<u>**Introduction to Open Source Licensing**</u>
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I.   Introduction

Open source is best viewed as a movement or a philosophy for approaching the licensing of intellectual property rights. Open source licensing originated in the software industry and this paper generally limits itself to the realm of open source software and open source software licenses. However, the principles of open source are not limited to the realm of software. There are open access scientific journals, and some artistic communities have adopted the principals of open source when licensing their work to others. For example, many creative works are licensed under the Creative Commons Licensing rubric, which shares many of the same principals of freedom of access as open source software licenses.

a. History and Philosophy of the Open Source Community

In order to understand open source software licenses and the legal issues involved, it's critical to understand the open source community and the political and philosophical issues that members of the community attempt to address. The community is filled with opinionated persons, so what is written about open source software is rarely, if ever, written from an objective view point. Rather than attempt to distill or divine some guiding principals that can be objectively presented, this paper instead presents each view point separately.

The open source community originated in academia. For example, some of the first open-source licenses were originally drafted by the University of California, Berkley (UCB)[1] and the Massachusetts Institute of Technology (MIT)[2]. The non-profit Free Software Foundation, one of the more vocal advocates for open source software, was founded in 1985 by Richard Stallman as a result of his employment in the artificial intelligence laboratory at MIT.[3] Accordingly, the open source community is heavily infused with the mores of not-for-profit academia. These mores include ideals such as collaboration, cooperation, a hostility to secrecy, all of which necessitate an ability to share fruits of individuals labors freely and with minimal costs or constraints. However, the methods for protecting and practicing these ideals vary widely.[4]

For example, the Free Software Foundation regularly promotes the "free software" model, which is best described as "free speech, not free beer" or "*libre*, not *gratis*."[5] In other words, one should be able to modify or run the software they use as they see fit and share any modifications they may make without restriction. Access to source code is a precondition for

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[1] *E.g.* The BSD Licenses as described in further detail herein.
[2] *E.g.* The MIT License as described in further detail herein.
[3] Richard Stallman, *The GNU Project* – available at: http://www.gnu.org/gnu/thegnuproject.html; *see also*, Richard Stallman, *A Serious Bio* – available at: http://www.stallman.org/#serious.
[4] For more colorful descriptions of the key players of the open source community, see: Heather Meeker, *The Open Source Alternative: Understanding Risks and Leveraging Opportunities*, pp. 13-20 (2008).
[5] *E.g.* GNU General Public License, ver. 2.0, Preamble – available at: http://www.gnu.org/licenses/gpl-2.0.html.

achieving this goal. Accordingly, most software licenses published by the Free Software Foundation are written to achieve these ends.[6]

In contrast, others, such as Eric Raymond, who helped organize the Open Source Initiative (OSI) view open source as a practical goal. As Eric Raymond stated in his famous essay comparing different software development methodologies, *The Cathedral and the Bazaar*, "the open-source culture will triumph not because cooperation is morally right or software 'hoarding' is morally wrong…but simply because the closed-source world cannot win an evolutionary arms race with open-source communities that can put orders of magnitude more skilled time into a problem."[7] Accordingly, these segments of the open source community promote access to and permission to reuse, modify, and redistribute source code as a practical solution to common software development problems. In other words, open source is a solution to a problem and not a moral imperative.

b. Definition of "Open Source"

The definition of an open source license shifts depending on whom one asks. While there is a general consensus that "open source" involves both freedom to access, freedom to redistribute, and freedom to use the source code of another, there is no consensus regarding what the minimum set of criteria is for a license to qualify as an open source license. For example, the Free Software Foundation states that software must satisfy four criteria in order to be considered open source (or "free" in the parlance of the Free Software Foundation). These four criteria are:

1. freedom to run the software for any purpose;
2. freedom to study how the program works and change it as desired – access to the source code is a precondition for this;
3. freedom to redistribute copies of the software; and
4. freedom to distribute copies of modified versions – access to the source code is also a precondition for this element.[8]

In contrast, the Open Source Initiative has a 10 point list of requirements for any software to be considered open source, including:

1. free redistribution of the software;
2. access to the human-readable, non-obfuscated source code for the software;
3. freedom to modify the software and distribute the modifications under the same terms as the original software;
4. patch files to be distributed with the original, unmodified source code;
5. non-discriminatory licensing of the software;

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[6] *E.g.* Various versions of the GNU General Public License and GNU Lesser General Public License as described in further detail herein.
[7] Eric Raymond, *The Cathedral and the Bazaar*, Rev. 3.0 (2000) – available at: http://catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/.
[8] Free Software Foundation, The Free Software Definition – available at: http://www.gnu.org/philosphy/free-sw.html.

6. unrestricted use of the software;
7. the license must be distributed with the software;
8. the license may not be product specific;
9. the license may not restrict other software; and
10. the license must be technology neutral.[9]

Although the varying definitions have a number of common features, the differences mean that any particular license will be viewed as an open source license by some, but not by others.

II.   Common License Types

Discussing the features of each and every open source license is beyond the scope of this paper. However, the over-whelming majority of open source software is distributed pursuant to one of a hand-full of licenses. For example, as of February 22, 2014, 87% of open source software was licensed according some version of the GNU General Public License, GNU Lesser General Public License, the Berkley Software Distribution License, the Apache License, the MIT License, or the Mozilla Public License.[10] Accordingly, this paper will focus on those, although some features tend to be common across most open source licenses, including the less commonly used ones. For purposes of brevity, this paper also ignores older versions of the commonly used open source licenses except where necessary to give a historical perspective.

a.   Common Features of Licenses

Although the details may differ, open source licenses tend to have a number of common features no matter whose definition is used. Not all of these features are necessary for a license to qualify as open source.

i.   Access to Source Code

The *sine qua non* of any open source license is that access to the source code of the software governed by the license be provided to the grantee by the grantor without restriction or limitation. Rights to modify and redistribute the source code are another matter. Anything less than unfettered access would, by almost any definition of open source, be less than "open."

ii.   Permission to Redistribute Source Code

Almost every open source software license permits the grantee of the license to redistribute any source code they are provided. Some licenses, such as the GNU General Public Licenses, make redistribution of source code mandatory should the grantee of the license choose to redistribute the program in any form.[11] Other licenses, such as the Berkley Software Distribution Licenses, take a permissive approach, allowing the grantee to redistribute the source

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[9] Open Source Initiative, The Open Source Definition – available at: http://opensource.org/docs/osd.
[10] Black Duck Software, Top 20 Open Source Licenses – available at:
http://www.blackducksoftware.com/resources/data/top-20-open-source-licenses.
[11] *E.g.* GNU Public License, ver. 3, § 5 – available at: http://gnu.org/licenses/gpl.html.

code if they so choose.[12] Whether a grantor of a license chooses a mandatory or permissive approach to redistribution of source code is largely philosophical. The Free Software Foundation advocates a mandatory approach in order to prevent open source software from being converted into closed source software over time.[13] In contrast, taking a permissive approach respects the freedom of the grantee to use the software and the source code as they see fit.

However, there are some licenses that provide access to source code but do not allow for publication or redistribution of the source code. For example, the Microsoft Shared Source CLI, C#, and Jscript License states that one "may not use or distribute this Software or any derivative works in any form for commercial purposes" and that one "may not distribute modifications of the Software under terms that would permit commercial use."[14] Such licenses are open source in the sense that access to the source code is allowed or permitted but are generally not considered to be open source licenses by the open source community due to their limitations on redistribution.

iii. Permission to Modify the Source Code

Another provision common among open source software licenses is the right to modify the source code. Different licenses may put different restrictions on this right. For example, modifications may only be permitted for educational or non-commercial uses.[15] Other licenses may have no restrictions at all. In general, however, an open source license will permit some degree of modification of the source code.

iv. Disclaimer of Express and Implied Warranties

Many open source licenses disclaim any and all warranties, express or implied, even though such a disclaimer is generally not necessary for a license to qualify as an open source software license. These provisions exist for good reason. With the liberal rights generally conferred by a license permitting the software and source code to be used by anyone, for any purpose, and to be modified in any way desired, the grantor of the license has virtually no control over how, where, and by whom their software will be used. Failure to expressly disclaim any and all warranties could leave the original author of the software exposed to limitless and unpredictable liability.[16]

b. Common Open Source Software Licenses

As stated previously, it is estimated that 87% of open source software is licensed according to a version of one of five license families. Although the GNU General Public

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[12] *E.g.* The BSD 3-Clause License – available at http://opensource.org/licenses/BSD-3-Clause.

[13] FSF, Frequently Asked Questions About the GNU Licenses: Why should I use the GNU GPL rather than other free software licenses – available at: http://www.gnu.org/licenses/gpl-faq.html#WhyUseGPL.

[14] Microsoft Shared Source CLI, C#, and Jscript License – available at: http://directory.fsf.org/wiki/License:MS-SS.

[15] *id.*

[16] Disclaimer of warranties is a matter of state law. Some states may limit the degree or manner in which express and implied warranties may be disclaimed. An analysis of these kinds of hypotheticals is beyond the scope of this paper.

License and Lesser General Public license, in their various versions, are technically one license family, the individual versions of these licenses are used so frequently that each version is analyzed and discussed independently herein. Less commonly used licenses, such as the various versions of the Berkley Software Distribution License, are discussed together.

i. GNU General Public License ver. 2 (GPL-2)

1. History and Background

GPL-2 was released in June of 1991.[17] The purpose of the GPL-2 was to correct or remedy some of the problems that Richard Stallman perceived in the original version of GNU General Public License – specifically the potential for software patents to prevent open source software being shared or distributed.[18] The license was quickly adopted by a number of prominent open source software projects, including the Linux kernel[19], the GNU Compiler Collection[20], and the MySQL Database Server[21]. However, a number of these projects have since changed their licensing terms to version 3 of the GNU General Public License.

2. Important Terms

GPL-2 has several notable provisions. First, GPL-2 limits the ability of licensees to license modifications to the original software. Specifically, derivative works, such as modified versions of the original software, must also be licensed and distributed according to the terms of the GPL-2.[22] This includes projects that may use components, such as libraries, that are governed by other licenses, such as a version of the Berkley Software Distribution License or the Apache Software License. Further, the GPL-2 has provisions requiring that a licensee cease distributing the original software or any modified versions in the event that a court judgment, such as for patent infringement, were to prevent a licensee from being able to comply with both the provisions of the license and the provisions of the judgment.[23] This second provision has been described as the "liberty or death" provision.[24] Its necessity is doubtful as an enforceable license cannot compel one to violate a court order.

ii. GNU Lesser General Public License ver. 2.1 (LGPL-2.1)

Version 2.0 of the GNU Library General Public License was released in June, 1991 and was slightly updated in February 1999 and renamed to the GNU Lesser General Public License,

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[17] GNU General Public License, ver. 2, Copyright Notice – available at http://www.gnu.org/licenses/gpl-2.0.html.
[18] Richard Stallman, 2nd International GPLv3 Conference, Apr. 21, 2006 – transcript available at: www.fsfe.org/campaigns/gplv3/fisl-rms-transcript.en.html.
[19] The Linux Kernel Archives, Frequently Asked Questions – available at: http://www.kernel.org/category/faq.html.
[20] *E.g.* GCC v. 2.95.3 Manual, GNU General Public License – available at: http://gcc.gnu.org/onlinedocs/gcc-2.95.3/gcc_22.html#SEC257.
[21] *E.g.*, MySQL 3.23, 4.0, 4.1 Reference Manual, Ch. 1 – available at: http://dev.mysql.com/doc/refman/4.1/en/introduction.html.
[22] GNU General Public License, ver. 2, § 2.
[23] GNU General Public License, ver. 2, § 7.
[24] *Supra* at 18.

version 2.1.[25] The LGPL-2 is intended to provide an open source software license that is compatible with proprietary and closed source software, such that open source and closed source software components may be linked together as part of a larger software project.[26] The principal difference between the LGPL-2.1 and the GPL-2 is that the LGPL-2.1 only requires modifications to the LGPL-2.1 licensed components to be made publicly available while the GPL-2 requires that any source code of a program that links to or incorporates code licensed under the GPL-2, such as software libraries licensed under the GPL-2, be released in addition to any modifications made to the GPL-2 licensed components.[27] For example, a program which uses a library licensed according to the terms and provisions of the LGPL-2.1 must make the software library available as well as any changes made to the software library. However, the source code to the remaining portions of the program itself need not be open sourced.

iii.   GNU General Public License ver. 3 (GPL-3)

1.   History and Background

The GPL-3 was published by the Free Software Foundation on June 29, 2007.[28] The license is intended to be an evolution from the GPL-2 and was focused on addressing three issues: "tivoization," the Digital Millennium Copyright Act (DMCA) and the European Union Copyright Directive (EUCD), and discriminatory patent licensing.[29]

"Tivoization" is a term coined by the Free Software Foundation referring to the practice whereby a vendor sells a device that runs software licensed under the GPL-2, releases the source code for the software but configures the hardware such that it will only run the GPL-2 licensed binaries provided by the vendor.[30] The effect is that a vendor can comply with the terms of the GPL-2 but circumvent the rights and freedoms provided for in the GPL-2 through the use of hardware-based controls. The right to modify software provided for in the GPL-2 is significantly limited if the hardware will not execute modified versions of the software.

The DMCA and the EUCD are legal frameworks governing the protection of copyrighted materials on digital devices. Both the DMCA and EUCD provide civil and criminal penalties for those who circumvent Digital Rights Management (DRM) technologies.[31] This includes penalties for deciphering encryption schemes engineered to protect against the unauthorized use or reproduction of copyrighted digital works.[32]

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[25] GNU Lesser General Public License, ver. 2.1 – available at http://www.gnu.org/licenses/lgpl-2.1.html (The term "lesser" denotes the fact that license does not require that the source code of derivative works to be released in full, unlike the GNU General Public License).

[26] GNU Lesser General Public License, ver. 2.1, Preamble.

[27] *Compare* GNU Lesser General Public License, ver. 2.1, § 6 *with* GNU General Public License, ver. 2.0, § 2.

[28] GNU General Public License, ver. 3.0 – available at: http://gnu.org/licenses/gpl.html.

[29] Brett Smith, *A Quick Guide to GPLv3*, June 29, 2007 – available at: http://gnu.org/licenses/quick-guide-gplv3.html.

[30] Richard Stallman, 2nd International GPLv3 Conference, Apr. 21, 2006 – transcript available at: www.fsfe.org/campaigns/gplv3/fisl-rms-transcript.en.html – Named in honor of TIVO®.

[31] 17 U.S.C. § 1204; EU Directive 2001/29/EC, Art. 6.

[32] 17 U.S.C. § 1201; EU Directive 2001/29/EC.

2. Important Terms

The GPL-3 contains a number of revisions to address the issues of tivoization, problems presented by the DMCA and the EUCD, as well as discriminatory patent licensing. Many of these revisions include serious drawbacks. As a result, the introduction of the GPL-3 was rather controversial within the open source community.[33]

To address tivoization, the GPL-3 requires that vendors or distributors also provide any cryptographic keys necessary to modify software licensed under the GPL-3 and permit its execution in its modified form, as well any instructions necessary to enable execution of the modified binaries.[34] This does not prohibit vendors from using code-signing techniques to prevent modified binaries from executing. Instead, it requires that such a vendor must provide for such a system to be disabled at the option of the user.

However, the provisions to address tivoization have serious computer security implications. Many vendors limit their systems to executing trusted binaries – executable application files that have been cryptographically signed to verify their authorship or distribution by the vendor.[35] Preventing untrusted binaries from executing on their systems blocks malware and malware-infected application files from executing.[36] Allowing this feature to be disabled by the user also allows the feature to be disabled by an attacker.

To address the DRM issues presented by the DMCA and EUCD, the GPL-3 disclaims any entitlement that licensed software may have to protection under the DMCA or the EUCD.[37] In other words, software licensed under the GPL-3 may implement DRM technologies, but the author or distributor of software licensed under the GPL-3 is barred from pursuing legal action against anyone who circumvents the implemented DRM technologies.

To address the issue of discriminatory patent licensing, the GPL-3 requires that any contributor to software licensed pursuant to the GPL-3 also convey any patent licenses necessary for all licensees of the software to be able to exercise all of their rights permitted under the terms of the GPL-3.[38] In other words, a contributor cannot provide patent licenses to some licensees of the software but not others.[39] Further, these patent licenses permit the licensee under the GPL-3 to grant the same patent license rights to any third parties to whom the software may be redistributed.[40]

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[33] *E.g.* David Berlind, Controversy over GPLv3 Draft Reflects the 'Incompatibility' of DRM with Open Source, July 28, 2006 – available at: http://www.zdnet.com/blog/btl/controversy-over-gplv3-draft-reflects-the-incompatibility-of-drm-with-open-source/3399; James E.J. Bottomley, et al., Kernel Developers' Position on GPLv3, September 15, 2006 – available at: http://lwn.net/Articles/200422/.

[34] GNU General Public License, ver. 3, § 6 – available at: http://gnu.org/licenses/gpl.html.

[35] *E.g.* Microsoft, Secure Boot Overview, November 8, 2013 – available at: http://technet.microsoft.com/en-us/library/hh824987.aspx.

[36] *E.g.* Microsoft, Secure Boot and Measured Boot: Hardening Early Boot Components Against Malware, September 7, 2012 – available at: http://msdn.microsoft.com/en-us/library/windows/hardware/br259097.aspx.

[37] GNU General Public License, ver. 3, § 3.

[38] *id.* at § 11.

[39] *id.* at § 11.

[40] *id.* at §§ 10 and 11.

More controversially, the GPL-3 has provisions stating that a licensee is prohibited from filing a lawsuit, or bringing counterclaims and cross-claims, alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the software or any portion.[41] This could be construed to include patents not originally licensed for the purposes of contributing to the software. For example, a Plaintiff contributes to an open source software library licensed under the provisions of the GPL-3. The software is then used as an element of another product of a Defendant that infringes a second patent of the Plaintiff. According to the terms of the GPL-3, the Plaintiff would be prohibited from suing the Defendant for infringement of the second patent.

iv. GNU Lesser General Public License, ver. 3 (LGPL-3)

The LPGL-3 was released concurrently with the GPL-3 as a less restrictive license intended for use with software libraries.[42] The LGPL-3 is drafted as an addendum to the GPL-3, incorporating the GPL-3 in its entirety and then listing additional permissions granted to a licensee.[43] The LGPL-3 exempts licensees from the requirements of section 3 of the GPL-3, so long as any works licensed under the LGPL-3 remain open sourced and any modifications to the LGPL-3 components are made publicly available. For example, a program that uses a library licensed according to the terms and provisions of the LGPL-3 must make the software library available as well any changes made to the software library. However, the source code to the remaining portions of the program itself need not be open sourced.

v. Berkley Software Distribution (BSD) License

1. History and Background

The BSD licenses are a family of simple and permissive licenses originally written in the 1980s by the University of California at Berkley (UCB) to govern the use of the Berkley Software Distribution, a version of Unix forked from Bell Labs. Generally, BSD Licenses only require projects using BSD-licensed code to include the original copyright notice, a disclaimer of liability, and a restriction against claiming authorship of the BSD-licensed components in any redistribution. However, some older versions included an advertising clause requiring all advertising materials for products making use of software governed by a BSD license to include the phrase "This product includes software developed by the University of California, Berkley and its contributors."[44] Modern versions of the BSD License do not include this restriction.

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[41] *id.* at § 10.
[42] GNU Lesser General Public License, ver. 3, § 0 – available at http://www.gnu.org/copyleft/lesser.html.
[43] *id.*, Preamble.
[44] Original BSD License, clause 3 – available at http://directory.fsf.org/wiki/License:BSD_4Clause.

2. BSD 3-Clause License

The BSD 3-Clause License is the result of the UCB rescinding the advertising clause from the original BSD License on July 22, 1999.[45] Redistribution and use in source and binary forms, with or without modification, are permitted provided that three conditions are met. First, redistributions of source code must retain the copyright notice included in the license, the three conditions listed in the license, and the disclaimer of liability included in the license.[46] Second, redistributions in binary form must reproduce in documentation or other materials accompanying the binary redistribution the copyright notice included in the license, the three conditions listed in the license, and the disclaimer of liability included in the license.[47] Third, neither the name of the copyright holder of the licensed software nor the names of any contributors to the licensed software may be used to endorse or promote products based upon or including the software unless prior written permission was obtained.[48]

3. BSD 2-Clause License

The BSD 2-clause license, sometimes known as the "Simplified BSD License," is a modification of the BSD 3-clause license, where the final "no-endorsement" clause is omitted.[49] It is otherwise the same as the BSD 3-Clause License.[50]

vi. Apache License, ver. 2.0

1. History and Background

The Apache License, ver. 2.0, is an open source software license released by the Apache Software Foundation in January, 2004.[51] The stated goal of version 2.0 of the Apache License was to "allow the license to be reusable without modification by any project (including non-ASF projects), to allow the license to be included by reference instead of listed in every file, to clarify the license on submission of contributions, to require a patent license on contributions that necessarily infringe the contributor's own patents, and to move comments regarding Apache and other inherited attribution notices to a location outside the license terms."[52]

2. Important Terms

In addition to the commonly found terms, version 2.0 of the Apache License contains important terms with respect to patent licensing. First, version 2.0 of the Apache License

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[45] Open Source Institute, The BSD 3-Clause License – available at http://opensource.org/licenses/BSD-3-Clause; *see also,* William Hoskins, Important License Change, July 22, 1999 – available at: ftp://ftp.cs.berkeley.edu/pub/4bsd/README.Impt.License.Change.
[46] The BSD 3-Clause License, clause 1.
[47] *id.*, clause 2.
[48] *id.*, clause 2.
[49] Open Source Institute, The BSD 3-Clause License.
[50] *Compare* BSD 2-Clause License – available at http://opensource.org/licenses/BSD-2-Clause *with* BSD 3-Clause License – available at http://opensource.org/licenses/BSD-3-Clause.
[51] Apache License, v. 2.0 – available at http://www.apache.org/licenses/LICENSE-2.0.html.
[52] The Apache Software Foundation – available at http://www.apache.org/licenses/.

requires that each contributor to a work subject to version 2.0 of the Apache License grant a "perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable… patent license" to the licensee.[53] Version 2.0 of the Apache License also has an automatic revocation provision of all patent licenses granted to the licensee should the licensee allege in any forum, either as a claim, counter-claim, or cross claim, that the licensed software constitutes patent infringement.[54] The operative effect of these provisions is to preclude enforcement of software patents where the product makes use of and relies upon code licensed by version 2.0 of the Apache License.

vii. MIT License

1. History and Background

The MIT License originated at the Massachusetts Institute of Technology (MIT) in the 1980's. Although the Free Software Foundation distinguishes between the Expat License and the X11 License as being ambiguously referred to as the MIT License, the distinction is one of semantics.[55] The only difference between the Expat License and the X11 License, to use the terminology of the Free Software Foundation, is a single sentence disclaimer in the X11 License prohibiting the use of the name of the X Consortium, the developers of the X11 Window System, for use in advertising or promotion of the sale of software.[56]

2. Important Terms

The MIT License is perhaps the shortest and most permissive of the open source licenses available. With the exception of the copyright notice and a disclaimer of warranty, the MIT license otherwise states:

> Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:
>
> The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.[57]

Such simple and concise language is self-explanatory.

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[53] Apache License, v. 2.0, § 3.

[54] *id.*

[55] *Compare* Various Licenses and Comments About Them: Expat License – available at http://www.gnu.org/licenses/license-list.html#Expat *with* Various Licenses and Comments About Them: X11 License – available at: http://www.gnu.org/licenses/license-list.html#X11License.

[56] *id.*

[57] MIT License – available at: http://opensource.org/licenses/mit-license.php.

<center>**viii.   Mozilla Public License, ver. 2.0 (MPL-2.0)**</center>

<center>**1.   History and Background**</center>

Version 2.0 of the Mozilla Public License was released on January 3, 2012.[58] The MPL-2.0 is intended to replace previous versions of the Mozilla Public License as well as update and simplify licensing terms of previous versions of the Mozilla Public License.[59] Although the Mozilla Public License originated with the Mozilla project for licensing the Mozilla Browser Suite, the Firefox web browser, and the Thunderbird email client, a number of other prominent projects are licensed according to the provisions of the MPL-2.0.[60]

<center>**2.   Important Terms**</center>

The MPL-2.0 has several noteworthy terms. First, the MPL-2.0 expressly permits the use of code licensed under the terms of the MPL-2.0 with code licensed according to the provisions of a version of the GNU General Public License, the GNU Lesser General Public License, or the GNU Affero General Public License.[61] This includes redistributing code licensed under the terms of the MPL-2.0 according to the terms of these licenses.[62] These provisions simplify the licensing of derivative works that make use of code governed by other licenses. Second, the MPL-2.0 contains provisions that terminate any rights granted to the licensee should the licensee initiate a patent infringement suit alleging that the licensed software infringes a patent.[63]

III.   Issues to Consider When Selecting or Evaluating a License

a.   Conflicting Licenses

i.   Conflicting License Terms

Although hinted at above, it is important to note that not all open source licenses are compatible with each other because many licenses have additional terms other than the condition that the licensed source code be made publicly available. In other words, where a software developer intends to use two different open source components governed by two different licenses, it may be impossible for the software developer to simultaneously satisfy the conditions of each license. For example, the advertising clause of the original BSD License, discussed above, is incompatible with both version 2 and version 3 of the GNU General Public License.[64] Accordingly, any large software project that intends to make use of multiple open source components should make sure that all applicable software licenses are compatible.

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[58] About MPL 2.0: Revision Process and Changes FAQ – available at:
http://www.mozilla.org/MPL/2.0/Revision-FAQ.html.
[59] *id.*
[60] *E.g. LibreOffice* (see Licenses – available at http://www.libreoffice.org/about-us/licenses/).
[61] Mozilla Public License, ver. 2.0, §§ 1.12 and 2.4 – available at: http://www.mozilla.org/MPL/2.0.
[62] *id.,* § 3.3.
[63] Mozilla Public License, ver. 2.0, § 5.2.
[64] GNU General Public License, ver. 2, § 4; GNU General Public License, ver. 3, § 7.

ii. "Copyleft" and "Viral" Licenses

Also important to note that certain open source software licenses, such as those written and promoted by the Free Software Foundation or the GNU Project, have clauses that act to promote the spread of the software license. For example, version 3 of the GNU General Public License states:

> You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:
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> - a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
> - b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".
> - c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
> - d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.[65]

Similar provisions may be found in version 2 of the GNU General Public License.[66] Similar but less stringent provisions may be found in version 2.1 and version 3 of the GNU Lesser General Public License[67] and version 2.0 of the Mozilla Public License.[68] Licenses that include these types of clauses are termed "copyleft" licenses as pun intended to distinguish such licesnes compared to the restrictions generally granted under copyright law.[69]

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[69] Heather Meeker, *The Open Source Alternative: Understanding Risks and Leveraging Opportunities*, p. 23 (2008).

"viral" behaviors where the copyleft license can be transmitted from one software project to another through the use of copyleft licensed components.[70]

b. Interplay of Open Source Software Licenses with Software Patents

i. Liberty or Death

Free software licenses often have a self-destruct mechanism intended to prevent the distribution of software in the event that such software is found to infringe software patents. For example, version 2 of the GNU General Public License states:

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Richard Stallman refers to this clause as the "liberty or death" clause.[72] The intent of these clauses is to force software redistributors to keep software free ("liberty") or cease all redistribution of the software ("death"). Thus only free software is redistributed.

ii. Open Source Licenses as a Patent License

The use of open source software within a program, such as linking the program to open source software libraries, may grant third-party users of the program a non-exclusive and royalty-free patent license for any patents that govern the program. For example, version 3 of the GNU General Public License states that:

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[70] Enforcement of these provisions is another issue and is beyond the scope of this paper. For further reading, see: Heather Meeker, *Open Source and the Eradication of Viruses*, March 19, 2013 – available at: http://osdelivers.blackducksoftware.com/2013/03/19/open-source-and-the-eradication-of-viruses/.

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[72] *Supra* at 18.

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IV.   Conclusion

This paper has provided a primer of the most widely used open source licenses, but there are many other licenses in use. For example, software managed by the Apache Software Foundation is generally released under the Apache License. The Eclipse project releases its source code under the terms of the Eclipse Public License. And Apple released a large volume of software under the terms of Apple Public Source License prior to relicensing much of its open source software under the terms of the Apache License. Many of these licenses include terms similar to the ones described above.

Further, it should be noted that the norms of the open source community are continuing to evolve. For example, as more businesses embrace open source software, the members of the community are becoming more aware of, and more willing to accommodate, commercial and business concerns that were not as important in the academic community that spawned open source software. New versions of licenses continue to be drafted and released in order to address these concerns.

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