies sold hardware, software was a bonus
 - users shared software
 - ▶ Software became bigger
 - Some wanted to sell it for profit
 - Some wanted to continue to trade it around
 - ▶ Hobby software, business software

An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a hobby computer is wasted. Will quality software be written for the hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby market to expand, hired Monte Davidoff and developed Altair BASIC. Though the initial work took only two months, the three of us have spent most of the last year documenting, improving and adding features to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC. The value of the computer time we have used exceeds \$40,000.

The feedback we have gotten from the hundreds of people who say they are using BASIC has all been positive. Two surprising things are apparent, however. 1) Most of these "users" never bought BASIC (less than 10% of all Altair owners have bought BASIC), and 2) The amount of royalties we have received from sales to hobbyists makes the time spent of Altair BASIC worth less than \$2 an hour.

Why is this? As the majority of hobbyists must be aware, most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?

1976

make money selling software. The royalty paid to us, the manual, the tape and the overhead make it a break-even operation. One thing you do do is prevent good software from being written. Who can afford to do professional work for nothing? What hobbyist can put 3-man years into programming, finding all bugs, documenting his product and distribute for free? The fact is, no one besides us has invested a lot of money in hobby software. We have written 6800 BASIC, and are writing 8080 APL and 6800 APL, but there is very little incentive to make this software available to hobbyists. Most directly, the thing you do is theft.

What about the guys who re-sell Altair BASIC, aren't they making money on hobby software? Yes, but those who have been reported to us may lose in the end. They are the ones who give hobbyists a bad name, and should be kicked out of any club meeting they show up at.

I would appreciate letters from any one who wants to pay up or has a suggestion or comment. Just write me at 1180 Alvarado SE, #114, Albuquerque, New Mexico, 87108. Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software.

Bill Gates

Bill Gates

General Partner, Micro-Soft

Richard Stallman

- Working on unix
 - ▶ unhappy with security, management, sharability
 - ▶ Left to start GNU
- Gnu's not Unix
 - ▶ Unix-like system
 - re-write all the popular unix programs
 - gcc, the Gnu C compiler, is still commonly used

The GNU Manifesto (written by Stallman)

- “*...the golden rule requires that if I like a program I must share it with other people who like it.*”
- “*Software sellers want to divide the users and conquer them, making each user agree not to share with others.*”
- “*I cannot in good conscience sign a nondisclosure agreement or a software license agreement.*”
 - ▶ Software developers are constantly re-inventing the wheel because of non-free software
- “**GNU is not in the public domain**”
 - ▶ released under a license similar to the CC idea

What is FREE?

- *Free as in beer*: no cost to acquire
- *Free as in speech*: the information is not restricted
- These are different.
- Most open source advocates imply the second
- To the public, the main (only?) advantage is the first.
- To avoid confusion, use free/libre for free as in speech, and zero-cost for free as in beer

Using free/libre software

- Advantages to users
 - ▶ Can obtain for (usually) little or no price
 - ▶ Can modify to fit needs (if able)
- Disadvantages to users
 - ▶ If a feature is missing, write it yourself
 - ▶ Usability is often ignored
 - developers *and typical users* are familiar enough
 - ▶ Difficult to include free/libre code in paid apps
 - ▶ Support is ignored, software quality is ignored
 - ▶ “you can’t fire a volunteer”

Debian free software guidelines

1. Free (unrestricted) Redistribution
2. Distribution in source code as well as compiled form.
3. Allow modifications and derived works under same terms
4. May restrict distribution of modified source-code
5. Must not discriminate against any person or group of persons.
6. Must not restrict use in any field of endeavor.
7. Rights must apply to all to whom the program is redistributed
8. Rights not dependent on being part of a Debian system.
9. Must not restrict distribution of other software therewith

Open Source and Free/libre

- Open-source is not the same as free/libre
- Open source means you can look at the code
 - ▶ Not necessarily that you can use the code
- Open source has potential benefits in quality and security
 - ▶ “with enough eyeballs, all bugs are shallow”
- But people work only where they are most interested, and so some bugs (difficult, uninteresting) don’t get fixed.
 - ▶ Also, people assume many eyeballs because open, so some code doesn’t get checked. (heartbleed SSH bug)

Monetization of open source

- ▶ depending on the particular license
- Can sell copies of software as long as it is accompanied by the source code
 - ▶ Red hat linux sells subscriptions to its OS releases
 - ▶ Fedora is a cost-free “unsupported” version of red hat for developers
- Can sell support structures
- Can sell programming skill
 - ▶ will contribute for food

Software protection alternatives

- Licenses:
 - ▶ Closed source, open source
- Copyright:
 - ▶ Protect the expression of an idea, not the idea
 - ▶ Are cheap, easy to obtain, and last a long time.
 - ▶ Allow fair-use of the intellectual property.
- Patents:
 - ▶ Protect new, non-obvious, and useful processes.
 - ▶ Are expensive, difficult to obtain, and last for short time
 - Allow licensing to other developers.

Software Patents: a contentious issue

- granted for seemingly obvious inventions
 - ▶ obvious to reviewer?
 - ▶ recall: can be invented at any time, first to patent wins (unless it's obvious and widely used).
- Patent Wars, Patent holding companies
 - ▶ if we don't patent this, someone will and we'll have to license it!
 - ▶ Patenting something isn't the same as intent to build
- Patent Trolls: buy up patents for litigation.

Software patent examples

- IBM has the patent on online advertising
- Amazon has the patent on 1-click purchasing
- Microsoft has the patent on command line macros
- Apple has the patent on swipe to unlock
- Can't patent algorithms
 - ▶ Can patent machines that do things
 - ▶ Software patents are usually framed as “system and method for...”

Software Patent example: MS patents command line macro

Method and system for processing input from a command line interface.

1. A method for processing input from a command line interface, wherein the input comprises a macro, the method comprising: replacing the macro with a command; and, executing the command.
2. The method of claim 1, further comprising prompting a user to identify the command that is to replace the macro, wherein the replacing step further comprises replacing the macro with the entered command.

Software Patent Issues

- Most software patents are granted to multinationals, and patent sharing agreements means they don't sue
 - ▶ Apple, Google, Microsoft, Samsung etc all have sharing agreements
 - ▶ Google bought Motorola mostly for the patent portfolio
- Smaller companies cannot compete
 - ▶ Patenting things is expensive and time consuming
 - ▶ They're not party to the patent sharing, so they can't use technology that their competitors can use