

# Analysis of the Ten Most Significant Open Source Licenses

Cliff Schmidt

Founder and Principal Consultant

Symbioss Strategy

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# Outline

- 5 Minutes of Intellectual Property Law
- The Open Source Definition
- Defining Categories for Comparison
- Quick look: [L\*]GPL, [C|E]PL, Apache licenses
- Flash look: MPL/CDDL, BSD/MIT, AFL/OSL
- Summary: The Big License Chart
- Questions

# 11 Most Significant Open Source Licenses

<u>License</u>	<u>SF.net projects</u>	<u>first approved</u>
1 GNU General Public License (GPL)	48605	Feb-89
2 GNU Library or Lesser General Public License (LGPL)	8055	Jun-91
3 BSD License	5111	Jun-89
4 Apache License V2.0 + ASL	1635	Feb-95
5 MIT License	1301	Sep-87
6 Artistic License	1293	Mar-91
7 Mozilla Public License 1.1 (MPL 1.1) + 1.0	1172	Jan-98
8 Common Public License	556	Aug-02
9 zlib/libpng License	365	May-95
10 Open Software License	344	Oct-02
11 Academic Free License (AFL)	273	Oct-02
12 Qt Public License (QPL)	232	Nov-98
13 Eclipse Public License	112	May-04
14 University of Illinois/NCSA Open Source License	40	Oct-87
15 Common Development and Distribution License	32	Jan-05

# 5 Minutes of Intellectual Property Law

# Difference in IP Laws

- Governing Laws
  - Berne Convention (Copyright / droit d'auteur)
  - European Patent Convention
  - EU Software Directives and member nation laws, e.g *Code de la propriété intellectuelle*
  - US Copyright Act
- Many similarities, especially in copyright, but some significant differences, including:
  - software patent validity
  - questions of transfer of copyright assignment
  - joint copyright assignment

# Copyright

- Covered actions

- reproduce
- create derivative works
- distribute
- publicly display
- publicly perform

*–(terms above are from U.S. Copyright act, but concepts are same)*

- Key requirements

- original expression
- with some minimal amount of creativity
- fixed in a tangible medium

- Neither registration nor notice is required

# Copyright

- Not everything is protected by copyright law
  - idea-expression merger (APIs)
  - scènes à faire
  - de minimus work
- Indications of copyright infringement
  - substantial similarity, AND
  - access to infringed work
- Bottom line:
  - must have a license from the author/owner to take any of the covered actions (beyond fair use)

# Patents

- Covered actions:
  - make                      have made
  - use                         import
  - sell                        offer to sell
- Key Requirements
  - novel                      has utility
  - non-obvious             described in detail
- Requires patent application and approval by patent authority (e.g. EPO or USPTO)

# Patents

- Limited Monopoly:
  - provides the right to exclude others from the above actions for a limited time
  - covers processes, designs, machines, article of manufacture (differs across international laws)
- Bottom Line:
  - independently created inventions still require a license from any valid patent before use

# Trademarks

- Identifies the origin of product or service
- Generally distinctive symbols, pictures, or words
- Registration is not required, but helps (similar to copyright)

*This presentation's analysis of open source licenses will not address trademarks.*

# The Open Source Definition

# The Open Source Definition

1. Free Redistribution
  - including as component of other software
2. Source Code
  - included or available, in preferred form
3. Derived Works
  - modifications can be licensed the same

# The Open Source Definition

4. Integrity of Author's Source Code
  - may distribute derivative works, but might need name change or use patch files
  
5. No Discrimination Against Persons or Groups
  - nor can you give one company extra rights
  
6. No Discrimination Against Fields of Endeavor
  - cannot forbid use in particular industries

# The Open Source Definition

7. Distribution of License
  - all 3rd parties; no other required license
8. License Must Not Be Specific to a Product
  - same rights if extracted and used elsewhere
9. License Must Not Restrict Other Software
  - if simply distributed on same medium
10. License Must Be Technology-Neutral
  - cannot require “I accept” button

# Defining Categories for Comparison

# Categorizing Licenses: Related to Copyright & Patents

- Copyright
  - Derivative Works
    - reach of reciprocity
    - attribution of authorship
  - Distribution
    - sublicensing options
    - notices requirements
- Patents
  - grants
  - retaliation

# Definitions

- License
  - permission from an owner granting specified rights to another
- Sublicense
  - ability to offer a license to recipients of your distribution
- Relicense
  - ability to offer a custom sublicense with potentially fewer grants or additional restrictions

# Definitions

- Reciprocity
  - requirement to license derivative works under the same license as the original work
- Patent Retaliation
  - termination of copyright or patent grants as a result of some patent litigation or claim by licensee

# Defining Categories

- Reciprocity Reach
- Sublicensing Options
- Patent Grant
- Patent Retaliation

(to reduce time, we will not address attribution and notice requirements)

Q: How to compare impact of each category?

A: Create a 0-5 scale for each category  
with 0 as end-user friendly  
and 5 as more protectionist.

# Reach of Reciprocity

0: none

1: file reciprocity

2: module reciprocity

-or- (file reciprocity + hosting impact)

3: derivative reciprocity

4: (derivative reciprocity + container restrictions)

-or- (derivative reciprocity + hosting impact)

5: container reciprocity

# Sublicensing Options

- 0: explicit rights to relicense source/binary
- 1: implicit ability to relicense source/binary
- 2: {empty}
- 3: sublicenseable source; may relicense binary
- 4: sublicense source/binary under same terms
- 5: no sublicense - direct license from author

# Patent Grant

- 0: explicit patent grant
- 1: implicit, not well-defined
- 2: no patent grant

# Patent Retaliation: Litigation Trigger

0: None

1: against contributors for work

2: against anyone for work

3: any restrictions on royalty-free distribution

4: against contributor for any software

5: against contributor for any software,  
hardware, or device

# Patent Retaliation: Termination Details

0: None

1: Loss of patent grants from contributor

2: Loss of patent grants from all contributors

3: {empty}

4: May not distribute

5: Loss of all copyright and patent rights

# Note about Patent Retaliation Calculations

- Patent Retaliation score = average of:

*litigation trigger* score  
&  
*termination details* score

- When two different retaliations in same license  
total score =  $\log_2 (2^{\text{score1}} + 2^{\text{score2}})$

Quick look: [L\*]GPL, [C|E]PL,  
Apache licenses

# Quick look: GPL v2

- Reach: **5**
  - reciprocity covers container/derivative works
- Sublicense: **5**
  - no sublicense; license granted from original author upon each distribution
- Patent Grant: **1**
  - no explicit patent grant, but license implies one
- Retaliation: **3.5**
  - no distribution unless everyone can distribute RF

# Quick look: LGPL v2.1

- Reach: **4**
  - covers containers/derivative works, but only restricts (does not require reciprocity) of licenses
- Sublicense: **5**
  - same as GPL
- Patent Grant: **1**
  - same as GPL
- Retaliation: **3.5**
  - same as GPL

# Quick look: CPL v1.0

- Reach: **2.5**
  - “do not include additions to the Program which:  
(i) are separate modules of software distributed in conjunction with the Program under their own license agreement, and  
(ii) are not derivative works of the Program.”
- Sublicense: **3**
  - may relicense object code if license includes notices and disclaimers

# Quick look: CPL v1.0

- Patent Grant: **0**
  - explicit grant for contribution and combination
- Retaliation: **3.3**
  - patent litigation against a Contributor with respect to a patent applicable to software:
    - then any patent licenses granted by that Contributor to such Recipient under this Agreement shall terminate
  - patent litigation against any entity alleging that the Program itself infringes such Recipient's patent(s):
    - then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

# Quick look: EPL v1.0

- Reach: **2.5**
  - same as CPL
- Sublicense: **3**
  - same as CPL
- Patent Grant: **0**
  - same as CPL
- Retaliation: **2**
  - only second part of patent retaliation clause
  - very similar to Apache License

# Quick look: Apache License v2

- Reach: **0**
  - not reciprocal
- Sublicense: **0**
  - “may provide additional or different license terms and conditions of Your modifications”
- Patent Grant: **0**
  - explicit grant for contribution and combination
- Retaliation: **2**
  - very similar to EPL

Flash look: MPL/CDDL,  
BSD/MIT, AFL/OSL

# Flash look: MPL v1.1

- Reach: **1**
  - file-based reciprocity
- Sublicense: **3**
  - redistribute executable under own terms
- Patent Grant: **0**
  - explicit patent grant for “contributor version”
- Retaliation: **4**
  - lose Contributor’s patent & *copyright grants* if assert claim against Contributor for work
  - lose Contributor’s patent grants if assert patent claim against any “software, hardware, or device”

# Flash look: CDDL v1.0

- Reach: **2**
  - same as MPL 1.1 + “or otherwise make available”
- Sublicense: **3**
  - same as MPL 1.1
- Patent Grant: **0**
  - same as MPL 1.1
- Retaliation: **3**
  - lose *all* patent & *copyright grants* if assert claim against any contributor for the work

# Flash look: BSD (New)

- Reach: **0**
  - not reciprocal
- Sublicense: **1**
  - no mention of sublicense, but often assumed
- Patent Grant: **1.5**
  - no patent grant, just the word “use”
- Retaliation: **0**
  - none

# Flash look: MIT

- Reach: **0**
  - same as BSD (not reciprocal)
- Sublicense: **1**
  - “sublicense” is explicit, relicensing is implicit
- Patent Grant: **1**
  - not explicit terms, but use of words “use” and “sell”
- Retaliation: **0**
  - same as BSD (not reciprocal)

# Flash look: AFL v2.1/3.0

- Reach: **0**
  - not reciprocal
- Sublicense: **0**
  - “to distribute...under any license of your choice that does not contradict the terms and conditions”
- Patent Grant: **0**
  - explicit grant for the work
- Retaliation: **3.5**
  - termination of entire license if sue any licensee

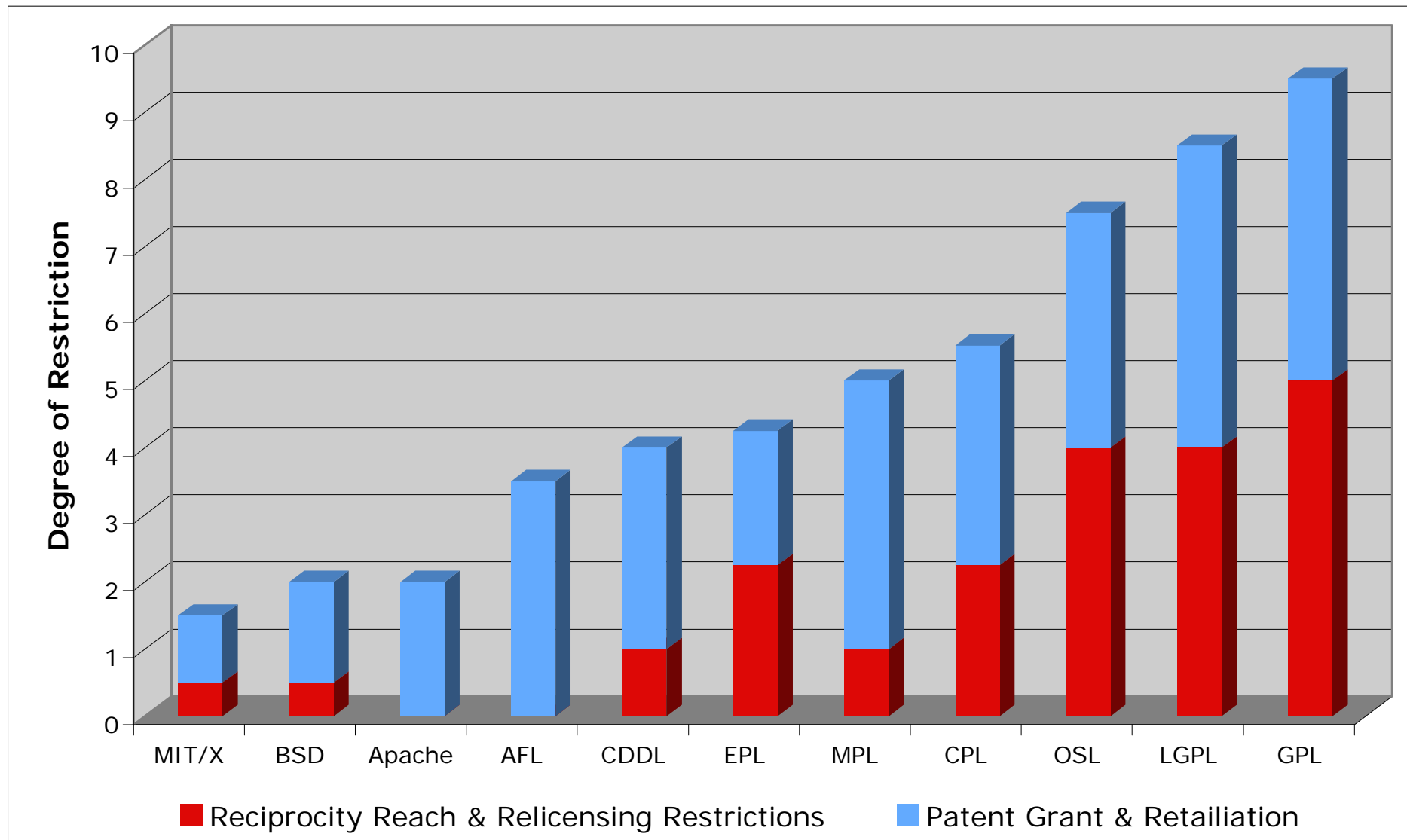
# Flash look: OSL v2.1/3.0

- Reach: **4**
  - reciprocal: distribution = *“use...of the Original Work or Derivative Works in any way such that [it] may be used by anyone other than You”*
- Sublicense: **4**
  - may only sublicense under same terms
- Patent Grant: **0**
  - same as AFL
- Retaliation: **3.5**
  - same as AFL

# Summary: The Big License Chart

# License Chart Calculations: Simply into Two Components

- Reciprocity Reach & Relicensing Restrictions
  - new scale:
    - 0: No reciprocity & explicit relicensing
    - 0.5: No reciprocity & implicit relicensing
    - 1.0: File reciprocity & binary relicensing
    - 2.0: Module reciprocity & binary relicensing
    - 3.0: Derivative reciprocity & sublicensing
    - 4.0: Derivative/hosting reciprocity & sublicensing
    - 4.0: Container restrictions & no sublicensing
    - 5.0: Container reciprocity & no sublicensing
- Patent Grant & Retaliation
  - Sum grant & retaliation scores (still  $\geq 0$  &  $\leq 5$ )



*DISCLAIMER: the above chart makes many generalizations*

# Questions?