"Open Source", etc...

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Vocab

- free, Free
- Source, Binary
- Open Souce, Free Software, FOSS
- Copyright, Trademarks, Patents
- Freeware, Shareware
- Public Domain
- "Shared Source", "Source Available"

Free(dom)

Land of the **Free,**
Free Speech, etc

libre, freiheit

free beer,
free download, etc

gratis, kostenlos

Source vs. Binary

computer

dork

source code

compiler

binary

Buying Software

- typically you buy a license (the right) to use some binary code. you did not buy ownership of those ones and zeros.

10011001 00100000 11101000 01100101 00011100 10010011 01111010
11101000 01100011 01110001 01000100 00001011 01110101 00111110
11111101 11111111 01111100 01011100 10000111 01001011 11101101
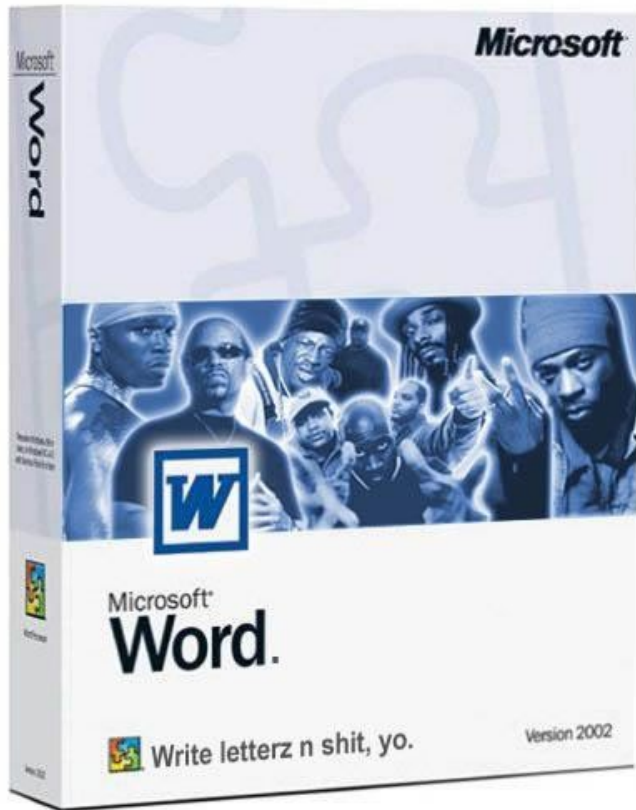00010000 00011111 11101110 10000110 01010110 11011011 00010010
01000010 01000001 10111000 10000000 01001101 10110101 11001000
01010101 01011000 00100101 10100000 10001111 01010101 01111101
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00010101 10100011 11111100 10001101 01111110 01000111 10110101
11001001 11001110 10111010 01111100 01110110 10001110 11111000
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00111000 00110011 11111010 11111111 10100011 11011101 01110010
01011010 11001001 00001001 10110010 10001000 11010010 00111110
10100010 00011001 11100111 01011100 01010110 10000111 11000100
01011011 10110110 00110010 10110110 10010011 11100010 10101111
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10001000 11100100 01101011 01110101 00110000 10101001 01011100
00011010 01011001 10100111 01100110 01100001 01000101 00101010
01100011 11000010 01001010 00011000 11110101 11101000 11011100
01010100 00000011 10011000 11001011 01110001 11000001 11001111
10111111 11001111 01100011 00101110 11011000 10010001 11011000
00110001 11011010 01010111 01010111 00100001 11011001 10010010
00011010 10111010 10011011 10000010 11000000 01111111 10010000
10001001 01000101 10000100 01100101 01111000 10100111 00011100
11000010 00011101 11111001 00101000 01001000 10011011 10101110
00111011 11100101 10000011 01100001 01010111 00011111 10000101
01110111 01100100 00000111 01010011 11111001 01110110 11101010
00101010 00010110 00111011

Buying Software, Restrictions:

- no access to the source code
    - want to add a feature? can't.
    - want to fix a bug? can't.
    - want to do a security audit? can't.
- want to give copies to your friends? can't, legally.
- for fixes/improvements, wait for the "upgrade"
    - new bugs, more money, runs slower (needs new computer)

The Alternative?

Free Software!

(That's Freedom, yo.)
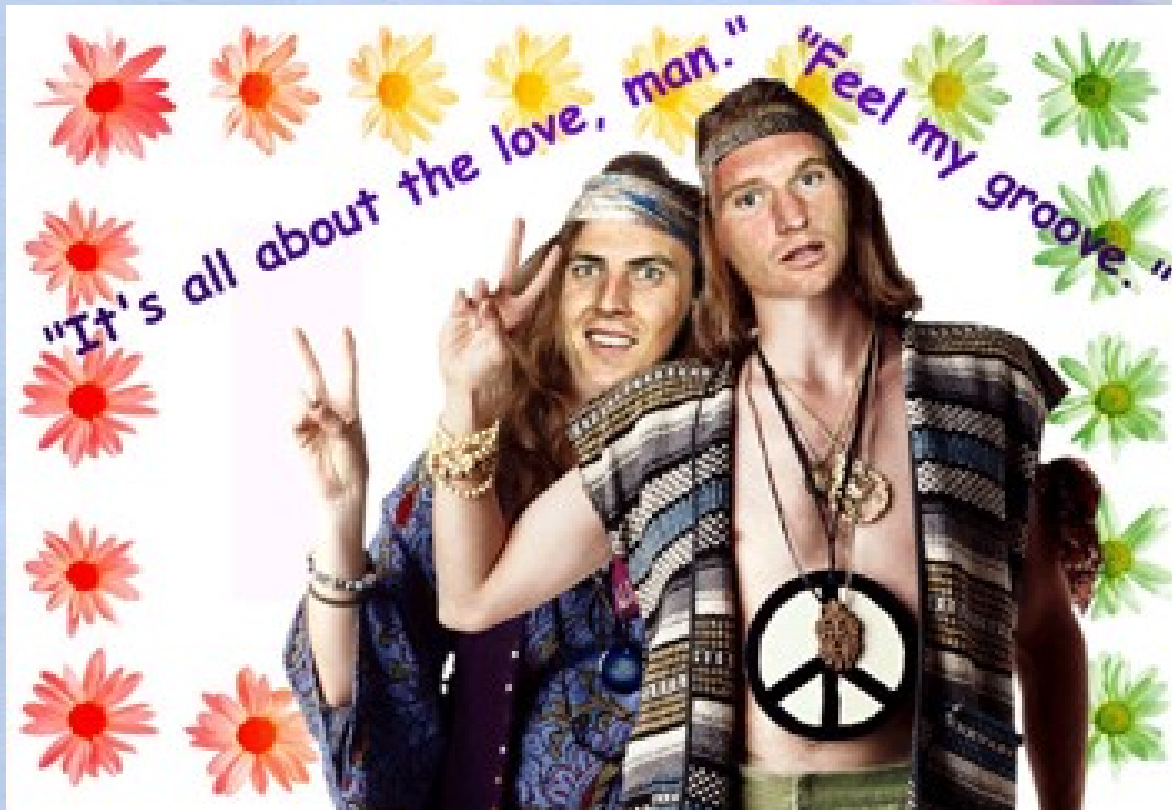
What is Free Software?

- **Free** access to the source code
  - want to add a feature? **No prob.**
  - want to fix a bug? **No prob.**
  - want to do a security audit? **No prob.**
- want to give copies to your friends? **You may, legally!**
- for fixes/improvements. **Choice**:
  - follow stable series (bug fixes only)
  - follow bleeding edge series (new fun features)

But I can't program! Why do I want the source code?

- sure, you can't. but that dork down the hall in IT/dev can.
  - "With enough eyeballs, all bugs are shallow...."
- million monkeys, million typewriters.....
  - *somebody* will find that obscure bug or security hole
  - no security through obscurity
    - **Windows:** source code not available, but security holes keep being discovered ("Critical Updates are required! Please reboot!!!"). found by dorks who read binary.
    - **Linux:** source code public, so more people can audit.
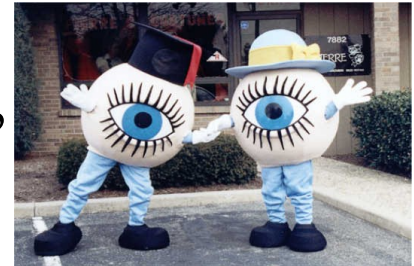
I thought this was about Open Source.

- Free Software
  - original term, still popular
  - ambiguous. run by hippies (Ricard Stallman, FSF). influencial hippies. too zealotrous.

- Open Source
  - newer term, less ambiguous
  - backed by OSF, more like a biz coalition to promote open source. too business-y? *shrug*

Richard Stallman.
started the Free Software Foundation & movement; wrote manifesto, wrote a shitload of code, very religious about Freedom, doesn't shower.

I thought this was about Open Source.

- FOSS (Free and Open Source Software)
  - people who don't care about naming politics

Why does FOSS work?

- Virtually nil incremental distribution costs
  - cars: metal, fabric, workers, shipping, ...
  - software:
    - used to have distribution costs, and cost of floppies
    - Internet: uh, not so much.
- So if it's free (of cost) to share, why not?
  - we all need browsers (Firefox)
  - and databases (MySQL)
  - and operating systems (Linux, etc)
  - all benefits of open source for no cost

Benefits of Open Source

- peer review

  - bugs, security holes found by others

- programmers write better code/docs, knowing it'll be scrutinized, their respect on the line

- features from others that you didn't get around to writing yet, but somebody else had time

  - I get this all the time! Most my inbox is filled with people sending contributions to LiveJournal, Danga::Socket, Perlbal, memcached, MogileFS, etc...

    - (Annectote: byte ranges for Perlbal)

How does Open Source work, legally?

- based on copyright
- ah, hell, you need to know about copyright...

Copyright vs. Trademarks vs. Patents

Copyright

- specific expression of an idea.
  - others can write book/poem on same topic
- automatic. no need to register.
  - write a poem on a napkin, you own the copyright
  - write some code, you own the copyright
    - caveat: work for hire. Six Apart owns your code.
- term: your life + 80 years or something.
  - Disney keeps lobbying government to extend..
    - otherwise Mickey Mouse would fall into the public domain!

Public Domain

- the absense of copyright
- either explicitly released into the public domain by the author,
  - (not all countries allow you do legally do this)
- or the copyright expired.
  - but Disney.
- Project Gutenburg:
  - awesome. tons of copyright-expired books
    - Mark Twain, etc...

Trademark


- have to register

- have to actively defend its use

- if it falls into common use, trademark is lost

  - "Dude, if you google 'Trademark image', you get an image on a page about Google possibly losing their trademark on the term Google because it's turning into a verb!"

  - Google, Kleenex, Q-Tips, Legos (legos.com)

    - both happy and angry that people use their terms generically

Patents

- registering an idea
  - Cotton Gin, Flowbee, etc
- term is 17 or 20 years
- don't have to actively enforce
- some aren't enforced
- companies build patent arsenals for defensive reasons, bartering with other companies,
  - cross-patent licensing, etc...
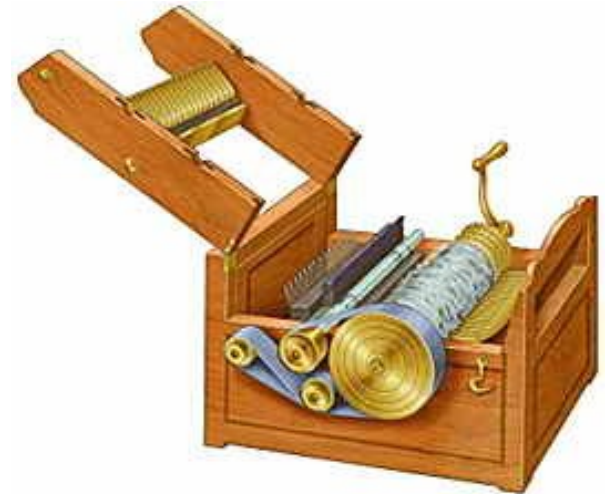
How does Open Source work, legally?

- based on copyright:
- "I own this frickin' code! You have no rights to use it or reproduce it or share it unless I explicitly **grant you a license** to do so."
- Hence, common Open Source licenses:
  - GPL,
  - BSD, MIT, X,
  - Artistic,
  - (many dozen, only few are common...)

Example License (BSD)

In Summary

- You still own the copyright, but you're just granting a blanket license to anybody that wants one, the license of which permits them certain rights to the code, under certain conditions.

Why so many licenses?

- Every organization's legal department feels like they have to bill some hours and write a new license.

  – Recently: opposition to license proliferation, recognition/acceptance of the few good licenses.

- Only two main types:

  – BSD-ish

  – GPL (copyleft)

BSD-ish

- you may use this code and do whatever with it, except sue us if it doesn't work (no warranty)
  - you may ship it in commercial products
  - make changes, sell the binaries, and never give back the changed source code
- used by researchers / academics / companies
- **most permissive.**

GPL (copyleft)

- *The* license of the Free Software Foundation and Free Software hippies worldwide.

- Very popular, most restrictive.

- Restriction:

    - if you distributed a changed version, you must shared your changes

    - (if you only change it for personal/internal use, don't need to)

License compatibility

- BSD code can't include GPL code

- GPL code can include BSD code

- etc, etc

- gets ugly quick with dozens and dozens of license

- boring. let's move on...

What do all licenses have in common?

- Open Source Initiative rubber stamps licenses if:
    - free (gratis) redistribution, no royalties
    - source code must be available, and restributable
    - derived works allowed
    - no discrimination against persons or groups
    - no discrimination against fields of endeavor
        - not allowed: "can only use this for personal non-profit use"

OSI definition, continued.

- – Distribution of License
  - • "The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties."
- – License Must Not Be Specific to a Product
- – License Must Not Restrict Other Software
  - • The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.
- – License Must Be Technology-Neutral

Copyright: Who owns what?

- "I own all this code, so you can't use it...."

- What if multiple contributors?

  – common in open source projects, where sharing/helping is the key to success.

  – who owns the copyright?

    - Multiple people!

    - "I own this line/file/section..."

    - "Bob owns that line/file/section..."

    - "Six Apart owns that line/file/section..."

    - ....

Copyright Assignment

- some companies/organizations aren't happy with contributors owning the copyright on their sections
    - require "copyright assignment" from authors to transfer copyright to primary maintainer
        - Free Software Foundation: requires copyright assignment to FSF out of paranoia
        - MySQL: Junior and I have both sent patches, and been asked to do copyright assignments
            - they make money off of dual licensing, (to be discussed)
        - Trolltech, etc....

Dual Licensing

- you can only grant licenses to others for your code. not others'.

- if you own all the code, you can license it in a dozen different ways:

  – GPL

  – BSD

  – proprietary

- Many companies are based on dual licensing. MySQL: *"GPL is our business model."* (you can buy your way out of the GPL's restrictions...)

Projects not owning all their code

- Linux: hundreds of copyright holders
- Debian/Redhat: thousands
- LiveJournal: dozens
- Implication:
  - can't dual license it unless you get consent from all copyright holders to change it
    - hard
    - sometimes possible: Cairo library dual-licensing for inclusion in Mozilla 1.5's <canvas>. My friend Evan was contacted to grant permission. He agreed.

But you can still ship.

- not owning all your code doesn't mean you can't use it in a proprietary product.

  - just have to obey license terms

  - BSD-ish: no brainer

  - GPL: little more care, but fine if you give back the necessary changes (not your entire project)

   - Linksys/Cisco wireless access points

Why do people use Open Source?

No consistent answer... everybody has their own set of reasons....

Freedom
(the principle,
freedom to modify)

Cost
(Money,
time to acquire)

Quality
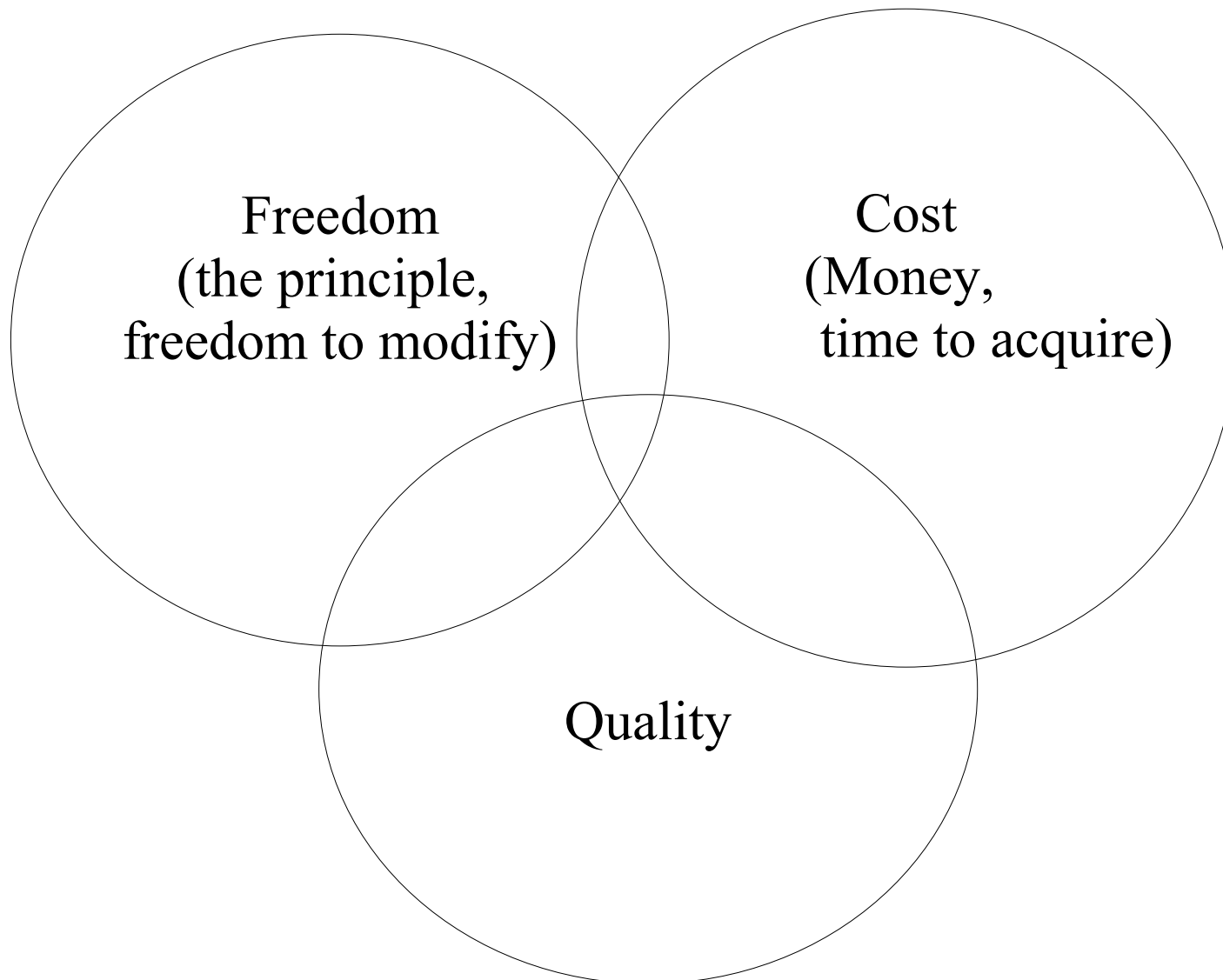
Open Source Business Models

- Dual Licensing (already discussed)
  - MySQL, Trolltech, etc
  - GPL license for free. Pay money for more permissive license.
- Support Contracts
  - somebody to call if questions
- SLAs
  - sell a warranty
  - fix it if it breaks
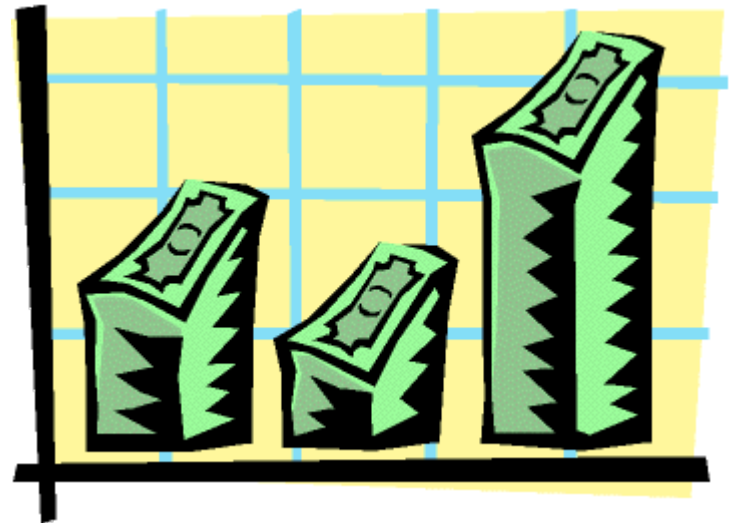
Wrap-up: the Continuum

- Public domain (no copyright, gutenburg.org)

- Copyright:

  - Open Source

    - BSD-ish (some of Comet's javascript, Ben and my CPAN perl code, FreeBSD)

    - GPL (Linux, LiveJournal, Wordpress)

  - Proprietary

    - Source Available (Movable Type)

    - Source not available & *gratis*

      - "freeware", "shareware" (Doom*, Commander Keen)

    - Source not available & must pay

      - Windows, Photoshop, Macromedia Breeze

Restrictive