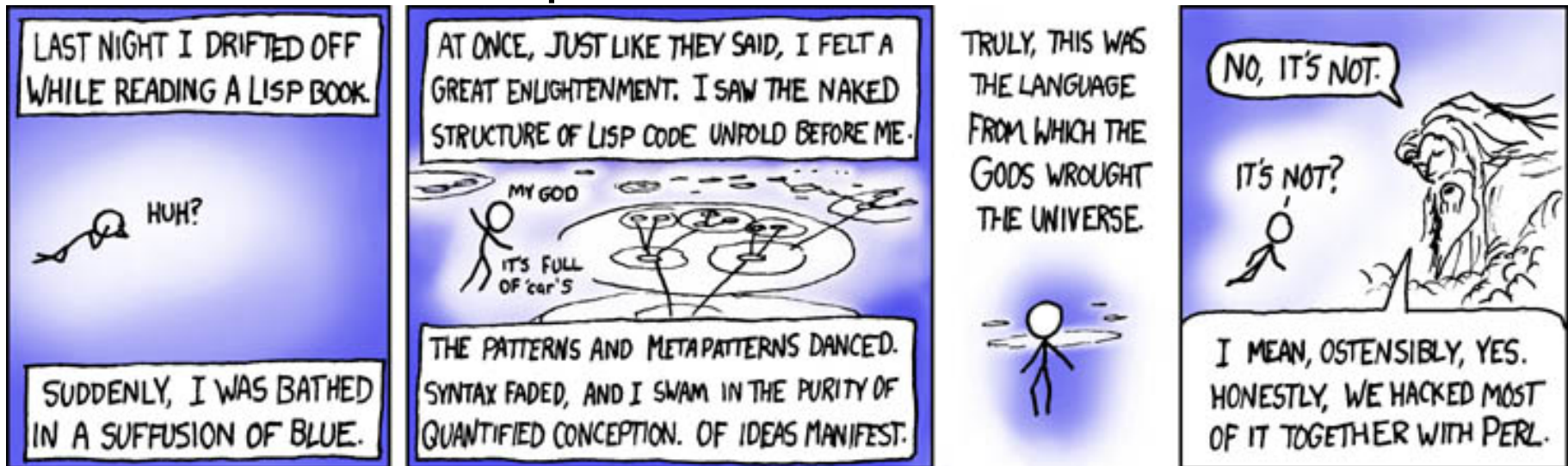


# Free/Open Source Software

- first software all free, no rules
- copyright extended to computer programs in 1980
- Richard M. Stallman: definition of the Free software, idea of copyleft
- after a conflict with Symbolics company related to his LISP interpreter



<http://xkcd.com>

# Free software definition

*'free' as in 'free speech', not as in 'free beer'*

- Freedom 0: The freedom to run the program for any purpose.
- Freedom 1: The freedom to study and modify the program.
- Freedom 2: The freedom to copy the program so you can help your neighbor.
- Freedom 3: The freedom to improve the program, and release your improvements to the public, so that the whole community benefits.

not to be confused with:

- ▷ *freeware* - sw available for use at no cost
- ▷ *public domain* - sw not owned or controlled by anyone

# Copyleft and licence types

*copyleft is a hack on copyright*

Ensures that the author of a derivative work can only distribute such works under the same or equivalent licence.



Licence types:

- non-copyleft: X11, Apache, BSD licences
- weak copyleft (allow to link a free library to a non-free sw): LGPL, Mozilla licence
- strong copyleft: General Public Licence (GPL)



GNU project: GNU's Not Unix

- Free Unix type operating system
- GNU/Linux, GNU/Hurd, GCC, GNUplot, . . .

HURD = Hird of Unix-Replacing Daemons, HIRD = Hurd of Interfaces Representing Depth

# Open Source Software

- founded by Bruce Perens and Erik S. Raymond in 1998

*... dump the moralising and confrontational attitude that had been associated with 'free software' in the past and sell the idea strictly on the same pragmatic, business-case grounds that had motivated Netscape...*

- OSS highlights availability of source code to all for pragmatic reasons
- FS emphasises concept of freedom, OSS emphasises experience of freedom
- almost the same from the practical point of view; share almost the same set of licences

# Open Source Software

- founded by Bruce Perens and Erik S. Raymond in 1998

*... dump the moralising and confrontational attitude that had been associated with 'free software' in the past and sell the idea strictly on the same pragmatic, business-case grounds that had motivated Netscape...*

- OSS highlights availability of source code to all for pragmatic reasons
- FS emphasises concept of freedom, OSS emphasises experience of freedom
- almost the same from the practical point of view; share almost the same set of licences

## **E.S. Raymond: The Cathedral and the Bazaar (CatB)**

- Cathedral: source code between releases is restricted to an exclusive group
- Bazaar: source code is developed over the Internet in view of public
- ESR strongly advocates the bazaar model as more efficient
- most FOSS projects adopted the bazaar model
- Netscape convinced to release the source code



# Examples of FOSS projects

GNU/Linux	GNU/Hurd	FreeBSD	Darwin
Apache	MySQL	Sendmail	BIND
Mozilla/Firefox	OpenOffice.org	Blender	
TeX/LaTeX	Sage	GCC	
XWindows	GIMP	GNOME&KDE	WebKit

- FOSS often collected and distributed as "OS Distributions"
- Debian 3.1 (2005) line counting project:
  - 230 million source lines of code
  - estimated 60,000 person-years
  - \$8 billion USD redevelopment cost

# Other areas (partially) inspired by FOSS

- Creative commons licences (Wikipedia, arXiv; free media, culture, digital content in general)
- Gutenberg, LilyPond, . . . projects
- P2P networks (1995: TB, 100,000,000 users, 24/7, robust to attacks)
- free hardware (fully documented, no patent restrictions)
- journalism: blogging
- classification: tagging (open directory project)
- google: outsources the most critical decision - what is relevant? - to all users
- telecommunication: VoIP (Skype), community wireless networks
- open source architecture (Cameron Sinclair, thousands of volunteers to design houses released under (cc), TED talk)
- cloud computing: seti@home, folding@home, Mars Clickworkers
- translation of books (Harry Potter by 15yr children)





# Public Library of Science

- library of open access journals
- full content of articles available to all
- Creative Commons "attribution" license
- business model: publication fee paid by authors, donations
- recently mainly biology and medical sciences

## GPL 2.0 vs. GPL 3.0

- detailed comparison on [www.groklaw.net](http://www.groklaw.net)
- GPL 3.0 prevents new ways of making software non-free
- TiVoization
  - ▷ *TiVo used GPL sw in digital video recorders*
  - ▷ *modified version cannot be run on hw (due to digital signature)*
- patent agreements (e.g. MS vs. Novell)
  - ▷ *MS can distribute some Novell sw (derivative of GPL sw)*
  - ▷ *MS offers legal protection against patents for Novell customers*
  - ▷ *appears after SCO claim that Linux violates their patents*

# Social production

- industry vs. community

(Yochai Benkler: Open-source economics, TED talk)

- ▷ *high cost of production leads bifurcation between producers and consumers*
  - ▷ *however, production capital (computers) distributed among people nowadays*
  - ▷ *property is one system of coordination, but not the only one*
  - ▷ *money is not always the best motivation*
- Linus Torvalds: "Software is like sex, it's better if it's free"

- Clay Shirky: Institutions vs. collaboration (TED talk)

- ▷ *coordination problem: how to get together people around the world interested in something*
- ▷ *classical answer is to build the institution*
- ▷ *you need economic, legal, physical structure → cost*
- ▷ *institution always make self-preservation its primary goal*
- ▷ *alternative solution: build coordination into infrastructure*
- ▷ *coordination replaces planning*
- ▷ *cost of running institution prevents from including people in no carrot, no stick zone*

# Threats, Controversies

- institutions try to ensure their market position by (ab)using legislation:

Larry Lessig: Free culture

Richard Stallman: Right to Read

- Mickey Mouse Protection Act
- Digital Millennium Copyright Act  
(case of Dmitry Sklyarov, 5 months in jail for disclosing/criticising Adobe DRM in a public lecture)
- DRM, Record Companies suing students, children
- bus firm takes car sharers to court (Guardian)
- Pirate party in Sweden

# Questions

- Is it a fundamental change? A new way of production? (in addition to government orgs and private companies)
- Eric Raymond: Can the gift culture replace the exchange culture?
- Do we need new versions of Money?
- What is role of virtual economies? (WoW, 2nd Life, they exceed GDPs of smaller countries)
- Is Bazaar model usable in research/astronomy?
- Could new techniques like tagging/rating of articles by public, open discussions be useful e.g. on arXiv?