Copyright software protection: proprietary vs. open source licenses

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# Overview of intellectual property

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<td>Distinctive identification of products or services</td>
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<td>Registered designs</td>
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<td>Valuable information not known to the public</td>
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From EPO, * Patent teaching kit*
Some IP found in a mobile

Trade marks:
• Made by "Nokia"
• Product "N95"
• Software "Symbian", "Java"

Patents:
• Data-processing methods
• Semiconductor circuits
• Chemical compounds
  • ...

Copyrights:
• Software code
• Instruction manual
• Ringtone
  • ...

Trade secrets:
  ?

Designs (some of them registered):
• Form of overall phone
• Arrangement of buttons in oval shape
• Three-dimensional wave form of buttons
  • ...

From EPO, Patent teaching kit

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www.lawtech.jus.unitn.it
IPRs Rationale

- The Statute of Anne (1710): “An act for the encouragement of learning, by vesting the copies of printed books in the authors or purchasers of such copies, during the times therein mentioned”

- U.S. CONST. art. I, Sec. 8, cl. 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”
Copyright
Psychological pressure
READING THIS TEXT CONSTITUTES COPYRIGHT INFRINGEMENT. YOU ARE UNDER ARREST.
A recent law

- Unlike the property on material things (which dates back to the dawn of time, which means the earliest forms of human legal organization).

- Copyright is a recent law

- Before the printing technology:
  - Classic world: Greece and Rome
  - Medieval Age: authors (and scribe), painters, sculptors, architects, musicians and theater
A world without copyright...

- Hypothesis to justify the absence of copyright:
  - Economic incentives (patronage) and uniqueness of representation
  - Non economic incentives
  - Not immorality of plagiarism
    - Creativity and plagiarism: an ambiguous relationship (i.e. Shakespeare and following slides)
  - No possibility for a market for piracy (the cost of the original is equal to the cost of the copy (you must pay the scribe))
Manet, Olympia (by wikipedia)
Tiziano, Venere of Urbino (by Encarta)
Which did come first: the egg (protection) or the chicken (its infringement)?

“Only when media technology and market conditions made piracy profitable could copyright arise” (P.E. Geller)
Technology and market

- Before the invention of movable type printing, the original costs the same as the copy (the cost is the payment of the slave, the scribe).

- With movable types, the original (matrix) is very expensive, the copy is cheap (the marginal cost of producing the copies is low).

- The second printer copyies the matrix (supporting costs) and then he must support only the marginal costs of producing copies.

- With a new market (the book) and a new business model (selling large-scale copies of the originals with a cover price) → comes the need for new rules
Information as a “public good”

- Information features:
  - Immateriality
  - Inexhaustible
  - incremental and cumulative nature ("on the shoulders of giants")

- Information → “Public Good”:
  - Not rival
  - Not excludable

- A market of public goods → Market Failure
Remedies to the market failure

- State remedies for market failure:
  - Direct intervention
  - Awards and grants
  - **Monopoly/Property rights** (copyright and patents)
    - To create artificially (i.e., by the force of law) the excludibility that is missing to information in the state of nature
    - An exclusive right that allows to apply an higher price with respect to the marginal cost in order to incentive the creation and distribution
    - A poised balance → The exclusive right is limited in time and extent
The Origins of Copyright

- Relationship between the Gutenberg invention of the press and the legal protection of literary works:
  - Press invented in the 15th century: first Bible published in 1455
  - Privilege of the Republic of Venice (1469)
The Statute of Anne - 1710

- Declamation: "The encouragement of learning" Operational rules:
  - "The sole liberty of printing and reprinting books ..." (Proprietor), but uncertainty in the nature of law
  - Time limits: 14 years from publication plus another 14 if the author is still alive (for works already published: 21 years from 1710)
  - Registration
  - Penalties
Copyright Law

- Copyright law grants authors an **exclusive rights** in their **intellectual works**.

- The exclusive right embraces
  - **Moral rights**
  - **Economic Rights**

- Limits of the exclusive right:
  - **Extension** (originality; expression/idea dichotomy)
  - **Duration**
Copyright Law limits: extension

- Extension:
  - Originality
  - Expression/Idea Dichotomy
  - First Sale Doctrine (Once a work is sold or distributed on a specific territory with the consent of the right holder, the latter may not control or prevent the further distribution).
Copyright Law limits: duration

- Statute of Anne – 1710: 14 years (+ 14)
- U.S. Copyright Act 1790: 14 years
- Berne Convention art. 7: author's life + 50 years
- Directive 2006/116/EC: author’s life + 70 anni
  - Art. 25, l. 22 aprile 1941, n. 633 (Italian) “Copyright Law”
- Sonny Bono Copyright Extension Act of 1998: author’s life + 70 years
The system started going into crisis

- Producing and distribution of tools aimed at easily reproducing copyrighted works:
  - photocopiers,
  - tape recorders,
  - VCRs

- First attempt to contrast the phenomenon by the right holders
  - suing the producers of these “new” (devil) technologies!
Copyright in the digital age

- A Revolution!!

- Challenges:
  - Easy production of copies
  - The copy = the original
  - Easiness distribution of copies.

- ...and traditional copyright laws are still there to recognize exclusive rights to creators of original works.
Copyright in the digital age

- Redefinition of the main features of intellectual works:
  - Concept of work
  - Concept of author
  - Concept of creativity
Software protection
Software creation steps

A need - An analysis

A technical solution

A source code

A binary executable

An identified product (brand)
The ambiguous nature of software

- **Text:**
  - literal elements (similarity to a work protected by copyright)
  - Source code

- **Machine:**
  - functional elements (similarity with an invention protected by patent)
A brief history on the debate

- Distinction between hardware and software
  - *Sui generis* Right
- US system was moving towards the copyright protection → Computer Software Copyright Act, 1980
  - (in 1985 Germany and UK adopted the same approach)
A brief history on the debate

- Protection by copyright

  
  - “(...) Member States shall protect computer programs, by copyright, as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works”.

- Art. 10, co 1, TRIPs

- Art. 4 World Copyright Treaty
What does copyright apply to?

- It does to
  - The Code ("the expression in any form of a computer program")
  - preparatory design material

- It does not to
  - Ideas and principles which underlie any element of a computer program, including those which underlie its interfaces
    - functionalities, algorithms, etc.
Complementary protections

- **Copyright**
- Contracts (License; EULA, ...)
- Unfair Competition
- Trade Secret

- **Patent**
  - Art. 52 European Patent Convention excludes "programs for computers" from patentability to the extent that a patent application relates to a computer program "as such" (Art. 52(3)).
  - Any invention which makes a non-obvious "technical contribution" or solves a "technical problem" in a non-obvious way is patentable even if that technical problem is solved by running a computer program.

- *Sui Generis* Exclusive Rights?
## Multiple IPRs Protection

<table>
<thead>
<tr>
<th>Types of IPR</th>
<th>Registration required</th>
<th>Software components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copyright</td>
<td>No</td>
<td>Source code, user guides, graphical elements such as icons</td>
</tr>
<tr>
<td>Patent</td>
<td>Yes, under certain conditions</td>
<td>Functional elements, algorithms, ideas</td>
</tr>
<tr>
<td>Trade marks</td>
<td>Highly advisable</td>
<td>An essential aspect of the software (visual or textual)</td>
</tr>
<tr>
<td>Industrial Design</td>
<td>Generally recommended</td>
<td>Graphical user interfaces under certain requirements</td>
</tr>
<tr>
<td>Database rights</td>
<td>No</td>
<td>Output of the software process may be</td>
</tr>
<tr>
<td>Trade secrets</td>
<td>No</td>
<td>Specific and identified information can be protected by means of contractual agreements</td>
</tr>
</tbody>
</table>
Copyright and software: Italian example

- Art. 12-bis L. 633/41 (Italian Copyright Act):

  - “Save for an agreement to the contrary, the employer is the holder of the exclusive right of economic exploitation of the computer program or of database created by the employee in the execution of his/her duties or following the instructions given by his employer”
Software Exploitation
Argument with a Women is like reading the software license agreement.

At the end, you ignore everything and click **I AGREE**
Exploitation and contractual tools

- **Assignment**
  - → full and final transfer

- **License**
  - Limited and temporary transfer
    - **Exclusive license** (no person or company other than the named licensee can exploit the relevant intellectual property rights)
    - **Non-exclusive license**: (grants to the licensee the right to use the intellectual property, but means that the licensor remains free to exploit the same intellectual property and to allow any number of other licensees to also exploit the same intellectual property)
Kahoot.it
Business Models and Licenses

- Hierarchical Model
  - Based on traditional copyright
  - Proprietary License (i.e. EULA)

- Not Hierarchical Model
  - Peers play hybrid roles (i.e. software)
  - Open Licenses
Hierarchical Model: fixed roles

- Users
- Software Houses/Intermediaries
- Programmer

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Some EULA typical restrictions

- To transfer the software
- To reverse engineer
- To publish, copy, rent, lease, or lend the software
- To installation and run the software beyond the established number of devices
- ...
EULA

“The software is licensed, not sold”
End User License Agreement

- General conditions (standard contract)

- Formation of the contract:
  - shrink-wrap,
  - click-wrap,
  - etc.
EULA is also known by other names

- Browse Wrap Agreement
- Click-Wrap License
- License Agreement
- Licensed Application End-User Agreement
- Shrink-Wrap License
- Software License Agreement
- ...
Not-hierarchical Model

- User / Programmer
- GNU/GPL

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Free and Open Source Software (FOSS)
GNU GPL - Freedoms

- **Freedom 0** → The freedom to run the program, for any purpose

- **Freedom 1** → The freedom to study how the program works, and adapt it to your needs
  - Access to the source code is a precondition for this

- **Freedom 2** → The freedom to redistribute copies 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
  - Access to the source code is a precondition for this
GPL: structure and general contents

- General Terms and Conditions
- Preamble → declamation and user-friendly wording approach
- GNU GPL Version 3: one and unchangeableable
  - “Everyone is permitted to copy and distribute verbatim copies of this license document but changing of this license document, but changing it is no allowed”
- Rights conditioned to obligations
  - → viral effect – copyleft!!
GNU GPL – Critical aspects

- Legal model based on Us copyright Law
- No ported versions for different legal systems:
- Problems on Formation of the contract
  - When do you accept the agreement?
- Problems on the content
  - There are unfair terms (no warranty, limitation of freedom of contract with third parties)
  - Compatibility with Italian copyright law (art. 110 transmission of rights of use must be evidenced in writing)
GNU GPL logics

Licenses by Name

The following licenses have been approved by the OSI via the License Review Process.

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- Affero GNU Public License
- Adaptive Public License
- Apache License, 2.0
- Apple Public Source License
- Artistic license 2.0
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- Boost Software License (BSL1.0)
- Computer Associates Trusted Open Source License 1.1
- Common Development and Distribution License
- Common Public Attribution License 1.0 (CPAL)
- CUA Office Public License Version 1.0
- EU DataGrid Software License
- Eclipse Public License
- Educational Community License, Version 2.0
- Eiffel Forum License V2.0
- Entessa Public License
- European Union Public License (link to every language's version on their site)
- Fair License
- Framework License
http://creativecommons.org/videos/wanna-work-together
Managing a software development community

• Create your own software development community, thus creating a virtual space to share the code; to do this it will be necessary to create/manage/procure a series of useful tools for this purpose:
  – the mailing list system;
  – repository for the code,
  – ticket system for any tags;
  – Concurrent Version Systems (CVS);
  – ....
Managing a software development community

• Use an infrastructure already created and designed for this type of projects; two options:
  – Foundation model: Free Software Foundation, Apache Software Foundation, etc.;
  – “Social network" platforms that support the developer with all the tools necessary for this purpose
Software Foundation Model
“Social network” Platform

GitHub
Opportunities and benefits

- Product development
- Reducing development costs
- Greater efficiency in the development and maintenance of software
- Avoiding technological lock-in phenomena
- Easy to create and offer free standards and build markets around them.

...
Open source and business models

- Subscription
- Dual licensing
- Consulting strategy
- Patronage
- Loss leader
- “Widget frosting”
Seneca, *Epistles*

“The best ideas are common property”
Image courtesy of Stuart Miles at FreeDigitalPhotos.net
Short list of references

Personal list of references:


Usefull documentation and materials:

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Webpage:
http://www5.unitn.it/People/it/Web/Persona/PER0003411#INFO
http://www.lawtech.jus.unitn.it/index.php/people/paolo-guarda

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