The *What*, *Why* and *How* of openness in science

Konrad U. Förstner and Lars J. Jensen

Bork Group, EMBL

Biocomputing Retreat 2008
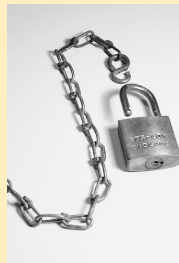
February 25th, 2008

Open = free*

Important freedoms

- The freedom to use *stuff*
- The freedom to copy *stuff*
- The freedom to make derivatives
- The freedom to redistribute

* We mean free as in free speech not free beer.

What *stuff*?

Media

- Text
- Images
- Multimedia (Audio/Video)
- Databases

Content

- Source code
- Articles
- Lab notebooks
- Data like raw measurements, predictions, annotations etc.

Motivations

Reasons for openness

- Transparency, reproducibility, quality control
- Higher impact
  - due to better findability
  - as more people have access
- Idealistic reasons
  - public payed for research so everybody should have access
  - making the *stuff* available for humankind

Motivations

Reasons against openness

- Commercial interest
  - E.g. patents and company secrets
- Competive advantage
  - E.g. series of papers
- Security/ethic
  - E.g. Anthrax research
- You have something to hide
  - E.g. fraud
  - E.g. dirty hacks
- Ignorance
  - You have no clues about your options regarding openness

Overview of some licenses

Default
- Copyright
- Patent
- Trademarks

More freedom – user doesn't have to sign
- Public domain
- Creative Commons
- Open Source licenses like BSD licenses / GPL

Less freedom – user does have to sign
- Academic licences
- Commercial licences
- End user licenses

More freedom

©, PD and CC

Creative Commons licenses define the spectrum of possibilities between full copyright and the public domain.

- Copyright – *all rights reserved*
- Public Domain – *no rights reserved*
- Creative Commons – *some rights reserved*

Creative Commons licenses

Select a license by choosing conditions

ⓘ Attribution
⊜ No derivative works
Ⓢ Non-commercial
↻ Share alike ("viral" freedom)

Some examples of CC licenses

ⓘ + ⊜   = Creative Commons Attribution-No Derivative
                     Works
ⓘ + Ⓢ   = Creative Commons Attribution-Noncommercial
ⓘ + Ⓢ + ⊜   = Creative Commons Attribution-Noncommercial-
                     No Derivative Works

Open Source licences

- In general possible:
  - Derivatives
  - Commercial use
- Most important/famous:
  - BSD licenses
    - ≈ Attribution
  - GNU General Public License
    - ≈ Attribution + Share-Alike
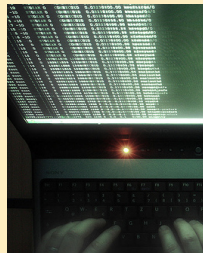
Dual licensing

You can distribute the same *stuff* under different licenses

- An academic and a commercial license
  - E.g. SMART
  - E.g. STRING
- CC+
  - A Creative Commons license + some other agreement which provides more permissions
  - E.g. NetworKIN
- GPL and commercial license (e.g. MySQL)

Examples where CC and OSS licenses are used in Science

- Open Access journals
  - Some use Creative Commons licences
  - Attribution - the currency in science
- Science Commons
  - Open Access Data
  - Biological Materials Transfer Project
  - Neurocommons
- Software
  - E.g. HMMER licensed under GPL
- Open Science
  - Science blogs
  - Collaborative sites like OpenWetWare
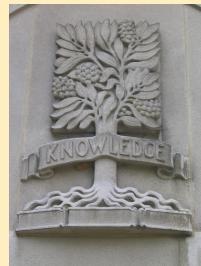 - Open labnobooks by using blogs/wikis

Image sources/attribution

Freedom http://flickr.com/photos/dazzied/427180864/ by Dazzie D
Tape (Weekly Assignment) http://flickr.com/photos/fairywren/527609137/ by Fairywren
Note Book http://flickr.com/photos/prashant_zi/289482096/ by Prashant ZI
Corkscrew http://flickr.com/photos/awrose/121085717/ by Adam Rose
Queen's Guard, Tower of London http://flickr.com/photos/laszlo-photo/133014799/ by LASZLO ILYES
Creative Commons Logo http://flickr.com/photos/purzlbaum/239202519/ by Claudio Schwarz
Shell http://flickr.com/photos/96dpi/501424695/ by Andreas Levers
Tree of Knowledge http://flickr.com/photos/knilram/64366434/ by Knilram

About this document

Created in LATEX using the *beamer* class, *TeX Live* and *Emacs*.

All these programs run on *OpenBSD*.

```
http://www.latex-project.org
http://latex-beamer.sourceforge.net
http://www.tug.org/texlive/
http://www.gnu.org/software/emacs
http://www.gimp.org/
http://www.openbsd.org
```

Document version 1.0 2008/02/25