



Anna Haapanen

FREE AND OPEN SOURCE SOFTWARE LICENSING

AND THE MYSTERY OF LICENSOR'S PATENTS

Anna Haapanen

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SOFTWARE LICENSING

and the Mystery of Licensor's Patents

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In Helsinki, on a sunny Sunday in March 2017

Anna Haapanen

ABSTRACT

This study is about *property* in computer programs and specifically, *overlapping* property rights governing computer programs as those rights exist in Europe (under the European Union law, including the national laws of Finland) and the US. This study describes how those property rights characterized as *intellectual property* – copyrights and patents – once emerged in the past and in what forms they exist today. Further, this study discusses how the licensing practices of the property in computer programs evolved from open to closed models, resulting in the counter movement of free and open source software (FOSS) licensing. The core of this study covers *law and licensing* of the property rights in computer programs. However, in this study, the focus is not on the rather common research topic of *proprietary* licensing of software *copyrights*, but quite the opposite: the much less frequently studied subject of *patents* in context of *FOSS licensing*. Accordingly, the main research question of this study is: *What is the exposure to FOSS licensor's patent portfolio based on sale, licensing and/or mere redistribution of FOSS?* And, specifically: *What forms of FOSS licensing may trigger the exhaustion of patent rights in computer programs under the statutory and/or case law of Europe and/or the US?* Further, in addition to patent exhaustion, this study examines: *Under what conditions FOSS licensing may trigger implied patent rights under (contract or other) laws of the US and/or Europe (mainly in Nordic context under the national laws of Finland), even in the absence of clear grant of patent licenses in the FOSS (copyright) licenses subject to this study.* The research questions crystallize both the scope and the method of this study: *exhaustion of patents in computer implemented inventions and grant of implied patent licenses (if any) in the US and Europe (Finland specifically) in context of FOSS licensing.* However, in order to examine the exhaustion of software patents and the grant of implied patent licenses, also copyright exhaustion and express copyright licensing as well as related contract theories in FOSS context must be understood. Therefore, copyright law, contract law and competition law are used as tools in this study despite that the main research questions concern patent law. The research questions are tricky to answer: even today, the law is not yet fully settled on how the copyright and the patent doctrines should be applied to digital goods in the era of Internet, while the society is already moving towards the era of Internet of Things – and beyond.

1. INTRODUCTION

1.1 BACKGROUND

1.1.1 Concepts

The concepts of free and open source software (FOSS) are based on intellectual property rights (IPRs), copyrights and patents, protecting computer programs. FOSS licensor grants the user, under copyrights and/or patents owned and/or licensable by the FOSS licensor, the rights to freely use, copy, modify and distribute the computer program released under a FOSS license subject to compliance with the terms and conditions of the respective FOSS license.

In order for a computer program to qualify as *free software*, the applicable license terms should meet the Free Software Definition set by the Free Software Foundation (FSF). According to the Free Software Definition authored by Richard Stallman, a computer program amounts to free software, if the user has the following four freedoms: (1) the freedom to run the program for any purpose; (2) the freedom to study how the program works and the freedom to change it; (3) the freedom redistribute copies of the program; and (4) the freedom to distribute copies of modified versions of the program.¹

In order for a computer program to qualify as *open source software*, the applicable license terms should meet the Open Source Definition set by the Open Source Initiative (OSI). According to the Open Source Definition authored by Eric Raymond, a computer program is open source software, if the applicable license terms allow the user to (1) freely distribute, including sell the software, without royalty or other fee; (2) access the source code; (3) modify the software and distribute modified versions of the software under the same license; (4) preserve integrity of the author's source code; and provided that (5) the license does not discriminate against any person or group; or (6) against any field of endeavor; (7) the license allows the right to use the software without execution of an additional license; (8) the license is not specific to a product; (9) the license does

¹ See the Free Software Definition.

not restrict other software; and finally, on the condition that (10) the license is technology-neutral.²

Although shorter, the Free Software Definition is more restrictive, or in other words, requires more freedom than the Open Source Definition. In practice, one of the main differences between free and open source software is that free software is licensed under *reciprocal* license terms, which include a *copyleft*-clause. If the FOSS program is distributed, the copyleft-clause requires that modifications of the program are licensed under the same license terms as the original FOSS program, and – depending on the respective reciprocal license – source code must be provided either for the whole derivative work or, for example, on code file level.³ Due to absence of copyleft-clause or other reciprocal obligations, license terms applicable to open source software, in turn, may allow closing source code of the open source component as part of a computer program subject to proprietary license terms. Therefore, nearly all free software should meet the definition of open source software, but not vice versa⁴. However, the common nominator for free and open source software is that they are both licensed under license terms granting the user a non-exclusive license under all of the exclusive rights of a copyright holder relevant for the computer program, *i.e.* the rights to copy, modify and distribute the program in source code form.⁵

Accordingly, in this study, the term *FOSS license* refers to license terms applicable to FOSS providing users with the freedoms required under the Free Software Definition and/or the Open Source Definition.⁶ Further, in this study, *FOSS contributor* means an entity or a person *releasing* software (owned and copyrighted by it) under a FOSS license. The contributor version released by the FOSS contributor may include either the original program together with the FOSS contributor's modifications based on the said program, or the FOSS contributor's own contribution alone. *FOSS distributor*, in

² See the Open Source Definition.

³ Meeker 2015 at 8-9. Meeker 2008 at 23 and 27.

⁴ Stallman 2010 at 78. Meeker 2008 at 21-22.

⁵ Meeker 2015 at 6-7. Meeker 2008 at 27.

⁶ 2 Raymond Nimmer §11:3 at 11-10.

turn, means in this study an entity or a person merely *redistributing* FOSS *without modifying* the software and/or *releasing* any software (owned and copyrighted by it) under a FOSS license. However, it is important to bear in mind that also a mere FOSS distributor may, depending on the prevailing circumstances, the respective FOSS license and applicable law, grant licenses under its own and/or its licensor's IPR(s) to recipients of the FOSS program distributed by it. Therefore, both a FOSS contributor, and depending on the respective FOSS license, also a FOSS distributor may be collectively called as a *FOSS licensor* – acknowledging though that grant of license(s) by a FOSS distributor may depend on the respective FOSS license terms, the surrounding circumstances and the applicable law as will be discussed in Section 5.2.2.2 (Licensor of Implied Rights). *FOSS user*, on the other hand, means in this study an entity or person using, copying, modifying and/or distributing FOSS. Therefore, a FOSS user by definition includes FOSS contributors and FOSS distributors, but covers also those users, which exploit FOSS only *internally* with our without modification, and which do not, however, contribute or redistribute FOSS back to the FOSS community. It should be noted that the above characterizations are overly simplified for the purpose of this study. In real world, due to nature of computer programs as derivative works, compilations and/or joint works, an entity or a person acts often simultaneously in multiple roles, and the number of stakeholders acting in the above roles within the FOSS community is unlimited.

In the context of traditional contract law doctrines of Europe and the US, FOSS licenses may be characterized as *standard terms* as opposed to many proprietary licenses, which are often (but by no means always) directly negotiated and ink-signed license agreements denying access to source code and granting the user only a right to exploit some – but not all – of the exclusive rights of a copyright holder. *Proprietary software*, in turn, means in this study computer programs licensed under license terms often granting the user only the right to run the program internally, but not the rights to freely copy, modify and/or distribute the program in source code form.⁷ Accordingly, in this study, the term *proprietary license* is used to refer to license terms applicable to

⁷ 1 Raymond Nimmer §1:37 at 1-102. Millard at 444-445.

proprietary software, which terms do not meet the freedoms required under the Free Software Definition and/or the Open Source Definition.

While the FSF uses the concept of proprietary software with reference to unfree software⁸, it is worth noting that the said use of the term "proprietary software" is actually slightly misleading: Also FOSS is proprietary software in the sense that a FOSS contributor and/or a FOSS distributor retain the ownership of its exclusive IPR(s) in the FOSS program and grant the users merely a non-exclusive license to use, copy, modify and/or distribute the software under its exclusive copyrights and/or patent rights subject to compliance with the conditions of the respective FOSS license. Copyright is thus used as a mechanism to ensure the software freedom in FOSS licensing.⁹ Hence, under a strict interpretation of IPR laws, both software licensed under unfree terms (*i.e.* terms not allowing the free use, copying, modification and distribution of the software in source code form) and FOSS are proprietary software. According to the said broader interpretation, only software assigned to *public domain* after waiving all IPR protection in the software, is the true opposite of proprietary software. However, for the sake of using the concepts consistently within the meaning of the terms established in the FOSS community and technology industry, an informed decision is made in this study to use the term proprietary software with reference to unfree software not meeting the Free Software Definition and/or the Open Source Definition.¹⁰ When it comes to terms *software* or *computer program*, it is noted that in this study those terms are used interchangeably, as the practice generally is in the context of patent law.¹¹ The same principle applies also to use of terms *FOSS* and *FOSS program* in this study.

⁸ FSF: Proprietary software is often malware. Available at <https://www.gnu.org/philosophy/proprietary.html>.

⁹ Lemley & Shafir at 139. Harenko, Niiranen, *et. al.* at 222. 1 Raymond Nimmer §1:109 at 1-288. 2 Raymond Nimmer §11:4 at 11-11 – 11-13.

¹⁰ Practicing attorneys agree that FOSS is as "proprietary" as any other software, but attorneys have different opinions on whether or not they should use the concept of "proprietary software" as an opposite to "FOSS", which approach is conceptually misleading, but in line with the FOSS community's established semantics. Meeker 2008 at Preface and 22-24. Murray at 9.

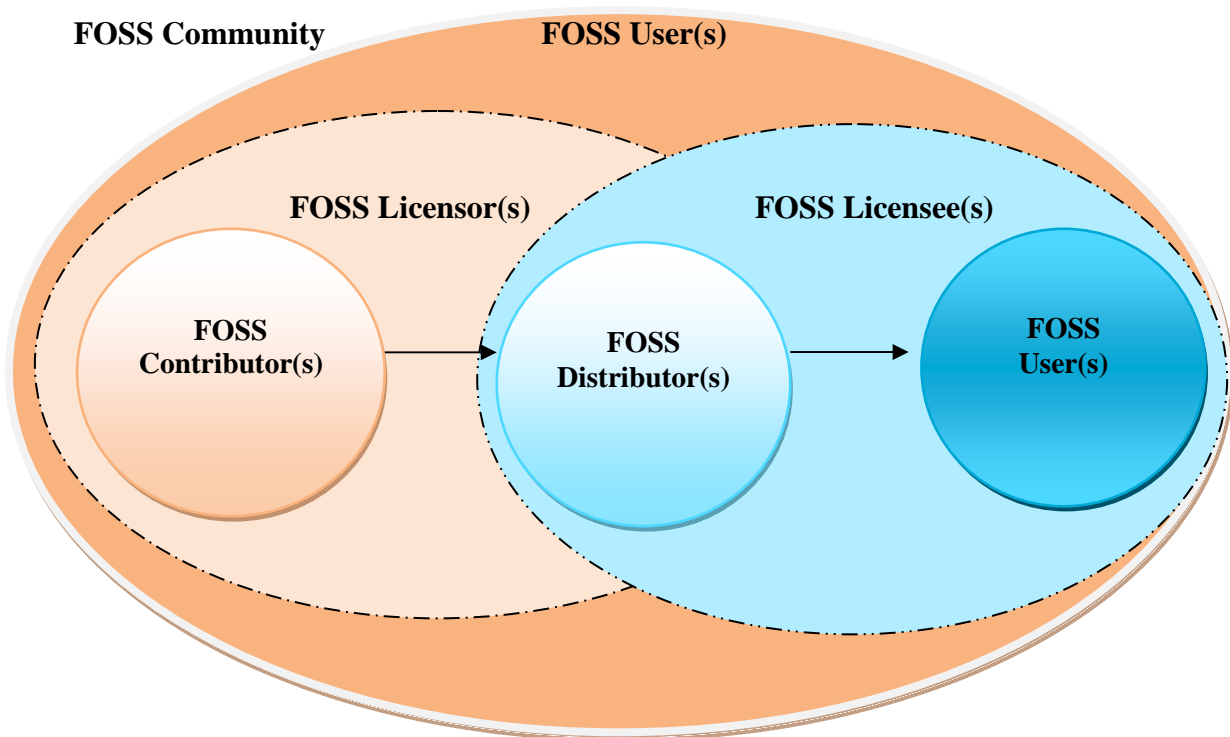
¹¹ 1 Moy §5:36 at 5-134.

Further, *FOSS community* refers in this study to all those parties, which either *derive* computer programs from the FOSS community by using software licensed under FOSS licenses and/or contribute computer programs back to the FOSS community by *releasing* software under FOSS licenses. Users and/or contributors may include any type of members of the FOSS community, whether independent FOSS developers, private individuals, private or public corporations, universities or government organizations. Last but not least, the FOSS community also includes non-profit organizations aimed at promoting FOSS such as the FSF and the OSI. Thus, it is worth noting that the FOSS community is not separate from *us*: We belong to the FOSS community. Today FOSS is included in many (*unless most!*) consumer devices and business applications. Therefore, most persons and entities use FOSS every day and are thus part of the FOSS community, whether or not they are actually aware of it.

Finally, in the bigger picture, the development model of *open source* (software) can be seen as one reflection of *open innovation*, where organizations reach out beyond their walls to extract ideas from outside for the purpose of maximizing the pool of ideas available for their various initiatives on multiple fronts. In connection with FOSS licensing, however, the idea is to *share and share alike* – and thus not only to derive code from but also contribute code back to the FOSS community.¹²

¹² Grams.

PICTURE 1: STAKEHOLDERS OF THIS STUDY



PICTURE 1: STAKEHOLDERS OF THIS STUDY

FOSS Contributor means an entity or a person releasing software (owned and copyrighted by it) under a FOSS license to the FOSS community.

FOSS Distributor means an entity or a person merely redistributing FOSS without modifying the software and/or releasing any software under a FOSS license.

FOSS Licensor means FOSS Contributor and/or FOSS Distributor, acknowledging that the grant of license(s) by "mere" FOSS Distributor under its own and/or its licensors' IPR(s) may depend on the respective FOSS license, the surrounding circumstances and the applicable law.

FOSS User means any entity or person using, copying, modifying, releasing and/or distributing FOSS. FOSS User by definition includes FOSS Contributors and FOSS Distributors, but covers also those users, which exploit FOSS only internally with or without modification.

FOSS Licensee may include both FOSS Distributors and other FOSS Users.

FOSS Community means, collectively, any and all of the above stakeholders, as well as other entities promoting use of FOSS such as the OSI and the FSF.

For clarity, the above definitions of various stakeholders are simplified for the purpose of this study, and in real life, one entity may act in multiple roles simultaneously.

1.1.2 Brief History of FOSS

While the history of sharing computer source code among developers is as long as the history of computers themselves, the terms *free software* and *open source software* were coined only much later to distinguish FOSS from proprietary software after the practice of retaining source code had emerged.¹³ In the 1960s and the early 1970s, distribution of source code was a common practice between universities and technology companies, which generally distributed computer programs in source code form to other developers and even to customers. By way of example, at that time IBM was one of the most dominant device manufacturers in the global hardware business. For IBM, distribution of computer programs was merely the means of promoting its main business model: selling hardware. Consequently, IBM delivered to its customers, not only the machine readable software code, but also the source code for its computer programs. IBM also permitted its customers to improve those programs and to share such improvements with each other. The rationality behind this business model was that better computer programs would boost sales of (expensive) hardware.¹⁴

However, the new proprietary practices appeared soon thereafter, as the separate markets for computer programs were found and software turned from mere hardware differentiator into a software commodity.¹⁵ During the 1970's and the 1980's, development of technology industry led to emergence of independent software business. Sale of software was no longer tied to sale of hardware. As software was no more the means of selling personal computers, software, like operating systems (OS), became the principal products of companies that made no hardware at all. Microsoft was one of the early software companies that benefitted from and developed its business around the right to exclude others from exploiting the proprietary rights of a copyright holder. Finally, after emergence of the independent software business based on the concept of computer programs as property, users were no longer allowed to redistribute and modify

¹³ Stallman 2010 at 7. It is said that the term *open source* was coined in 1998 by Eric Raymond and hacker fellows in Palo Alto, California. See Ilardi at 285.

¹⁴ Moglen 1999. See also Lemley, Menell, *et. al.* at 33-34 and Schellekens at 9.

¹⁵ Schellekens at 9.

computer programs, which they usually received in binary form only.¹⁶ Other companies joining the proprietary distribution model included American Telephone and Telegraph company (AT&T) which, in order to develop an interoperable OS capable of running on various types of computers, initiated the Bell Labs research effort. Bell Labs finally resulted in the OS named Unix, which was written in C programming language also invented by Bell Labs. AT&T used to distribute the Unix OS in C source code, but did not allow its users to create derivative works nor redistribute the OS.¹⁷

In the early 1980's, as a counter movement against the concern of the unfree status of Unix and the other OS, which prevented modification and sharing of source code, Richard Stallman, a hacker at the MIT Artificial Intelligence Lab, undertook a project of redesigning and implementing a free version of a Unix compatible OS as well as tools necessary for the effort. Stallman named the OS as GNU for GNU's Not Unix.¹⁸ Because the new GNU OS was compatible with Unix, it was easy for the old Unix users to change into the new GNU OS. Project GNU was to be the basis for the new free software community soon to be organized also in corporate form. FSF, the non-profit organization promoting development of free software, was founded by Richard Stallman around the Project GNU in 1985 in Massachusetts.¹⁹

Project GNU was soon followed by other FOSS projects, such as development of the BSD Unix OS released under the BSD (Berkeley Software Distribution) license in 1989. The purpose of the BSD license was to permit use, modification and distribution of software developed at the University of California (UC), Berkeley, in order to promote education and academic freedom. The aim of the new licensing model was to attract contributions from developers, which were now able to start contributing code on top of software that was available to everyone. Open models gained ground when also the developers at the Massachusetts Institute of Technology (MIT) created a graphical user interface (GUI) for Unix system released under the MIT license. Finally, in the

¹⁶ Moglen 1999. Välimäki 2005 at 14 and 21-24.

¹⁷ Moglen 1999. Meeker 2008 at 3-7. Murray at 3-4.

¹⁸ Stallman 2010 at 9. Moglen 1999. Meeker 2008 at 3-7. Murray 3-4.

¹⁹ Moglen 1999. Meeker 2015 at Preface. Meeker 2008 at 3-7.

early 1990s, Finnish Linus Torvalds, an undergrad student at the University of Helsinki, created a kernel for Unix-based OS named Linux. Linux was compatible with Project GNU components and was released under the version 2 of the GNU General Public License (GPLv2). Soon the GNU/Linux OS attracted code contributions from all around the world.²⁰

In 1990's, commercial use of FOSS gained more and more ground even within the corporate context of technology industry. By way of example, Netscape Communications, Inc. announced in 1998 the launch of its Mozilla Project resulting in release of the source code for Netscape communicator under a reciprocal FOSS license called Mozilla Public License (MPL). Apache Project, in turn, launched a web server also under FOSS terms, the Apache license. Suddenly FOSS projects started to flourish everywhere. Finally, another non-profit organization, the OSI, was established by Eric Raymond and Bruce Perens in 1998 in California to support the use of FOSS and to manage a list of license terms meeting the criteria of FOSS.²¹

1.1.3 FOSS Today

The year 2015 marked the thirtieth anniversary of the foundation of the FSF. During the past 30 years, technology industry has faced tremendous increase in use of FOSS in commercial context. Despite occasional shifts towards more closed models during the past thirty years of FOSS development, it appears that openness still secures success.²² The below chart illustrating statistics on the worldwide market shares of smart phones in Q3 of 2016, provides one recent example of the market share of FOSS based solutions versus proprietary software solutions.²³ When it comes to intelligent mobile, FOSS based Android OS comes first with 86,8% market share in intelligent mobile as the clear market leader. Proprietary software solutions are left way behind the FOSS based OS.

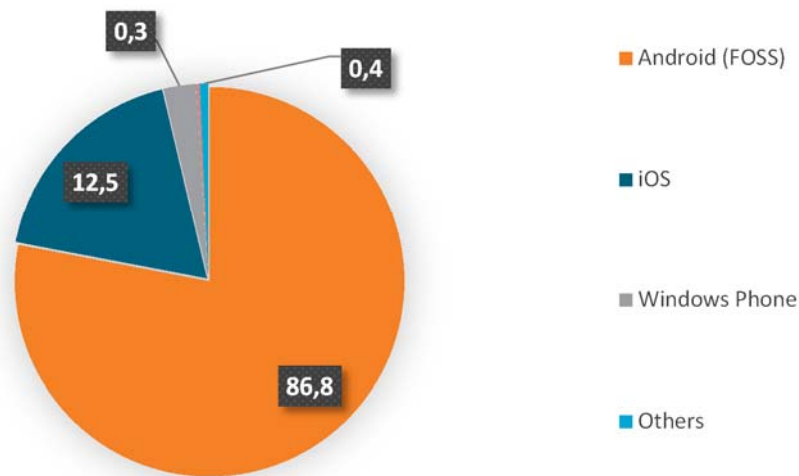
²⁰ Moglen 1999. Raymond at 2-3. Rosen at 76 and 85. Meeker 2015 at Preface. Meeker 2008 at 6-7 and 19.

²¹ Välimäki 2005 at 1, 36 and 121. Dixon at 7-8. Meeker 2008 at 18-19.

²² Haapanen 2012.

²³ International Data Corporation 2016.

PICTURE 2: WORLDWIDE SMARTPHONE OS MARKET SHARE Q3 2016



In addition to FOSS based product and service solutions, internal use of FOSS in corporate context appears to be increasing all the time. According to the 2015 Future of Open Source Survey Results by Black Duck, 78 % of companies run on open source. Black Duck also estimates that corporate participation in FOSS projects is increasing: 64 % of the survey respondents said that their companies currently participate in FOSS projects, and the said corporate engagement is expected to even deepen during the upcoming years. In fact, FOSS is often considered as the *default approach* to software, since 66 % of the respondents consider first open alternatives before proprietary software. If we take a look at the future, FOSS is seen to have *increasingly important role* also in development of cloud based business models, big data, OS alternatives and connected devices, *i.e.* the Internet of Things (IoT). Earlier, companies often relied on open alternatives to seek *cost savings*, whereas today FOSS is even more important due its *agility* and *security*. In the era of IoT and mobility, use of FOSS is crucial to achieve efficiency. The impact of FOSS in the era of IoT will be further discussed in Section 6.5 (Final Remarks). However, despite the increased importance of FOSS, today still more than 55 % of the respondents report that they do not have FOSS policies and procedures in place. Increased use of FOSS will definitely call for *appropriate management* of FOSS, including drafting and implementation of related policies and procedures, in

order to ensure compliance with FOSS license terms and informed exposure of proprietary assets to FOSS licensing.²⁴

In addition to expansion of corporate use of FOSS, other significant developments within the FOSS community during the past decades include the validation of the solid legal status of FOSS licensing model based on successful enforcement activities of FOSS licenses – both outside and inside of courts. The first FOSS enforcement litigations were conducted more than 10 years ago, first in Europe, and shortly thereafter in the US. Due to successful enforcement of FOSS licenses, there is much less uncertainty today as to enforceability of FOSS licensing schemes as will be discussed in more detail in Section 3.1.3 (Enforcement of FOSS Licenses) – at least when it comes to copyright aspects of FOSS licensing. The recent FOSS litigations reflect, due to increased industry use of FOSS, a shift from enforcement of FOSS licenses for compliance towards enforcement of FOSS licenses for commercial ends.²⁵ The shift in the goals of modern FOSS litigations brings about the compelling need to gain better understanding also on the impact of FOSS licensing to patent portfolios owned by FOSS contributors and/or FOSS distributors – the exact subject of this study.

1.1.4 Construction of FOSS Licenses

FOSS is software released under license terms, which meet the Free Software Definition and/or the Open Source Definition introduced in Section 1.1.1 (Concepts). OSI, which maintains the list of FOSS licenses meeting the Open Source Definition, has to date approved around 70 FOSS licenses via its License Review Process. Of course not all FOSS licenses are submitted to the OSI for review and approval. Therefore, the actual number of various FOSS licenses may be much higher. It is argued that proliferation of FOSS licenses causes great confusion to users. In order to ease participation by the FOSS community, selection of the established, OSI approved licenses for new FOSS projects is encouraged. The OSI approved FOSS licenses may be divided into different

²⁴ Black Duck 2015 at 8, 12, 14-15 29, 31 and 43.

²⁵ Haapanen 2012. Haapanen 2015.

license categories.²⁶ While there are many alternative ways to categorize FOSS licenses, one common way is to divide FOSS licenses into (1) permissive licenses such as the BSD, the MIT and the Apache licenses; (2) reciprocal (hereditary) licenses with a strong copyleft-clause, such as the GPLv2 and version 3 of the GNU General Public License (GPLv3) as well as the GNU Affero General Public License (AGPL); and (3) reciprocal (hereditary) licenses with a weak copyleft-clause, such as version 2 of the MPL (MPLv2) and the GNU Lesser General Public License (LGPL). If the categories are reflected against the Free Software Definition and the Open Source Definition, FOSS licensed under the reciprocal licenses within the categories 2 and 3 amount to free software, whereas FOSS subject to licenses within the category 1 is "merely" open source software.

Irrespective of the FOSS license category, many widely used FOSS licenses, such as the BSD and the MIT licenses or even the GPLv2, do not clearly identify *under which IPRs* the FOSS licensor grants the rights to FOSS licensees when he contributes and/or redistributes a computer program under the said FOSS licenses. Terms used in those FOSS licenses include concepts mainly derived from copyright law (such as the rights to *copy, modify* and *distribute* the program), but occasionally refer also to the exclusive rights of a patent holder (such as the right to *use* the program) without, however, expressly mentioning whether the licenses are granted *under* copyrights and/or patents. Some other FOSS licenses, in turn, such as the Apache 2.0 license and the GPLv3, include not only copyright license grants, but also *express* patent license grants. Because FOSS may be protected by both copyrights *and* patents within the sphere of IPRs as described in Section 2 (FOSS and Overlapping Intellectual Property Rights), the ambiguous license grants of the most common FOSS licenses result in the question, what is the actual scope of IPRs – copyrights and/or patents – licensed under the most common FOSS licenses, such as the BSD, the MIT and the GPLv2 licenses.²⁷

²⁶ Rosen at 69-71. 2 Raymond Nimmer §11:13 at 11-27 – 11-30. Meeker 2015 at 31-32. Meeker 2008 at 11-13 and 23-24. Lindberg at 177-178. Murray at 5-8. Välimäki 2006 at 191-193, 203 and 206. St. Laurent at 14, 34 and 85. Lerner & Tirole at 2-3.

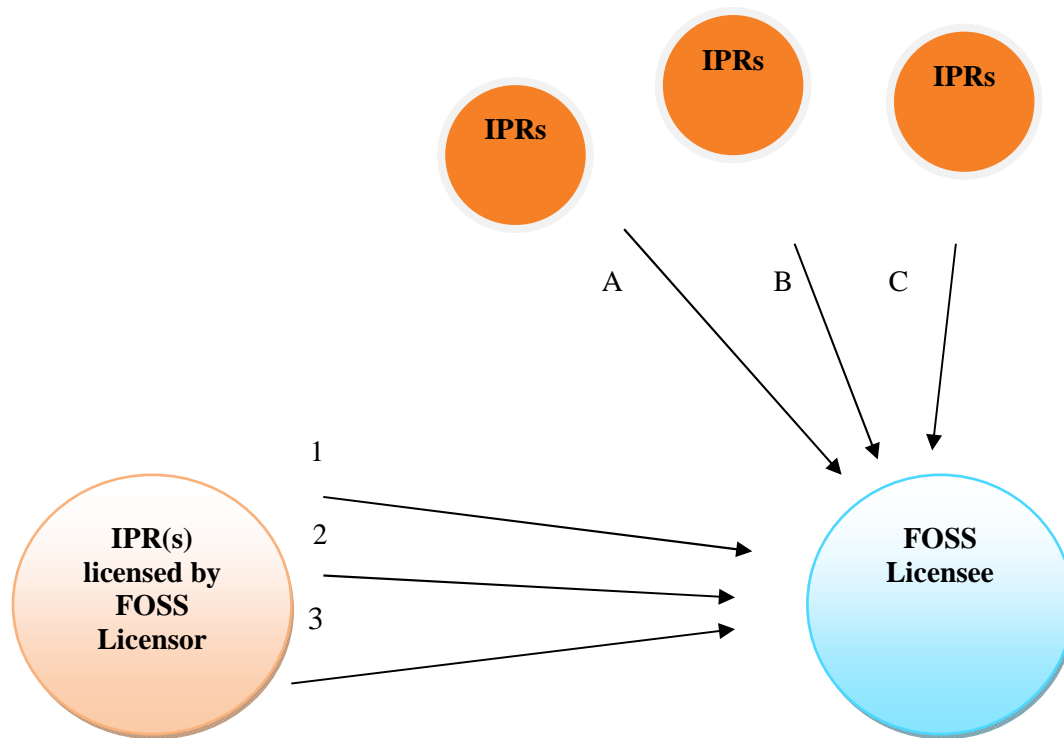
²⁷ Haapanen 2015 at 3-5.

This question is important for the whole FOSS community: Each FOSS contributor should be able to *understand* what rights he is actually licensing to the FOSS community by releasing the computer program under a FOSS license. The same applies to a distributor of a FOSS program not contributing any of its own software under a FOSS license, but merely redistributing FOSS, whether on a standalone basis or as embedded or otherwise in connection with a software and/or hardware product. When it comes to grant of copyright licenses, under the GPLv2§6, the rights to copy, redistribute verbatim copies, create derivative works and distribute derivative works, are granted by the original author (contributor) to each licensee, thus excluding the exercise of sublicensing rights. MIT license, in turn, includes an express sublicensing right, allowing distributors to sublicense any rights under the MIT license. However, the BSD license does not include an express sublicensing right, due to which the rights appear to be granted to recipients of the program directly by (each) contributor just like under the GPLv2 license. However, it cannot be totally excluded that a mere FOSS distributor would (implicitly) license its patents to recipients of the FOSS program redistributed by it under any of the FOSS licenses subject to this study. This emphasizes the importance of understanding what rights each FOSS contributor and/or FOSS distributor may actually grant to FOSS users under the FOSS licenses subject to this study. Likewise, each FOSS user should be able to understand with certainty what rights it actually receives from the FOSS contributor and/or the FOSS distributor under the respective FOSS license. *And why is this so important?*

In the world of fierce competition where the most crucial assets in the war of survival are often the IPRs owned or otherwise held by an entity, one should be able to clearly identify the stream of inbound and outbound licensed IPRs, including the effect of the inbound and outbound licensing to one's own IPR portfolio. In connection with the inbound licensing of IPRs, whether under a FOSS or a proprietary license, the licensee should clearly understand what specific rights it actually receives under the respective inbound license from the contributor(s) and/or the distributor(s) in order to be able to analyze whether those rights are sufficient for its operations or whether additional inbound licenses to other third party IPRs are required in order to avoid IPR infringement. Similarly, in connection with outbound licensing of IPRs, whether under a FOSS or a proprietary license, the contributor and/or the distributor should clearly

understand what rights it is actually conferring to its licensee(s) under the respective outbound license in order to analyze what is the effect of the outbound licensing to its own IPR portfolio – such as potential dilution of its patent rights either based on patent exhaustion and/or implied or express patent license(s). In addition to the scope of the inbound licensed and/or outbound licensed IPRs, the conditions and covenants of the respective license terms should be clearly identifiable in order to prevent uninformed licensing decisions with unexpected impact on the contributor's and/or the distributor's own IPR portfolios – such as contamination of proprietary software by a FOSS license or breach of licenses due to license compatibility conditions.

PICTURE 3: STREAM OF LICENSE GRANTS AND UNLICENSED IPRS



PICTURE 3: STREAM OF LICENSE GRANTS AND UNLICENSED IPRS

Arrows 1-3 illustrate the stream of IPR licenses, whether under copyrights and/or patents (or trademarks) granted by FOSS Licensor(s) to FOSS Licensee(s). FOSS Licensor should be able to accurately identify under what IPRs (Arrows 1-3) it grants a license to FOSS Licensee, and what is the specific scope of the license grants. Accordingly, FOSS Licensee should be able to accurately identify under what IPRs (Arrows 1-3) it receives a license from FOSS Licensor, and what is the specific scope of the license grant.

Arrows A-C illustrate unlicensed IPRs such as copyrights, patents, trademarks and/or other IPRs owned either by FOSS Licensor and/or third parties relevant for the assets exploited by FOSS Licensee. Both FOSS Licensor and FOSS Licensee should be able to identify what IPRs are outside the scope of the granted licenses (Arrows A-B), and accordingly, which IPRs FOSS Licensor may assert against any parties (within or outside of the FOSS community), and accordingly, to which IPRs FOSS Licensee should secure additional, FOSS or proprietary licenses either from FOSS Licensor and/or third parties.

While it is a little bit old fashioned to talk about *risks related to use of FOSS*, since to great extent FOSS license compliance requires nothing but ordinary legal education, knowledge of IPR licensing and due diligence in sourcing decisions as well as research and development (R&D) activities²⁸, the implications of FOSS licensing from patent perspective are harder to tackle: ambiguous license grants in the most common FOSS licenses result in uncertainty in both the FOSS licensors and the FOSS licensees regarding what rights they actually grant and/or receive under the respective FOSS license. This unclarity regarding the scope and the extent of the license grants may bring about – perhaps unnecessary – fear, uncertainty and doubt within the FOSS community: corporate contributors may be unable to clearly identify what patent rights, if any, they (and/or their affiliated companies) are granting under the FOSS licenses, to whom in the down-stream chain of licensees as well as to what computer program: only the FOSS contributor version or, alternatively, the FOSS distributor version, or perhaps even the modified versions of downstream licensee(s)? Thus, the exposure to patent portfolios remains unclear: It is hard to determine whether patent claims infringed by the FOSS program are either exhausted and/or implicitly licensed under the respective FOSS license, thereby precluding the patent holder from collecting royalties or other compensation from exploitation of the relevant patent(s) reading the FOSS program and thus leading to *dilution* of the respective patent rights. Further, FOSS users may not be able to determine whether they are safe from patent assertions even within the FOSS community.²⁹

One of the key steps in ensuring proper management of FOSS and addressing license compliance requirements is to design, draft and implement *policies and procedures* governing use of FOSS. The said policies and procedures should address in sufficient detail guidelines for use of FOSS in the organization in line with the organization's strategic goals. The purpose of the policies and processes is to ensure that FOSS is used within the organization in compliance with all applicable licenses and without (knowing) infringement of any third party IPRs or misappropriation of trade secrets. In

²⁸ Williamson at 54.

²⁹ Haapanen 2009 at 2-4. Stern & Lee at 7.

corporate context the guidelines would also address evaluation of the impact of using FOSS on the organization's patent portfolio and copyrights in proprietary software. Guidelines for identification, categorization and approval processes of FOSS components and review of related licenses as well as architectural and license compatibility analyses are also commonly part of the said policies. Internal and/or external FOSS audit tools are often used to carry out the procedures, which are indeed helpful when the used FOSS components include software packages subject to multiple FOSS licenses. However, mere policies and processes, no matter how detailed, are never sufficient to address the risks until they are properly implemented, communicated and educated within the organization.³⁰

In addition to internal R&D procedures, companies may also require that as part of their FOSS processes, suppliers must list any and all FOSS components embedded in deliverables together with applicable license terms, or alternatively, that suppliers give warranties that the deliverables do not include FOSS components (under any or identified licenses) and/or provide indemnification against third party claims based on alleged infringement of IPRs and/or breach of license terms. Further, FOSS due diligence (FOSS DD) is important also in connection with technology transactions to ensure that proprietary software products of the target company are actually owned by the target and have neither *accidentally* become subject to the source code distribution requirements of FOSS licenses or that the target company's patents are not *diluted* due to uninformed decisions regarding FOSS licensing.³¹

1.1.5 FOSS and Patents

The topic of FOSS and patents may be roughly divided into two aspects: (1) *infringement* of third party patents by development, exploitation, sale, licensing and/or distribution of FOSS; and (2) *management* of own patent portfolios through analyzing the impact of contributing and/or distributing FOSS on the FOSS licensor's own patent

³⁰ Ilardi 2005 at 302 -305. Stern & Lee at 267-269 and 276-280. Meeker 2008 119-122.

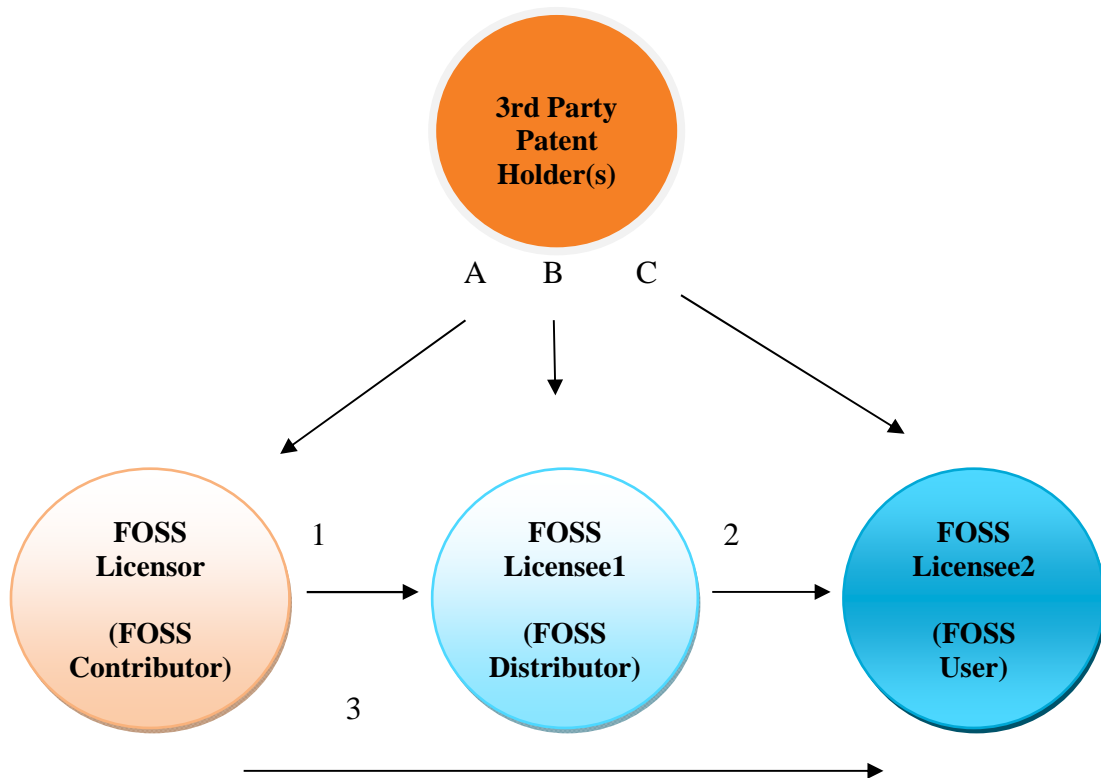
³¹ Ilardi 2005 at 302. Stern & Lee at 267-269. Meeker 2008 at 122 and 237-244. Meeker 2008 II at 870-871 and 874-875.

portfolio.³² The focus of this study is primarily on the category (2) from the perspective of FOSS licensor (*i.e.* FOSS contributor and/or FOSS distributor), although also the topic of category (1) will be occasionally touched upon, when the discussion turns to FOSS users allegedly infringing software patents by exploiting FOSS. Further, the impact (read: "*threat*" from the perspective of many FOSS users) of third party patents on use of FOSS as well as the impact (read: "*risk*" from the perspective of many industry FOSS licensors) of contributing and/or distributing FOSS on enforcement of own patents will be summarized in Section 6 (Discussion of the Results).

The flow of patent infringement claims (Category 1) and FOSS patent licenses (Category 2) can be illustrated as below. The terms FOSS licensor, FOSS contributor, FOSS distributor and FOSS user have the meanings defined in Section 1.1.1 (Concepts).

³² Meeker 2015 at 151. Meeker 2008 at 89. Guibault & van Daalen at 142-148.

PICTURE 4: FLOW OF PATENT INFRINGEMENT CLAIMS AND PATENT LICENSES



PICTURE 4: FLOW OF PATENT INFRINGEMENT CLAIMS AND PATENT LICENSES

Category 1: Arrows A-C illustrate the upstream flow of potential third party patent infringement claims by owners of third party patents against FOSS Licensor(s) and/or FOSS Licensee(s). Infringement claims may be directed either from outside (by 3rd Party Patent Holders) (Arrows A-C) and/or inside (by other FOSS Users) of the FOSS community (due to ambiguous FOSS license grants) against FOSS Licensor(s) and/or FOSS Licensee(s).

Category 2: Arrows 1-3 illustrate the downstream flow of patent licenses, if any, granted by FOSS Licensor(s). Patent licenses may flow either from FOSS Licensor to each downstream FOSS Licensee (Arrows 1 and 3) or, depending on the respective FOSS license, even from FOSS Contributor through FOSS Distributor to FOSS Licensee (Arrow 2). Also Licensees 1 and 2 may grant a patent license under their own patent rights by merely redistributing FOSS and/or releasing own contributions under a FOSS license.

Traditionally, FOSS and patents have been argued to be non-compatible: The free software movement is heavily against software patents, since like copyrights, also patents may render computer programs proprietary, potentially blocking programmers from developing software practicing the patented features for the duration of twenty years and in the worst case, holding software developers and users liable for patent infringement.³³ On the other hand, the low amount of patent infringement litigations in FOSS context imply that patents and FOSS are indeed compatible. There are also several ways to cope with third party software patents in FOSS context such as (1) searching evidence of prior art to show the patent is invalid; (2) finding non-infringing alternatives for implementation of the patented feature; (3) allocating liability in FOSS licenses by liability disclaimers; (4) acquiring insurance policies against patent infringement claims; (5) developing defensive patent portfolios for cross-licensing and patent pools; and (6) setting up risk management policies and procedures.³⁴

However, the subject of *third party patent* infringement (as illustrated above by Arrows A-C in Picture 4) is not within the core scope of this study. Instead, this research focuses primarily on the exposure to patent portfolio of FOSS licensors based on, by way of example, the doctrine of patent exhaustion, or alternatively, the flow of patent licenses from FOSS licensor(s), *i.e.* FOSS contributor(s) and/or mere FOSS distributors to downstream FOSS licensee(s) (as illustrated above by Arrows 1-3 in Picture 4). Namely, the exclusive rights of a patent holder, *i.e.* the rights to use, make, sell, offer for sale and import the patented article, are not exhaustive, but subject to several limitations based on both statutory and case law. These limitations include, by way of example, the doctrine of patent exhaustion and an equity based concept of implied patent license found (at least) in common law regimes. Of course, if the outcome of the analysis is that in the absence of an express patent license, there is no affirmative defenses of patent exhaustion and/or patent license available to the allegedly infringing FOSS user(s), then use of FOSS licensor's patents constitutes patent infringement. However, the said patent infringement is not infringement of third party patents, but

³³ Stallman 2010 at 21. See also Bernitz, Karnell, *et. al.* at 173.

³⁴ Stallman 2010 at 21 and 143-159. Guibault & van Daalen at 142-145. Välimäki 2006 at 164-174. Välimäki & Oksanen at 354-357. Meeker 2015 at 156-157 and 159.

infringement of patent rights *inter partes*, the respective FOSS licensor (FOSS contributor and/or FOSS distributor) and the FOSS licensee.

Today it is within the state of the art – legal skills to know how to draft detailed FOSS compliance guidelines. However, most often those guidelines concentrate only on *copyright compliance*. The focus of this study, in turn, is on the implications of FOSS licensing on FOSS contributor's and FOSS distributor's patents. While it has been argued that FOSS and patents cannot peacefully coexist, the fact is that there are millions lines of software code licensed under FOSS licenses practicing thousands of software patents. Thus, as FOSS gains ground in corporate use, it is of the utmost importance to better understand the effects of FOSS licensing to FOSS contributor's and FOSS distributor's own IPR portfolios. Accordingly, FOSS licensees should understand on one hand, what rights they receive under FOSS licenses, and on the other hand, what patents are beyond the scope of their inbound FOSS licenses.

By releasing software under a FOSS license – or in some cases, by merely redistributing software under a FOSS license, the FOSS contributor or mere FOSS distributor grants the user a right to copy, modify and distribute the software under copyrights – and depending on the FOSS license – perhaps also under patents, based on either an express or an implied patent grant included in the respective FOSS license as constructed (based on the totality of circumstances) under the applicable laws. Accordingly, sale of a patented FOSS program may also result in exhaustion of the patent rights embodied in the FOSS program. While the doctrines of implied patent license and patent exhaustion are based upon different preconditions, they result in a same type of impact on the legal position of the patent holder: As a consequence, the patent holder loses – at least partially – control over the patent rights embodied by an article after its sale, distribution and/or licensing. Thus, the patent holder may not be able to subsequently claim for injunction or royalties for the use and/or resale of the sold, distributed and/or licensed article. Accordingly, this study will focus on the effects of FOSS licensing to FOSS contributor's and FOSS distributor's patent portfolio.

1.1.6 Current Status of Research

Although development of case law will always result in a subtle, continuing change of the IPR regimes and related doctrines of law, a substantial amount of high quality academic research has been conducted on IPR protection available for computer programs (applicable also to FOSS as computer programs) both in Europe and the US. When it comes to Finnish academic legal literature on IPRs, several doctoral dissertations have been written after the millennium both on patent law and copyright law as well as their boundaries with competition law and certain specific questions pertaining to these areas. Protection of computer programs have been covered by a few dissertations, in which Välimäki and Ballardini have discussed also FOSS.³⁵

Also the doctrine of patent exhaustion is rather well established – still yet extremely complex – legal concept and subject to a meaningful amount of academic research, both in Europe and the US. However, the copyright and patent exhaustion doctrines leave still plenty of room for many open questions especially on the application of the doctrines to computer programs in the digital context. The doctrine of implied patent license is rather clear concept in the US as opposed to civil law jurisdictions in Europe, where it is not as commonly adopted instrument within the sphere of IPRs as the doctrine of patent exhaustion.

Further, during the around three decade long life of the concepts of free software and open source software, several academic law review articles and a few text books have been published on FOSS licensing.³⁶ However, while there is some academic discussion on the doctrines of patent exhaustion and implied patent license in context of FOSS,³⁷ those doctrines have not been thoroughly analyzed in the context of FOSS licensing or examined from the comparative perspective of both European and the US laws.

³⁵ See *e.g.* Rahnasto, Välimäki, Mylly 2009, Sund-Norrgård 2011, Ballardini, Zhang, Mylly U-M, Rantasaari, Vesala and Kivistö.

³⁶ See *e.g.* Meeker 2015 and Rosen.

³⁷ As to relevant European legal research, see for example Guibault & Van Daalen and Schukomski; as to relevant US legal research, see for example Rosen and Nadan 2009; as to relevant comparative European and US legal research, see for example Vasudeva.

The purpose of this study is to contribute to the discussion on FOSS specifically from the perspective of what is the exposure to FOSS licensors' patent portfolio based on contribution and/or distribution of FOSS. This topic has not been addressed before as the main research question of a doctoral dissertation. In this study the traditional patent law doctrines of patent exhaustion in Europe and the US as well as the implied patent license doctrine in the US and potential similar type of contract law implications in Finland (implied license based on tacit agreement) are applied in (digital) context of FOSS. Therefore this study pioneers within the field of both IPR and FOSS research. Considering also the new rise of FOSS in corporate context, this study is topical, and hopefully brings alternative perspectives to the question on what is the exposure to FOSS licensor's patent portfolio based on contribution and/or distribution of FOSS.

1.2 METHODOLOGICAL CONSIDERATIONS OF LEGAL SCIENCES

1.2.1 Legal Research in Europe and the US

Understanding the methodology of legal sciences is the starting point of all legal research: methodology includes the premises and methods of conducting research within the field of law. However, due to diversity of legal sciences, there are no general rules, techniques, guidelines or standards for methods of legal research, which a researcher could easily pick and choose for her own legal study. Instead, each researcher's personal ontological (*what is law*) and epistemological (*how information is gained*) choices will direct (1) the scope of the research; (2) the theoretical approach; as well as (3) the selected sources of law, forming the basis of the research. Accordingly, these individual choices will carry an impact on the methodology of the legal research.³⁸

Jurisprudence is science, the scope of which includes law. By way of example, Kelsen's pure theory of law attempts to answer the questions: *What is law?* And further: *What is law in general, not law of a specific legal order?* In the European doctrine of law, jurisprudence may generally be divided into three branches: (1) *legal dogmatics*; (2) *legal theory*; as well as (3) *law and sciences*, such as law and economics. In legal dogmatics, the scope of research consists of the existing law. Its provisions and

³⁸ Hirvonen at 58-61. Smits at 110-122.

principles are interpreted and systematized with the aim to produce analysis concerning the scope and contents of the existing law. The materials subject to research may include legal provisions, but can also cover legal concepts and existing principles of law. In each case, however, the analysis must be supported by materials chosen in accordance with the prevailing doctrine of the sources of law. Accordingly, depending on the respective jurisdiction, legal analysis should be in line with statutory law, legislative works, the established case law (legal precedents) as well as customary law.³⁹ Legal dogmatics may be further divided into various layers reflecting either a theoretic or a pragmatic approach. Each level has an impact on the other levels of legal dogmatics.⁴⁰

Stare decisis forms the heart of the US common law system, which is based on judicial decisions, *i.e.* precedents. Precedents, in latin *stare decisis*, imposes judges an obligation to follow prior decisions of judges as binding so that new decisions are consistent with the prior judicial decisions. The part of the precedent, *i.e.* the *holding* of the case in which the court states its decision on the issue before it, is binding on future courts, while judges in later cases may choose whether to apply *dicta*, which mean the courts' statements on law other than at issue in the case.⁴¹ As opposed to legal dogmatics familiar to the continental legal world, in common law systems, like the US, the focus is on studying precedents based on case law instead of primarily systemizing statutory law.⁴² By way of example, in the US law schools the widely used IRAC-method includes identification of the legal *issue* and the relevant *rule* (often derived from case law), *application* of the rule on the facts of the case and thereby finally deriving a legal *conclusion*.⁴³ Therefore, conducting legal research on a common law system requires skimming through dozens if not hundreds of court cases. This kind of *doctrinal legal research* is also used in connection with advanced legal research in the context of common law systems. In the doctrinal legal research method, the essential features of

³⁹ Kelsen at 1. Hirvonen at 21-24. Siltala 2001 at 8, 15, 17, 22 -24.

⁴⁰ Aarnio at 303-304.

⁴¹ Strauss at 5 and 9. Edwards at 17-18 and 22.

⁴² Lomio, Spang-Hanssen, *et. al.* at 78.

⁴³ Lomio & Spang-Hanssen at 137.

case law and statutory law are examined and extracted to – hopefully correct and complete – theory on the law at hand. Hence, the corner stones of the doctrinal legal research include, in a nutshell, deriving arguments from legal authorities, such as existing precedents and legal rules as well as scholarly publications, and presenting the law coherently in the form of a solid legal doctrine.⁴⁴

Today legal dogmatics and doctrinal legal research are often conducted together with *comparative law*.⁴⁵ The so called *Columbia experiment* carried out in the 1920's at Columbia University School of Law in New York provides one of the early examples of adopting research methods of comparative law in the US, by widening the scope of materials subject to legal research from common law precedents to other sources of law and beyond.⁴⁶ In essence, comparative legal research means placing two or more different legal regimes in parallel for the purpose of gaining more information on the regimes.⁴⁷ Comparative law requires both understanding the law of the researcher's own legal system and comparison of the law to another legal system. Therefore, from the researcher's perspective, comparative law always deals with *foreign law*.⁴⁸ Although legal regimes are different in each jurisdiction, there are certain similarities in each legal system. By way of example, each legal system usually includes rules regarding contracts for grant of rights or creation of obligations as well as rules regarding compensation for damages.⁴⁹ However, when it comes to comparison of civil law and common law systems, there are many crucial differences in the legal systems such as legal concepts existing in one but not the other system as well as the different approaches to the sources of law, language, philosophical perspectives, and research techniques, just to mention a few examples.⁵⁰

⁴⁴ Hutchinson at 10 and 12.

⁴⁵ Hirvonen at 26.

⁴⁶ Wilson at 89-97.

⁴⁷ Husa at 30.

⁴⁸ Zweigert & Kötz at 2 and 6.

⁴⁹ Hart at 3.

⁵⁰ Bruno at 7-9.

Despite several differences between legal systems, comparative law does not only involve describing the specific features of separate legal systems, but also requires comparison of the legal systems subject to research. Various approaches can be taken to comparative law. In connection with *theoretic comparative legal research*, comparison is conducted for the purpose of evaluating differences and similarities of the legal systems as well as explaining the reasons for such differences or similarities. In *practical comparative legal research*, in turn, comparison of the legal systems is conducted for the purpose of providing practical conclusions for legislative processes, judicial decision making or critics of law. Irrespective of the chosen approach to comparative legal research, the aim of comparative law is to deepen and improve legal argumentation by, for example, resulting in additional material for interpretation of a legal question.⁵¹

In addition to various approaches to comparative law, also the objectives of comparative law may be different, such as integrative purpose, contradictive purpose, practical purpose, theoretic purpose and pedagogic purpose. In *pragmatic research*, statutory law and/or case law are compared for the purpose of solving a legal question. In this context, comparative law provides the researchers with construction tools for filling in gaps within law. However, pragmatic comparative law merely touches upon the surface of the foreign legal regime. Pragmatic comparative law is often combined with legal dogmatic research where general questions related to interpretation of law are solved through arguments found from foreign legal systems. By the end of the day, the main objective of comparative law is to increase knowledge. Comparative law offers new dimensions and may provide more solutions to legal problems, because the focus is not merely limited to concepts found in the researcher's own legal system. Comparison may be conducted on a micro or macro level, concentrating either on the surface of the provisions of law or on the deeper level, such as features of the legal culture. While the focus of *microcomparison* is on the specific rules of law, *macrocomparison* may involve,

⁵¹ Husa at 30, 34, 43 and 90. See also Bell at 157-158.

for example, comparison of the high level features of different legal systems such as legislative techniques, codification styles or dispute resolution methods.⁵²

Finally, there is no clear, systematic view on the *methods of comparative law*. According to some experienced scholars, a detailed method of comparison cannot always be specified prior to commencement of the research since the method should, during the course of the research, be adjusted according to the results, leaving also room for mere sound judgment, common sense and even intuition. However, also conduct of comparative legal research starts with the posing of a research question or a hypothesis. The research question or a hypothesis should be laid down in a neutral manner without referring to the concepts of the researcher's own legal system. The researcher should be creative in approaching the rules of the foreign system in order to find solutions to the research question. The solutions found in different legal systems are not always similar to those of the researcher's own system and sometimes do not even address the exactly same legal issues. How far the researcher should go to find comparable legal solutions depends on the objectives of the research. It may be easier to compare mature fields of law, which provide a great variety of legal solutions. As mere description of different legal systems does not convert the research into comparative law, but is merely one step in application of the comparative method, the hardest part of comparative law is often the analysis on the differences in the legal systems subject to research. In an ideal case, the national solutions are cut off from their jurisdictional context and evaluated against their functional purpose in order to provide new points of view for consideration. It is very much possible that different legal systems aim to satisfy the respective legal needs by different mechanism due to reasons, which may have little to do with law, but stem from, for example, freedom of trade or competition. As a consequence of the comparison, it may be possible to build solid lines of argumentation explaining the similarities and differences found during the research, resulting in a supply of knowledge beyond what would be possible merely by a "stay-at-home" lawyer.⁵³

⁵² Husa at 60, 77-80, and 126-127. Zweigert & Kötz at 5 and 15.

⁵³ Zweigert & Kötz at 33-47.

1.2.2 Sources of Law in Europe and the US

The legal system of the European Union (EU) consists of the primary and secondary community law. The primary sources of EU law include the founding treaties on EU, such as the Treaty on Functioning of the European Union (TFEU), which govern also IPRs.⁵⁴ The secondary sources of EU law include regulations, directives, decisions as well as case law of the Court of Justice of the European Union (CJEU) and the European Court of Human Rights (ECHR). Due to primacy of the EU law, EU member states are not allowed to apply provisions of national law, which are contrary to the EU law. Therefore, when the directly applicable EU legislation enters into force, it precludes application of any national law in contradiction with the said legislation. Directly applicable EU law means law, which does not have to be separately implemented in national law in order to become part of its legislation. The founding treaties of the EU such as TFEU as well as regulations obligate the EU member states directly. However, the primacy of EU law relates not only to directly applicable EU law, but also to secondary EU law such as directives.⁵⁵ Directives impose certain obligations on the member states, but member states may choose the tools for implementation of those obligations in their national laws within the set timetable. Decisions of CJEU and ECHR are important for interpretation of the EU law, specifying the contents of both primary and secondary EU law.⁵⁶ The *principle of consistent interpretation* (also called as the principle of *indirect effect*) of EU law requires that the provisions of national law should be ascribed the meaning, which is in compliance with the EU law and its integration objectives. The principle of consistent interpretation is of utmost importance especially in the enforcement of other than directly applicable

⁵⁴ Current treaties include Consolidated Version of the Treaty on European Union (TEU) and the Treaty on Functioning of the European Union (TFEU) as well as the Treaty establishing the European Atomic Energy Community (EURATOM). See Týc 1 at 14.

⁵⁵ Raitio 2016 at 223-224 and 229. Ojanen at 41-44.

⁵⁶ Siltala 2001 at 89. Haarmann at 23. See also Tolonen. Hoffman & Rumsey at 195-199. Týc 3 at 35-43. Bernitz, Karnell, *et. al.* at 21.

legislation such as directives. However, the principle of consistent interpretation should govern also interpretation of directly applicable EU law.⁵⁷

As Finland became a member of the EU in 1995, Finland is bound by the EU law. Under the applicable doctrine on the sources of law in Finland, the relevant sources of law include: (1) EU law, including the treaties establishing the EU and the European Convention of Human Rights⁵⁸ as well as regulations, directives and decisions; (2) general principles of law based on the case law of CJEU and ECHR; (3) the national legislation, *i.e.* the Constitution of Finland, laws enacted in the ordinary legislative procedure, decrees given by the president, the council of state and the ministries as well as other lower orders; (4) customary law in the absence of statutory legislation; (5) legislative drafts; (6) national case law and precedents; and (7) other sources, such as juridical academic literature. Whenever there exists a conflict between EU law and national law, EU law takes precedence over the national law.⁵⁹

The applicable sources of laws in Finland may also be divided into mandatory (primary) and permitted (secondary) sources of law. In Finland, the mandatory sources of law include statutory law and customary law. Secondary (non-mandatory) sources of law include legislative history, which reflects the legislator's objectives as well as case law, which has precedent value. Permitted, non-binding sources of law, in turn, include juridical academic literature, sources of comparative law and certain EU law, which is not directly applicable in Finland as well as arguments based on comparative law. As described above, due to primacy of the EU law, certain EU law and legal principles based on EU case law will take priority over national Finnish laws, including even the Constitution of Finland.⁶⁰

However, when it comes to IPR laws, the above type of categorizations of the sources of law may not always provide room for the special features of copyright and patent

⁵⁷ Raitio 2016 at 239-240. Ojanen at 44.

⁵⁸ European Convention of Human Rights of September 21, 1970, as amended.

⁵⁹ Siltala 2001 at 88, 90 and 101-102. For judicial system of the EU and the CJEU specifically, see Týc 4 at 62-63. Siltala 2010 at 141-144. Kur & Dreir at 68.

⁶⁰ Laakso at 262. Hirvonen at 42-45. Siltala 2010 at 140-141.

systems: for example, despite the territoriality of patent rights, patent law is a highly international field of law, and the same applies also to other IPRs, considering the vast amount of international conventions, such as the Berne Convention⁶¹, the Paris Convention⁶² and the TRIPS Agreement⁶³, all governing the protection and enforcement of IPRs. Whether the international conventions or the national law takes precedence over the other, may depend on the specific questions of law at hand, although the usual presumption is that national laws are compliant with the said conventions.⁶⁴ When it comes to EU law, closeness of EU law and various national IPR laws depends on the type of IPRs in question. While many aspects of the process regarding the grant of patents as well as the scope of protection are governed by the European Patent Convention (EPC)⁶⁵, exercise of patent rights is, as will be discussed in more detail in Section 4.1.1 (Patent Exhaustion in Europe), allowed merely within the limits of the principles of free movement and competition law. Apart from some directives and case law of CJEU, there have been very little secondary EU law governing patents.⁶⁶

However, this will change in future, as the new Unified Patent Court (UPC), comprising a Court of First Instance and a Court of Appeal, will soon have an exclusive competence in matters governing infringement and invalidity of European patents and European patents with unitary effect.⁶⁷ When hearing a case, the UPC must apply the EU law, the EPC, the other international agreements applicable to patents and binding the member states as well as national law.⁶⁸ The UPC shall also cooperate with CJEU in interpretation of the EU law and the case law of CJEU and where necessary, request

⁶¹ The Berne Convention for the Protection of Literary and Artistic Works. September 9, 1886; as amended on September 28, 1979. (Berne Convention).

⁶² Paris Convention for the Protection of Industrial Property. March 20, 1883; as amended on October 3, 2001. (Paris Convention).

⁶³ Agreement on Trade Related Aspects of Intellectual Property Rights. April 15, 1994. (TRIPS Agreement).

⁶⁴ Norrgård at 5. Hoffman & Rumsey at 257-263.

⁶⁵ Convention on the Grant of European Patent, October 5, 1973; as amended European Patent Convention, 15th Edition. (EPC).

⁶⁶ Raitio 2016 at 414.

⁶⁷ Agreement on a Unified Patent Court (16351/12) (UPC Agreement). Bernitz, Karnell, *et. al.* at 21 and 164-166.

⁶⁸ Article 24 of the Agreement on a Unified Patent Court.

preliminary rulings from CJEU in order to ensure unitary interpretation of EU law.⁶⁹ The Agreement on Unified Patent Court (UPC Agreement) includes also rules on substantive law governing the scope and limitations of protection of European patents.⁷⁰ The subsequent case law of the UPC will be decisive for interpretation of rights based on European patents and European patents with unitary effect. As to European patents, the decisions of the UPC will cover the territory of those member states in which the European patent has effect.⁷¹ Further, the Unitary Patent Regulation will govern the grant of European patents with unitary effect, which will enable the patent holder to prevent infringement of the said patent within the whole territory of the participating EU member states.⁷² The UPC Agreement was signed on 19 February 2013 and will enter into force when at least thirteen member states including France, Germany and the UK have ratified it. The anticipated commencement of the UPC was May 2017. However, considering the result of the UK's EU referendum in 2016 and the UK's decision to leave the EU, the commencement date of the UPC will be delayed, leaving also open many other questions on related impacts on the UPC.⁷³

As opposed to patents, copyrights are regulated by several EU directives such as the Information Society Directive and the Software Directive.⁷⁴ Finally, comparative law has special emphasis within the field of IPRs, and sometimes it has been argued that there exists even an international tradition in IPR law, especially in terms of many doctrines of patent law.⁷⁵

⁶⁹ Articles 20 and 21 of the Agreement on a Unified Patent Court.

⁷⁰ See for example Articles 25-28 of the Unitary Patent Agreement.

⁷¹ Article 34 of the Unitary Patent Agreement.

⁷² Regulation 1257/2912 of the European Parliament and of the Council of 17 December 2012 implementing enhanced cooperation in the area of the creation of unitary patent protection (Unitary Patent Regulation). Bernitz, Karnell, *et. al.* at 165-166. Raitio 2016 at 414-415.

⁷³ See also Hilli & Flythström at 627 and 638.

⁷⁴ Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society. (Information Society Directive). Directive 2009/24/EU of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs (Codified version). (Software Directive). See also Raitio 2016 at 409-410.

⁷⁵ Norrgård at 6. Press at 372. Domej 2010 at 22. Bernitz, Karnell, *et. al.* at 21.

The legal system of the US (except for the state of Louisiana) is based on common law. In a common law regime, court cases establish legal principles. Under the doctrine of *stare decisis*, courts must adhere to the legal precedents and decide similar cases in accordance with earlier decisions. Accordingly, the primary sources of law in the US include (1) the cases and rules of courts given by the judicial branch of government; (2) the federal constitution of the US as well as each state, statutes and ordinances (including legislative history) produced by the legislative branch (*i.e.* Congress); and (3) orders, regulations and administrative opinions issued by the executive branch of the government. As the US is a federal union of 50 independent states, the law is divided into federal law and state law. The field of IPRs relevant for this study is governed in the US by federal law including mainly the US Copyright Act and the US Patent Act.⁷⁶ On the other hand, contract law relevant for construction of copyright and patent licenses is state law. While in civil law systems the primary sources of mandatory law consist of enacted laws, in common law systems the primary sources of law consist of precedents. However, today, also enacted legislation is recognized as valid law, which may every now and then overturn even common law precedents.⁷⁷ The secondary sources of law in the US include various publications explaining the law often authored by law professors and practicing attorneys. By way of example, treatises, restatements of the law published by the American Law Institute and law review articles belong to secondary legal sources in the US.⁷⁸

⁷⁶ Title 17 of the United States Code, the US Copyright Act (17 U.S.C.) and Title 35 of the United States Code, the US Patent Act (35 U.S.C.).

⁷⁷ Lomio & Spang-Hanssen at 12 and 15-17. Seng 267-268.

⁷⁸ Lomio & Spang-Hanssen at 12 and 15-17. Seng 267-268.

1.3 AIMS OF THE STUDY

1.3.1 Research Questions

The main research question of this study is: **What is the exposure to FOSS licensor's patent portfolio based on (1) contribution of software under a FOSS license; and/or (2) mere distribution of software under a FOSS license?**

The above main research question is approached by two dependent research questions, which aim to address the above question from the FOSS licensee's perspective, *i.e.* whether and how the patent holder's exclusive patent rights in FOSS are gradually diluted (in terms of each exclusive patent right) based on sale, licensing and/or distribution of FOSS:

- **Research Question 1: Does sale, licensing and/or distribution of FOSS trigger patent exhaustion?**
- **Research Question 2: Do the most common FOSS licenses, *i.e.* the BSD, the MIT and the GPLv2 licenses, which do not include express patent grants, still trigger an implied patent license?**

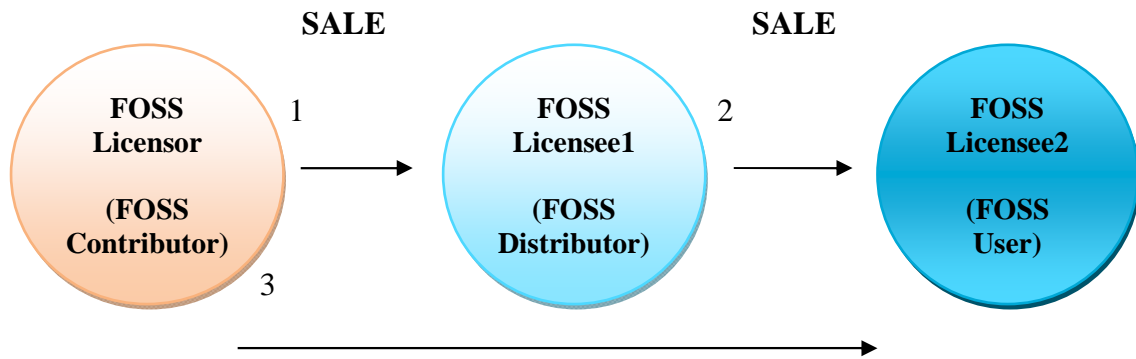
The Research Questions 1 and 2 may be further specified as follows:

- Research Question 1: What are (i) the preconditions for the existence; as well as (ii) the scope; and (iii) the extent – and thereby the practical impact – of the patent exhaustion doctrine in the context of sale, licensing and/or distribution of FOSS in Europe and the US?
- Research Question 2: What are (i) the preconditions for the existence; as well as (ii) the scope; and (iii) the extent – and thereby the practical impact – of the implied patent license doctrine in the context of sale, licensing and/or distribution of FOSS in Europe (Finland, specifically) and the US?

1.3.2 Illustration of the Research Questions

Research Question 1 may be illustrated as follows:

PICTURE 5: SALE OF FOSS



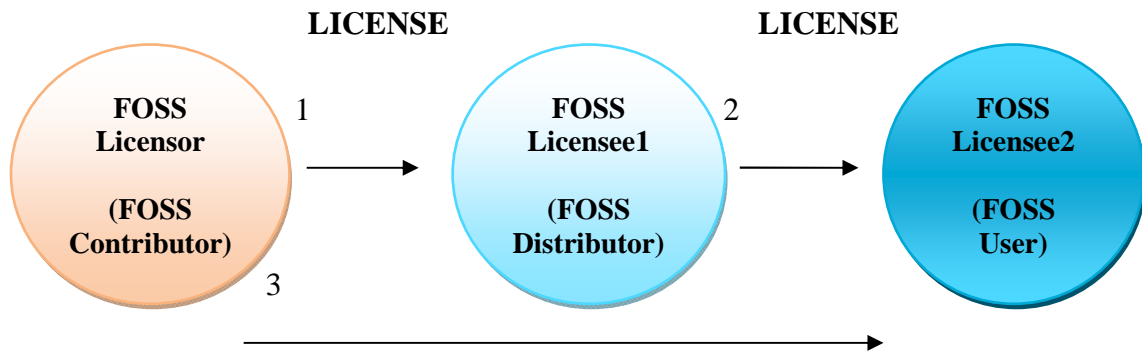
PICTURE 5: SALE OF FOSS

Copyright Perspective: Arrows 1-3 illustrate the downstream flow of copyright license grants from the original FOSS Licensor (FOSS Contributor) releasing software under a FOSS license to FOSS Licensee 1 (FOSS Distributor, which in this example does not release own contributions under the respective FOSS license) and further to FOSS Licensee 2 (which may use FOSS internally or distribute FOSS with or without modifications). In case of the GPLv2 and perhaps the BSD license, copyright licenses are granted by FOSS Contributor directly to each FOSS Licensee (Arrows 1 and 3). However, as sublicensing is allowed under the MIT license, the copyright license grants may flow down from FOSS Contributor to FOSS Licensee 1 (FOSS Distributor) (Arrow 1), and from FOSS Licensee 1 further to FOSS Licensee 2 (FOSS User) under a sublicense (Arrow 2).

Patent Perspective: In this scenario, FOSS Licensor (FOSS Contributor) and/or FOSS Licensee 1 (FOSS Distributor) licenses, distributes and/or sells a copy of a FOSS program (embedded in a software or a hardware product or distributed as a standalone program) protected by both copyrights and patents owned by FOSS Contributor and/or FOSS Distributor. FOSS Licensee 2 buys the product. **Research Question 1 inquires, what is the exposure (under the doctrine of patent exhaustion) based on sale of the FOSS program on patents owned by FOSS Contributor and/or FOSS Distributor.** Accordingly, does FOSS Licensee 2 receive under the doctrine of patent exhaustion the right to use, copy, make, modify, distribute, sell, offer for sale and/or import the respective FOSS program under or irrespective of patents owned by FOSS Contributor and/or FOSS Distributor?

Research Question 2 may be illustrated as follows:

PICTURE 6: LICENSING OF FOSS



PICTURE 6: LICENSING OF FOSS

Copyright Perspective: The copyright scenario is the same as above in Picture 5: Arrows 1-3 illustrate the downstream flow of copyright license grants from the original FOSS Licensor (FOSS Contributor) releasing software under a FOSS license to FOSS Licensee 1 (FOSS Distributor, which in this example does not release own contributions under the respective FOSS license) and further to FOSS Licensee 2 (which may use FOSS internally or distribute FOSS with or without modifications). In case of the GPLv2 and perhaps the BSD license, copyright licenses are granted by FOSS Contributor directly to each FOSS Licensee (Arrows 1 and 3). However, as sublicensing is allowed under the MIT license, the copyright license grants may flow down from FOSS Contributor to FOSS Licensee 1 (FOSS Distributor) (Arrow 1), and from FOSS Licensee 1 further to FOSS Licensee 2 (FOSS User) under a sublicense (Arrow 2).

Patent Perspective: In this scenario, FOSS Contributor releases FOSS under a FOSS license subject to this study. FOSS Licensees 1 and 2 use the said FOSS program: FOSS Distributor distributes the said FOSS program further without modifications, whereas FOSS Licensee 2 (FOSS User) uses and/or redistributes the said FOSS program with or without modifications. **Research Question 2 inquires what is the exposure (under the doctrine of implied patent license) based on release and/or distribution of FOSS on patents owned by FOSS Contributor and/or FOSS Distributor.** Accordingly, does FOSS Contributor and/or FOSS Distributor grant FOSS Licensees an implied patent license under or in connection with the BSD, the MIT and/or GPLv2 license(s), and if yes, what is the scope of that license, and how far does it extend in the downstream chain of licensees?

1.3.3 Hypothesis to the Research Questions

It is acknowledged that no definitive answer to any of the research questions may be given before a clear and concise court ruling has been issued in the respective jurisdiction on the questions subject to this study in the context of FOSS licensing. However, this or any other fact does not limit the formation of research questions nor hypothesis to the research questions, which can also be constructed within the academic freedom before any fine forensic legal analysis, based on the sheer experience of practicing (FOSS) law and licensing.⁷⁹ Accordingly, based on the experience, current status of FOSS case law and academic writings pertaining to the law and licensing of FOSS, the following hypothesis to Research Question 1 and Research Question 2 are presented:

- **Hypothesis to Research Question 1:** The first authorized sale of a copy of a FOSS program exhausts patent rights in the copy of the FOSS program.
- **Hypothesis to Research Question 2:** The most common FOSS licenses, the BSD, the MIT and the GPLv2 licenses, which do not include express patent grants, may still trigger an implied patent license under the totality of the circumstances surrounding licensing of the respective FOSS program.

1.4 LIMITATIONS

This study does not purport to provide a general description of FOSS law nor a practical guide to all aspects of FOSS licensing. This study is a *doctoral thesis* – *i.e.* academic research – and focuses merely on the less frequently and less thoroughly covered legal questions of FOSS law and licensing, and thus only such aspects of law, which support the inquiry of: What is the exposure to FOSS contributor's and/or FOSS distributor's patents due to (1) sale; (2) licensing; and/or (3) redistribution of FOSS.

Accordingly, the philosophy behind free software and open source software movements, no matter how absorbing, is not covered in this study beyond what is necessary to

⁷⁹ Hoecke at 14.

describe the purpose of the licenses or the intentions of their drafters.⁸⁰ Instead, the licenses subject to this study, the BSD, the MIT and the GPLv2, are analyzed objectively without consideration to the status of the respective license as free software or open source software unless the difference has relevance from the perspective of the flow of licenses from FOSS contributor(s) and/or FOSS distributor(s) to FOSS licensee(s) as well as the intentions of the parties having drafted the licenses and related impact on the patent exposure. Further, while the free software movement heavily objects to software patents, no stand is taken on whether software should or should not be patented: the fact is that software patents have been issued under the existing laws, and despite that the impact of patents on use of FOSS will be discussed in this study, the main objective of the study is to analyze the other side of the coin, *i.e.* what is the impact of using FOSS on the exercise of those patent rights. Finally, while there are many crucial differences in patent laws of Europe and the US, no complete comparative analysis of the respective patent laws will be provided. For example, all the differences in, say, patent prosecution procedures of the respective systems are carved out from this study as irrelevant for the research questions.⁸¹

1.5 METHODS OF THE STUDY

The method of this study is a combination of (1) civil law approach of legal dogmatics; (2) common law approach of doctrinal legal research; (3) comparative law; and (4) pragmatic, interpretative analysis on the legal doctrines subject to this study and construction of the doctrines in the context of sale, licensing and/or distribution of FOSS. Simply put, this study applies relevant patent law doctrines in the context of FOSS. The focus is not to provide a complete analysis on the patentability of computer programs, nor the doctrines of implied patent license or patent exhaustion in context of computer programs.

The first method, *i.e.* the civil law approach of legal dogmatics is used to describe the legal provisions of European law governing legal protection of computer programs, the

⁸⁰ For philosophical background of the different FOSS movements, see for example Sanseverino at 11-26.

⁸¹ 5 Mills, Reiley, *et. al.* §22:1.

doctrine of patent exhaustion under the case law of CJEU and the national laws of Finland as well as the quasi contract theories of implied patent license in Europe under the secondary EU law in general and the national laws of Finland specifically. In that context, the relevant provisions of secondary EU law such as the case law of CJEU, the Software Directive and the Copyright Directive as well as the national laws such as the Copyright Act and the Patent Act of Finland including their legislative history and related legal literature are touched upon as required by the civil law method of legal dogmatics. The second method, *i.e.* the common law approach of doctrinal legal research is, in turn, applied in connection with conducting legal research on the patentability of computer programs in the US as well as the US doctrines of patent exhaustion and implied patent license. Within the said scope of research, the relevant case law of the US courts, mainly the Supreme Court of the United States (SCOTUS) and the Court of Appeal for the Federal Circuit (CAFC), are examined for the purpose of building theories on the said concepts. While the third method, *i.e.* comparative law is inherently applied merely due to the fact that this study covers concepts of both the US and the European legal systems, said tool is used mainly in sections concerning comparison of the European and the US patent exhaustion doctrines as well as the comparison of the US doctrine on implied patent license to quasi-contract theories in the European context and under the national laws of Finland specifically.

Mere dogmatic legal research (civil law approach) or doctrinal legal research (common law approach) nor even comparative legal research explaining the differences in the results of the former methods would not, however, be capable of responding to the research questions presented in this study. Response to the research questions of this study requires that the general doctrines described by exploiting the ordinary research methods 1-3 are applied in practice to the various factual circumstances in context of FOSS. Therefore, as none of the above methods 1-3 is sufficient to address the research questions raised in Section 1.3 (Aims of the Study), the fourth method, *i.e. pragmatic, interpretative analysis on the legal doctrines*, is specifically composed for the purpose of this study, and therefore it neither is described in Section 1.2 (Methodological Considerations of Legal Sciences). The fourth method means, in practice, that information gained by exploiting the three other methods, *i.e.* the civil law approach of legal dogmatics, the common law approach of doctrinal legal research as well as

comparative law, is applied to the factual circumstances relevant in the context of sale, licensing and/or distribution of FOSS in order to analyze the related exposure to FOSS licensor's patent portfolio in light of the results of the earlier research on the general doctrines conducted by adhering to the three other research methods. Application of the fourth method may be closer to practicing attorneys' work than law professors' work. Due to lack of literature on practical application of many legal theories, it may sometimes appear that pure legal scholars consider their study completed after analyzing all the relevant aspects of the law before, however, applying the theory to facts. There may be several reasons for the said situation: one of the reasons may be that law professors do not provide legal advice in connection with their research work. Therefore, legal researchers may not be primarily focused on practical problems arising out of their legal theories or application of their theories on the factual circumstances of varying cases. However, as the research questions of this study stem from legal practitioner's professional curiosity rather than legal scholar's academic interests, the research questions are formed, and must also be addressed, accordingly by exploiting the research method 4 specifically composed for the purpose of this study for use in combination with the methods 1-3.

How then is the method of pragmatic, interpretative analysis applied in practice? There should be nothing surprising in application of the said method as it obviously is the very basic tool of any law student and legal practitioner alike. The method 4 resembles closely the IRAC method introduced in Section 1.2 (Methodological Considerations of Legal Sciences) and in this study involves 1) identification of the *issue*, *i.e.* the research question(s); 2) identification by adhering to methods 1-3 the existing *rules*, doctrines or theories on patent exhaustion and implied patent license in the US and Europe and/or Finland; 3) *application* of the theories on patent exhaustion and implied patent license to the factual circumstances pertaining to sale, licensing and/or distribution of FOSS; and 4) drawing *conclusions* based on the construction of the theories in the context of sale, licensing and/or distribution of FOSS.

As stated above, this study exploits the above methods in a *combination*. While the methodological approach of this study includes features of each of the above methods, none of the methods is applied in its pure, traditional form as introduced in Section 1.2

(Methodological Considerations of Legal Sciences). Instead, each chosen method is adjusted to the purpose of this study: explaining how a patent holder selling, licensing and/or distributing FOSS may expose its patent portfolio to partial dilution of patents as a consequence of the doctrines subject to this study. For the same reason, the approach in the introductory sections is mainly *descriptive*: The availability of IPR protection for computer programs in general, and FOSS specifically, is explained and the elements, formation and enforcement of FOSS licenses are introduced, followed by an introduction of the general principles of patent exhaustion and implied patent license. The aim is to be clear and concise in all introductory analysis, even at the expense of detailed analysis on IPR protection and nuances of the patent law doctrines as they exist in Europe and the US. The simplified approach is chosen in order to crystallize the essence and to enable evaluation of the core features of the doctrines in the highly complex context of sale, licensing and distribution of FOSS in Section 4.2 (Evaluation of the Patent Exhaustion Doctrines in Context of FOSS) and Section 5.2 (Evaluation of the Implied Patent License Doctrines in Context of FOSS). Namely, after a preliminary introduction of the doctrines on patent exhaustion, the said doctrines are applied, evaluated and analyzed in the context of sale, licensing and/or distribution of FOSS. Further, also the legal theory of implied patent license as existing in the US is provided in the context of FOSS licensing, followed by a comparison with similar types of (quasi) contract law theories, if any, existing in North Europe (primarily in Finland). While use of the combination of the traditional forms of dogmatic legal research, doctrinal legal research and comparative law with the pragmatic, interpretative research method for the purpose of legal dissertation may appear a bit odd to legal scholars on one hand, and (too) burdensome, academic exercise to legal practitioners on the other hand, the ultimate objective of the study should be well-justified: production of legal information, which does not only serve the theoretical needs of academic scholars, but also provides practitioners with tools to address various legal issues pertaining to use of FOSS.

Another reason why the method applied in the descriptive, introductory sections of this study is a combination of the above methods is that the boundaries between the civil law approach of legal dogmatics as well as the common law approach of doctrinal legal research are not always clear cut: many aspects of the European patent exhaustion

doctrine are based on case law of CJEU rather than enacted secondary sources of EU law: for example, unlike the copyright exhaustion doctrine, the patent exhaustion doctrine was not based on any codified EU law until very recently when the new Agreement on the Unified Patent Court and the Regulation on European patent with unitary effect were drafted. On the other hand, also legal protection of computer programs is governed by statutory federal law (such as the US Copyright Act and the US Patent Act)⁸² in the US due to which the sections of this study governing the US law are neither entirely limited to common law approach of doctrinal legal research of the US case law.

While an attempt will be made to clarify the differences of the doctrines in the context of FOSS as they exist in Europe and the US, deep theoretical comparative analysis of the differences between the legal regimes is not the purpose and thus will not be provided in this study. To the extent comparison is performed, it is conducted on *micro-level* by comparing the differences in the European and the US doctrines as well as the practical impact of those doctrines. Europe and the US were chosen for the scope of this study for obvious reasons: FOSS licenses subject to this study originate from the US. Therefore it comes naturally to analyze FOSS licenses against the legal background of their own origin. Europe, in turn, was chosen for the comparative exercise because global use of FOSS results in interpretative challenges not only in the US, but all over the world, including Europe. As the author of this study has law degrees from the US and Europe (Finland) and has also practiced law, including assignments pertaining to FOSS licensing, in both continents, the evident outcome for a dual licensed legal practitioner is to start questioning whether certain preliminary findings of legal analysis would also hold true in the other jurisdiction and if not, what are the underlying distinctions in the conditions and implications of the respective legal doctrines.

While the aspirations of the study are obvious, there are numerous challenges related to construction of the "European" and the US doctrines on patent exhaustion and implied

⁸² Title 17 of the United States Code, the US Copyright Act (17 U.S.C.) and Title 35 of the United States Code, the US Patent Act (35 U.S.C.).

patent license, let alone comparison of those doctrines and analysis of said doctrines in context of FOSS. First, the concepts and doctrines subject to this study are by no means directly comparable: When it comes to the doctrine of patent exhaustion, the analysis of the European doctrine is mainly based on court decisions of CJEU whereas the US doctrine is mainly based on court decisions by the US Supreme Court and the Court of Appeal for the Federal Circuit. The case law of each respective court has evolved thorough out the years based on the cases and questions brought before the courts, but has left a lot of room for interpretations and need for further clarifications especially in the context of legal protection of computer programs. Second, the challenges are even greater when it comes to analysis of the "European" doctrine on implied patent license compared to the US doctrine. Namely, there is no such thing as harmonized European patent and/or patent contract law, but separate laws in each 28 jurisdiction of the EU. Comparing the US law with non-harmonized European law would, strictly speaking, involve nearly thirty jurisdictions with different national rules. Thus, the analysis on the "European" doctrine on implied patent license covers, in practice, analysis of the doctrine under the laws of Finland in Nordic context. While the concepts of implied patent license and/or implicit or tacit agreement are by no means directly comparable, it is still worth conducting research (without even trying to eliminate the difference in the legal systems⁸³) in order to gain by method 4 (pragmatic, interpretative analysis) new information to satisfy, even to a modest degree, some needs arising out of practicing FOSS law. If a legal research would only be limited to easily comparable provisions of statutory law, would that in practice prevent gaining information on many important questions on law. In this study, the main research questions relating to implied patent license and patent exhaustion in context of FOSS belong to patent law. However, in order to understand the overlapping IPRs governing computer programs, including FOSS, also copyright protection of computer programs and related principles of exhaustion and licensing should be understood. Accordingly, the legal concepts and doctrines related to patents and copyrights subject to this study belong to the sphere of IPR law, and more widely, to property law in general.⁸⁴ License terms and/or

⁸³ Legrand at 249.

⁸⁴ Haarmann at 2.

agreements, in turn, are governed mainly by the general principles of contract law in the absence of more specific sources of law applying to patent license agreements (which, as such, creates a methodological challenge).⁸⁵ Also the boundaries between IPR laws and competition laws are approached, as the ultimate purpose of the patent doctrines subject to this study is to secure freedom of goods within the internal markets and to avoid patent holder's unjust enrichment by prohibiting collection of double royalties.⁸⁶

1.6 MATERIALS

When choosing the scope of materials for the basis of legal research, the materials should be selected in accordance with the applicable doctrine of the sources of law. Therefore, the subject of IPR protection available for computer programs, including FOSS, as well as the patent law doctrines of patent exhaustion and implied patent license should be analyzed in light of the correct legal sources mandated by the respective jurisdiction. Because the scope of this research is European (primarily Finnish) law as well as the US law, the materials of this study are chosen in compliance with the doctrines of law in force in Europe and the US.

Therefore, the materials of this study concerning the European laws and legal doctrines consist of (1) EU law, including the relevant treaties, regulations, directives and case law of CJEU; and (2) the relevant national laws (however, primarily the laws of Finland), legislative history and case law (to the extent there is any relevant). The materials of this study concerning the US laws and legal doctrines consist of (1) federal case law, mainly decisions of the Supreme Court of the United States (SCOTUS) and the Court of Appeals for the Federal Circuit (CAFC); (2) as well as federal statutes; and where applicable, (3) state contract law. Further, the European and the US legal systems are placed into the context of international IPR regime due to which also international sources of law, mainly international conventions on the protection of IPRs are also discussed. Legal analysis is supported with argumentation of comparative law, acknowledging that comparative arguments based on US laws are merely within the

⁸⁵ Oesch, Pihlajamaa, *et. al.* at 176. Domej 2010 at 20-21.

⁸⁶ Charvát at 153.

category of permitted sources of law under the Finnish legal system.⁸⁷ However, since the FOSS licenses subject to this study all originate from the US, and as there is much more case law on certain subjects of this study in the US, the argumentation based on the US laws is often used in this study as a benchmark and comparison for the purpose of analyzing the topic within the EU laws, and the laws of Finland specifically.

Analysis based on the binding sources of law under the European and the US legal systems is supplemented with materials within the permissive secondary sources of law, such as academic legal literature, treatises, restatement of US laws, and law reviews articles. Accordingly, in addition to EU law (including, primarily, the national laws of Finland) and the US laws as well as the international conventions, academic legal literature has an important role in the legal analysis of this study. Support for argumentation is sought both from legal monographs written by law professors as well as law review articles written by academic scholars, practicing attorneys and in-house counsel experienced within the field of FOSS licensing. Also seasoned FOSS practitioners' guidelines and primers, such as those drafted at the FSF and the SFLC, are used as inspiration for legal analysis in this study as they reflect the views of the FOSS community in general. Accordingly, by use of various sources of legal discussion, the purpose is to provide readers with balanced analysis from the perspective of not only academia, but also industry lawyers and pro bono FOSS advocates alike.

1.7 DISPOSITION

After outlining the scientific premises of this research in Section 0 (Introduction), the core of this study is divided into five main sections. In Section 2 (FOSS and Overlapping Intellectual Property Rights) the emergence as well as the current status of the main IPR protection forms of FOSS, copyrights and patents, are introduced and discussed in the context of computer programs, both as those protection forms exist in Europe and the US. Namely, computer programs may be subject to overlapping IPRs, and may claim either copyright or patent protection.⁸⁸ While there are also other forms

⁸⁷ Norrgård at 36.

⁸⁸ 1 Nimmer §2.19.

of protection available for computer programs, such as trademarks, trade secret protection⁸⁹ or digital rights management, this study will focus on copyrights and patents only, as they are the relevant forms of IPR protection available for FOSS from the perspective of the research questions.

In Section 3 (FOSS Licensing), FOSS will be put into the frames of contract law for the purpose of analyzing an element by element the status, structure as well as formation and enforcement of FOSS licenses. Accordingly, a firm presentation is provided on certain crucial aspects of FOSS licensing required for further analysis and discussion of the research questions, *i.e.* placing the FOSS licenses subject to this study against the background of contract law theories under the laws of the US and Europe (Finland). Further, a short summary follows on enforceability of FOSS licenses, reflecting the questions raised in the past in light of the latest developments of FOSS case law. Also quick glance is taken at the challenging question of what is the correct forum and applicable law for litigating disputes arising out of FOSS licensing either in Europe or the US, irrespective of whether the question is of copyright and/or patent infringement or breach of contractual relationship.

After the above preliminary parts of this study, Section 4 (FOSS and Patent Exhaustion) and Section 0 (FOSS and Implied Patent License) will set the scene for analysis of the doctrine of patent exhaustion and the doctrine of implied patent license both in Europe and the US, followed by discussion of the doctrines in the context of FOSS licensing. First, Section 4.1 (Introduction to the Doctrine of Patent Exhaustion) will touch upon the preconditions, the scope and the extent of the patent exhaustion doctrines. Similarly, Section 5.1 (Introduction to the Doctrine of Implied Patent License) will include a preliminary introduction to the preconditions, the scope and the extent of the implied patent license doctrines. The doctrines of patent exhaustion and implied patent license are described as those doctrines exist today in Europe (mainly Finland) and the US.

Finally, Section 6 (Discussion of the Results) will include an overview of the analysis of the patent law theories in connection with FOSS licensing as well as a recap of the

⁸⁹ 1 Milgrim §1.09[5][b].

impact of patents on use of FOSS and, as a mirror image, the impact of FOSS on use of patents. The concepts of patents and FOSS are also discussed against the bigger picture: is it possible to find reconciliation between the intuitively opposite concepts of patents conferring the right to exclude as well as FOSS conferring the right to get involved and involve others? One possible answer may lie within the concept of a patent license ecosystem within the FOSS community. At the last paragraph of Section 6 (Discussion of the Results) just before paving the path for Conclusions, we will visit the future and reflect on the concept of FOSS in the era of the Internet of Things. Thereafter, a recap of the study is provided in the very last paragraph including final conclusions of the research.

2. FOSS AND OVERLAPPING INTELLECTUAL PROPERTY RIGHTS

2.1 COPYRIGHT PROTECTION OF COMPUTER PROGRAMS

2.1.1 Emergence of Copyright Protection for Computer Programs

The Berne Convention was adopted in 1886 for the purpose of providing certain minimum threshold of copyright protection (such as the minimum term, absence of formality requirements for copyright protection and respect of moral rights) as well as national treatment on an international level.⁹⁰ Finland ratified the Berne Convention in 1928 and the US finally in 1989. Before that, the US had already become a member of the Universal Copyright Convention (UCC) administered by the United Nations Educational, Scientific and Cultural Organization (UNESCO), but delayed ratification of the Berne Convention due to its stricter obligations.⁹¹ Also Finland had ratified the UCC, but as countries subject to both the UCC and the Berne Convention apply the higher level of copyright protection conferred by the Berne Convention, impact of the UCC has diminished over time as more countries have become bound by the Berne

⁹⁰. Levin at 27-28. 1 Raymond Nimmer §5:11 at 5-21 and §5:23 at 5-22. Millar at 429. See also Articles 5, 6*bis* (1) and 7 of the Berne Convention.

⁹¹ Gorman & Ginsburg at 912-917. Goldstein & Hugenholtz at 37-38. 1 Nimmer §2.04[C][1]. 4 Mills, Reiley, *et. al.* §21:5 at 21-26. 1 Raymond Nimmer §5:10 at 5-19 – 5-20. As to effect of the Bern Convention in the US, see 17 U.S.C. §104(c).

Convention.⁹² Now, while development of technology had already led to emergence of software business by the end of the 1980s, the Berne Convention did not, however, yet address the protection of computer programs.

Adoption of IPR protection for computer programs was though eagerly discussed already as of the 1970s within the World Intellectual Property Organization (WIPO) governing the Berne Convention. The discussions were often attended by member states from all continents, including among others Finland and the US, as well as many governmental and international non-profit organizations. The workshops centered around the question on what would be the most suitable form of IPR protection for computer programs, and how to ensure international coverage of protection. Even a draft treaty for the protection of computer software was prepared at WIPO.⁹³ Those questions were hot topics and handled in many arenas at that time.⁹⁴

While the US Copyright Office started registering computer programs already in 1964 – the very first program registered in May 1964 was allegedly written by a law student of Columbia University School of Law and first published at Columbia Law Review – the US Copyright Act did not in its original form address the copyrightability of computer programs. The National Commission on New Technological Uses of Copyrighted Works (CONTU) was established in 1974 for the purpose of advising Congress in matters relating to copyrights and computer programs. It was not until 1978 when the Final Report of CONTU suggested that computer programs should be within the copyrightable subject matter. As a result of CONTU's recommendations, Congress added the definition of a computer program into §101 of the US Copyright Act in 1980 and also amended §117 to state that owner of a copy of the program may make another copy or adaptation of the program for the purpose of running the program on a computer.⁹⁵ Accordingly, since the 1980s, copyright has been the main protection form

⁹² Haarmann at 13.

⁹³ WIPO 1971, WIPO 1983 and WIPO 1985. See also Komiteanmietintö 1987:8 at 158-159.

⁹⁴ 1 Raymond Nimmer §1:3 at 1-10 – 1-12.

⁹⁵ CONTU Final Report 1978. Gorman & Ginsburg at 179-185. Lemley, Menell, *et. al.* at 34-35. 2 Patry §3:71 at 3-226 – 3-227 and §3:72-§3:73. 1 Raymond Nimmer §1:9 at 1-25 – 1-28.

of computer programs.⁹⁶ As the US Copyright Act had just been amended to ensure copyright protection for computer programs, the US delegation pointed also at a WIPO committee meeting in 1983 that *sui generis* approach would be needed only, if reliance on copyright protection was deemed insufficient as a protection form for computer programs. The US noted that emergence of small personal computers as consumer goods had led to development of new kinds of software products, secured in the US and other countries by copyright protection.⁹⁷ Finally, the draft treaty for the protection of computer software prepared at WIPO was abandoned, as copyright protection based on national laws strengthened by the Berne Convention and/or the UCC, was acknowledged to apply also to computer programs in most countries represented at WIPO.⁹⁸

Also the EU decided to harmonize copyright protection for computer programs. The first council directive on the legal protection of computer programs (91/250/EEC) was adopted, protecting computer programs as *literary works* within the meaning of the Berne Convention.⁹⁹ Provisions on, for example, the protection of computer programs as literary works as well as transfer of rights in computer program from an employee to an employer had already been added in the Copyright Act of Finland in 1991.¹⁰⁰ However, the Copyright Act had to be revised again in 1992 due to implementation of the directive 91/250/EEC. In that connection, certain sections of the Copyright Act not in line with the directive were revised or removed.¹⁰¹

Finally, the TRIPS Agreement was signed in 1994 as an Annex to the agreement establishing the World Trade Organization (WTO). The purpose of the TRIPS Agreement was to harmonize the substantive standards of IPR protection and

⁹⁶ 1 Raymond Nimmer §1:1 at 1-4 – 1-6.

⁹⁷ WIPO 1983. See also Komiteanmietintö 1987:8 at 159-161.

⁹⁸ Komiteanmietintö 1987:8 at 160-161.

⁹⁹ Article 1 of 91/250/EEC. Oesch, Pihlajamaa, *et. al.* at 87. Levin at 76. 1 Raymond Nimmer §5:37 at 5-59 – 5-61. Millard at 427.

¹⁰⁰ §1 and §40b of the Copyright Act of Finland (1991/34). For legislative history, see HE 161/1990. Harenko, Niiranen, *et. al.* at 222. See also Komiteanmietintö 1987:8 at 192-194.

¹⁰¹ The Copyright Act (418/1993). For legislative history, see HE 211/1992. Välimäki 2015 at 11-12.

enforcement by adopting, in addition to the principle of *national treatment*, also the principle of *most favored nation treatment*.¹⁰² To meet all the requirements of the TRIPS Agreement, Finland enacted a new law ensuring evidence in IPR cases.¹⁰³ Under the TRIPS Agreement, computer programs, whether in source code or object code form, are protected as literary works as provided by the Berne Convention. Thus, the TRIPS Agreement establishes a minimum level of copyright protection for computer programs, and also provides remedies for infringement of IPRs.¹⁰⁴ However, despite the increasing amount of international regulation, the gap between the treaties and the continuously advancing technology still widened: To tackle some of the issues, the WIPO Copyright Treaty as well as the WIPO Performances and Phonograms Treaty were signed in 1996 and entered into force in 2002. Ratification of the WIPO Treaties required implementation of several EU directives, including the Information Society Directive.¹⁰⁵ Finally, under the WIPO Copyright Treaty, computer programs are protected as literary works within the meaning of Article 2 of the Berne Convention, irrespective of the mode or form of their expression.¹⁰⁶

2.1.2 Software Copyrights in Europe

Under the current directive 2009/24/EU on the legal protection of computer programs (Software Directive), member states shall protect computer programs by copyrights as literary works within the meaning of the Berne Convention. Copyright protection applies to *expression* of the program in any form (including both source code and object code), but does not extend to *ideas* and *principles* underlying the program or its interfaces.¹⁰⁷ The distinction illustrates the traditional idea/expression dichotomy of

¹⁰² Merges & Duffy 2013 at 57. Millard at 429.

¹⁰³ Act on Ensuring Evidence in Cases concerning Intellectual Property Rights (2000/344).

¹⁰⁴ Articles 10 and 42-46 of the TRIPS Agreement. Levin at 76. Lemley, Menell, *et. al.* at 459-460. 1 Raymond Nimmer §5:35 at 5-35 – 5-54. Millard at 429.

¹⁰⁵ Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society. 1 Raymond Nimmer §5:36 at 5-54 – 5-59. Harenko, Niiranen, *et. al.* at 220.

¹⁰⁶ Article 4 of the WIPO Copyright Treaty. 1 Raymond Nimmer §5:12 at 5-22. Millard at 430.

¹⁰⁷ Article 1(2) of the Software Directive.

copyright.¹⁰⁸ CJEU has clarified that *functionality* and *programming language* of computer programs or *format of the data* files are not within the copyright-eligible subject matter.¹⁰⁹

The Software Directive requires for subsistence of copyright protection only that the computer program is *original*, *i.e.* the author's own intellectual creation.¹¹⁰ The author, in turn, means the natural person or a group of natural persons who created the program (read: software developers), or the legal person designated as right holder by national law.¹¹¹ The exclusive rights of a copyright holder of a computer program include (1) reproduction (copying); (2) adaptation (modification); and (3) distribution of the computer program to the public.¹¹² However, authorized licensees are permitted to reproduce and modify the program (including correct errors) if such acts are necessary for using the program for its intended purpose. While said acts may be prohibited under a software license agreement, users can always take a back-up copy, if it is necessary for using the program.¹¹³ Lawful users may also observe, study or test the functioning of the program in order to determine the ideas and principles underlying its elements. The said acts must, however, be carried out in connection with ordinary loading, displaying running, transmitting or storing of the program.¹¹⁴ Decompilation of the computer program, *i.e.* reverse engineering the machine readable object code to human readable form, is allowed under certain conditions and only to achieve interoperability of the program with other computer programs.¹¹⁵

Finland has implemented the Software Directive in the Copyright Act of Finland. Computer programs are protected by copyright as *literary works* under the Copyright

¹⁰⁸ Mylly, U-M 2005 at 237.

¹⁰⁹ SAS Institute Inc. v. World Programming Ltd. (C-406/10) 2012 E.C.R. 0000.

¹¹⁰ Article 1 of the Software Directive. Bainbridge at 82-85. Mylly, U-M 2005 at 237. Millard at 242.

¹¹¹ Article 2 of the Software Directive.

¹¹² Article 4 of the Software Directive. UsedSoft GmbH v. Oracle International Corp. (C-128/11) 2012 E.C.R. 0000 (UsedSoft v. Oracle).

¹¹³ Articles 5(1) and 5(2) of the Software Directive.

¹¹⁴ Articles 5(3) of the Software Directive. Mylly, U-M 2005 at 239-243.

¹¹⁵ Article 6 of the Software Directive. See also Recitals 11 of the Software Directive.

Act.¹¹⁶ If the threshold for copyright protection is met, *i.e.* the work is an *independent* and *original work* of the author, copyright protects the literal expression of the computer program, but does not extend to ideas or technical solutions embodied by the program.¹¹⁷ Despite that a copy of a work is created when the work is embodied on a fixed medium, the Copyright Act of Finland – unlike the US Copyright Act – does not require that the work is fixed in any tangible media in order for the copyright to subsist. Copyright does neither have to be registered.¹¹⁸ Copyright holder of a computer program has the exclusive rights to copy, modify and distribute the program.¹¹⁹ Further, copyright is in force until 70 years has lapsed from the death of the (last) author.¹²⁰ However, due to rapid product development cycle and time to market, computer programs often become obsolete in a relatively short period of time. Thus, the statutory copyright term appears excessively long for computer programs.¹²¹

There is one particular feature in the Finnish Copyright Act originating from the Berne Convention, which is absent in the US Copyright Act: Under the former, authors of copyrighted works hold also moral rights in the work in addition to economic rights. Moral rights mean in a nutshell: (1) the right to be named as author of the work; and (2) the prohibition to alter the work or make it available to public in a manner, which violates the author's literary or artistic reputation or individuality. Moral rights are in force as long as the economic rights in the copyrighted work. Moral rights cannot be transferred, but they may be waived to some extent.¹²² The concept of moral rights should be taken into account in contract drafting, specifically in clauses regarding assignment of copyrighted works, which seems hard for US lawyers to understand.

¹¹⁶ §1.2 of the Copyright Act of Finland.

¹¹⁷ Harenko, Niiranen, *et. al.* at 13, 15-16, 219. Välimäki 2015 at 15-26. Välimäki 2006 at 17-27. Oesch, Pihlajamaa, *et. al.* at 87-88.

¹¹⁸ Harenko, Niiranen, *et. al.* at 30-31. Välimäki 2015 at 16.

¹¹⁹ §2 of the Copyright Act of Finland. KKO 1999:115. Harenko, Niiranen, *et. al.* at 20-21, 71. Välimäki 2015 at 15. Välimäki 2006 at 35-45.

¹²⁰ §43 of the Copyright Act of Finland.

¹²¹ Oesch, Pihlajamaa, *et. al.* at 88. Välimäki 2015 at 13-15. See also Komiteanmietintö 1987:8 at 180-181.

¹²² §3 of the Copyright Act of Finland. Harenko, Niiranen, *et. al.* at 55-56. Haarmann at 86-88. See also Komiteanmietintö 1987:8 at 178-180.

Moral rights in computer programs are not, however, the subject of litigation: There appears to be no established practice in Finland to name individual authors in the copyright notices in addition to corporations, to whom the economic rights of copyright in computer programs are directly transferred by operation of law in employment context.¹²³ There is neither any case law in Finland on breach of moral rights in computer programs. Some scholars have expressly noted in line with the industry practice that failure to mention author of the program does not violate the established good practices of the software industry. Thus, it does not constitute breach of the author's moral rights – unless the parties had expressly agreed that the author should be credited. The outcome could, however, be different in FOSS context where one corner stone of FOSS licensing is to give and be given credit where the credit is due.¹²⁴

As mandated by the Software Directive, the Copyright Act of Finland includes a few specific provisions concerning only computer programs. Some provisions were added into the Copyright Act in order to balance the rights of copyright holders and users.¹²⁵ A legal acquirer of a computer program is entitled, *unless otherwise agreed*, to *copy* and *modify* (including correcting errors) the program as necessary for use of the program for its *intended purpose*.¹²⁶ This provision is *not mandatory law* and copyright holder often retains the said rights in the respective proprietary license.¹²⁷ As a curiosity, the rights to copy and modify the program are by definition always granted to FOSS users under all FOSS licenses.

Despite the foregoing, copyright holders are not allowed to limit licensees' right under the Copyright Act to take a *back-up copy* of the program, if it is necessary for use of the program. Right holders may not restrict either the licensees' right to *observe*, *study* and *test* functioning of the program to determine the ideas and principles underlying its elements, provided however, that the said acts are committed in ordinary use of the

¹²³ §40 b of the Copyright Act of Finland.

¹²⁴ Harenko, Niiranen, *et. al.* at 49. On moral rights in the context of software and FOSS in particular, see Välimäki 2006 at 33-35, 128 and 191. Välimäki 2009 at 32-33. See also Millard at 490.

¹²⁵ Harenko, Niiranen, *et. al.* at 225.

¹²⁶ §25j.1 of the Copyright Act of Finland.

¹²⁷ Harenko, Niiranen, *et. al.* at 227.

program.¹²⁸ Those rights are based on mandatory provisions of law and may not be limited by contractual provisions.¹²⁹ On the other hand, the right to take a few copies for *private use* of the copyrighted work does *not* extend to computer programs.¹³⁰ Finally, the general exception of the Copyright Act of Finland, under which a user is not restricted from producing a temporary copy of the program incidentally as part of the technological process of using the program lawfully, does not apply to computer programs.¹³¹

The Copyright Act of Finland permits a lawful user of the program to reproduce the code and translate its form to obtain information for the purpose of achieving *interoperability* of independently created program with other programs, if the said information has not *otherwise been* readily *available*. Exercise of those rights is limited only to the extent required for achieving the interoperability, and using the information for the purpose of developing an infringing computer program is specifically prohibited.¹³² Further, if the copyright holder provides the user with interface information, reverse engineering may be prohibited in the respective proprietary license. The outcome in both scenarios is, though, that the user will either receive required interface information directly from the copyright holder, or alternatively, by decompiling the program him or herself. The rationale is to prevent loss of investments used in developing new, independent (yet non-infringing) computer programs, which could turn out futile, if the programs would not be compatible with other programs.¹³³ Another mechanism to balance exclusive rights of copyright holders is the exhaustion doctrine codified in the Copyright Act. However, exhaustion of copyrights based on first sale of the copyrighted work within the European Economic Area (EEA) does not

¹²⁸ §25j.2 and §25j.3 of the Copyright Act of Finland.

¹²⁹ Harenko, Niiranen, *et. al.* at 228 and 230.

¹³⁰ §12.4 of the Copyright Act of Finland. See Haarmann at 99-100 on exhaustion of copyrights in copies of computer programs.

¹³¹ §11a of the Copyright Act of Finland.

¹³² §25 k of the Copyright Act of Finland. See also the amendment in §3.3(7) of the Patent Act of Finland, under which the exclusive right based on patent does not cover the acts under Articles 5 and 6 of the Software Directive. HE 45/2015 at 50-51 and 94.

¹³³ Harenko, Niiranen, *et. al.* at 232-238.

apply to making a copy of the computer program available for public by lending.¹³⁴ Exhaustion of rights in computer programs will be discussed in more detail in Section 4 (FOSS and Patent Exhaustion).

As already shortly referred above in Section 2.1.1 (Emergence of Copyright Protection for Computer Programs), if a computer program and a work directly associated with it have been created in the scope of duties within *employment*, the copyright in the said program and the related work will automatically transfer from the employee to the employer by operation of law upon creation of the work.¹³⁵ The objective is to ease functioning of software industry: software products are often developed by many software developers as part of industrial processes where it may be hard to keep track on each individual developer's contributions to the program. Therefore, the development process may be different compared to production of other copyrighted works, considering also that there is no US law type of *work for hire* – concept in Finland.¹³⁶ Without §40b, transfer of copyrights in computer programs should be separately agreed between each employed software developer and employer. This could burden the chain of copyright contracting between employees and employers, and consequently also between employers and their business partners in various transactions. While the provision does not expressly state whether the assignment of copyright is exclusive and assigned rights are transferable by the employer, in light of the wording in the first software directive 91/250/EEC, the copyrights subject to transfer have been argued to cover all economic rights in the program, including also right to freely modify and reassign the rights, thus covering also the exclusive rights, which under §28 of the Copyright Act would be reserved to the author in the absence of an explicit grant to that effect in the assignment instrument. However, this interpretation is not confirmed in the case law. Further, it is important to note that the transferred rights include, not only rights in the software code, but also rights in work directly associated with it, such as

¹³⁴ §19 of the Copyright Act of Finland. See also Välimäki 2009 at 43-46.

¹³⁵ §40 b of the Copyright Act of Finland. Levin at 131-132.

¹³⁶ 1 Raymond Nimmer §5:23 at 5-33 – 5-34.

documentation of the computer program. Therefore, the scope of transferred rights by operation of law under §40b of the Copyright Act is fairly broad.¹³⁷

When it comes to remedies, willful or grossly negligent copyright infringement may be punished by fines as a *copyright violation* under the Copyright Act. If the copyright infringement was committed for profit and causing considerable detriment to the copyright holder, the act may be punished by fines or imprisonment for up to two years as a *copyright offence* under the Penal Code. Taking a few private copies of the computer program does not, however, constitute criminal liability for copyright violation, provided that the copy of the program had already been published or sold with the author's consent. The act may still result in civil liability for compensating for the unlawful act.¹³⁸ Court may prohibit the infringer to repeat the alleged copyright infringement. Infringer is also liable for *reasonable compensation* to the copyright holder (whether or not the act was negligent). In case of *willful* or *negligent* copyright infringement, or in case of a copyright offence under the Penal Code, the copyright infringer may, in addition to the reasonable compensation, be also liable for paying the right holder *damages* for any other loss.¹³⁹ Liability for any other loss may cover also indirect losses, including, for example, lost revenue. Breach of copyright license may also constitute *breach of contract*.¹⁴⁰ In civil matters the correct forum is the market court in Helsinki,¹⁴¹ where civil proceedings are carried out in accordance with the Act on Proceedings at the Market Court.¹⁴² In criminal proceedings the forum is a district court.¹⁴³

¹³⁷ Harenko, Niiranen, *et. al.* at 342-344.

¹³⁸ §56a of the Copyright Act of Finland. 49:1 of the Penal Code of Finland (1889/39; as amended).

¹³⁹ §§56g and 57 of the Copyright Act of Finland.

¹⁴⁰ Harenko, Niiranen, *et. al.* at 488 and 494.

¹⁴¹ §1 Act on the Market Court (99/2013).

¹⁴² The Act on Proceedings at the Market Court (100/2013).

¹⁴³ The Act on Proceedings in Criminal Matters (689/1997).

2.1.3 Software Copyrights in the US

Computer programs are protected by copyright as literary works also in the US.¹⁴⁴ Under the US Copyright Act, a literary work is defined as a work "... expressed in words, numbers, or other *verbal or numerical symbols or indicia*, regardless of the nature of the material objects, such as ... *tapes, disks or cards*, in which they are embodied." *Computer program*, in turn, is defined as "*a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result*".¹⁴⁵ Thus, irrespective of the type of computer program or whether the program is in source code or object code form, the program will deserve copyright protection provided that the general conditions for copyright protection are met.¹⁴⁶ Under the general conditions, copyright subsists in *original* works of authorship *fixed in any tangible medium* of expression from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or a device.¹⁴⁷ The concept of originality means that the work, including a computer program, is an independent creation of the author, possessing at least some minimal degree of creativity, and is not copied from other works. Unlike patentable inventions, a work does not have to be new compared to similar works created earlier.¹⁴⁸ A work, in turn, is *fixed* in a tangible medium of expression, when it is embodied in a copy under the consent of the author, so that the work may be perceived, reproduced or otherwise communicated for a period of more than transitory duration.¹⁴⁹ While federal copyright law requires that the work is fixed in a tangible medium of expression in order to gain copyright protection (as permitted by the Berne Convention), state common law

¹⁴⁴ 17 U.S.C. §102(a)(1).

¹⁴⁵ 17 U.S.C. §101. 1 Nimmer §2.04[C][2]. 2 Patry §3:81 at 3-245 – 3-246. 1 Raymond Nimmer §17 at 1-22 – 1-25.

¹⁴⁶ 1 Goldstein §2:190-191. 1 Nimmer §2.04[C][3]. 1 Raymond Nimmer § 1:37 at 1-97 – 102 and §1:39 at 1-103 – 1-104.

¹⁴⁷ 17 U.S.C. §102. *Vernor v. Autodesk, Inc.*, 621 F.3d 1102, 1106 (9th Cir. 2010), *cert. denied*, 132 S.Ct. 105. (*Vernor v. Autodesk*) 1 Raymond Nimmer §1:10 at 1-29.

¹⁴⁸ *Feist Publications, Inc. v. Rural Telephone Service Co., Inc.*, 499 U.S. 340, 345. 1 Nimmer §2.01[A] at 2-7 – 2-12. 2 Nimmer §8.01[A]. 2 Patry §3:79 at 3-242 and §3:80. 1 Raymond Nimmer §1:10 at 1-29 and §1:11 at 1-30 – 1-34.

¹⁴⁹ 17 U.S.C. §101. 1 Nimmer §2.03[B]. 1 Raymond Nimmer §1:12 at 1-34 – 1-36.

copyright or similar doctrines may protect also works, which are not fixed.¹⁵⁰ It is worth noting that the Copyright Act of Finland does not require fixing a work on a tangible medium in order to be protected by copyright. However, under the US Copyright Act, also computer programs must be embodied in a fixed medium, such as any data storage media or device or even a piece of paper, to deserve copyright protection.¹⁵¹ Notwithstanding the foregoing, the statutory difference should have little or no relevance in practice. Under the US Copyright Act, copyright does not extend to any idea, process, system, concept, principle or the like.¹⁵² Still, considering that computer programs are, in a nutshell, defined in the US Copyright Act as a set of instructions to be used in a computer to bring about a certain result, computer program may, effectively, deserve protection for its function, and thus even some of the elements expressly defined in the Copyright Act (listed above) to be beyond copyright protection.¹⁵³ Courts have adopted various tests for distinguishing protectable expression from un-protectable ideas. One of them is the *abstraction-filtration-comparison* – test based on Computer Associates Int'l v. Altai.¹⁵⁴ Under this test, the allegedly infringing program is broken down to constituent parts and finally divided into incorporated ideas, expression as well as elements from public domain.¹⁵⁵

Also under the US Copyright Act, copyright holder's exclusive rights relevant to computer programs include the rights to (1) reproduce; (2) prepare derivative works; and (3) distribute copies of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending.¹⁵⁶ The exclusive rights thus cover virtually

¹⁵⁰ Goldstein 2004 at 2:38-1.

¹⁵¹ 1 Goldstein at §2:191-192. 1 Nimmer §2.02.

¹⁵² 17 U.S.C. §102. On computer programs and the idea/expression dichotomy, see 2 Patry §3:82-§3:84 and 1 Raymond Nimmer §1:13 at 1-36 – 1-41.

¹⁵³ 1 Goldstein §2:192.

¹⁵⁴ 1 Goldstein at 2:193, 2:197. Computer Associates International, Inc. v. Altai Inc. 982 F.2d 693 (2d Cir. 1992). (Computer Associates Int'l v. Altai).

¹⁵⁵ Computer Associates Int'l v. Altai at 706. The test is also used to extract creative expressions for comparison against the allegedly infringing computer program as a pre-step in infringement analysis before the court's inquiry of *substantial similarity*. Even striking similarity of certain program parts may not constitute infringement, if the similarity was due to functional considerations.

¹⁵⁶ 17 U.S.C. §106 (a). 1 Goldstein §7:2. 2 Patry §3:78 at 2-239. 1 Raymond Nimmer §1:14 at 1-41 – 1-42.

all relevant economic uses of the copyrighted work.¹⁵⁷ When it comes to the author's exclusive right to reproduce the copyrighted work in copies under §106(1) of the US Copyright Act, one special feature applies to running computer programs: when a user intends to run a copy of the computer program fixed on a tangible medium, the program must be uploaded from its storage medium on the computer's hard drive. Courts have held that upon execution of the program on computer, transfer of the program from hard drive to the computer's random access memory, RAM, constitutes the making of a copy under §101 of the US Copyright Act.¹⁵⁸ Thus, computer programs are a special category of copyrightable subject matter, because use of a computer program necessarily involves making a copy of the program. This feature of computer programs has required introduction of a special provision into the US Copyright Act, permitting use of a computer program by its *lawful owner* without constituting copyright infringement. Accordingly, owner of a copy of a computer program may make or have made another *copy* or *adaptation* of the program if (1) such a new copy or adaptation is created as an *essential step* in using the computer program in conjunction with a machine; or (2) such a new copy or adaptation is for *archival purposes* only. Further, the exception also allows making (or authorizing the making) of a copy of a computer program in connection with maintenance or repair of the machine that lawfully contains the program.¹⁵⁹ The exemption clause, also called as the *essential step defense*, in §117 of the US Copyright Act serves as a limitation on the copyright holder's rights to reproduce and create derivative works of the computer program. Adaptation, however, is permitted only to the extent required to use the program for its intended purpose in the lawful possessor's computer.¹⁶⁰ It should be noted that the essential step – defense applies only to a lawful owner of a copy of the program, not a licensee. Licensee's rights to use the computer program are governed by the license agreement.¹⁶¹ In addition to the right holder's exclusive rights to copy and create derivative works of the computer

¹⁵⁷ 2 Goldstein §7:2.

¹⁵⁸ MAI Systems Corp. v. Peak Computer, Inc., 991 F.2d 511, 518 (9th Cir. Court 1993), *cert. dismissed*, 510 U.S. 1033 (1994).

¹⁵⁹ 17 U.S.C. §117. 2 Goldstein at §7:45-§7:49. 2 Nimmer §8.08. 1 Raymond Nimmer §1:114 at 1-2999.

¹⁶⁰ Vernor v. Autodesk at 1107 and 1109-1110. 2 Goldstein at §7:114-§7:115. Dowd §2:47 at 126-127.

¹⁶¹ Vernor v. Autodesk at 1112. 1 Raymond Nimmer §1:114 at 1-299 – 1-300.

program, also the right to distribute the program under §106(3) of the US Copyright Act is subject to statutory limitations: Namely, under §109(a) of the US Copyright Act, the *owner* of a lawful copy of the work is entitled to *sell* or otherwise dispose of the copy, however, subject to certain exceptions set in §109(b).¹⁶² The *first sale* of a *lawful copy* relinquishes the copy from copyright protection and exhausting the copyrights in the copy. Under the US Copyright Act also first sale of copies *lawfully made* under the fair use exception (§107) or compulsory license (§115) exhaust the copyright in such copies although the said copies are not made or authorized by the copyright holder. The European first sale copyright doctrine requires, however, that the copies are made or authorized by the copyright holder.¹⁶³ Exhaustion of rights in computer programs does not entitle the owner of a copy of the computer program to dispose of the disk by renting, leasing or lending the copy for commercial gain.¹⁶⁴

The US Copyright Act includes also other provisions specific to computer programs. For example, a person who has lawfully obtained (*e.g.* via purchase or license) the right to use a copy of a computer program, has also the right to circumvent any technological measures controlling access to the program in order to identify and analyze elements of the program necessary for achieving *interoperability* of an independently created computer program with other programs. Like in Finland, also the US Copyright Act requires that the said information has not been readily available for the person engaging in the circumvention.¹⁶⁵ Thus, copyright holder may prevent reverse engineering by providing the users with information on the program interfaces.¹⁶⁶ The right to reverse engineer the program is important: unlike in FOSS licensing, proprietary software is usually distributed in object code only (hiding the source code as trade secret) from which it is not comprehensible to programmers. Without the copyright exemption of

¹⁶² 17 U.S.C. §109. 1 Raymond Nimmer §1:111 at 1-292 – 1-293. Scott §3.06 at 3-30 – 3-32. 1 Kuttan §§2:27-2:29. Scott II at 445-446. 2 Goldstein §7:6 at 7:130.4-7:132 and 7:148 – 7:150.3.

¹⁶³ Vernor v. Autodesk at 1107-1108. 2 Goldstein at §7:130.4-7:132.

¹⁶⁴ 17 U.S.C. §109(b).

¹⁶⁵ 17 U.S.C. §1201(f).

¹⁶⁶ 2 Goldstein at §7:304.7-9.

limited reverse engineering right, *managed copying*, i.e. extraction of the unprotectible elements of the copyrighted work, would not be possible.¹⁶⁷

While there is no similar concept of moral rights in the US Copyright Act as in Finland, some authors have the *rights of attribution and integrity*.¹⁶⁸ However, as those rights cover only visual arts, authors of literary works such as computer programs do not have any moral rights or similar rights in the US. Despite that the requirement of moral rights are based on the Berne Convention ratified also by the US, no other rights of attribution and integrity were considered necessary to introduce in the US Copyright Act.¹⁶⁹ Thus, the respective Copyright Acts differ in this respect. Common law countries have historically been reluctant to recognize personal interest of authors in their works: the emphasis in the common law system is on the property rights and economic rights.¹⁷⁰ There are also other crucial differences between the US Copyright Act and the Copyright Act of Finland. When it comes to transfer of copyrights in employment context, only a narrow category of copyrightable subject matter created within employment transfers from an employee to an employer by operation of the Copyright Act of Finland. Under the *work for hire* – concept of the US Copyright Act, if any work was made for hire, the employer or any other person for whom the work was created, is considered the author and owner of the copyright in the work, unless otherwise expressly agreed by the parties in signed writing.¹⁷¹ However, as software copyrights

¹⁶⁷ 2 Goldstein at §7:49-7.50. As to other exemptions to exclusive rights of a copyright holder, see 2 Goldstein at §7:8.5-7:8.6 and §7:9, Stim at 200 and 2 Nimmer §8.01[G].

¹⁶⁸ 17 U.S.C. §106A. Subject to fair use - limitation, authors of *works of visual art* have, in addition to the "ordinary" exclusive rights in copyright, the rights to claim authorship of the work and the right to prevent use of his or her name as author of any work that s/he did not create. Such author shall also prevent modification of the work in a manner which is prejudicial to his/her reputation. The rights of attribution and integrity may not be transferred, but the rights may be *waived* expressly in signed writing by the author.

¹⁶⁹ 1 Raymond Nimmer 5:21 at 5-31.

¹⁷⁰ Rajan at 211. Hoffman & Rumsey at 267. 1 Raymond Nimmer 5:20 at 5-30.

¹⁷¹ §40b of the Copyright Act of Finland. §201(b) of the US Copyright Act. 1 Raymond Nimmer §4:2 - §4:4. See also *Quinn v. City of Detroit*, 988 F. Supp. 1044, 1051-1052 (ED Mich. 1997). A litigation case management program created by staff attorney for the legal department of the City of Detroit was not considered a work made for hire, as the programming task was not within the attorney's job, and the software was developed by the attorney at home using his own resources.

will transfer by operation of the Finnish law to employer, the practical result appears to be the same despite the differences between the US and the Finnish Copyright Acts.

Remedies available under the US Copyright Act include temporary and final injunctive relief. The right holder may also request an impoundment or, upon final judgement, destroying of illegal copies.¹⁷² Further, the right holder may sue the infringer for compensation, including actual damages as well as any profits of the infringer attributable to the infringement. Copyright infringement results in strict liability: even innocent infringers are liable for the infringement even if s/he had no knowledge of the infringing activity.¹⁷³ Instead of actual damages and profits, the copyright holder may alternatively choose to recover statutory damages.¹⁷⁴ While in Finland the main principle is that "the loser pays it all", the US court may decide that either party should in a civil copyright case bear the full costs of the other party. The court may also award reasonable attorney's fees to the prevailing party.¹⁷⁵ Finally, willful infringement of copyright may also trigger criminal sanctions.¹⁷⁶ Penalties of criminal infringement of copyrights vary from fines to imprisonment of 1 to 10 years, depending on whether the question is of a misdemeanor or a felony offense.¹⁷⁷ When the US acceded to the Berne Convention, most of the traditional formalities such as fixation of copyright notices for subsistence of copyright protection and remedies available for infringement had to be abandoned.¹⁷⁸ However, some formality related peculiarities still remain in the US copyright system not existing in the Copyright Act of Finland. For example, registration of the copyright with the Copyright Office before the infringement occurred is required in order to recover statutory damages and attorneys' fees in copyright litigation, even if the infringement continues after the date of registration.¹⁷⁹ This must be borne in mind

¹⁷² 17 U.S.C. §502 - §503.

¹⁷³ 2 Goldstein §7:3.

¹⁷⁴ 17 U.S.C. §504.

¹⁷⁵ 21:1 of the Code of Judicial Procedure of Finland (1734/4; as amended). 17 U.S.C. §505.

¹⁷⁶ 17 U.S.C. §506.

¹⁷⁷ 18 U.S.C. §2319.

¹⁷⁸ 2 Nimmer §7.01[A]. 1 Raymond Nimmer §5:3 at 5-4.

¹⁷⁹ 17 U.S.C. §412. 2 Nimmer §7.16[C].

when planning a suit for copyright infringement in the US. However, courts may order injunctions or seizures or award actual damages even without copyright registration certificate.¹⁸⁰

Finally, computer programs are often *joint works* consisting of various code contributions prepared by two or more authors.¹⁸¹ The authors of a joint work are co-owners of copyright in the work, unless ownership of the joint work, such as a FOSS program, is assigned to some managing entity, like the FSF.¹⁸² In the US, each co-owner has an independent standing to sue for copyright infringement without joining the other co-owners in the action. The court may, though, require the owner to serve a written notice of the action with a copy of the complaint to any other joint owner at the records of the Copyright Office, and require a joinder or, alternatively, permit an intervention by the said party. Each co-owner may also independently and without prior consent of the other joint owners, exploit the work commercially or license the work to others. However, each joint owner must, unless otherwise agreed, share any revenues based on exploitation of the work with other co-owners.¹⁸³ This makes a big difference to the Finnish legal system, where conclusion of any contract, transaction or other legal act regarding use of a joint work as a whole always requires consent of the other co-owner(s). However, in Finland, like in the US, joint owner is entitled to bring an action before a court regarding the property subject to joint ownership even if consent from other joint owners has not been obtained.¹⁸⁴ These, in essence, are the actual reasons, why many practicing attorneys often advice their clients against joint ownership of copyrights, and other IPRs, for that matter.

¹⁸⁰ This applies both to enforcement of copyright in the US and (with some exceptions to) foreign works 2 Nimmer at §7.16[C]. 1 Raymond Nimmer §5:25 at 5-34.

¹⁸¹ 17 U.S.C. §101.

¹⁸² 17 U.S.C. §201(a).

¹⁸³ 17 U.S.C. §501(b). 1 Goldstein §4:26.

¹⁸⁴ §§4.1 and 4.2 of the Act of Certain Joint Ownership Relations (180/1958).

2.2 PATENT PROTECTION OF COMPUTER PROGRAMS

2.2.1 Emergence of Patent Protection for Computer Programs

The Paris Convention was adopted in 1883 for the purpose of establishing international cooperation and obtaining global protection for industrial property as well as enforcing certain key principles such as *national treatment* and *priority of invention*.¹⁸⁵ The US ratified the Paris Convention in 1887 and Finland in 1921.¹⁸⁶ Like the Berne Convention, also the Paris Convention is governed by WIPO.¹⁸⁷ However, while the Paris Convention briefly outlines the scope of industrial property subject to the treaty and emphasizes that industrial property shall be understood in a broad meaning, it does not address patentability of computer programs.¹⁸⁸ New treaties, the PCT and the EPC, were introduced in the early 1970s in order to address the fragmented field of patent law and to provide consolidated routes for international patent prosecution.¹⁸⁹ PCT entered into force in 1978 and is administered by WIPO. The US acceded the PCT already the same year, and Finland soon thereafter in 1980.¹⁹⁰ EPC, in turn, entered into force in 1977, and is administered by the European Patent Office (EPO). Finland became a member of the EPC in 1996.¹⁹¹

The US Trademark and Patent Office (USPTO) started granting software patents already in the early 1970s. SCOTUS gave its first ruling on software patents in 1972 in Gottschalk v. Benson. The court denied patent for *mathematical formula* used in connection with a digital computer, since the patent would practically have covered the

¹⁸⁵ Merges & Duffy 2013 at 55. Closa, Gardiner *et.al.* at 6. Press at 371. See also Articles 2 and 4 of the Paris Convention. While patent prosecution is not within the subject of this study, note the differences of the *first to invent* – principle followed by the US vs. *first to file* – principle followed by most European countries. 1 Raymond Nimmer §5:15 at 5-24.

¹⁸⁶ 4 Mills, Reiley, *et. al.* §21:6 at 21-27.

¹⁸⁷ 4 Mills, Reiley, *et. al.* §21:5 at 21-26.

¹⁸⁸ Article 1 of the Paris Convention.

¹⁸⁹ Merges & Duffy 2013 at 56. See also Closa, Gardiner *et.al.* at 6-8 and Press at 371. Raitio 2016 at 413.

¹⁹⁰ 4 Mills, Reiley, *et. al.* §21:5 at 21-26 – 21-36. 35 U.S.C. §§351-376. §§28-38 of the Patent Act of Finland.

¹⁹¹ Haarmann at 18-19 and 211. §§70f -70u of the Patent Act of Finland. The US, of course, is not a member of the EPO established by the EPC, but the US nationals and corporations alike may file a European patent application with the EPO. See Articles 58 and 133 of the EPC.

underlying *algorithm*. The court held that *phenomena of nature, mental processes* and *abstract intellectual concepts* are basic tools of scientific and technological work, and thus not patentable. However, the court expressly stated that the decision does not generally preclude patent protection for programs servicing computers.¹⁹² Despite this, the ruling was interpreted to prevent patenting of algorithms as mathematical formulas and resulted in deferral of applications for software patents for at least a decade.¹⁹³ Thus, during the most part of the 1970s, software was considered to be like algorithms, which like the laws of nature, were unpatentable.

SCOTUS rejected patent protection for mathematical formula also in Parker v. Flook although the claimed invention did not seek to cover all uses of the mathematical formula, but was limited to a particular technology.¹⁹⁴ However, SCOTUS clarified in 1978 in Diamond v. Chakrabarty that *any new and useful art, machine, manufacture, or any new or useful improvement thereof* is patentable. SCOTUS also referred to Congress' earlier statement that patentable subject matter includes *anything under the sun made by man*. SCOTUS reaffirmed that any laws of nature, physical phenomena and abstract ideas are outside of the patentable subject matter.¹⁹⁵ The case concerned patentability of human-made micro-organism, and SCOTUS held that biotechnically engineered life-forms are patentable. Despite the different scope, this ruling turned out to become essential for patentability of software. Namely, in 1981 SCOTUS held in Diamond v. Diehr that claim drawn to subject matter otherwise statutory does not become unstatutory simply because it uses a mathematical formula or a computer program. SCOTUS cited Diamond v. Chakrabarty and held that if biotechnically engineered life forms were patentable subject matter, the same should apply to computer programs.¹⁹⁶

¹⁹² Gottschalk v. Benson 409 U.S 63, 67-68, 71-72 (1972).

¹⁹³ Stobbs § 4.02[J]-[K] at 4-23 – 4-25. Amper at 1-5.

¹⁹⁴ Parker v. Flook 437 U.S. 584, 594-595 (1978). 1 Chisum at §1.03[2][d] – 1-126. Moy 1 §5:69.

¹⁹⁵ Diamond v. Chakrabarty, 447 U.S. 303, 308-309 (1980). 1 Chisum at §1.02[7][d] – 1-71. See also 1 Moy §5:70.

¹⁹⁶ Diamond v. Diehr 450 U.S. 175, 181-182, 185, 187 (1981). 1 Chisum §1.03[2][e] at 1-127.

After Diamond v. Diehr software still remained unpatentable in isolation, but enabled patenting software innovations bundled with larger processes. However, it was not until a number of decisions by the Federal Circuit in the 1990s, when patentability of computer programs on standalone basis was put beyond doubt.¹⁹⁷ Namely, CAFC ruled in 1994 In re Alappat that software *is* patentable *as such*, since programming effectively creates a new machine when a general purpose computer becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.¹⁹⁸ Also the CAFC ruling in 1998 in State Street Bank v. Signature further strengthened patent protection of computer programs, by holding *hybrid claims* (defining the invention to include computer hardware) patentable.¹⁹⁹ Consequently, in the US, computer programs are within the patentable subject matter.²⁰⁰

Under the EPC, European patents are granted for *patentable inventions*, in other words, any inventions in *all fields of technology*, which are *new*, involve an *inventive step*, and are susceptible of *industrial application*. This is in line with the TRIPS Agreement, under which patents shall be available for any inventions, whether *products* or *processes*, in *all fields of technology* provided that they are new, involve an inventive step and are capable of industrial application.²⁰¹ However, computer programs are not considered as patentable inventions under the EPC, to the extent that the European patent application or European patent relates to computer programs *as such*.²⁰² Computer program *as such* refers to *object code* and/or *source code* of the computer program.²⁰³ The exclusion was considered to be in line with the TRIPS Agreement as

¹⁹⁷ Evans & Layne-Farrar at 9-11. Rosen at 16-17.

¹⁹⁸ Alappat, 33 F.3d 1526, 1545 (Fed.Cir.1994). 1 Chisum §1.03[6] at 1-179-1-180.

¹⁹⁹ State Street Bank & Trust Co. v. Signature Financial Group, Inc. 149 F.3d 1368 (Fed. Cir. 1998). 1 Chisum §1.03[6] at 1-180-1-181. 1 Moy §5:74. Under the blue-pencil rule of the Federal Circuit, hybrid inventions (consisting of both statutory/non-statutory inventions) are patentable, as any statutory element results in such a claim to fall under statutory subject matter under §101. 1 Moy §5:72.

²⁰⁰ 35 U.S.C. §101. See also 1 Andresen §3:4 at 129-136.

²⁰¹ Article 27 of the TRIPS Agreement.

²⁰² Articles 52(1), 52(2)(c) and 52(3) and of the EPC. Note the difference of the wording in Article 52(2) of the EPC to CAFC holding of In re Alappat. The requirement of "all fields of technology" was taken to the EPC in 2007 to bring it in line with Article 27(1) of the TRIPS Agreement. See also Press at 373-376. See also Mylly 2009 at 279-281. Kur & Dreier at 138-139.

²⁰³ Bernitz, Karnell, *et. al.* at 172.

computer program was considered as a non-technical process.²⁰⁴ The exclusion of computer programs as such somewhat resembles the exclusion of algorithms from patentability as laws of nature under the early US case law. The exclusion was taken to draft version of the EPC in 1971 allegedly due to the PCT, which stated that search of prior art involving computer programs was not required by international searching authorities. However, the regime for filing international patent applications under the PCT does not otherwise cover patentability of computer programs, which depends on the national law of the designated member state. The exclusion of computer programs included in the EPC also reflected the then current European case law, since at the time many European countries rejected patent protection for computer programs.²⁰⁵

While computer programs do not fall within the patentable subject matter as such, it however, does not mean that computer program would not be patentable under the EPC. The landmark case, which laid down the walkway for software patents in Europe, was the EPO Board of Appeal's often cited Vicom-ruling. EPO Board of Appeal established the so called doctrine of *technical effect* by its Vicom-ruling, in connection of which the court draw a line between unpatentable mathematical method and patentable technical process: if mathematical method susceptible of industrial application is used in a technical process carried out on a physical entity by some technical means implementing the method and producing a change in the physical entity, such technical means may also include a computer. After the Vicom-ruling issued in 1985, it became clear that computer programs having technical effect may be patented in Europe, despite that computer programs as such are not within the patentable subject matter.²⁰⁶ EPO Board of Appeals finally clarified the technical effect – test in IBM-case in 1998 (*i.e.* the same year when CAFC gave its ruling in State Street Bank v. Signature in the US), holding that a computer program is not excluded from patentability, if the program, when running on a computer, results in a technical effect *beyond the normal physical*

²⁰⁴ Kur & Dreir at 139.

²⁰⁵ Stobbs §10.03 at 10-4 and 10-5. Mylly, U-M 2011 at 460.

²⁰⁶ T 208/84 (Vicom) at 6-7. Smith at 126-130. Stobbs §10.4 at 10-7 – 10-9. Leith at 29-30. Haarmann at 176. Mylly, U-M 2011 at 451-452. See also Press at 376-377.

*interactions between software and hardware.*²⁰⁷ Finally, under the trio of *any hardware approach* line of EPO decisions, EPO held that *technical character* is an implicit requirement under Article 52(1) of the EPC and patent claims of computer programs tied to a machine render the program beyond the exclusion of Article 52(2) and thus patentable.²⁰⁸ Accordingly, despite the wordings of the EPC, also software related inventions may be patentable under the EPC in accordance with the developing EPO praxis.²⁰⁹ EPO praxis is reflected by the EPO Guidelines prepared for harmonizing examination practices in Europe. EPO Guidelines include also principles concerning patentability of computer-implemented inventions such as computer programs.²¹⁰ As response to inquiry by the President of the EPO concerning the changes in doctrines of EPO praxis regarding the grant of software patents and the subsequent round of *amicus curiae* briefs received, among others, from the FOSS community, the Enlarged Board of Appeal stated that the differences and divergence in decisions are based on development of new legal and/or technical fields, which does not always happen in a linear fashion, resulting in abandonment or modification of earlier approaches.²¹¹

2.2.2 Software Patents in Europe

Copyright protection may be characterized as relatively wide, yet thin protection form governing only the literary expression of computer program, but leaving all inventive ideas beyond protection. Patent protection for computer programs had been subject to discussion already for a long time.²¹² The European Commission issued finally in 2002

²⁰⁷ T 1173/97 (IBM) at 30-31. Smith at 64-65. Stobbs§10.4[A] at 10-13 – 10-14. Haarmann at 176. Mylly, U-M 2011 at 452-453.

²⁰⁸ T 0931/95 (Pension Benefit Systems). T 0258/03 (Hitachi). T 424/03 (Microsoft). Haarmann at 176-177. Mylly, U-M 2011 at 455. Oesch, Pihlajamaa, *et. al.* at 91-93. Press at 375-380.

²⁰⁹ 1 Raymond Nimmer §5:15 at 5-24 – 5-25. See also Mylly 2009 280-283.

²¹⁰ Guidelines for Examination in the European Patent Office, November 2016 Edition. Stobbs §10.5 at 10-16 – 10-18.

²¹¹ G 0003/08 (Enlarged Board). UK scholars have noted that development of EPO praxis resembles more civil law than common law methods, as the Boards are bound by the EPC, but not their precedent, despite that they try to be consistent with earlier doctrines. See Press at 377, FN 14.

²¹² Oesch, Pihlajamaa, *et. al.* at 88.

a draft proposal for a directive on patentability of computer-implemented inventions.²¹³ The directive aimed at harmonizing the various national practices regarding patenting of computer programs, which had developed under the EPO practice throughout the years. The concern was that rules regarding patentability of computer-implemented inventions were ambiguous and lacked legal certainty. The European Parliament faced heavy lobbying on the patent directive, both by representatives of big software companies and the FOSS community alike. However, the software patent directive never entered into force: Reflecting the lobbying of FOSS advocates, the European Parliament provided a revised version of the bill significantly limiting patent protection for computer programs by expressly excluding pure computer program implemented business methods from the scope of the patent eligible subject matter. Some corporations with extensive software patent portfolios may have been concerned of potential dilution of their software patents due to the amended directive. Consensus was never reached on the contents of the directive.²¹⁴ Therefore, patent protection available for computer programs in Europe is still based solely on national laws revised through the years to comply with the EPC interpreted in light of the EPO practice.²¹⁵

Despite rejection of the software patent directive, there will soon be a change in the fragmented status of patent protection due to introduction of the new Unitary Patent system. Because both the PCT and the EPC provide merely a mechanism for obtaining a bunch of national patents by filing one patent application,²¹⁶ the longstanding objective has been to create a model for reaching a true unitary patent within Europe. Finally, after many decades of preparation, the new EU Regulation on creation of unitary patent protection (the Unitary Patent Regulation) was adopted in 2013, although it has not yet taken effect. EPO will carry out the activities under the Regulation, and an application filed with the EPO under the Regulation will result in a *European patent with unitary*

²¹³ COM (2002) 92: Commission Proposal for a directive on the patentability of computer-implemented inventions.

²¹⁴ Kauppi at 7, 9, 14 and 16. Hoyng, Eijsvogels, *et. al.* at 5. Evans & Layne-Farrar at 14. Haarmann at 177. Harenko, Niiranen, *et. al.* at 221. Oesch, Pihlajamaa, *et. al.* at 89. Ghidini & Arezzo at 346-348. Levin at 260. Bernitz, Karnell, *et. al.* at 173. Kur & Dreier at 142 – 144. For institutional structure of the EU and powers of commission and parliament, see Týc 2.

²¹⁵ Mylly 2009 at 278. Mylly, U-M 2011 at 450. Press at 369-370.

²¹⁶ Article 11 of the PCT and Article 2 of the EPC.

effect within the participating EU member states.²¹⁷ The Regulation will become applicable latest when the UPC Agreement enters into force.²¹⁸ The Regulation will be directly binding on the participating member states. The UPC will have an exclusive competence in matters governing infringement and invalidity of European patents and European patents with unitary effect.²¹⁹ UPC will apply the EU law and respect its primacy. Decisions of CJEU are binding on the UPC.²²⁰

As to patenting of computer programs in Finland, the Patent Act of Finland provides that anyone who has made an invention *susceptible of industrial application* is entitled to an exclusive right to exploit the invention commercially.²²¹ However, software programs *as such* are not considered inventions within the meaning of §1 of the Finnish Patent Act.²²² Computer program alone may not be patentable, but as part of, for example, a device also program may be within the patent eligible subject matter if the other preconditions for patentability are met.²²³ The restriction in the Patent Act of Finland regarding patentability of computer programs is based on the EPC under which software programs are not eligible for patent protection *as such*.²²⁴ For reference, also the patent laws of France, Germany, Sweden and the United Kingdom (UK) exclude patentability of computer programs as such.²²⁵ Finland became a member of the EPC in 1996 after accession to the EU, but the list of exclusions was taken to the Patent Act already earlier.²²⁶ National Board of Patents and Registrations of Finland (NBPR) follows the legal praxis of EPO in granting patents for computer programs. In light of

²¹⁷ Articles 3 and 5 of the Unitary Patent Regulation.

²¹⁸ Article 19 of the Unitary Patent Regulation. Kur & Dreir at 153.

²¹⁹ Bernitz, Karnell, *et. al.* at 21 and 164-166.

²²⁰ Articles 20 and 21 of the Unified Patent Court. Kur & Dreir at 155.

²²¹ §1.1 of the Patent Act of Finland.

²²² §1.2 of the Patent Act of Finland.

²²³ Oesch, Pihlajamaa, *et. al.* at 62-63 and 88.

²²⁴ Harenko, Niiranen, *et. al.* at 221.

²²⁵ Article R-611-10 of the Intellectual Property Code of France. Section 1 of the German Patent Act. Section 1 of the Patent Act of Sweden. Section 1(2) of the Patent Act of the United Kingdom. 5 Mills, Reiley, *et. al.* §27:2 at 27-2, §28:2 at 28:2 and §33:2 at 33-2.

²²⁶ Decree on enactment of the Convention on the Grant of European Patent (European Patent Convention) 117/1996.

the established EPO praxis, it may be concluded that today computer programs may be patented in Europe, including Finland.²²⁷

Namely, notwithstanding the wording of the EPC, the function, method or process resulting from running software program on a computer may be patented. Further, programs that manage physical processes or operating systems have been granted patents.²²⁸ Under the EPO practice, in order for a computer program to be patentable (1) it must provide a solution to a problem of technical nature; (2) the means for solving the problem are of technical nature (*technical features*); (3) solving the problem brings about *technical effects (technical contribution)*; (4) the invention embodies a *technical character* (by solving a problem by implied technical features); or (5) the computer program claimed as such has a *technical effect*, which goes beyond the normal physical interactions between a computer program and a computer.²²⁹ EPO has granted patents specifically for computer related inventions that require both software and hardware.²³⁰ However, there is still no clear standard for patentability of computer programs. Therefore, the line between an un-patentable computer program (as such) and a patentable computer implemented innovation (CII) has remained, and will continue to remain somewhat vague, considering also that there is no harmonized EU law on patentability of computer program related innovations.²³¹

The best guidance on the current status of patentability of computer programs in Europe may be reflected by the recently updated EPO Guidelines issued by the EPO in November 2016.²³² Under Part F, Section 3.6 (Programs for Computers) of the EPO Guidelines, computer implemented invention (CII) means claims, which involve computers, computer networks or other programmable apparatus whereby one or more features of the claimed invention are realized by means of a program or programs. CII

²²⁷ Haarmann at 177. Oesch, Pihlajamaa, *et. al.* at 89. See also Bernitz, Karnell, *et. al.* at 172-173.

²²⁸ Bernitz, Karnell, *et. al.* at 172-173.

²²⁹ Hoyng, Eijsvogels & Hartog at 5. Haarmann at 177. Oesch, Pihlajamaa, *et. al.* at 91-92. Mylly, U-M 2011 at 453. Ghidini & Arezzo at 351-352. Bernitz, Karnell, *et. al.* at 172-173.

²³⁰ Bernitz, Karnell, *et. al.* at 172-173.

²³¹ Kur & Dreir at 139-144.

²³² Guidelines for Examination in the European Patent Office, November 2016 Edition. (EPO Guidelines).

inventions may take the forms of method claims, device claims, computer program product claims and/or computer readable (storage) medium/data carrier claims. In practice, one software patent includes often several types of claims in order to ensure maximum protection for the CII invention in different contexts. The patentability considerations for CII claims are the same as for other subject matter. While "programs for computers" are included among the items listed in Article 52(2) of the EPC not to be regarded as patentable inventions, if the claimed subject matter has a *technical character*, it is not excluded from patentability by Article 52(2) and (3) of the EPC under the EPO Guidelines. According to the EPO Guidelines, *features of the computer program* itself (T 1173/97) and the *presence of a device* defined in the claim (T 424/03 and T 258/03) may provide required technical character for the claim.²³³

Further, the EPO Guidelines provide that a "*computer program claimed by itself is not excluded* from patentability if it is *capable of bringing about*, when running on or loaded into a computer, a *further technical effect* going beyond the "normal" physical interactions between the program (software) and the computer (hardware) on which it is run (T 1173/97 and G 3/08). The normal physical effects of the execution of a program, *e.g.* electrical currents, are not in themselves sufficient to lend a computer program technical character, and a further technical effect is needed. The further technical effect may be known in the prior art." EPO Guidelines also state that "a further technical effect providing the technical character to a computer program may be found, for example, in the *control of an industrial process*, or in the *internal functioning of the computer or its interfaces* under the influence of the program, affecting *e.g.* on the *efficiency* or *security* of a process, the management of computer resources required or the *rate of data transfer* in a communication link." If the claimed invention does not pass *the test for technicality*, the computer program is not eligible for patent protection. Only if the subject matter has further technical effect, the examiner should consider *novelty* and *inventive step* of the invention under the EPO Guidelines.²³⁴

²³³ EPO Guidelines, Part F, Section 3.9 (Programs for Computers).

²³⁴ EPO Guidelines, Part F, Section 3.9 (Programs for Computers).

Finnish patent may be applied for several ways: (1) either filing a national patent application with the NBPR; (2) applying for a European patent with the EPO and designating Finland within the countries where protection is sought; (3) applying for a unitary patent once the Unitary Patent Regulation has become applicable; or (4) submitting an international patent application under the PCT system.²³⁵ Anyone who has been granted a patent in Finland, has the exclusive right to exploit the patent commercially, and accordingly, may exclude others from using, making, selling, offering for sale or importing a product or a process embodying the patented invention.²³⁶ However, patent does not mean that the patent holder would have the right to use the patented invention him or herself, as the right to use may be dependent on other laws, regulations as well as patents owned by third parties.²³⁷ The exclusive rights based on patent are limited also in terms of territory and time: national Finnish patent is in force in Finland only, and may be renewed up to a maximum term of 20 years from the date of filing the patent.²³⁸ When it comes to employee inventions pertaining to computer technology, those inventions, like any other employee inventions, are subject to the Employee Invention Act of Finland and must be acquired in accordance with the Act.²³⁹

Exclusive rights in patents are subject to several limitations. The purpose of the limitations on patent holder's exclusive rights is to prevent too strong patent protection, which would rather hinder than advance the technological innovation, and introduce restrictions on the freedom of operation.²⁴⁰ For example, other than commercial use of patented invention is not within the exclusive rights of a patent holder. Accordingly, *private* use as well as *experimental use* of the invention are beyond patent protection.²⁴¹ Defenses of experimental use and/or (prior) private use are also available, for example,

²³⁵ Haarmann at 204. Oesch, Pihlajamaa, *et. al.* at 129.

²³⁶ §3 of the Patent Act of Finland. Haarmann at 214. Norrgård at 41. Oesch, Pihlajamaa, *et. al.* at 222.

²³⁷ Haarmann at 213. Oesch, Pihlajamaa, *et. al.* at 111.

²³⁸ §40 of the Patent Act of Finland.

²³⁹ Employee Invention Act of Finland (1967/656). Oesch, Pihlajamaa, *et. al.* at 356-357. Haarmann at 244-246.

²⁴⁰ Oesch, Pihlajamaa, *et. al.* at 116.

²⁴¹ §3.3 of the Patent Act of Finland. Haarmann at 220.

in France, Germany, Sweden and the UK.²⁴² Thus, under several European jurisdictions, patented invention may be made and used freely, say, within a DIY (do it yourself) project. Also research, teaching and other similar activities may be carried out without a separate consent of the patent holder provided, however, that the invention is the subject of the research and not used as a research tool.²⁴³ Further, under certain circumstances, rights in the patented product sold by the patent holder or with his consent are subject to exhaustion.²⁴⁴ The doctrine of patent exhaustion as existing in Europe will be discussed in more detail in Section 4.1.1 (Patent Exhaustion in Europe).

The remedies for patent infringement include injunction, damages as well as criminal sanctions based on industrial property offence. Court may prohibit the alleged infringer from continuing the infringing act. Further, the infringer is, irrespective of whether its conduct was intentional or negligent, liable to the patent holder for reasonable compensation for exploiting the invention as well as damages for injury caused by the infringement. If the infringer's acts were only slightly negligent, the court may adjust the compensation accordingly. If the infringer acted neither intentionally nor negligently, the infringer is liable for compensation only to the extent reasonable. Also the Patent Act of Finland includes a *time bar* for claiming compensation: Compensation for patent infringement may be claimed for a maximum period of *five* years prior to filing the suit. Right to compensation for damages suffered prior to the said time bar will lapse.²⁴⁵ In addition to injunction and damages, the patent holder may also request that the court orders the infringing goods to be altered or destroyed, or surrendered against payment of their value to the patent holder. The goods may also be seized in case of industrial offence.²⁴⁶ Patent infringement may also result in criminal sanctions. Willful patent infringement may bring about liability for fines based on *violation of*

²⁴² Articles L.613-7 and L.613-5(a) of the Intellectual Property Code of France. See also Guillot at 28-30. §11 and 12 of the German Patent Act re research exception and (private) prior use. See also Büchling at 21-24. §§3 and 4 of the Patent Act of Sweden. See also Gozzo & Hägg at 15-16. §§60(5)(b) and 64(1) of the Patent Act of UK. See also Willoughby at 28 and 30-31. 5 Mills, Reiley, *et. al.* §27:5 at 27-11, §33:8 at 33-15.

²⁴³ Oesch, Pihlajamaa, *et. al.* at 122. Haarmann at 220 and 222.

²⁴⁴ §3.3 of the Patent Act of Finland.

²⁴⁵ §57 of the Patent Act of Finland.

²⁴⁶ §59 of the Patent Act of Finland.

patent rights. However, the patent holder must request that public prosecutor brings the action before a court.²⁴⁷ Patent infringement may also be punished as *industrial property right offence* under the Penal Code.²⁴⁸ The forum for civil patent proceedings is the Market Court as the first instance.²⁴⁹ As noted earlier, case law on patents is scarce in Finland, and the Supreme Court of Finland has not adjudicated any case regarding software patents.²⁵⁰

2.2.3 Software Patents in the US

Under the US Patent Act, whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent.²⁵¹ Patent is granted for an invention, if it is within the patentable subject matter under §101 of the Patent Act, and also satisfies the requirement of novelty, non-obviousness and full and particular description.²⁵² The US Patent Act specifies four independent categories of inventions within the patentable subject matter: processes, machines, manufactures and compositions of matter. While inventions pertaining to computer hardware have been held to fall within the category of *machines* or *articles of manufacture*, computer programs are considered either as *processes* or *articles of manufacture*. On the other hand, individual items of software may be characterized as mathematical algorithms, which, in turn, are long held unpatentable under Gottschalk v. Benson.²⁵³ However, the exact standard for patentability of computer programs appears to be quite uncertain, both in the US and Europe. Like SCOTUS case law, also many patent laws in Europe exclude from the patentable subject matter also discoveries, theories, and mathematical methods as well as schemes, rules, and methods for performing mental acts or doing business and presentations of information. Therefore, despite the territorial nature of patent laws, the

²⁴⁷ §57 of the Patent Act of Finland.

²⁴⁸ 49:2 of the Penal Code of Finland.

²⁴⁹ Oesch, Pihlajamaa, *et. al.* at 123-124.

²⁵⁰ Haarmann at 178.

²⁵¹ 35 U.S.C. §101. 1 Moy at §5:1 – 5-4 – 5.10.

²⁵² 35 U.S.C. §102, §103 and §112.

²⁵³ 1 Moy at §5:34 5-132 – 5-133 and §5:36 - §5:40.

underlying questions pertaining to patentability of computer programs have these days many similarities in the US and Europe, often boiling down to the question of whether computer programs are protected only as part of a larger patentable process or a machine.²⁵⁴ Since the early SCOTUS case law introduced above in Section 2.2.1 (Emergence of Patent Protection for Computer Programs), SCOTUS has recently revisited the question of patentable subject matter twice in relation to computer programs, first in Bilski v. Kappos and then in Alice v. CLS Bank.²⁵⁵

SCOTUS reminded in Bilski v. Kappos that while Congress contemplated broad construction of the terms to give wide scope for patentable subject matter under §101, SCOTUS precedence lays down three exceptions constituting ineligible subject matter: *laws of nature, natural phenomena* and *abstract ideas*.²⁵⁶ Accordingly, SCOTUS rejected Bilski's process patent applications on method of hedging risk on energy markets, stating that under Gottschalk v. Benson, Parker v. Flook and Diamond v. Diehr those concepts are not patentable processes, but merely abstract ideas. Unfortunately enough, SCOTUS did not define what actually constitutes a patentable process under §101, since the claimed invention was rejected already on unpatentability of abstract ideas. However, SCOTUS did note that that the *machine or transformation* test is *not* the *exclusive* test for determination of a patentable process as decided by CAFC in earlier instance.²⁵⁷ Namely, according to CAFC, a claimed process is patent-eligible under §101 only, if it meets the machine or transformation test, and thus, is either tied to a particular machine or apparatus, or transforms a particular article into a different state or thing. Also CAFC rejected patentability of Bilski's method, since it did not transform any article into different state or thing, nor was the pure mental process tied to any computer or other device.²⁵⁸

²⁵⁴ §1 of the Patent Act of Finland. 1 Raymond Nimmer §5:42 at 5-73 – 5-74.

²⁵⁵ Bilski v. Kappos 561 U.S. 593 (2010). Alice Corporation Pty. Ltd v. CLS Bank International and Others 134 S. Ct. 2347 U.S. 2014.

²⁵⁶ Bilski v. Kappos at 594-595.

²⁵⁷ Bilski v. Kappos at 593-596. Bilski v. Kappos 545 F.3d. 943, 956 (Fed. Cir. 2008). 1 Chisum at §1.03[6][a] – 1-182.

²⁵⁸ Bilski v. Kappos 545 F.3d. 943, 954-956 (Fed. Cir. 2008). Merges, Menell & Lemley 2012 at 159.

Had SCOTUS accepted the machine or transformation test as the sole inquiry for determining patentability of process claims, computer programs would constitute a patentable subject matter under the US Patent Act only if the computer program was tied to a particular machine and transformed an article into a different state or thing. Therefore, when *certiorari* was granted, the FOSS community in support of software freedom looked eagerly forward to clear guidelines from SCOTUS for patentability of computer programs. Software Freedom Law Center (SFLC) claimed in its *Amicus Brief* that software alone cannot be within the patentable subject matter of §101, because under the longstanding SCOTUS precedents, an idea itself cannot be patentable, and because SCOTUS had recently recognized that an abstract software code uninstalled in a machine is merely an idea without physical embodiment.²⁵⁹ SFLC stated that CAFC was right in its ruling that computer programs may be patented only if the program is combined with a special purpose machine or is used in a *process* that transforms a matter.²⁶⁰ If SCOTUS would have affirmed the Federal Circuit's holding, application of the machine or transformation test as the sole inquiry for patentable processes, the outcome would have substantially limited the patentability of computer programs. However, because SCOTUS did not affirm the said holding, to the FOSS community's disappointment, no further guidance was received on boundaries of patentability of computer programs. To the contrary, SCOTUS holding in Bilski v. Kappos was, unfortunately, "remarkably inconclusive" contribution to the law on patent-eligible subject matter under §101.²⁶¹

Another recent ruling of SCOTUS regarding patentability of process claims was given in Alice v. CLS Bank. The main holding under Alice v. CLS Bank was that the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Therefore, SCOTUS held that Alice's patents for the abstract idea of mitigating settlement risk in financial transactions by using a computer system as a third party intermediary were invalid, since intermediated settlement is a longstanding fundamental economic practice in system of commerce. SCOTUS

²⁵⁹ Microsoft v. AT&T 550 U.S. 437, 449 (2007).

²⁶⁰ SFLC Amicus Brief 2009 at 2.

²⁶¹ 1 Chisum §1.03[6][n] at 1-330.108.

emphasized that courts must distinguish abstract ideas from patent-eligible applications of those ideas, and determine whether there is patentable subject matter on top of ineligible abstract ideas. SCOTUS reminded that abstract ideas are basic tools of scientific and technological work, and monopolization of those tools would rather impede than promote innovation, thereby diluting the primary object of patent law.²⁶²

FOSS community joined its forces and represented by SFLC, FSF and OSI, jointly submitted Amicus Brief in Alice v. CLS Bank, arguing that patent-eligibility of computer-implemented inventions, (*i.e.* narrower category of subject matter than what was considered in Bilski v. Kappos) should be determined solely by the machine or transformation test, drawing an analogy to the idea/expression distinction of copyright law and the need to safeguard fair use of ideas in patent context the same way as the collision between copyright and free speech is mitigated in copyright context.²⁶³ However, SCOTUS did not establish the machine or transformation test as the sole test for patentability of computer-implemented inventions either in Alice v. CLS Bank. While the precise effect of the ruling may be yet hard to capture, the ruling in Alice v. CLS Bank does not result in rejection of computer implemented software patents or business methods. Alice holds that the fact that an invention is *performed by computer* is not enough to save a software patent claim. Instead, *a special purpose* is required for the computer-implemented invention.²⁶⁴ The post-Alice Federal Circuit decisions interpreting and applying Alice v. CLS Bank will show how the law develops on this question until the next SCOTUS decision in future. One of the post-Alice decision of CAFC on §101 patentable subject matter requirements for software related patents were given in Amdocs v. Openet Telecom. CAFC coined a two-step query for patentability and stated that it should be first considered if the patent claims are directed to patent-ineligible concepts (such as abstract ideas) and if yes, then consider if there exists "*an inventive concept*" *i.e.* an element or combination of elements that ensure that the patent in practice amount to more than a patent on the ineligible concept. CAFC held that the

²⁶² Alice v. CLS Bank at 2352, 2355-59. *Merges, Menell, et. al.* 2014 at 11-22.

²⁶³ SFLC, FSF and OSI Amicus Brief 2014 at 4. For idea/expression distinction, see 1 Nimmer §2.03[D].

²⁶⁴ 35 U.S.C. §271. *Stobbs* §4.02[S] at 4-108.2. 1 *Chisum* at §1.03[6][o] – 1-330.148. 3 *Moy* at §12:15 – §12-21.

software claims were patent eligible since they recited a *technological solution* to a *technological problem*.²⁶⁵ However, it may be concluded that today computer programs fall within the patent-eligible subject matter under §101 of the US Patent Act, although the exact test for patentability is yet to develop.

When it comes to the exclusive rights of patent holder in the US, patent holder has the right to *exclude* others from making, using, offering to sell or selling the patented invention within the US, as well as importing the patented invention into the US during the term of the patent. As in terms of European patents, the right to exclude does not include an affirmative right to use, make or sell the patented invention. There may exist blocking patents owned by others or exploitation of the invention may be restricted by operation of state or federal laws in the US.²⁶⁶ Further, as mandated by the TRIPS Agreement, the US patent expires, subject to payment of all applicable fees, at 20 years from the date of filing the patent application.²⁶⁷ It is important to remember that unlike in copyright context, the US Patent Act does not include provisions regarding transfer of employee inventions, but the assignment is based on state law and *hired to invent*-concept. However, in order to increase certainty of ownership in various types of employee inventions, usually it is wise to expressly agree on assignment of inventions in employee contracts.²⁶⁸

Further, whoever without the patent holder's authority commits any of the acts within the exclusive rights of patent holder, infringes the patent (*direct patent infringement*). In addition to the category of direct patent infringement, there are two other categories of infringement: inducement of infringement as well as contributory infringement. Also actively inducing infringement constitutes patent infringement (*inducement of infringement*), and so does sale within or importation to the US a component of a patented machine or material or an apparatus for use in practicing of a patented process, provided however, that such component, material or apparatus constitutes a material

²⁶⁵ Amdocs (Israel), Ltd. V. Openet Telecom, Inc. (Fed.Cir. 2016) at 8, 22, 24, 28 and 34.

²⁶⁶ 5 Chisum at §16.02[1] – 16.13-16.14.

²⁶⁷ 35 U.S.C. §154(b). 3 Moy §11:3.

²⁶⁸ 1 Raymond Nimmer §4:4 at 4-7 – 4-8 and §4:8 at 4-18. 85 A.L.R.6th 1.

part of the invention (*contributory infringement*).²⁶⁹ Accordingly, use of software patent without license or outside the scope of the license granted by the patent holder constitutes an infringement, irrespective of whether the patent license is proprietary or a FOSS license.

Patent holder may bring a civil action against the alleged infringer for patent infringement.²⁷⁰ If the alleged infringer does not discontinue the infringing activities, for example, after a cease and desist letter, the patent holder must prepare and file a complaint for patent infringement.²⁷¹ Remedies for patent infringement include injunctions and damages.²⁷² Court may grant injunctions in accordance with the *principles of equity* as the courts deem reasonable.²⁷³ If patent infringement is established, the court may award the patent holder damages to compensate for the infringement. The amount of damages shall amount at least to a *reasonable royalty* together with interests and costs.²⁷⁴ The aim is to compensate the patent holder for amount which is equal to the damage, in order to place the patent holder as near to the situation had the wrong not been committed. However, as the purpose is to restore the financial position where the patent holder would have been but for the patent infringement, overlapping or double damages for the same injury are not allowed. Therefore, the purpose is to award damages compensating for the patent holder's lost profits or established royalty, but in no event less than a reasonable royalty.²⁷⁵

Liability for patent infringement is *strict*. Knowledge and intent of the alleged infringer are not decisive: Direct patent infringement may be committed even without being aware of the existence of the patent not to mention intention to violate the patent.²⁷⁶ To

²⁶⁹ 35 U.S.C. §271(a), (b) and (c). 5 Moy §15:15 and §15:12.

²⁷⁰ 35 U.S.C. §281.

²⁷¹ Battersby & Grimes §3.03[A] at 3-73-8.

²⁷² 35 U.S.C. §283 and §284.

²⁷³ 35 U.S.C. §283.

²⁷⁴ 35 U.S.C. §284. 1 Raymond Nimmer §2:45 at 2-108 – 2-109.

²⁷⁵ Mills, Reiley, *et. al.* at 18-168. 7 Chisum §20.03 at 20-63 – 20-74. 1 Raymond Nimmer §2:45 at 2-107.

²⁷⁶ 35 U.S.C. §271(a). 5 Chisum at §16.02[2] – 16.43.

the contrary, when proving the elements of liability for inducement or contributory infringement, knowledge on the patent violation is essential.²⁷⁷ While mere innocent infringement of a patent may lead to liability for damages in case of direct patent infringement, willful patent infringement may result in enhanced damages. Namely, the court may, in certain circumstances, increase the damages up to three times.²⁷⁸

If the infringer has knowingly, intentionally or willfully infringed the patent (*willful infringement*), the patent holder may be entitled to enhanced damages up to three times the actual damages, despite that the primary recovery of patent infringement is merely compensatory damages. Thus, the enhanced damages are supposed to serve as a *penalty* for willful infringement. Whether the standard for willful infringement is met and thus liability for enhanced damages is triggered, depends on whether the infringer, acting in good faith and upon due inquiry, had reason to believe that it had the right to act in the manner that was deemed infringing. Even if willfulness would be found, and thus sufficient basis for award of enhanced damages is established, court is not compelled to award of such damages.²⁷⁹ Monetary damages and injunctions are deemed sufficient remedies for patent infringement. Thus, unlike infringement of copyrights, patent infringement is not subject to criminal sanctions under 18 U.S.C. Part I Crimes, Chapter 113 (Stolen Property).

Like the Patent Act of Finland, also the US Patent Act includes a time limitation for recovering damages due to patent infringement. While the time bar for the right to compensation under the Patent Act of Finland is *five* years prior to institution of the proceedings,²⁸⁰ under the US Patent Act, the patent holder will have no recovery for any infringement committed more than *six* years prior to filing the complaint or

²⁷⁷ 35 U.S.C. §271(b) and 35 U.S.C. §271(c). 5 Moy §15:20 and §15:24.

²⁷⁸ 35 U.S.C. §284. 1 Raymond Nimmer §2:45 at 2-107. Stobbs II at United States of America – 383.

²⁷⁹ Mills, Reiley, *et. al.* at 18-200 – 18-201. 7 Chisum §20.03 at 20-77 and §20.03[4][b] at 20-330 – 20-337.

²⁸⁰ §58.3 of the Patent Act of Finland.

counterclaim for infringement in the action.²⁸¹ Thus, in the US, the patent holder may recover compensation for one year longer compared to patent infringement in Finland.

The court may order an injunctive relief, either in the form of a preliminary or a permanent injunction. Under the standard set by SCOTUS in eBay v. MercExchange, the equitable grounds to be taken into account in considering permanent injunction include: (1) irreparable injury suffered by the patent holder in the absence of injunction; (2) remedies available at law, such as monetary damages, are inadequate to compensate for the injury; (3) considering the balancing of the parties' relative hardships, a remedy in equity is warranted; and (4) whether the public interest would be served by a permanent injunction.²⁸² Finally, in *exceptional cases* only, the court may also award reasonable attorney's fees to the prevailing party.²⁸³ As noted above in Section 2.1.2 (Software Copyrights in Europe), the rules regarding award of attorney's fees are different in Finland: The main rule under the Code Judicial Procedure of Finland is that the losing party must pay the prevailing party's reasonable legal costs, unless otherwise provided in another act.²⁸⁴

3. FOSS LICENSING

3.1 ELEMENTS OF FOSS LICENSES

3.1.1 FOSS Licenses as Standard Terms

In the context of Nordic contract laws, FOSS licenses listed by OSI may be characterized as *standard contracts*. In the US legal system, standard contracts covering software licensing are often called as *mass licenses*, *non-negotiated* or *standard form contracts*. Development of proprietary software industry at the end of the 1980s lead to emergence of mass markets also for software products. Standard contracts and mass licenses, such as *shrink wrap*, *click wrap* and *browse wrap* licenses, were developed to

²⁸¹ 35 U.S.C. §286. 7 Chisum at §20.03[7][a] at 20-581 - §20.03[7][b] 20-587.

²⁸² eBay Inc. v. MercExchange, LLC, 547 U.S. 388, 390 (2006). 7 Chisum §20.04[2][b] at 20-777- 20-779. Mills, Reiley, *et. al.* at 18-213.

²⁸³ 35 U.S.C. §285. 7 Chisum §20.03[4][c] at 20-460.150 – 20.486.5.

²⁸⁴ 21:1 of the Code of Judicial Procedure of Finland (1734/4; as amended).

address the needs of software mass markets and typically share three common features: (1) They are drafted in advance for the purpose of using the said terms with several counter parties; (2) the terms are *non-negotiable*; and (3) their acceptance is indicated, as opposed to ordinary contracts, by some other act than black ink on a white paper.²⁸⁵

Further, standard FOSS licenses may be *unilaterally drafted licenses* such as the BSD and the MIT licenses originally written at the UC, Berkeley and the MIT. Also the GPLv2 is a unilaterally drafted license, written by Richard Stallman together with his counsel at the FSF. Alternatively, FOSS licenses may be characterized as *agreed documents*, which are prepared mutually by the contracting parties and/or their representatives.²⁸⁶ For example, the GPLv3 is an agreed document drafted in close cooperation with the FOSS community. When the FSF administered the GPLv3 revision process, it invited public comments on the new draft from various discussion committees including different types of members of the FOSS community, such as various technology companies using FOSS in their business operations.

Typical elements of a FOSS license include, just like any other mass licenses applicable to proprietary software (1) a copyright notice; (2) a license grant; (3) license conditions; as well as (4) a warranty disclaimer; and (5) a limitation of liability – clause. The crucial differences, however, between FOSS licenses and proprietary licenses concern, not the *elements* of the respective mass market license but the *content* of the *license grant* and the *type* of the *license restrictions* included in the respective mass license, together forming the *scope of the license*.²⁸⁷ Depending on the FOSS license in question, the license terms may vary from a few simple sentences to many pages long license terms. For example, the BSD and the MIT licenses are short and simple FOSS licenses including only the above basic elements of mass licenses without any additional license conditions and/or covenants. However, often FOSS licenses include also others terms and conditions such as *definitions* for the terms used in the license, terms regarding

²⁸⁵ Hemmo I at 148 and 156. Ramberg & Ramberg at 133-135. Bernitz at 15-16. Ilardi at 283 and 286-287. 1 Raymond Nimmer §6:68 at 6-194 – 6-195. Lemley, Menell, *et. al.* 299-300. Naylor, Patrikos, *et. al.* at 149-152.

²⁸⁶ Hemmo I at 146. Ramberg & Ramberg at 136-137. Bernitz at 18. Lindberg & Westman at 379.

²⁸⁷ 1 Raymond Nimmer §7:47 at 7-115.

acceptance of the license, description of stream of licenses from (copy)right holders to FOSS licensees, *reciprocal obligations* such as a copy-left clause or other terms such as *defensive termination* – clause or instructions how to apply the terms to FOSS licensee's contributions. The nature of these FOSS licenses is further discussed below.

3.1.2 Acceptance of License vs. Conclusion of Contract

FOSS lawyers have long debated in the US on whether FOSS licenses amount to *real contracts* under the state contract laws or whether FOSS licenses are mere *bare licenses* granted under the federal IPR laws of the US.²⁸⁸ The main difference between a real contract and a bare license is that contracts consist of mutual undertakings binding each of the parties to the contract, whereas bare licenses include only unilateral promises one-sidedly issued by the right holder in the form of license grants binding only the licensor and allowing use of the licensed IPRs subject to certain conditions, without however, imposing any undertakings or covenants on the licensee.²⁸⁹ North European contract laws do not acknowledge the concept of a bare license, since licenses are considered to arise out of a contractual relationship, the scope of which is IPR(s), and the breach of which may constitute both IPR infringement and/or contract breach depending on which terms of the contract are violated.²⁹⁰ The same applies also to licenses constructed under the US state contract laws: conduct within the scope of a license, *i.e.* terms defining permitted exploitation of IPRs and related conditions does not constitute infringement of licensor's IPRs, but may amount to a breach of contract, if other terms than those defining the scope of the license are violated. Further, breach of scope of the license may constitute both IPR infringement and breach of contract.²⁹¹

The FOSS licenses subject to this study surely present promise by the respective FOSS licensor to license the software under the terms of the respective FOSS license. Whether those license terms amount to a real contract depends on whether each elements of a valid contract are met. In the US, contract is defined as a promise or a set of promises

²⁸⁸ Moglen 2001. Jones. Meeker 2008 at 223. 2 Raymond Nimmer §11:15 at 11-35.

²⁸⁹ Rosen at 53-66. Meeker 2008 at 223-232.

²⁹⁰ Lemley, Menell, *et. al.* at 300.

²⁹¹ 1 Raymond Nimmer §7:47 at 7-115.

for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty. Formation of a valid contract, *i.e.* an enforceable agreement, requires under the US state contract laws the existence of the elements of (1) offer; (2) acceptance; and (3) consideration.²⁹² The element of consideration is required also for a valid contract in the common law system of the UK.²⁹³ However, under the general principles of contract laws existing in the civil law systems of the Northern Europe, the elements of offer and acceptance are sufficient for contract formation; no consideration is required. While conclusion of standard contracts is not addressed in the Contracts Act of Finland, the emergence of electronic contracting may have, surprisingly, even increased the relevance of the ordinary formation mechanism based on offer and acceptance in the era of mass licenses.²⁹⁴

Under one of the most cited unofficial authorities of US contract laws, the legal treatise by the American Law Institute, the Restatement (Second) of Contracts (1981), the concept of offer means the manifestation of willingness to enter into the contract, inviting the other party to accept the offer, thereby concluding the contract.²⁹⁵ When it comes to FOSS licenses and the element of offer, irrespective of which jurisdiction is in question, the element of offer may generally be expressed by conduct, including statements and acts, of the FOSS licensor: FOSS contributor, and sometimes also a mere FOSS redistributor, promises to license the FOSS program to FOSS licensees under certain terms and conditions laid down in the respective FOSS license, and acts accordingly by releasing the FOSS program, for example, on the Internet.²⁹⁶ Absent breach of license by the respective FOSS licensor, the terms of the offer are readily available for FOSS licensee's review and acceptance: By way of example, under the GPLv2§1, license is granted on the condition that the licensee will "conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of

²⁹² Restatement (Second) Contracts §1, §17, §24, §30 and §54 (1981). See also 1 Raymond Nimmer §7:40 at 7-103 – 7-107, Murray, John at 3 and Ramberg & Ramberg at 81.

²⁹³ Naylor, Patrikos, *et. al.* at 144.

²⁹⁴ §1 of the Contract Act of Finland. Hemmo I at 96-97. Ramberg & Ramberg at 76.

²⁹⁵ Restatement (Second) Contracts §24 and §79 (1981). As to the difference of the concepts of "offer" and "invitation to treat" in the UK, see Naylor, Patrikos, *et. al.* at 146-147.

²⁹⁶ Meeker 2008 at 224.

warranty" as well as "keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program." The terms of the offer are also visible upfront to users of the BSD and the MIT licensed software: the BSD license requires that in case of source code distribution, the copyright notice and the license terms are included in the software, or in case of binary distribution, the copyright notice and the license terms are accompanied with the documentation or other materials provided with the software distribution. The MIT license is the most lax license, requiring only that the copyright notice and the license is included in all copies of the software. Still, even in case of the MIT license, licensees will get access to the terms prior to start using the code. These obligations apply to each FOSS licensor, *i.e.* a downstream contributor as well as a mere redistributor of the FOSS program. Because the FOSS license terms remain intact in the software and/or are also accompanied with the distribution media, the terms of the licensor's offer should always be available for licensee's prior acceptance.

The second element of valid contract formation, both under the US and the European contract laws, is the element of acceptance. The element of acceptance is closely related to another common inquiry regarding standard terms – the question of *adhesion*: how do standard terms validly become an integral part of the agreement between the parties? Because of the adhesion challenge, even the whole enforceability of standard terms has been questioned at times. In the traditional context of unilaterally drafted standard terms and consumer contracts specifically, the said question has often been set with the objective to protect the weaker contracting party, usually the consumer, from the other party's one-sidedly stipulated, potentially unreasonable contract terms.²⁹⁷

Under the Nordic doctrines of contract law, in order for standard terms to validly become a part of the agreement, they must be either incorporated into the agreement document or otherwise accepted by the counter party. If there is an oral agreement or in case a written agreement does not expressly incorporate or point to the standard terms, there must have been a reference to the standard terms during conclusion of the contract

²⁹⁷ Hemmo I at 145. Bernitz at 57 and 68-69. Ramberg & Ramberg at 135-136. Lindberg & Westman at 380-381. 1 Raymond Nimmer §6:68 at 6-194. Naylor, Patrikios, *et. al.* at 152.

and the counter party must have had an adequate opportunity to read the standard terms before conclusion of the contract. Sometimes adhesion may also be met based on prior practice through established, earlier use of the terms by the respective parties.²⁹⁸ Under Nordic contract laws, also standard licenses, such as shrink wrap or click wrap terms, usually bind each contracting party on the condition that they are not against the mandatory provisions of consumer protection laws or otherwise surprising and severe observed from the weaker party's perspective. Enforcement of standard terms requires also that the standard terms in question are not against the mandatory principles of contract law, and accordingly, have not been concluded under *coercion* by the other party as set in §29 of the Contracts Act. Further, the standard terms must not be otherwise deemed *unfair* or *unreasonable* under §36 of the Contracts Act based on totality of the circumstances, such as the entire contents of the agreement, the parties' bargaining positions and other circumstantial factors prevailing at and after conclusion of the contract.²⁹⁹

Very similar principles govern also the question of adhesion under the US (state) contract laws: after conclusion of a contract, licensee may not generally challenge the acceptance of license terms appropriately provided for its review before formation of the contract.³⁰⁰ The same principles of contract formation apply also in the common law system of the UK.³⁰¹ Under the American Jurisprudence, the encyclopedia of the US laws, standard terms are binding on the licensee, if the licensee had a reasonable notice of the terms in advance and *manifested* acceptance of the terms.³⁰² Also courts have required manifestation of assent to the formation of a contract, either by *words* or *conduct*.³⁰³ Under the Restatement (Second) of Contracts (1981), acceptance of contract

²⁹⁸ Hemmo I at 151 and 158-159. Bernitz at 62-63. Ramberg & Ramberg at 137-139. Lindberg & Westman at 380-381. See also the decision by the Court of Appeal of Turku in Solteq case (TurunHO 20.3.2008).

²⁹⁹ Harenko, Niiranen, *et. al.* at 227. Hemmo I at 156-157. Lindberg & Westman at 381-383.

³⁰⁰ Meeker 2008 at 225. See also 1 Raymond Nimmer §1.01[B][1][a][iii] at 1-22.

³⁰¹ Naylor, Patrikos, *et. al.* at 144-145.

³⁰² 15B Am. Jur. 2d Computers and the Internet §106. 1 Raymond Nimmer §6:69 at 6-196 and §6:70 at 6-206.

³⁰³ Lemley, Menell, *et. al.* at 310.

may be manifested even by *silence*, where the offeree takes benefit of the offer or where the offeror has stated that the offer may be accepted by silence. Further, offeror may also invite the offeree to accept the offer by performance.³⁰⁴ Thus, no formal act of acceptance of a mass license, such as clicking online "I accept" is necessary, if the acceptance is visible from the conduct, for example enjoying the benefits subject to acceptance. Also mere use of the benefits at a website has been considered as valid "*browse-wrap*" acceptance of the Terms of Use applicable to those sites.³⁰⁵

Also the Uniform Computer Information Transactions Act (UCITA) provides that terms of mass-market licenses are effective if the end user accepts the license by, for example, manifesting the acceptance before running the software. End user has the right to return the software if it did not have a chance to review the terms in advance, or if it does not accept the terms.³⁰⁶ UCITA, a model law adopted so far only by a few states in the US, was designed to supplement the Uniform Commercial Code (UCC), which does not effectively address the terms and conditions applicable to sales in the information society. Therefore, the clue for adhesion appears to be *awareness* and *acceptance* of the license terms prior to start running the software. As in Europe, also in the US, adhesion of shrink-wrap and similar standard terms has been occasionally rejected on the ground that the consumer was not given adequate prior notice of the terms.³⁰⁷

When it comes to the concept of acceptance, the traditional way to conclude a contract, *i.e.* expression of the acceptance through written or oral statement to the other party having made the offer, is not necessary to constitute acceptance. Contract may be formed in any manner showing the parties' intent to be bound by the agreement, such as the parties' conduct.³⁰⁸ In the era of Internet and standard software, also other conduct indicating acceptance of offer have been deemed valid. In connection with standard software distributed either on data storage media or on the Internet, the mere act of

³⁰⁴ Restatement (Second) Contracts §54 and §69 (1981).

³⁰⁵ 15B Am. Jur. 2d Computers and the Internet §106.

³⁰⁶ §209 of the Uniform Computer Information Transactions Act.

³⁰⁷ 15B Am. Jur. 2d Computers and the Internet §106. Lemley, Menell, *et. al.* at 315-317.

³⁰⁸ McGowan at 369. See also 1 Raymond Nimmer §7:41 at 7-107.

clicking acceptance on a web page or *unwrapping* the software product and *starting running* the software program may all illustrate acceptance.³⁰⁹ FOSS, in turn, is released under standard terms, which permit running the software subject to deemed acceptance constituted by *the act of using* the FOSS program.³¹⁰ For example, the GPLv2 specifically states that modification or distribution of the GPL-licensed program constitutes acceptance of the terms and conditions of the license.³¹¹ Further, *shrink-wrap* and *click-wrap* licenses are generally enforceable, unless the terms are held invalid on some ground, such as illegality or unconscionability. Under the doctrine of unconscionability, a court may refuse to enforce any contract or clause, if it was held unconscionable at the time the contract was concluded. The aim is to prevent unfair and surprising contract terms, as well as abuse of superior bargaining power.³¹² Therefore, some courts have rejected enforcement of shrink-wrap licenses on these grounds as invalid, often as "additional" terms to the contract due to adhesion reasons.³¹³

The elements of offer and acceptance may certainly be met in connection with FOSS licensing: Unless the FOSS contributor and/or the FOSS distributor act in breach of the FOSS applicable license, the terms and conditions of the FOSS license are always provided with the FOSS licensee in advance either in the software code and/or in connection with the accompanying documentation. Thus, the FOSS licensee may usually familiarize itself with the license terms before accepting formation of the contract, or alternatively, before accepting the bare license. However, raising the question of adhesion in FOSS context may be slightly misplaced: In either case, without acceptance of the FOSS license terms the licensee does not have the right to use the respective FOSS program in the first place. Thus, FOSS licensees usually have a strong incentive to acknowledge acceptance of the FOSS license terms – in order to avoid

³⁰⁹ Meeker 2008 at 224.

³¹⁰ McGowan at 369.

³¹¹ GPLv2§5

³¹² §2-302 of the UCC. 1 Raymond Nimmer §6:65 at 6-177 – 6-183.

³¹³ Lemley, Menell, *et. al.* at 310-311. See also Lemley 1999 at 119-122.

claim of copyright and/or patent infringement by the right holder. Namely, absent acceptance of license, there is no right to use the software in the first place.³¹⁴

While the elements of offer and acceptance are sufficient to form a contract under the North European contract laws, under the US contract laws, the third element of contract, *i.e.* consideration, must also be met. Consideration means anything bargained for in exchange of a promise, such as a promise to do something or forbearance from doing something.³¹⁵ If the element of consideration is met, no additional requirements regarding the gain or the benefit for the promisor or the loss or the detriment to the promisee are required. For example, in order for consideration to be adequate, the values exchanged do not have to be equivalent.³¹⁶

Also the element of consideration may be found in connection with FOSS licensing. While earlier academic discussion has considered FOSS licenses as bare copyright promises without any bargained for consideration³¹⁷, these days it is widely acknowledged that the element of consideration may be satisfied, for example, by the reciprocal obligations of free software licenses or the notice and attribution requirements included in the permissive FOSS licenses enhancing the contributors' reputation within the FOSS community. Accordingly, in exchange of the FOSS licensee's adherence to the FOSS license terms, the FOSS licensor offers the FOSS program to FOSS licensee, and similarly, the FOSS licensee, in reliance on the existence of the license grants, commences using the FOSS program in accordance with the FOSS license terms.³¹⁸ Also CAFC has held that the various benefits related to FOSS licensing model may be deemed to constitute consideration – the third element required for enforceable contract in the US in addition to the elements of offer and acceptance. According to CAFC, FOSS licensing may involve economic consideration exceeding even beyond traditional license fees. The commercial benefits of FOSS

³¹⁴ Moglen 2001. McGowan at 364.

³¹⁵ Farnsworth at 48.

³¹⁶ Restatement (Second) Contracts §79 (1981).

³¹⁷ McGowan at 368.

³¹⁸ Wacha at 474-475. Pugh & Majerus at 1. Lemley & Shafir at 140-141. Meeker 2008 at 224.

licensing model lie within the increased market shares, reputation and code contributions.³¹⁹ It has been argued that under the US laws of property, a bare license of (real) property coupled with consideration will result in formation of a contract. Whether or not the principles apply to bare license of intangible property, IPR(s) in other words, appears to remain unsettled, as many other questions as regards the law of bare licenses.³²⁰

Despite that all of the elements of valid contract formation under both the European and the US laws may be met, the FSF position remains that the GPL is a unilateral permission, *i.e.* a bare copyright license, given by the right holder based on its right to exclude, without imposing any obligations on user of the GPL-licensed program. According to the FSF, the user must comply with the license, not because of its undertaking to do so, but because otherwise there is no right to use the program.³²¹ This position is codified also to the GPL license terms: Both the GPLv2 and the GPLv3 licenses state that "licensee is not required to accept the license, since the licensee has not signed it. However, only acceptance of the GPL license entitles the licensee to modify and distribute the program, because otherwise those actions are prohibited by law." Thus, the act of copying or modifying the GPL-licensed program constitutes acceptance of the license, including any terms and conditions thereunder.³²² According to the FSF, the GPL grants the rights to copy and modify the FOSS program freely. However, distribution of the GPL-licensed program is allowed only on certain conditions: If the licensee does not comply with the license conditions, the licensee loses the right to use the GPL-licensed program due to revocation of the licenses. The reason for the loss of rights is not the FOSS user's breach of its own promises to comply with the license conditions, but the mere fact that no license is granted except for under certain conditions.³²³

³¹⁹Jacobsen v. Katzer, 535 F.3d 1373, 1379 (Fed. Cir. 2008). (Jacobsen v. Katzer)

³²⁰ Meeker 2008 at 228. McGowan at 371-372.

³²¹ Moglen 2001.

³²² GPLv2§5 and GPLv3§9.

³²³ Moglen 2001. Schellekens at 311.

3.1.3 Enforcement of FOSS Licenses

The FSF position on the GPL not being a contract but a mere unilateral license has been challenged on various grounds. FOSS lawyers have stated that under some jurisdictions licenses cannot even exist without being contracts. It has also been argued that certain terms of the GPL, such as the warranty disclaimers in the GPLv2§11 and the GPLv3§15 were specifically designed to address the implications of the UCC regarding contracts for sales of goods.³²⁴ In the absence of warranty disclaimers or limitation of remedies having validly become part of the parties' agreement, warranties under the UCC may become applicable.³²⁵ As one potential explanation of the FSF position that FOSS licenses are not real contracts, has been alleged to be the fear that FOSS licenses might not meet each element required for formation of a real contract, and thus a valid, *enforceable* agreement. The biggest concerns may have related to the element of acceptance of the license. Namely, courts confirmed much later than when the FOSS licenses subject to this study were drafted, that also unsigned contracts are enforceable agreements.³²⁶ However, according to the FSF, the above belief is false. FSF has reminded that none of the activities usually reserved by proprietary software licenses, such as installing, using or copying the software, are prohibited by nor require acceptance of the GPL. Apart from the bare copyright license, the GPL does not include additional contract-based restrictions. Only *distribution* of the GPL-licensed software requires acceptance of the license terms which, according to the FSF, may be inferred directly from the user's act of distributing the software, which in the absence of acceptance is prohibited.³²⁷ Other scholars have argued that instead of asking whether FOSS licenses are enforceable contracts, more appropriate question may be to ask whether in the respective context the FOSS license represents the terms of the parties, in

³²⁴ Meeker 2008 at 225.

³²⁵ Lemley, Menell, Merges & Samuelson at 324-332.

³²⁶ ProCD v. Zeidenberg, 86 F.3d 1447 (7th Cir. 1996). 2 Raymond Nimmer §11:15 at 11-34. Lemley, Menell, Merges & Samuelson at 332-340. See also 1 Raymond Nimmer §1.01[B][1][a][iii] at 1-22.1 – 1-27.

³²⁷ Moglen 2001.

light of the circumstances including each element of enforceable contract, such as manifestation of assent to the respective standard terms.³²⁸

Categorization of FOSS licenses as real contracts or mere unilateral copyright licenses may make a difference if the license terms are enforced at court.³²⁹ In the US, contracts are constructed and enforced under the state contract laws whereas bare copyright licenses are subject to federal copyright laws.³³⁰ Accordingly, also the remedies available for breach of contract and infringement of IPRs are different. While the remedies for breach of contract may not be available in case of breach of a bare license, the right holder may request the court to order the alleged infringer by injunction to discontinue infringing activities as breach of a bare license constitutes IPR infringement.³³¹ Further, willful IPR infringement may result in enhanced damages. When it comes to breach of contract, injunctions are rarely available, as damages are usually considered as a sufficient remedy for the said breach.³³² Further, whether the question is of a breach of contract claim or a claim of IPR infringement, the remedy of specific performance is rarely available in the US. Thus, FOSS lawyers have often been of the opinion that one of the biggest fears of proprietary software companies, *i.e.* accidental dilution of proprietary software by reciprocal FOSS license terms resulting in mandatory opening of source code of the proprietary product, is unlikely to occur. In such a case, injunction against distributing the infringing software product as well as monetary damages would be the likely result.³³³ Under the laws of Finland, exploitation of copyrighted work in breach of the license terms (by, for example, exceeding the scope of the license grant) may constitute unauthorized use of the work, meeting not only the elements of a *copyright violation* under §56a of the Copyright Act of Finland

³²⁸ 2 Raymond Nimmer §11:15 at 11-36.

³²⁹ 2 Raymond Nimmer §11:15 at 11-35.

³³⁰ 17 U.S.C. §101.

³³¹ §502 (a) of the US Copyright Act.

³³² Meeker 2008 at 226-227.

³³³ McGowan at 382. Meeker 2008 at 227. Williamson at 54.

but also a *breach of contract*.³³⁴ The act may also be punished as a *copyright offence* under 49:1 of the Penal Code, if the act is gross.

Today, no fear of unenforceability of the GPL, or other FOSS licenses, for that matter, should exist anymore. Under a court decision on interpretation of Artistic license, the terms of a FOSS license in question were considered as *conditions* under copyright law the breach of which triggers infringement of right holder's copyrights and ceases the right to use the program released under Artistic license. Under the decision the terms of FOSS licenses may also be *covenants* under contract law. Covenants, however, do not provide greater protection in copyright context, but only expand the remedies to cover also those available under state contract law.³³⁵ This court decision should end the debate on FOSS licenses as a bare license vs. real contract: Jacobsen v. Katzer addressed the FOSS license in question (Artistic license) as contractual relationship. Thus, FOSS licenses may include both copyright conditions and contract covenants under the US laws.³³⁶ In general, however, court decisions regarding construction of FOSS licenses are still quite rare both in Europe and the US, and at best give merely guidance on the very basic questions regarding FOSS licenses, such as enforceability, availability of injunctions for breach of license and the *license condition vs. contract covenant* – dilemma.³³⁷ The main learnings based on FOSS case law are that the GPL is an enforceable copyright license and injunctions are available for breach of the GPL both in Europe³³⁸ as well as in the US³³⁹.

³³⁴ Harenko, Niiranen & Tarkela at 488.

³³⁵ Jacobsen v. Katzer.

³³⁶ 2 Raymond Nimmer at §11:15 at 11-35.

³³⁷ Haapanen 2015.

³³⁸ Welte v. Sitecom Deutschland GmbH, No. 21 O 6123/04 (District Court of Munich I) and Welte v. D-Link Deutschland GmbH, No. 2-6 O 224/06 (District Court of Frankfurt am Main). See also Lemley, Menell, *et al.* at 376-377.

³³⁹ Software Freedom Conservancy, Inc. v. Best Buy Co., Inc., No. 09 CV-10155 (S.D.N.Y. Jul 27, 2010).

3.2 FOSS DISPUTES AND APPLICABLE LAW

3.2.1 Choice of Law and Jurisdiction in FOSS Licenses

None of the licenses subject to this study, *i.e.* the BSD, the MIT or the GPLv2 licenses include a provision on governing law or dispute resolution. In fact, most of the FOSS licenses do not mention anything about the law applicable to disputes arising out of the parties' operations under the FOSS license nor jurisdiction where potential disputes will be settled. Of course, such facts that the GPLv2 is written in the English language and originates from Massachusetts may not have anything to do with the applicable law or jurisdiction.³⁴⁰

In the few cases where some FOSS licenses do define applicable laws, such FOSS licenses often refer either to the laws of New York or the laws of California, excluding the provisions on conflict of laws. For example, the Eclipse Public License v. 1.0 (EPLv1), among others, is governed by the state laws of New York and the federal IPR laws of the US. While the Mozilla Public License version 1.1 (MPLv1.1) states that the laws of California shall be followed, under the Mozilla Public License version 2 (MPLv2), any litigation shall be brought before the court where the defendant has its principal place of business, and the laws of that jurisdiction will govern the dispute.³⁴¹ The dispute resolution clause of the MPLv1.1 could actually lead to rather interesting litigation as irrespective of where the suit is brought before a court, such court should adjudicate the case under the laws of California. Namely, the MPLv1.1 points to the jurisdiction of the Federal Courts of the Northern District of California with the venue in Santa Clara County, if either party is a citizen or an entity registered to do business in the US. If not, the venue could be different under the MPLv1.1, but the laws of California would still continue to apply – not perhaps the best approach to dispute resolution in the global context. Some FOSS licenses have adopted other choices of laws than the state laws of California or New York. Namely, the Python License will be interpreted in accordance with state laws of Virginia. One FOSS license even points to

³⁴⁰ Kielland at 59. Jaeger & Koglin at 4-5.

³⁴¹ MPLv2§8.

the laws of Finland, of course the Nokia Open Source License version 1.0a (NOKOS).³⁴²

In the absence of a choice of law provision, as in terms of the FOSS licenses subject to this study, the issue of applicable law must be solved through the rules of private international law. In IPR disputes the answer to the question of governing law often depends on where the infringement occurred. The question of jurisdiction is separate from the question of governing law, and requires, in turn, the analysis of several jurisdictional standards.³⁴³ Depending on the applicable law, the rules regarding contract construction and progress of legal proceedings may vary essentially. By way of example, interpretation of a FOSS licensing scheme under the federal and/or state laws of the US or the EU directives and/or the national laws of, say Germany, may lead to very different outcomes. Therefore the questions of applicable law and jurisdiction may be crucial for solving the dispute at hand. Of course, due to overlapping IPRs in computer programs and the era of the Internet, it may be fairly complicated to identify the governing law in the context of FOSS licensing: the legal aspects and related disputes pertaining to FOSS licensing may cover, for example, infringement of copyrights or patents and/or breach of contract. FOSS program is often a derivative work consisting of various copyright contributions and possibly covered by patents of several FOSS licensors and/or third parties. Further, FOSS programs may be developed all over the world by hundreds of developers and made available worldwide: first simultaneously downloaded in multiple countries and then distributed, further developed and used in an unlimited number of other countries. Consequently, the chain of distribution is endless, because the software in question is, after all, free and/or open source software, and breach of the respective FOSS license terms may occur at any level of the chain. As FOSS programs are often distributed online, it may be very difficult to identify the infringers let alone find out where they reside. It is also possible that the infringement is conducted in one country, but the damage occurs in another country. Thus, it may not be easy to determine in FOSS context who, in the first place,

³⁴² Nokosv1.0a§10.

³⁴³ 1 Raymond Nimmer §5:8 at 5-14 – 5-15. 1 Raymond Nimmer §5:26.

has the standing to sue, and who should be the right defendant. In order to avoid these challenges in enforcement, applicable law is often spelled expressly out in the contract in order to avoid difficulty in revolving jurisdictional matters in the context of Internet.³⁴⁴

However, the FOSS licenses subject to this study do not set forth the applicable law or jurisdiction. Therefore, Section 3.2.2 (FOSS Enforcement in Europe) and Section 3.2.3 (FOSS Enforcement in the US) will outline the basic principles of proper jurisdiction and applicable law for the purpose of providing a short introduction on where and under which laws potential disputes arising out of FOSS licenses subject to this study could be adjudicated. Specifically, the aim is to provide an initial understanding on whether potential disputes related to FOSS patent infringement and potential use of the doctrines of patent exhaustion and/or the implied patent license as defenses in the patent infringement litigation, would be subject to the jurisdiction and the laws of Europe or the jurisdiction and the laws of the US.

3.2.2 Forum of FOSS Disputes in Europe

In the EU, the forum of FOSS litigation is governed by the Regulation 1215/2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters (2012 Regulation) irrespective of whether the dispute relates to an alleged IPR infringement and/or a breach of contract, including a FOSS license.³⁴⁵ The 2012 Regulation applies also to establishing international jurisdiction of the UPC, which has an exclusive competence on (non-)infringement of European patents and unitary

³⁴⁴ 1 Raymond Nimmer §5:8 at 5-14 – 5-15 and §7:84 at 7-193. Jaeger & Koglin at 4-6. See also 3 Goldstein §15:1.2. Kur & Dreir at 526-528.

³⁴⁵ Regulation (EU) No 1215/2012 of the European Parliament and of the Council of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters. (2012 Regulation) The new 2012 Regulation replaced as of January 1, 2015 the old Brussels I Regulation, *i.e.* the Regulation EC 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters. See also Wang 35-37. Note also the Lugano Convention on Jurisdiction and Enforcement of Judgements in Civil and Commercial Matters, of 30 October 2007 (2007 Lugano Convention), strengthening the cooperation of EU with Denmark, Switzerland, Norway and Iceland.

patents.³⁴⁶ As to jurisdiction of the UPC, the 2012 Regulation will be relevant mainly for the question, which national or regional division of the Court of First Instance is competent in the matter.³⁴⁷

The starting point of the 2012 Regulation is that under the *general jurisdiction* the defendant, such as a FOSS user breaching a FOSS license, is sued in the court of her domicile.³⁴⁸ Defendant domiciled in one member state may be sued in another member state only under certain circumstances of *special jurisdiction*.³⁴⁹ As an alternative to the defendant's domicile, in matters relating to tort such as a copyright or patent infringement, the plaintiff may *also* bring an action before a court of the member state where the harmful event, including the alleged IPR infringement, occurred.³⁵⁰ Further, in connection with contract disputes, defendant may be sued in a member state, where there is the *place of performance* of the contract.³⁵¹ However, if the proceedings is concerned with the *registration* or *validity* of an industrial property right such as a patent, the court of the member state in which the right was registered or applied for, will have an *exclusive jurisdiction* in the matter irrespective of the defendant's domicile or other jurisdictional grounds.³⁵² CJEU held in GAT v. LuK that whether invalidity is raised as an action or a defense, the court of the state where the right was granted, has exclusive jurisdiction. The exclusive jurisdiction does not, however, cover other matters such as infringement of industrial property rights.³⁵³ Under the UPC Agreement, actions for infringement or injunction shall be brought before the local (or regional) division of the UPC located in the member state where the alleged infringement occurred, or

³⁴⁶ Articles 31 and 32 of the Agreement on Unitary Patent Court. However, the 2007 Lugano Convention is applicable in certain cases.

³⁴⁷ Kur & Dreier at 514.

³⁴⁸ Article 4(1) of the 2012 Regulation.

³⁴⁹ Article 5(1) of the 2012 Regulation.

³⁵⁰ Article 7(2) of the 2012 Regulation.

³⁵¹ Article 7(1) of the 2012 Regulation.

³⁵² Article 24(4) of the 2012 Regulation.

³⁵³ As to scope of the exclusive jurisdiction, see Gesellschaft für Antriebstechnik mbh Co. KG v. Lamellen und Kupplungsbau Beteiligungs KG (C-4/03) 2006 E.C.R. I-06509. (GAT v. LuK). See also Bainbridge at 603. Kur & Dreier at 502-504.

alternatively, in the member state where the defendant has her residence or principal place of business.³⁵⁴

Thus, IPR holder, including a FOSS licensor, may bring an action against the alleged infringer, for example a FOSS user, either in the member state where (1) the defendant is domiciled; (2) the alleged infringement occurred; or (3) the place of performance is, in case of a breach of contract. By way of example, if a FOSS user as the alleged infringer has its domicile in Finland, the Market Court in Helsinki may as first instance have jurisdiction over a dispute concerning the alleged infringement of the FOSS licensor's copyrights and/or patents even if the FOSS user carried out the infringing acts abroad. However, in case of an alleged infringement of a European patent or a unitary patent, the applicable division of the UPC would be the competent court. Finnish court may also have jurisdiction over a foreign FOSS user, if the infringing act, such as the unauthorized use of the FOSS licensor's IPRs occurred in Finland, or if there was a breach of contract, such as violation of a source code distribution requirement under a FOSS license (if the claim is raised by a FOSS licensee and not enforced by a FOSS licensor as copyright infringement), and the place of performance was in Finland. Further, whenever the alleged infringer, such as a FOSS user, raises a claim of validity of a Finnish patent, the validity of the patent should be adjudicated in Finland. Therefore, in practice, patent is usually enforced in the jurisdiction where the patent is in force.³⁵⁵ As invalidity is one of the most important defenses also in FOSS patent litigations, territoriality of patents may lead to a jurisdictional nightmare in cross-border litigations, if invalidity challenges are raised in multiple parallel proceedings. Establishment of the UPC may ease enforcement by holders of European patents and unitary patents, but also the defense by alleged infringers, if the European patent or unitary patent is held invalid, precluding the patent monopoly in all relevant member states or even in the whole EU.³⁵⁶

³⁵⁴ Article 33 of the Agreement on Unified Patent Court. See also Kur & Dreier at 514.

³⁵⁵ See also Bainbridge at 17-18, 595-596 and 600-602, Norrgård at 52-56, Oesch, Pihlajamaa, *et. al.* at 301-302, Jaeger & Koglin at 4-6 and Press at 370-371.

³⁵⁶ Bainbridge at 609-610.

The question of the applicable law governing FOSS litigation in EU is answered on the basis of the Rome II Regulation applying to determination of law on non-contractual obligations.³⁵⁷ Under the Rome II Regulation, the law applicable to IPR infringements is the law of the country for which protection is claimed.³⁵⁸ The rule of *lex loci protectionis* reflects the principle of territoriality of IPRs.³⁵⁹ For example, due to territoriality of patents, patents are usually enforced under the laws of the country where the patent was granted.³⁶⁰ Therefore, when it comes to enforcement of IPRs, the property in FOSS, the territoriality of IPRs is decisive for enforcement. However, if a unitary community IPRs are infringed, the respective community law, and secondarily, the laws of the country where the infringing act was committed, will govern the dispute. Thus, community law takes precedence over the national law, and only if a question arising out of such infringement is not covered by community law, the laws of the country where the infringing act was committed, will apply.³⁶¹ Accordingly, the UPC Agreement provides that the UPC will base its decision on (1) EU law, including the UPC Agreement and the Unitary Patent Regulation; (2) the EPC; (3) other international agreements applicable to patents and binding on all member states; and last (4) national law, which is determined by directly applicable provisions of private international law.³⁶² Any patent holder possibly contemplating to sue the alleged infringer under a European patent or a new unitary patent should take this rule into account. Parties to the dispute are not allowed to derogate from the above rules by choosing another law.³⁶³ International copyright litigation has certain peculiarities compared to enforcement of industrial rights. As discussed in Section 2.1.1 (Emergence of Copyright Protection for Computer Programs), the TRIPS Agreement, incorporating the Berne Convention and binding on each WTO member state, adopts the principles of most favored nation and

³⁵⁷ Regulation 864/2007 of the European Parliament and of the Council of 11 July 2007 on the Law Applicable to Non-Contractual Obligations (Rome II Regulation).

³⁵⁸ Article 8(1) of the Rome II Regulation.

³⁵⁹ Bodgan at 7. Kur & Dreir at 519.

³⁶⁰ Herzog.

³⁶¹ Article 8(2) of Rome II Regulation. Kur & Dreir at 524-525. Herzog.

³⁶² Article 24 of the Agreement on a Unitary Patent Court.

³⁶³ Article 8(3) of Rome II Regulation.

national treatment. Therefore, nationals of other member states will receive the same protection as granted for own nationals, and each member state must grant equivalent protection for works of others as under their own national laws.³⁶⁴ The Rome II Regulation follows the principle of universal application, and provides that law specified by the regulation shall be applied whether or not it is the law of the member state.³⁶⁵ Consequently, despite that the court of the defendant's domicile or the state where the infringement occurred will have jurisdiction over the infringement under the 2012 Regulation, the court may need to apply the laws of other countries with regard to the infringement and damages in connection with a cross-border litigation.³⁶⁶

Rome I Regulation, in turn, governs determination of law on contractual obligations.³⁶⁷ As also the Rome I Regulation follows the principle of universal application, any law specified by it will be applied even if it is not the law of a member state. The starting point under the Rome I Regulation is *freedom of choice*: the parties' choice of law is respected. Thus, under the Rome I Regulation, the provision on governing law included the FOSS license (such as laws of California under the MPL v. 1.1) should be applied. However, if the parties have not chosen the applicable law, or if there is disagreement as to the law, the Rome I Regulation will set the applicable law also in the context of contractual disputes arising out of FOSS licensing. For example, a contract concerning sale of goods or provision of services is governed by the law of the country where the seller, the service provider or another party required to effect the *characteristic performance* of the contract, has his/her *habitual residence*. However, if the contract is *manifestly more closely connected* with another country, or if the law cannot be determined under the above rules, the laws of that country will govern the dispute.³⁶⁸ Usually the characteristic performance of the contract is the performance of some other than a monetary obligation, for example delivery of a device, or performance of service

³⁶⁴ Haarmann at 19.

³⁶⁵ Article 3 of the Rome II Regulation.

³⁶⁶ Kur & Dreir at 520-521.

³⁶⁷ Regulation 593/2008 of the European Parliament and of the Council of 17 June 2008 on the Law Applicable to Contractual Obligations (Rome I Regulation).

³⁶⁸ Articles 2, 3 and 4(1)-(4) of the Rome I Regulation.

or another obligation in consideration of monetary payment. Thus, characteristic performance is often within the seller's or service provider's contract obligations, due to which their habitual residence or place of business often determines the governing law.³⁶⁹ If a contractual dispute arises out of sale, licensing and/or distribution of FOSS, the dispute may be governed by the law of the seller's and/or FOSS licensor's habitual residence, or another country to which the relationship of the parties is most closely connected based on totality of the circumstances. However, most likely the dispute arising out of exploitation of FOSS and/or a FOSS license is related to infringement of IPRs, in which case the IPRs are enforced in the jurisdiction determined in accordance with the 2012 Regulation as well as the law pointed by the Rome II Regulation instead of the Rome I Regulation. However, the Rome I Regulation might be relevant in a situation, where a FOSS licensee argues that a FOSS licensor has constituted a breach of contract of the applicable FOSS license by not, for example, providing the FOSS licensee with the source code as required by the applicable FOSS license terms.

3.2.3 Forum of FOSS Disputes in the US

When planning commencement of FOSS litigation in the US, the basic jurisdictional rules governing the choice of forum in the US must be first understood. The judicial system of the US is divided into twelve circuits. For example, New York is in the second judicial circuit, whereas California is in the ninth judicial circuit. Further, each circuit is divided to several districts, such as the Southern District of New York (Manhattan) or the Northern District of California (Silicon Valley).³⁷⁰ A suit for patent infringement or a declaratory judgment of invalidity or non-infringement, or other relief pertaining to patent rights or copyrights, must be filed in a proper court meeting the US requirements of (1) subject matter jurisdiction; (2) venue; and (3) jurisdiction over the person.³⁷¹ As to *subject matter jurisdiction*, the US federal district courts have jurisdiction over any civil action arising under an Act of Congress relating to IPRs,

³⁶⁹ Hemmo II at 470. Reed at 301-304.

³⁷⁰ Seng at 264.

³⁷¹ 8 Chisum §21.02[1] at 21-9.

including copyrights and patents.³⁷² Because the US laws governing IPRs are federal law, disputes concerning IPRs such as an alleged infringement of copyrights or patents, must be brought before a US Federal District Court as the first instance. However, not all cases involving patents or copyrights arise under IPR laws. For example, a breach of license agreement may be brought before a state court of general jurisdiction, as discussed below.³⁷³

When it comes to proper *venue* in IPR matters, civil actions relating to copyrights and/or patents may be instituted in the district in which the *defendant resides*, or, in civil actions relating to patents, also in the district where the defendant *committed the infringement* and has *place of business*.³⁷⁴ As corporation "resides" in any district in which it is subject to personal jurisdiction, alleged corporate infringers may be sued in many districts. Natural persons, in turn, reside in the district where s/he has the domicile. Non-resident defendants may be sued in any judicial district.³⁷⁵ *Personal jurisdiction* over the defendant requires power of the court to render a binding judgment as to the defendant: personal jurisdiction is usually found if the defendant (1) is a resident of the state; (2) has been served with process while present in the state; or (3) conducts regular and systematic business in the state. Personal jurisdiction may arise also under state *long-arm* statute authorizing its courts to exercise jurisdiction over non-resident individuals or corporations based on their actions in the state, such as tort or business. Any long-arm statutes must be imposed by the state within the limits of the federal due process standard, usually requiring certain *minimum contacts* between the non-resident defendant and the forum state.³⁷⁶ While a US patent covers only the acts of using, making or selling the patented invention in the US, an alleged infringer may also commit contributory infringement or inducement of infringement from abroad. In such a case, courts may find a personal jurisdiction based on contacts with the state under a

³⁷² 28 U.S.C. §1338(a).

³⁷³ 8 Chisum §21.02[1] at 21-12.

³⁷⁴ 28 U.S.C. §1400. 8 Chisum §21.02[2] at 21-156.311.

³⁷⁵ 28 U.S.C. 1391(c). 8 Chisum §21.02[2] at 21-156.311 – 21-158.

³⁷⁶ Chisum 8 §21.02[3] at 21-201 – 21-206. See also 3 Goldstein §15:1 at 15:1 -15:4 and Wang at 65-66..

long-arm statute even if the defendant resides outside the US.³⁷⁷ Further, when it comes to appeal courts, the CAFC has the exclusive jurisdiction as the appellate court in matters concerning patents.³⁷⁸ Appeals involving the subject matter of copyrights are heard by the federal Court of Appeal for the respective circuit.³⁷⁹ SCOTUS asserts appellate jurisdiction over the CAFC and the Courts of Appeal for circuits by *writ of certiorari* granted upon the petition of any party to a civil or criminal case.³⁸⁰

While federal laws govern creation and infringement of IPRs as intangible property, other legal relations are within the sphere of state laws. In case of breach of contract, such as a patent license agreement, or why not, for example, violation of covenants based on a FOSS license, the dispute may be governed by state contract law, including state common law and statutes.³⁸¹ In such a suit, the state court may even adjudicate the question of validity of a patent, if raised as a defense.³⁸² When assessing the applicable law, courts must choose the law in accordance with the conflict of law principles of their own state. Due to the vast number of states and development of the principles through common law, there is a great variety in the said rules. The modern US doctrine concerning choice of law in contract disputes has been claimed to be complex, and to provide nothing but certainty in terms of the governing state law. While both the UCC and the UCITA introduced above include provisions regarding applicable law and enforcement of chosen law (often protecting consumers and pointing to laws of their domicile), those provisions are not reviewed in this context. Instead, one of the most recent and widely adopted approaches to conflict of laws, the rule of most significant relationship governed by the Restatement (Second) Conflict of Laws (1971) will be discussed below.³⁸³

³⁷⁷ Chisum 8 §21.02[3][b] at 21-267 – 21-271.

³⁷⁸ 28 U.S.C. §1295 (a)(1).

³⁷⁹ 28 U.S.C. §1294 (1).

³⁸⁰ 28 U.S.C. §1254 (1). Seng at 264.

³⁸¹ 8 Chisum §21.02[1][c] at 21-57 – 21-71. 8 Chisum §21.02[1][c][iii] at 21-97 – 21-105. 1 Raymond Nimmer §7:3 at 7-9.

³⁸² Mills, Reiley, *et. al.* at 18-7. 8 Chisum §21.02[1] at 21-12.

³⁸³ Green at 289-294. 1 Raymond Nimmer §7:85 at 7-195 and §7:87 at 7-199 – 7-200.

If the parties have not defined the applicable state law in the contract in connection of which the dispute arose, the law of the state with which the parties have the *most significant relationship*, should apply to the contract dispute litigated in the US. The circumstances to be taken into account in connection with determining the applicable law include (1) the place of contracting; (2) contract negotiations; (3) the place of performance; (4) the location of the subject matter; as well as (5) the domicile, residence, *etc.* of the parties.³⁸⁴ If there are close ties to several states, the court may also assess the following public policy concerns: (1) interstate and international rules; (2) policies of the forum; (3) policies of other interested states; (3) protection of parties' justified expectations; (4) basic policies of the respective field of law; (5) certainty, predictability and uniformity of results; and (6) ease in determination and application of the law to be applied. Based on these principles of conflict of laws, the court will finally choose the law.³⁸⁵

The elements of *state interest* are evaluated on case-by-case basis depending on the relative importance of each element in the given dispute. If the parties have already chosen the law to govern their contractual rights and obligations, the validity of the choice of law is evaluated according to the same principles, *i.e.* the existence of clear state interest. As noted above in Section 3.2.1 (Choice of Law and Jurisdiction in the FOSS Licenses), it is not at all clear that the requirement of state interest would always be met in connection with a dispute arising in the global context of FOSS licensing, because the chosen state must have substantial relationship to the parties or the transaction or some other reasonable basis for application of the laws of the chosen state.³⁸⁶ While usually contractual choices of law and jurisdiction are enforced, courts may choose also another law or venue for adjudicating the case if the choice of law provision included in the FOSS license is deemed invalid, on one ground or another.³⁸⁷ Also the rules regarding choice of law set in the Restatement (Second) Conflict of Laws

³⁸⁴ Restatement (Second) §188 Conflict of Laws (1971). Green at 292-294.

³⁸⁵ Restatement (Second) §6 Conflict of Laws (1971). Green at 294.

³⁸⁶ Restatement (Second) §187 Conflict of Laws (1971).

³⁸⁷ 1 Raymond Nimmer §7:84 at 7-193 – 7-195 and §7:90 at 7-202 – 7-207 and §7:91 at 7-207 – 7-209. See also Reed at 301.

(1971) have been criticized to be vague and hard to apply in the cyber context.³⁸⁸ That may well be the case, but the rules still reflect the existing principles on conflicts of law in force in most states today.

4. FOSS AND PATENT EXHAUSTION

4.1 INTRODUCTION TO THE DOCTRINE

4.1.1 Patent Exhaustion in Europe

Origin of the case law based European patent exhaustion doctrine

The European patent exhaustion doctrine originates from case law of the European Court of Justice (today, called CJEU) given around 50 years ago.³⁸⁹ Under the ruling in Centrafarm v. Sterling Drug, national laws, which enable a patent holder to prevent importation of a patented product into a member state, while the product is already marketed in another member state, may violate the principle of free movement of goods. Such an obstacle to free movement of goods is not justified if the product has been *lawfully put on the market in a member state by the patent holder or with his consent*.³⁹⁰ Accordingly, the elements of the European patent exhaustion doctrine resulting in exhaustion of patent rights in the sold product include (1) placing the product covered by a patent on the market in the EEA; (2) by or with the consent of the patent holder.

The place where the product is first put on the market is important from the perspective of the European patent exhaustion doctrine.³⁹¹ Patent holder may control where he

³⁸⁸ Davis at 353.

³⁸⁹ Parke, Davis and Co. v. Probel, Reese, Beintema-Interpharm and Centrafarm (C-24/67) 1968 E.C.R. 55. Centrafarm BV v. Sterling Drug Inc. (C-15/74). [1974] 2 C.M.L.R. 480. Merck & Co. Inc. v. Stephar BV and Petrus Stephanus Exler (C-187/80) 1981 E.C.R. 2063. Pharmon BV v. Hoechst AG (C-19/84) 1985 E.C.R. 2281. The doctrine on exhaustion of copyrights had been established already a few years earlier in Deutsche Grammophon GmbH v. Metro-SB-Grossmärkte GmbH & Co., KG (C-78/70) 1971 E.C.R. 487. See also Mylly U-M 2012 at 385 on patent exhaustion and Raitio 2016 at 407-408 on copyright exhaustion.

³⁹⁰ Centrafarm v. Sterling Drug at 503-504 and 507. Raitio 2016 at 412-414. Granmar at 334.

³⁹¹ In terms of the case law based principle of community wide patent exhaustion, four main scenarios may be found as to placement of a product on the markets: The product is put on the markets in (1) the EEA member state where the product *is* patented; (2) the EEA member state where the product is *not*

releases the product on the market. According to case law, patent holder's exclusive right to first place the product on the market enables the inventor to receive reward for the creative effort, although it does not allow the reward in all circumstances.³⁹² CJEU held in Centrafarm v. Sterling Drug that the *specific subject of patent* includes the exclusive rights to *manufacture* and to *first put into circulation of industrial products*, either *directly* or *through grant of licenses to third parties*, and to oppose any infringements.³⁹³ Putting products on the market effectively means that the patent holder transfers to a third party, through sale or other assignment, the right to dispose of the goods embodying the patented invention, allowing the patent holder to realize the economic value of the right.³⁹⁴ Thus, the *first authorized sale* of a product by the patent holder or his licensee results in *exhaustion of patent rights in the sold product*. After the patent holder has received the bargained for consideration against transfer of title in the sold product, the patent holder no longer controls the particular product(s) released on the market. However, if the licensee has breached the license by selling more products than authorized or sold products outside of the licensed territory, patent rights in the said products are not exhausted.³⁹⁵

EU follows the principle of *territorial*, or to be specific, *community wide exhaustion*. The principle of community wide exhaustion was established in copyright case Deutsche Grammophon v. Metro SB-Grossmärkte.³⁹⁶ Shortly thereafter, the ruling was affirmed also in context of patents in Centrafarm v. Sterling Drug.³⁹⁷ The principle of community wide exhaustion of copyrights and trademarks is codified in the respective directives on

patented (but is *patentable*); (3) the EEA member state where the product is *not patentable*; or (4) outside of the EEA (by way of example, in the US).

³⁹² Merck v. Stephar.

³⁹³ Centrafarm v. Sterling Drug at 503-505. Norrgård at 93-94.

³⁹⁴ Enchelmaier at 419. See also Koktvedgaard at 355.

³⁹⁵ Norrgård at 95-96. Levin at 312. Mylly U-M 2012 at 384-385.

³⁹⁶ Deutsche Grammophon v. Metro SB-Grossmärkte at Paragraph 1 of the Ruling-Section. The court held that it would be in breach of the principle of free movement of goods, if a copyright holder would be allowed to prevent importation of copyrighted products into his own member state after the products were sold by the right holder or with her consent in another member state. See also Haarmann at 102.

³⁹⁷ Centrafarm v. Sterling Drug at 507. Kur & Dreir at 53.

the level of EU law.³⁹⁸ Unlike the European copyright and trademark exhaustion doctrines, the European patent exhaustion doctrine was for a long time governed merely by the case law of the CJEU without being codified in any statutory EU law. National patent laws of EU member states have been brought in line with the patent exhaustion doctrine established by the CJEU. Also the Patent Act of Finland has been amended to implement the principle of community wide exhaustion.³⁹⁹ Under the Patent Act of Finland, the exclusive rights of a patent holder do *not cover* exploitation of *a product protected by a patent*, which has been put on the market *within the EEA* by the patent holder or with his consent.⁴⁰⁰

Codification of the patent exhaustion doctrine in the EU law

When the UPC Agreement and the Unitary Patent Regulation become applicable, the European patent exhaustion doctrine will, for the first time, be governed by statutory EU law. Under the UPC Agreement, the *rights conferred by a European patent* shall not extend to *acts concerning a product covered by that patent* after the product has been placed on the market in the EU by, or with the consent of, the patent holder.⁴⁰¹ Further, under the Unitary Patent Regulation, *the rights conferred by a unitary patent* shall not extend to *acts concerning a product covered by that patent*, which are carried out within the participating member states in which the patent has unitary effect, after the product has been placed on the market in the EU by or with the consent of the patent holder.⁴⁰² Exhaustion of both European patents and unitary patents may be challenged by the

³⁹⁸ See for example Article 4(2) of the Software Directive as to exhaustion of software copyrights and Article 4(2) of the Information Society Directive as to copyright exhaustion of other works. As to trademark exhaustion of national trademarks, see Article 15 of the Trademark Directive and as to exhaustion EU trademarks, see Article 12 of the Trademark Regulation.

³⁹⁹ HE 215/1992. HE 225/2005. Koktvedgaard at 360-361. Norrgård at 93. Before Finland acceded to the EEA/EU, Finland adhered to the principle of *national exhaustion*. See e.g. HE 215/1992. Oesch, Pihlajamaa & Sunila at 49. Haarmann at 222. Haarmann & Mansala at 31. See also Domeij 2007 at 100-101.

⁴⁰⁰ §3.3(2) of the Patent Act of Finland. For comparison, see also §3.3(2) of the Patent Act of Sweden.

⁴⁰¹ Article 29 of the Agreement on Unified Patent Court.

⁴⁰² Article 6 of the Unitary Patent Regulation.

patent holder, if there are *legitimate grounds* to oppose further commercialization of the product.⁴⁰³

In order to bring the Patent Act of Finland in line with the exhaustion rule codified in the UPC Agreement, §3.3(2) of the Patent Act will be supplemented with a reference to patent holder's right to challenge exhaustion due to legitimate grounds, which right was earlier missing from the Patent Act.⁴⁰⁴ According to the legislative history, the purpose of the amendment is – without limiting the exhaustion of the exclusive right nor broadening the patent protection – to merely clarify that the patent holder may have a right to oppose wider commercialization of the product in accordance with the established case law of the CJEU. Such legitimate ground may include, for example, absence of a patent holder's consent with respect to importation of products originally put on the market under a compulsory license.⁴⁰⁵

While the wording of Article 29 of the UPC Agreement refers to exhaustion of rights in a European patent after the product covered by the European patent has been *placed on the market in the EU*, exhaustion of rights in European patents covers also EEA countries. Namely, under Protocol 28 of the EEA Agreement, EEA countries must follow the rules on exhaustion laid down by the EU law.⁴⁰⁶ To the contrary, first sale in the EU of a product covered by a unitary patent results in exhaustion of the unitary patent in the participating member states in which the patent has unitary effect.⁴⁰⁷

⁴⁰³ Article 29 of the Agreement on Unified Patent Court and Article 6 of the Unitary Patent Regulation.

⁴⁰⁴ HE 45/2015 at 51, 91 and 109. See also the Act on the Amendment of the Patent Act 23/2016. The revised §.3.3(2) of the Patent Act will enter into force under a decree to be issued by the Council of State. The intention is that the amendments to the Patent Act based on the Agreement on the Unified Patent Court will take effect simultaneously when the Agreement enters into force with respect to Finland.

⁴⁰⁵ HE 45/2015 at 93-94. Under *Pharmon v. Hoechst*, exhaustion is not triggered if the patented product is marketed in another member state under a *compulsory license*. Compulsory license does not amount to patent holder's consent allowing importation of the product subject to parallel patent in another member state even if the patent holder would have accepted royalties for use of the said patent under a compulsory license. See also Norrgård at 95 and Levin at 312.

⁴⁰⁶ Article 29 of the Agreement on Unified Patent Court. Under Article 2 of Protocol 28 of the Agreement on the European Economic Area ("EEA Agreement"), "To the extent that exhaustion is dealt with in Community measures or jurisprudence, the Contracting Parties shall provide for such exhaustion of intellectual property rights as laid down in Community law".

⁴⁰⁷ Article 6 of the Unitary Patent Regulation.

Patent exhaustion as the basis for parallel imports

Patent exhaustion is the basis for parallel imports in the EEA. If a patent holder (or another party under his consent) markets a product in the EEA member state where the product is *patentable*, exhaustion of patent rights in the sold product prevents the patent holder from later on objecting to importation of that product into any other member state within the EEA.⁴⁰⁸ This applies both with respect to products protected by a European patent and a national patent, but not with respect to products protected by unitary patent. The first sale in the EU of a product covered by a unitary patent prevents the patent holder from objecting the sale of the product within the participating member states.⁴⁰⁹ As the exhaustion of unitary patent does not cover the whole EEA, its territorial reach is narrower compared to European patents and national patents, but in line with the territorial scope of the protection conferred by a unitary patent. In terms of national patents, European patents and unitary patents, marketing of products by an unauthorized third party does not generally trigger exhaustion of patent rights in the sold products, and accordingly, the patent holder may object to parallel importation of those products also to other member states where the products are patented.

CJEU held in Merck v. Stephar that also if the patent holder puts, or authorizes another party to put the product on the market in a member state where the product is *not patentable*, the patent holder must accept consequences of the principle of free movement of goods within the internal markets. Therefore, the patent exhaustion doctrine prevents the patent holder from objecting to importation of the said product into a member state where the product is patented, even if the product originates from another member state, where the product is *not patentable*. Otherwise the patent holder could divide the markets in contradiction with the principle of internal markets under

⁴⁰⁸ The principle of community wide exhaustion applies *irrespective of* whether the products are actually *patented or not* (for example, because no patent protection was ever applied or granted for the invention embodied by the sold product, or alternatively, if the patent has expired or is invalidated) in the exporting member state. On the other hand, if *an unauthorized third party* markets the product in a member state where the product is patented, the said activity may constitute patent infringement, while the activity may be permitted if the products are *patentable but not patented* in the said member state. See also Domeij 2007 at 100.

⁴⁰⁹ Article 6 of the Unitary Patent Regulation.

the EU treaties.⁴¹⁰ Accordingly, if the product is marketed by a third party *without* the patent holder's *consent* in a member state where the product is *not patentable*, such a sale in the respective state does not necessarily amount to patent infringement, but the patent holder may object to importation of the product into a member state where it is subject to patent protection.⁴¹¹ Finally, when the product has been first put on the market outside of the EEA, for example in the US, the patent holder may object to importation of the product into a member state where the product is patented. Naturally, the patent holder cannot prevent importation of the product by third parties from outside of the EEA to a member state where the product is not patented.⁴¹² Patent holder of a unitary patent will be, for the first time, able to prevent importation of product covered by a unitary patent, to the whole territory of the participating member states.

The concept of patent holder's consent

Another important element of the European patent exhaustion doctrine is the patent holder's *consent* for marketing the product within the EU/EEA.⁴¹³ Exhaustion must be viewed from the perspective of sale by (1) the patent holder; (2) a third party with his consent; and/or (3) an unauthorized third party. CJEU ruled in Pharmon v. Hoechst that a patent holder cannot prevent importation of a product protected by parallel patents,

⁴¹⁰ Merck v. Stephar. Domeij 2007 at 100. Norrgård at 94. Kur & Dreir at 53. Raitio 2016 at 413-414.

⁴¹¹ Centrafarm v. Sterling Drug at 503-504 and 507. However, CJEU has held that placing a pharmaceutical product on market in *new a member state*, where the product was not patentable prior to the state's accession to EU, does necessarily prevent the patent holder from objecting to importation of the product into another member state where the product is patented. Otherwise the patent holder would be exposed to parallel imports from the new member state without having been able to protect and receive adequate compensation for the invention there. The purpose is to avoid creating a disincentive for the patent holder to market the product in the new member state. See Merck Canada Inc. v Sigma Pharmaceuticals PLC. (C-539/13) 2014 E.C.R. 00000. See also Domeij 2007 at 101.

⁴¹² Academics have debated on whether patent holder's authorization to sell the product outside of the EEA could trigger community wide exhaustion, if the said products were imported to a member state where the product is not patented. The said activity is, of course, legal, but may not permit importation of the products from the said member state to another member state, where the products are patented. While according to some views, failure to seek patent protection in each member state could constitute an implied consent to import the products from outside of the EEA, others think that this is too broad construction of the concept of consent, and would, effectively, mean adoption of the principle of *international exhaustion* of patent rights. However, *if the patent holder fails to object importation* of the products to a member state where the products are patented, this might be deemed as *implied consent* to put the products on the market in the respective EEA country, thereby exhausting the patent rights in the said products and triggering the community wide exhaustion. See Levin 312. Mylly 2001 at 41-43.

⁴¹³ Westkamp at 307-310. Levin at 312.

when the product has been lawfully marketed in another member state by (1) the patent holder; (2) a third party under the patent holder's consent; or (3) an entity, which is economically or legally dependent on the patent holder.⁴¹⁴ If the patent holder sells products within the EEA, the sale exhausts the patent rights in the sold product, irrespective of whether the product is first sold in a member state where the patented product is patentable or not.⁴¹⁵ Also the sale of products subject to patent protection within the EEA by an authorized licensee or distributor exhausts the patent rights in the product.⁴¹⁶ It was held in a trademark case Sebago that the consent must concern the particular goods put on the market.⁴¹⁷ If an authorized third party places the products in breach of essential term(s) of the applicable agreement, such as territorial or other important restrictions on the license grant, exhaustion may not occur.⁴¹⁸ Further, sale of products on the markets within the EEA by the patent holder's group company or otherwise legally and/or economically affiliated company may constitute consent of the patent holder required for exhaustion of the patent rights. However, purely internal sale of products within the group (and not on the free markets), does not amount to placing the products on the market in the EEA, and thus may not trigger exhaustion.⁴¹⁹

Further, CJEU has held in connection with joined cases concerning *Davidoff Cool Water* and *Levi's 501* trademarks that mere *silence* of the right holder is not sufficient to establish consent. Silence, at most, would trigger a *deemed acceptance*, which however, does not amount to a *positively expressed consent* required by CJEU. Implied consent can neither be inferred from (1) the fact that the right holder has not communicated to each subsequent purchaser of the product placed for sale outside of the EEA that it objects to importation of the product in the EEA; or (2) that the products did not carry any warnings; or (3) that the right holder transferred ownership of the products without any contractual reservations; nor (4) even from that fact that under the applicable law

⁴¹⁴ Pharmon v. Hoechst. Kur & Dreier at 54.

⁴¹⁵ This applies subject to, however, the limited exception concerning importation of pharmaceutical products from new member states.

⁴¹⁶ Centrafarm v. Sterling Drug at 480 and 503-505.

⁴¹⁷ Sebago v. GB-Unic SA (C-173/98) (Sebago).

⁴¹⁸ Mylly 2001 at 62.

⁴¹⁹ Centrafarm v. Sterling Drug at 505 and 507-508. Mylly 2001 at 62. Norrgård at 95.

governing the contract, transfer of property right carries, absent a reservation, the right to resell the product. Accordingly, broad construction of the concept of consent is not acceptable: the right holder's consent must be *express* and *explicit*: inferring mere implied consent is not sufficient to constitute consent for the purpose of exhaustion.⁴²⁰

Effects of patent exhaustion on the patent holder's exclusive rights

Patent exhaustion means effectively a limitation to the exclusive rights of a patent holder.⁴²¹ After the product has been released on the market within the EEA by the patent holder or a third party with his consent, the right holder can no longer prevent *importation* of the product into another member state.⁴²² Thus, parallel import within the whole EEA is permitted. Therefore, exhaustion doctrine is an important tool for enabling the free movement of goods within the EEA. The patent exhaustion doctrine has also an important role in balancing the interests of the patent holders and users alike. Without exhaustion of patent rights in the sold product, a purchaser of the product would not be entitled to use or resale the patented product without the patent holder's consent. CJEU confirmed in a trademark case, applicable by analogy also to exhaustion of patents, that exhaustion of rights occurs with respect to *the particular products* lawfully put on the market in the EEA. Due to exhaustion of patent rights in the sold product, the exclusive rights of a patent holder do no longer govern *use* of the product. Accordingly, purchaser of the product may *use*, *resell* and *import* the product freely within the EEA without separate consent of the patent holder. Patent exhaustion covers also *loan* and ordinary *repair* of the product, but probably not such extensive repair that would amount to making of a new product. The defendant that raises patent exhaustion as defense against an alleged infringement at court, has the burden of proof regarding the exhaustion.⁴²³

⁴²⁰ Zino Davidoff SA v. A & G Imports Ltd. and Levi Strauss Co. and Others v. Tesco Stores Ltd. and Others (C-414/99 to C-416/99) 2001 E.C.R. I-08691.

⁴²¹ Domeij 2007 at 100.

⁴²² Mylly 2001 at 32-33.

⁴²³ Haarmann at 221-222. Oesch, Pihlajamaa, *et. al.* at 49. Haarmann & Mansala at 31-32. Norrgård at 92-93. Bernitz, Karnell, *et. al.* at 196-197. Levin at 311-313. Domeij 2007 at 100. Mylly, U-M 2012 at 385-386. Sebago v. GB-Unic SA (C-173/98) (Sebago).

Under the UPC Agreement, the *rights conferred by a European patent* shall not extend to *acts concerning a product covered by that patent* after the product has been placed on the market in the EU by, or with the consent of, the patent holder.⁴²⁴ "*The acts concerning a product covered by that patent*" would effectively mean *any activities* pertaining to exploitation and commercialization of the particular product sold by or with the consent of the right holder in the EU and covered by the patent subject to exhaustion. "*The rights conferred by a European patent*" refer, in turn, to the exclusive rights of the patent holder, *i.e.* the rights to make, use, sell, offer for sale or import the patented product. However, as the permitted acts following exhaustion cover *only acts concerning the particular product* sold by or with the consent of the patent holder, making a new product or selling or offering for sale new products is not allowed either under Article 28 of the UPC Agreement, or under Article 9 of the Unitary Patent Regulation, for that matter.

According to Mylly, the scope of exhaustion is wider under the patent exhaustion principles as opposed to the exhaustion of distribution right under the Software Directive (discussed below), because the patent exhaustion covers *any acts* concerning the sold product covered by the patent whereas the Software Directive governs only *distribution* of the copyrighted program while certain other acts, such as reverse engineering, are subject to other specific exceptions under the Software Directive.⁴²⁵ However, this perspective does not take into account, that as opposed to patents, copyright does not govern *use* of the copyrighted work (in terms of computer programs: apart from its copying, modification, and/or distribution). As exhaustion may only cover acts which, absent exhaustion, were within the exclusive rights of the right holder, the scope of patent exhaustion is, because of the different scope of exclusive rights, inherently different from the scope of copyright exhaustion. However, the aim of both patent and copyright exhaustion principles is, with respect to computer programs, to provide the purchaser with a right to freely use and resale the specific copy, but not the rights to reproduce (subject to limited exceptions under the statutory and case law)

⁴²⁴ Article 29 of the Agreement on Unified Patent Court.

⁴²⁵ Mylly, U-M 2012 at 386.

and/or make new articles of the product in violation of the right holder's exclusive rights.

Exhaustion of patents in computer programs under the EU law

Exhaustion of patent(s) in copies of computer programs embodying computer implemented invention(s) are subject to the general rules on patent exhaustion established by the case law of the CJEU. Further, exhaustion of European patents and unitary patents in computer implemented inventions will be governed by the UPC Agreement and the Unitary Patent Regulation, once they have entered into force. National patents, including Finnish patents, in computer implemented invention(s) continue to be governed by the national patent acts, including the Patent Act of Finland, which must be brought in line with the new exhaustion rules of the statutory EU law.

Apart from the very generic principles of patent exhaustion, the case law of the CJEU and the statutory EU law (or the Patent Act of Finland, for that matter) do not provide further guidance on exhaustion of patents in computer programs. In light of the general principles of the European patent exhaustion doctrine, it may be concluded, however, that the exclusive rights under a European (software) patent do not extend to acts concerning the (software) product covered by the (software) patent after the (software) product has been placed on the market in the EU/EEA by or with the consent of the patent holder.⁴²⁶ Further, after the Unitary Patent Regulation enters into force, the rights conferred by a unitary (software) patent shall not extend to acts concerning the (software) product covered by the unitary (software) patent, which are carried out within the participating member states in which the patent has unitary effect, after the (software) product has been placed on the market in the EU by or with the consent of the patent holder.⁴²⁷ Finally, with respect to national Finnish patents, the exclusive rights of a patent holder do not cover exploitation of a (software) product protected by a

⁴²⁶ Article 29 of the Agreement on Unified Patent Court.

⁴²⁷ Article 6 of the Unitary Patent Regulation.

(software) patent, which has been put on the market within the EEA by the patent holder or with his consent.⁴²⁸

While the above general rules on patent exhaustion appear simply to apply, they may leave several open questions with respect to application of the patent exhaustion rules in context of computer programs. For example, patented computer implemented inventions may include method claims, device claims, computer program product claims and/or computer readable (storage) medium/data carrier claims.⁴²⁹ However, there is no clear guidance under statutory or case law of the EU on the exhaustion of various types of patents and/or patent claims in computer programs embodying CII inventions. Further, traditionally exhaustion of patents has been considered to govern physical products while computer programs may, under certain conditions, be patented as standalone inventions without being embedded in any physical device or data carrier. Finally, computer programs are often marketed online and put on the market in digital form before their download onto any computer, tablet, cell phone or other hardware. Also resale of used software licenses commonly occurs in online context. The question follows whether exhaustion of patents in digital goods marketed online makes any difference from the perspective of patent exhaustion. However, the law is not yet fully settled on how the patent exhaustion doctrine should be applied in the context of digital goods.

Exhaustion of copyrights in computer programs under EU law

In the absence of specific CJEU case law on exhaustion of patents in computer implemented inventions, it is worth taking a look at the statutory EU law as well as case law of CJEU on exhaustion of copyrights in computer programs. Also other scholars have been of the opinion that interpretation of the harmonized exhaustion principles governing different fields of IPRs, and specifically the Software Directive in terms of computer programs, may give guidance on analysis of the patent exhaustion doctrine.⁴³⁰

⁴²⁸ §3.3(2) of the Patent Act of Finland. For comparison, see also §3.3(2) of the Patent Act of Sweden.

⁴²⁹ EPO Guidelines, Part G, Section 3.9 (Programs for Computers).

⁴³⁰ Mylly, U-M 2012 at 385-386.

Exhaustion of *copyrights* in computer programs is governed by the Software Directive. Under the Software Directive, the *first sale* in the Community of a copy of a program by the right holder or with his consent will *exhaust* the *distribution right* within the Community with the exception of the right to control further rental of the program or a copy thereof. Rental means, under the Software Directive, making available for use, for a limited period of time and for profit making purposes, of a computer program or a copy thereof.⁴³¹ As shortly introduced in Section 2.1.2 (Software Copyrights in Europe), the Copyright Act of Finland implements the principle of community wide exhaustion.⁴³² According to the Finnish Copyright Act, when *a copy* of the work has been *sold* or *otherwise permanently transferred* with the consent of the author within the EEA, the copy may be further distributed. However, the foregoing does not apply to making computer program available to public by rental or other comparable legal transaction.⁴³³ Accordingly, exhaustion is triggered by *sale* or *other permanent transfer* such as a gift or other lawful transfer of title in the copy. However, the (old) legislative history provides that software license does not result in exhaustion of copyrights in the copy of the program. Further, scholars have argued that copyright exhaustion does not apply to materials made available on the Internet, as no physical copies of works are involved in such distribution.⁴³⁴

CJEU gave a long awaited ruling clarifying the copyright exhaustion doctrine in context of computer programs and online distribution in UsedSoft v. Oracle. First, CJEU held that *the concept of sale* must be interpreted in a uniform manner for the purpose of exhaustion in order to avoid conferring right holders different protection under different national laws. CJEU stated that a "sale" is an agreement by which a person, in return for payment, transfers to another person the right of ownership in an item of tangible or intangible property. Therefore, exhaustion of the distribution right under Article 4(2) of the Software Directive requires transfer of the ownership right in the copy of a computer

⁴³¹ Article 4(2) and Section 12 of the Recitals of the Software Directive.

⁴³² HE 29/2004.

⁴³³ §19.1 and §19.3 of the Copyright Act of Finland (446/1995). See also §19 of the Copyright Act of Sweden.

⁴³⁴ HE 211/1992. Haarmann at 99-100. Levin at 143-144. Mylly, U-M 2012 at 387.

program. CJEU concurred with the Opinion of the Advocate General in that the term "sale" should be given a *broad interpretation* in order to prevent right holders from circumventing exhaustion by naming the agreement as a "license" instead of a "sale". According to CJEU, *a sale of a copy of a computer program* is constituted by *any form of product marketing* characterized by the grant of a right to use the copy of a computer program *for an unlimited period* in return for *payment of a fee* designed to enable the right holder to obtain a remuneration *corresponding to the economic value of the copy*. Second, CJEU held that exhaustion of the distribution right under Article 4(2) of the Software Directive covers both *tangible and intangible* copies of computer programs. The right to distribute a copy of a computer program is exhausted also when the right holder authorized, *even free of charge*, downloading of the copy from the Internet to a data carrier and granted a right to use the copy for an unlimited period of time against a lump sum payment. As the right holder's distribution right is exhausted under Article 4(2) of the Software Directive in connection with the *first sale* of the copy (whether tangible or intangible) of the computer program in the EEA by the right holder or with his consent, the right holder *may no longer oppose the resale* of the copy *even if* the license agreement *prohibited transfer* of the copy.⁴³⁵ Third, as the right holder cannot object to the resale of the copy for which the distribution right is exhausted, the second acquirer and any subsequent acquirers are considered as "lawful acquirers" under Article 5(1) of the Software Directive. Therefore, also any subsequent acquirer is entitled to rely on the exhaustion of the distribution right and thus download on his computer the copy resold by the first acquirer: the said downloading constitutes (*lawful reproduction*) of a computer program necessary to enable the subsequent acquirer to use the program in accordance with its intended purpose under Article 5(1) of the Software Directive. The first acquirer who resells a tangible or intangible copy of a computer program must, however, make his copy unusable at the time of its resale in order to

⁴³⁵ While such a resale does not, due to exhaustion, result in copyright infringement, it may, however, amount to breach of contract (i.e. violation of the applicable software license terms). See also Mylly, U-M 2012 at 389.

avoid infringing the right holder's exclusive reproduction right under Article 4(1)(a) of the Software Directive.⁴³⁶

The holding of CJEU in UsedSoft v. Oracle means, in practice, that certain forms of *perpetual software licenses* may meet the elements of sale, triggering exhaustion of the copyright holder's distribution right in the licensed copy. CJEU treated downloading of an intangible (digital) copy of a computer program from the Internet in the same manner as sale of a tangible copy of a computer program (such as a CD-ROM).⁴³⁷ Therefore, copyright holder's distribution right is exhausted upon the first sale in the EEA by the right holder or with his consent of any copy of a computer program, whether in tangible or intangible form. The original acquirer may resell the copy on the condition that he makes his own copy downloaded on the computer unusable at the time of its resale. The subsequent acquirer may download the copy on his or her computer in reliance on the exhaustion of the distribution right, and thus benefit as a lawful acquirer from the reproduction right under Article 5(1) of the Software Directive. The right holder's *exclusive reproduction right* based on Article 4(1)(a) of the Software Directive *does not*, of course, *get exhausted*, as the first sale *only* results in, under Article 4(2) of the Software Directive, *exhaustion of the distribution right*. Accordingly, the first acquirer must make his copy unusable at the time of its resale in order not to infringe the right holder's exclusive reproduction right. Further, the right to reproduce the program by the subsequent acquirer is neither based on exhaustion of the reproduction right but on the right to perform as a lawful acquirer any acts required for use of the program in accordance with its intended purpose.⁴³⁸ CJEU thus deviated from the Opinion of the Advocate General Bot, who argued that reproduction of the copy should not be

⁴³⁶ Paragraphs 41-42, 49, 59, 70, 72, 77, and 88 of the ruling in UsedSoft GmbH v. Oracle International Corp. (C-128/11) 2012 E.C.R. 0000. (UsedSoft v. Oracle). See also Paragraphs 59, 84 and 101 of the Opinion of the Advocate General in case C-128-11).

⁴³⁷ Raitio 2016 at 411.

⁴³⁸ According to Levin, the reproduction right does never get exhausted. See Levin at 144. Also Mylly states that in terms of computer programs, only the distribution right is subject to exhaustion under Article 4(2) of the Software Directive. See Mylly, U-M 2012 at 386. See also Riis at 148-149 and Riis, Schovsbo, *et. al.* at 462, 470-472 and Lindskoug at 485-486.

permitted and thus, online redistribution of the copy nor downloading the copy to an additional media by subsequent acquirer(s) would not be allowed.⁴³⁹

CJEU gave recently also another ruling in Ranks v. Microsoft concerning the exhaustion of distribution right in computer programs. The defendants were charged with the unlawful sale on the Internet of (tangible) copies of computer programs stored on non-original material medium such as disks. The defendant argued as their defense that the sold programs stored on non-original material medium were back-up copies of the computer programs. However, CJEU held that an acquirer of a copy of a computer program is not entitled to resell *a back-up copy* of the program without the copyright holder's authorization. This applies even where the original material medium of the copy has been damaged, destroyed or lost. CJEU noted that the lawful acquirer of a copy of a computer program has the right to resell the program due to exhaustion of the distribution right on the condition that the sale does not violate the copyright holder's exclusive reproduction right. The exclusive reproduction right is not violated if the reproduction of the program is authorized by the copyright holder or covered by the exceptions of the Software Directive. Article 5(2) of the Software Directive provides that a back-up copy may be made only by a lawful acquirer if it is necessary for the use of the program. According to CJEU, the exception to the copyright holder's exclusive reproduction right should be interpreted strictly. As a back-up copy may be used only to meet the needs of the person having the right to use the program, CJEU held that the person cannot resell his back-up copy to a third party without the authorization of the right holder, even if the original material medium has been damaged, destroyed or lost.⁴⁴⁰

Since the decision in Ranks v. Microsoft concerned the sale of copies stored on non-original material medium, its scope is more limited compared to the sale of digital copies of computer programs. While the outcome of the case is clear in the sense that back-up copies of computer programs may not be resold (without a separate authorization of the right holder), the ruling may result in practical challenges: it may be

⁴³⁹ Opinion of the Advocate General in case C-128/11.

⁴⁴⁰ Ranks v. Microsoft (C-166/15) (Ranks v. Microsoft).

impossible for a user to determine in practice whether a copy downloaded on the Internet is an authorized, digital copy in which the distribution right had exhausted or whether the copy is a back-up copy which is not subject to exhaustion. As the defendant accused of copyright infringement (and/or patent infringement) must be able to show the elements of exhaustion, including the authorized origin of the program, this unclarity is an additional challenge to overcome in the defense.

Answers to the question of whether online distribution should trigger copyright exhaustion tended to turn negative in Europe before the ruling of CJEU in UsedSoft v. Oracle. Many national courts of the EU held that in order to trigger exhaustion, the copy of a computer program should be embodied in tangible data storage.⁴⁴¹ The erroneous application of the first sale doctrine by various national courts is understandable as both the Recitals of the Information Society Directive as well as the European Commission may have guided the analysis to reject exhaustion in online context. Namely, the European Commission specifically noted in its Report on the implementation of the first software directive, expressly codified by the current directive, that "under the (Software) Directive, exhaustion applies only to the sale of copies, *i.e. goods*, whereas supply through on-line services does not entail exhaustion."⁴⁴²

The decision of CJEU, effectively, breaks in Europe the theory "*licensed, not sold*" raised by many software vendors, resulting in that most mass market software is actually sold, not licensed, irrespective of what the terms are called. Interestingly, not only Oracle, but also the governments of several EU member states strongly opposed the adoption of the online exhaustion rule, arguing that it would discourage innovation and adversely affect the copyright holders, compromising the whole protection of software under the EU law.⁴⁴³ Despite the concerns, national courts of the EU member states must now interpret the Software Directive in a uniform manner in accordance with the holding of CJEU. However, while the ruling of CJEU essentially widens the

⁴⁴¹ KKO 2003:88. Guibault & van Daalen at 115-116.

⁴⁴² Report from the Commission to the Council, the European Parliament and the Economic and Social Committee on the implementation and effects of Directive 91/250/EEC on the legal protection of computer programs, COM (2000)199 final at 17.

⁴⁴³ Opinion of the Advocate General in case C-128/11 at Paragraphs 38-41.

scope of sold software, it does not take all control away from copyright holders: distribution right of software licensed for a limited period of time, or *cloud* provided with users as *software as a service* is not subject to exhaustion even under the European doctrine.

Around a decade before the decision by CJEU in UsedSoft v. Oracle, the Supreme Court of Finland ruled on the boundaries of *sale and license* under the laws of Finland in a case concerning exhaustion of copyrights in copies of computer programs. The Supreme Court affirmed the Court of Appeals' holding that sale, *i.e.* transfer of ownership in the copy of a computer program is constituted by (1) *permanent transfer*; (2) of a copy of computer program embodied on a *fixed medium*; (3) against a *lump sum* fee.⁴⁴⁴ Therefore, under case law of both CJEU and the Supreme Court of Finland, it is clear that also a software license may constitute transfer of ownership in a copy of the computer program, contrary to the old legislative history of the Copyright Act of Finland. However, CJEU, unlike the Supreme Court of Finland, ruled that a copy of the computer program does not have to be on a fixed medium in order to trigger exhaustion: also downloading the copy from the Internet may trigger exhaustion of the distribution right in the copy according to CJEU.⁴⁴⁵

As the decision of CJEU takes precedence over the Supreme Court of Finland in interpretation of EU law, the ruling in UsedSoft v. Oracle will be decisive for interpretation of national copyright laws implementing the Software Directive. While the Software Directive does not specifically concern exhaustion of software

⁴⁴⁴ KKO 2003:88. See also Harenko at 637-638, Rognstad at 628-630 and Mylly, U-M 2012 at 389.

⁴⁴⁵ Note, however, that the legal position on exhaustion of copyrights in the digital context is not yet fully settled in the EU law. Under Recital 29 of the Information Society Directive, the question of exhaustion does not arise in the case of online services and with respect to material copies of a work made by a user of the service with the consent of the right holder. Further, as opposed copies incorporated in a material medium, *i.e.* an item of goods, online service is deemed as an act subject to copyright holder's authorization. See *e.g.* Raitio 2016 at 411, Rognstad at 630, Günther at 216-222 and Mylly, U-M at 387-388. CJEU held in Nintendo that videogames are not governed by the Software Directive, but the Information Society Directive. The Software Directive applies only to computer programs, whereas videogames include also graphic and sound elements, which may, if the originality threshold is met, be protected as a whole by copyright under the Information Society Directive. See Nintendo Co. Ltd. and Others v. PC Box Srl and Others (C-355/12) at Paragraph 23. (Nintendo). As CJEU has not yet given any ruling on exhaustion of copyrights in digital context under the Information Society Directive, it is, therefore, unclear whether the distribution right of other works such as video games or music files is exhausted in digital context.

patents, but merely exhaustion of software copyrights in computer programs, the holding by CJEU defines the boundaries between a license (periodic license subject to royalties or other payment instalments) and a sale (perpetual right subject to reward covering the whole value of the copy). Thus, the ruling of CJEU in UsedSoft v. Oracle may give some guidance on what elements must be met in order for a software license to be deemed as a sale for the purpose of evaluating exhaustion of not only software copyrights, but also software patents in the absence of specific rulings of CJEU on this point in context of patents. Also other scholars, such as Mylly, have been of the opinion that the interpretation of CJEU on exhaustion of copyrights in UsedSoft v. Oracle could be applied analogically to exhaustion of patents in computer programs.⁴⁴⁶

Additional considerations on the exhaustion of patents in computer programs

It is clear that the ruling of CJEU in UsedSoft v. Oracle concerned only exhaustion of the distribution right in a copy of a computer program under the Software Directive, which under Recital 11 of the directive, governs only copyrights and not (possibly patentable) ideas or principles underlying the computer program. CJEU has not to date given a ruling on application of the general principles of patent exhaustion to computer implemented inventions in connection with computer programs. It is not known whether the CJEU would end up with the same conclusion as with respect to exhaustion of copyrights in digital context – arguments may be found both in favor of and against such a conclusion in context of patent exhaustion. However, the fact that exhaustion of patent rights in computer programs is not governed by any specific secondary source of EU law such as the Software Directive governing exhaustion of copyrights, does not prevent an informed decision to observe exhaustion of patents in computer programs in light of the CJEU ruling in UsedSoft v. Oracle concerning exhaustion of copyrights (bearing in mind the different contexts).

The independence of the essential concept from any EU law – the concept of sale – speaks in favor of the comparison: construction of the *concept of sale*, relevant for *both* copyright *and* patent exhaustion in connection with sale of software, was not

⁴⁴⁶ Mylly, U-M 2012 at 389.

based by CJEU on the interpretation of any secondary source of EU law: the Software Directive does *not* define the concept of sale and does not refer to any national laws regarding the concept of sale. Therefore, CJEU specifically based its construction of the concept of sale on the "*commonly accepted definition*" under which "*sale*" means an agreement by which a person, in return for payment, *transfers* to another person his *rights of ownership* in an item of tangible or intangible property. According to CJEU, the term sale should be – at least for the purpose of applying the Software Directive – considered *an autonomous and independent concept of EU law* interpreted in a uniform manner within the EU in order to promote functioning of the internal market.⁴⁴⁷ Therefore, the construction of the concept of sale by CJEU in UsedSoft v. Oracle may (in the absence of specific counter arguments) be used as guidance for analysis of exhaustion of patents in connection with sale of copies of computer programs. Also other scholars have argued that the interpretation of CJEU on exhaustion of copyrights in UsedSoft v. Oracle could be applied analogically to exhaustion of patents in computer programs.⁴⁴⁸

Perhaps due to scarcity of specific CJEU case law and/or complexity of the matter, there appears to be surprisingly little academic discussion on the exhaustion of patents in computer programs, especially in the digital context. However, one of the recent Nordic studies argues that on the condition that a computer program is (1) *protected* by a copyright and/or a patent; *and* (2) the computer program is sold on a CD rom and/or through download; *and* (3) the ownership is transferred to the buyer in connection with the sale, the exhaustion principle applies and results in exhaustion of copyrights *and* patents in (the copy of) the computer program. According to the study, after exhaustion of the rights, the buyer may freely transfer (the copy of) the computer program without the consent of the software vendor. On the other hand, if the computer program is not protected by copyright and/or patent and/or no ownership is transferred in the program to the buyer, exhaustion does not

⁴⁴⁷ Paragraph 39-41 in UsedSoft v. Oracle.

⁴⁴⁸ Mylly, U-M 2012 at 389.

apply. Absent exhaustion, the buyer cannot under copyright and/or patent law transfer the program to a third party without the prior consent of the software vendor.⁴⁴⁹ While the foregoing three-fold process appears logical, it may give overly simplified perspective to exhaustion of copyrights and patents in copies of computer programs without addressing detailed grounds under case and/or statutory law for the outcome of the analysis. While both CJEU and national courts might, according to scholars and practicing attorneys, apply the ruling in UsedSoft v. Oracle to exhaustion of patents in copies of computer programs, the details of the general principles of patent exhaustion must be taken into account in the analysis.⁴⁵⁰ Therefore, more detailed observations are in order.

Firstly, exhaustion of copyrights and/or patents in a copy of computer program requires, in the first place, that the product, *i.e. a copy* of a computer program is protected by copyright(s) and/or patent(s). Computer programs may be eligible for patent protection as CII inventions in Europe in case they (1) provide a further technical effect; and meet the general requirements of patentability, *i.e. are* (2) susceptible of industrial use; (3) novel and (4) inventive.⁴⁵¹ The exact standard of patentability of computer programs evolves over time based on EPO's praxis as discussed above in Section 2.2.2 (Software Patents in Europe). Therefore, in order to analyze exhaustion of patent(s) in a copy of a computer program, the program must have met the requirements for patentability and the inventor and/or other right holder must actually have been granted patent(s) in the computer program. Further, the defense of exhaustion is not relevant unless the patent covering the product is held valid and enforceable, if the defendant contests the liability for patent infringement also by disputing the validity and/or enforceability of the patent.

Obtaining patent protection for a computer program is essentially harder compared to copyright protection, which subsists with the author automatically (and for free,

⁴⁴⁹ Larsen at 264-265.

⁴⁵⁰ Mylly, U-M 2012. Kamlah & Hülsewig.

⁴⁵¹ The recent study does refer to inventiveness as a preconditions for patentability of computer programs, but does not discuss the other requirements in light of CII inventions and EPO praxis. See Larsen at 264.

effectively for the whole life time of the computer program) upon creation of the work without any application process. A crucial difference in obtaining various forms of protection for computer programs is that the threshold of copyright protection for computer programs as literary works is rather low and mainly requires that the program is an independent and original work of the author as discussed above in Section 2.1.2 (Software Copyrights in Europe), while computer programs are not eligible for patent protection "as such" without meeting the requirement of further technical effect. As a consequence, computer programs are less often protected by patents compared copyrights, which is the primary protection model of computer programs. Thus, the question of patent exhaustion in computer programs may be less relevant than the question of copyright exhaustion.

Secondly, in case of sale of software, the software vendor does not always own both copyrights *and* patents in the computer program. However, exhaustion of both the distribution right and patent rights in a copy of a computer program requires that both the copyright holder and the patent holder have given their consent for sale of the particular copy of the program. If the copyright holder does not own the relevant patents and the program is subject to third party patents, sale of software by the copyright holder and/or with his consent may result in exhaustion of the distribution right in the sold copies. However, use of the copies of the computer program may still be subject to restrictions due to third party patents if the copyright holder had not acquired patent licenses for the benefit of the downstream users.

Third, exhaustion never concerns copyrights and/or patents in the *computer program* (as misleadingly referred to in the study), but *a copy* of the computer program sold by or with the consent of the right holder(s). If no copy of the program is distributed to the buyer or other service recipient, such as in case of cloud services, there is clearly no exhaustion involved as the doctrine does not apply. However, the key question is whether patent exhaustion applies to *digital copies* of computer programs (and other digital works, for that matter). Namely, it has been argued in older academic literature that patent exhaustion would only

concern *physical objects* of patented products.⁴⁵² Scholars have to date remained confused whether patent exhaustion applies to computer programs distributed in electronic form.⁴⁵³ However, at least post UsedSoft v. Oracle, it is clear that sale of software, whether in tangible form or through download, results in copyright exhaustion of the distribution right on the condition that the sale of software involves a transfer of ownership.⁴⁵⁴ Whether a copy of a computer program is distributed in tangible or intangible form should *not* be crucial from the perspective of patent exhaustion except for the purpose of evaluating whether the product subject to sale is actually covered by patent rights allegedly exhausted and whether the patent holder's exclusive right to make new products embodying the patented invention is infringed. It should be noted that a patent does not provide its holder with an exclusive right to distribute the patented article unlike copyright, which provides the copyright holder with an exclusive right to control distribution of copies of the work. From patent perspective, distribution of the copy as such (apart from use, sale and/or importation) should not be relevant after the right to resell is exhausted based on the sale of software by the patent holder or with his consent. Therefore, in context of exhaustion, the *form* of a copy of a computer program should mainly be relevant for the question on whether the copy (*i.e.* the product) is "covered" by the patent and whether the said product was released on the market with the patent holder's consent. The UPC Agreement does neither make a distinction between physical and digital products. It merely refers to "*a product covered by that (European) patent*". This implies that irrespective of the form of the software product, whether in tangible (goods) or intangible form (digital copy), the software product covered by a European patent is subject to exhaustion after the product has been placed on the market in the EU by or with the consent of the patent holder. This interpretation would also be in line with the ruling of CJEU in UsedSoft v. Oracle regarding exhaustion of the distribution right in a copy of a computer program.

⁴⁵² Norrgård at 94. Mylly, U-M 2012 at 387.

⁴⁵³ Mylly, U-M 2012 at 387.

⁴⁵⁴ Larsen at 265.

On the other hand, arguments may also be found against exhaustion of patents in copies of computer programs in digital form: namely, even if it would be held that patent(s) in a copy of a computer program downloaded in digital form with the consent of the patent holder are exhausted, the question that follows is whether the particular copy may be resold by the buyer and transmitted in digital form to the subsequent, downstream buyer. CJEU held in copyright context that even if such transmission necessarily involves reproduction of the program, such reproduction is allowed under the specific exception of the Software Directive, *i.e.* Article 5(1). According to CJEU, any subsequent acquirer is entitled to rely on the exhaustion of the distribution right and thus download on his computer the copy resold by the first acquirer: the said downloading constitutes (*lawful*) *reproduction* of a computer program necessary to enable the subsequent acquirer to use the program in accordance with its intended purpose under Article 5(1) of the Software Directive. The first acquirer who resells a tangible or intangible copy of a computer program must, however, make his copy unusable at the time of its resale in order to avoid infringing the right holder's exclusive reproduction right under Article 4(1)(a) of the Software Directive. Nevertheless, it should be noted that there is no similar excuse clause in statutory patent law on the national and/or the EU level. Considering that digital distribution would always result in production of new copies of the program, CJEU might end up rejecting the digital first sale doctrine with regard to exhaustion of patents: there are no statutory grounds for (the exhaustion of the) the right to make new copies, which is one of the exclusive rights of the patent holder. According to the traditional doctrine, patent exhaustion only concerns rights to use, (re)sell and import the patented product, but not the right to make new copies of the patented product. This type of conclusion would be similar to the reasoning of the Advocate General, which was of the opinion (later rejected by CJEU) that reproduction of (*i.e.* making) new copies would not be allowed and therefore the copy of the program downloaded by the first lawful acquirer could not be transmitted online to the subsequent acquirer.⁴⁵⁵ Therefore, one possible interpretation could be that patent rights even in a digital copy of the computer program

⁴⁵⁵ Opinion of the Advocate General Bot delivered on 24 April 2012 (Opinion of the Advocate General in case C-128/11).

are exhausted upon sale of the copy of the program (meeting the elements of sale of software by CJEU in UsedSoft v. Oracle), but the said copy may not be resold only on the storage media or other device on which it was downloaded by the first lawful acquirer and not distributed in digital form, as the related reproduction of the program would infringe the exclusive rights of the patent holder to make new copies of the patented program. Nevertheless, even this reasoning could be rejected under the established patent exhaustion doctrine of CJEU. Namely, CJEU specifically justified in UsedSoft v. Oracle the exhaustion of the distribution right in digital context by stating that *in order to avoid division of markets*, restrictions on distribution of works must be limited to what is necessary to safeguard the *specific subject matter* of the IPRs concerned. This principle applies also in terms of patents, the specific subject matter of which covers, under Centrafarm v. Sterling Drug, the exclusive rights to *manufacture* and to *first put into circulation of industrial products*.⁴⁵⁶ Accordingly, rejecting the buyer's right to transfer the copy of the computer program embodying a patented computer implemented invention after the first sale of the copy, could violate the fundamental principles of the free movement of goods in the internal markets. Thus, the principle of equal treatment (as acknowledged by CJEU in UsedSoft v. Oracle by holding online transmission method as the functional equivalent of the supply of a material medium), the specific subject matter doctrine as well as the principle of free movement of goods all strongly support the digital exhaustion doctrine also in context of patents.

Fourth, as patent exhaustion requires that the product subject to analysis is actually "covered by a patent", one cannot thoroughly analyze patent exhaustion without taking a look at *the patent relevant for the sold product* and subject to alleged exhaustion. By way of example, exhaustion of a European (CII and/or software) patent will be governed by Article 29 of the UPC Agreement, which provides that *"the rights conferred by a European patent shall not extend to acts concerning a product covered by that patent after the product has been placed on the market in the EU"*. In case of computer programs, "the product" would mean a *copy* of a computer

⁴⁵⁶ Centrafarm v. Sterling Drug at 503-505. Norrgård at 93-94.

program either as (1) a standalone program (in digital form); (2) stored on a physical medium (such as a disk); and/or (3) embedded in a device (such as a mobile device, car, or any apparatus whatsoever). Further "product covered by that patent" would mean the particular copy of the program released on the market as a standalone product or embedded into a storage media or a device, which infringes the patent claims of the respective patent(s). As the scope of the patent would include a computer implemented invention (CII), the patent claims may include method claims, device claims, computer program product claims and/or computer readable (storage) medium/data carrier claims.⁴⁵⁷ Depending on the scope of the patent claims, a copy of a computer program may not alone implement the patent claims of the respective patent without the presence of a device if, for example, the claims include method claims, device claims and/or medium claims and not only computer program product claims infringed by the copy of computer program. It has been argued that there is no established doctrine for exhaustion of process or method claims in Europe. The traditional reasoning has been that a process or method cannot be put on the market. However, this perspective does not take into consideration that a product implementing the patented process may be released on the market.⁴⁵⁸ The exhaustion provisions of the UPC Agreement and the Unitary Patent Regulation do not make any difference between exhaustion of various types of claims, but merely require that the sold product is "covered by that patent". Therefore, an alternative interpretation is that if the general conditions of patent exhaustion are met, *any patent* covered and infringed by the sold product is exhausted irrespective of what claims the patent consists of. This would apply also if the software product uses the patented method or process.⁴⁵⁹

If, on the other hand, only some, but not (*e.g.* essential features of and/or substantially) all claims of the patent are infringed by the sold copy of the program, it may be unclear, whether the sale of the copy of a computer program actually results in exhaustion of the patent relevant for the computer program. For example, if the patent claims cover standard hardware components (such as central process unit, random access memory,

⁴⁵⁷ EPO Guidelines, Part G, Section 3.9 (Programs for Computers).

⁴⁵⁸ Kamlah & Hülsewig. Mylly, U-M 2012 at 386-387.

⁴⁵⁹ Mylly, U-M 2012 at 387.

keyboard or monitor) with program implemented inventive functionality, sale of a mere copy of the program does not necessarily result in exhaustion of the patent if the hardware components are acquired from other sources than the patent holder or its licensee that also sold the software components (or vice versa). In such a case, installing a lawful copy of the patented computer program on the hardware (acquired from an unauthorized seller) may result in patent infringement as the combination would meet all the features of the patented CII invention. It has been argued that under German case law, exhaustion of patents does not occur if the hardware components of the device claims are not purchased or licensed from the patent holder – which often is the case in IT industry, where multi sourcing is the prevailing practice.⁴⁶⁰

Outcome of the analysis may therefore depend on whether the copy of the program is sold as a standalone program or embedded into a storage medium or a device. This also results in the question whether exhaustion occurs on the level of patents or patent claims. CJEU has not to date examined the question. If the sold product is not covered by (the essential features of) the patent, there should be no (direct) infringement either. However, the elements of (indirect) patent infringement may be met *e.g.* in case of cross-border supply of components. A German court found that in cross-border cases, a supplier established abroad is responsible for the infringement of national patent if it provides the infringing devices with knowledge of the patent and the country of destination, thereby intentionally contributing to the domestic distribution of infringing goods. As the end users exploited the features of the patented (video decoding) software on the imported devices without authorization of the patent holder, the activity was held infringing. The court found that exhaustion of a process patent does not occur upon (unauthorized) sale of a device, by means of which the (patented) process can be carried out. Also the defendants' defense of implied patent license failed.⁴⁶¹ Finally, if the

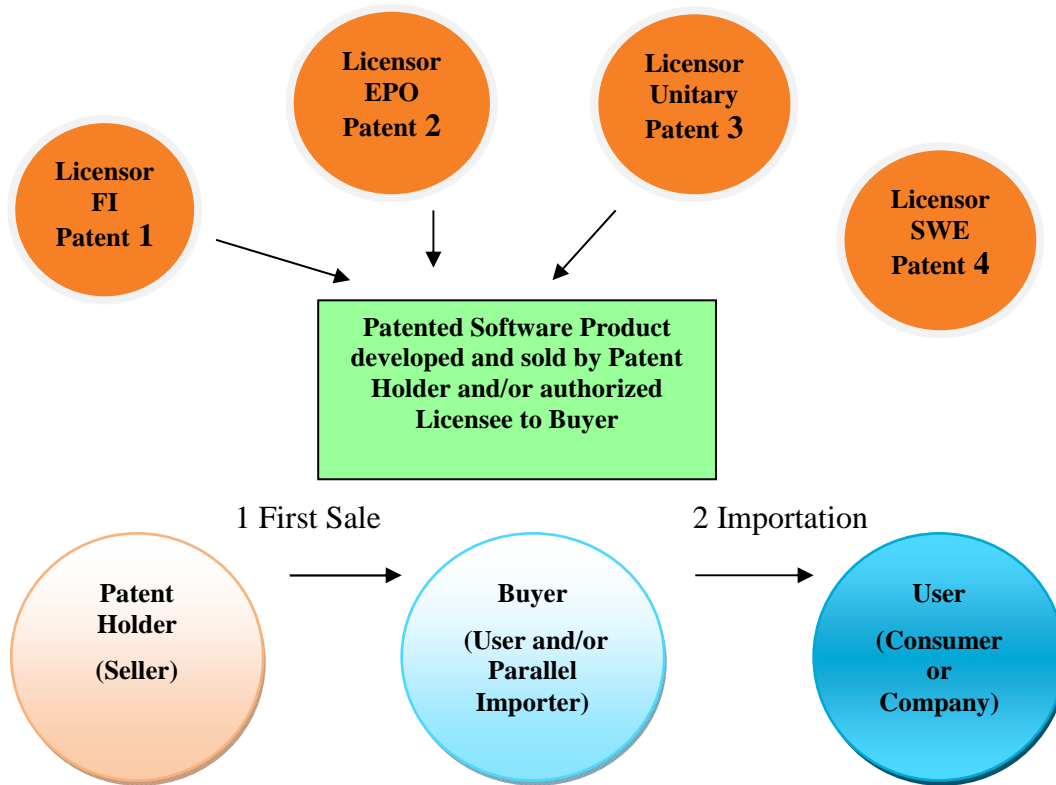
⁴⁶⁰ Kamlah & Hülsewig. See *e.g.* Karlsruhe Court of Appeals, OLG Karlsruhe [Court of Appeals] May 8, 2013, 6 U 34/12 (Ger.).

⁴⁶¹ Karlsruhe Court of Appeals, OLG Karlsruhe [Court of Appeals] May 8, 2013, 6 U 34/12 (Ger.) The German court held that both the offering and delivery of the means by the third party (the indirect infringer) as well as the use by the recipient must take place in Germany. However, it is acknowledged as sufficient that the person accused of indirect infringement is aware of the domestic patent and the final destination of the sold devices, thus deliberately contributed to the delivery in Germany, without disposing of the devices in Germany.

product is covered by a patent as standalone and/or in combination with other component such as hardware and thus (direct and/or indirect) patent infringement is found absent exhaustion, the critical elements of exhaustion, including consent of the patent holder(s), must be present. Otherwise, the defense of exhaustion will fail. As hardware components are often manufactured outside the EU, defendants may have hard time trying to show all the elements of exhaustion, including consent, in connection with CII inventions due to the principle of territorial exhaustion.

Patent exhaustion in Europe may be illustrated as below.

PICTURE 7: PATENT EXHAUSTION IN THE EU



PICTURE 7: PATENT EXHAUSTION IN THE EU

First sale of Patented Software Product by Patent Holder to Buyer (Arrow 1) exhausts certain patent right(s) in Patented Software Product in force in the EEA (or with respect to Patent 3, in the participating member states) *provided that* (1) the sale is authorized; and (2) Patented Software Product is sold within the EEA.

In this scenario, Patented Software Product practices Patent 1 (Finnish patent), Patent 2 (European patent in force in designated EPO country/countries) and Patent 3 (European patent with unitary effect) but not Patent 4 (national Swedish patent). Consequently, first sale (including a perpetual license against a lump sum fee) of Patented Software Product within the EEA exhausts rights in Patents 1-3, but does not exhaust patent rights in Patent 4. Accordingly, Buyer is allowed to use, resell and import (but not make new copies of) Patented Software Product(s) within the EEA (or with respect to Patent 3, within the participating member states), and resell Patented Software Product(s) there to User(s).

4.1.2 Patent Exhaustion in the US

Origin of the case law based US patent exhaustion doctrine

The exclusive rights of a US patent holder described in Section 2.2.3 (Software Patents in the US) are not exhaustive, but subject to several limitations restricting enforcement of the patent, such as non-infringement,⁴⁶² unenforceability,⁴⁶³ invalidity,⁴⁶⁴ fraudulent procurement or inequitable conduct,⁴⁶⁵ patent misuse or violation of antitrust laws⁴⁶⁶ and implied license.⁴⁶⁷ One of the limitations includes also the doctrine of patent exhaustion, also called as the first sale doctrine.⁴⁶⁸ The first sale doctrine limits enforcement of all overlapping protection forms of IPRs relevant for computer programs, *i.e.* copyrights, patents and also trademarks.⁴⁶⁹ The doctrine of patent exhaustion is an old doctrine based on SCOTUS case law, dating all the way back to the decisions given over 150 years ago regarding consummation of rights in letters patents.⁴⁷⁰ Unlike the copyright and trademark exhaustion doctrines codified in the US Copyright and the US Trademark Acts respectively, the principles of patent exhaustion

⁴⁶² 35 U.S.C. §282(b)(1). 6A Chisum §19.01 at 19-5 – 19-10. Chisum noting, however, that a patent holder bears the burden of proving infringement, due to which non-infringement is actually not a defense, but a negation of the patent holder's case.

⁴⁶³ 35 U.S.C. §282(b)(1).

⁴⁶⁴ 35 U.S.C. §282(b)(2). 6A Chisum §19.01 at 19-6 –19-7.

⁴⁶⁵ 6A Chisum §19.01 at 19-7.

⁴⁶⁶ 6A Chisum §19.01 at 19-8.

⁴⁶⁷ *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1334 (Fed. Cir. 2006). 5 Chisum §16.03[2] at 16-326.7-16-362.8. 6A Chisum §19.01 at 19-9.

⁴⁶⁸ 5 Chisum §16.03[2] at 16-326.7-16.362.8. 6A Chisum §19.01 at 19-9.

⁴⁶⁹ *Allison v Vintage Sports Plaques* 136 F.3d 1443, 1448 (11th Cir. 1998). 17 U.S.C. §109(a). See also *Lemley, Menell, et. al.* at 322-323.

⁴⁷⁰ *Bloomer v. McQuewan*, 55 U.S. 539 (1852). *Bloomer v. Millinger*, 68 U.S. 340 (1864). *Mitchell v. Hawley*, 83 U.S. 544 (1872). *Adams v. Burke* 84 U.S. 453 (1873). *Boesch v. Graff*, 133 U.S. 697 (1890). *Keeler v. Standard Folding Bed Co.* 157 U.S. 659 (1895). *Henry v. A.B. Dick*, 224 U.S. 1 (1912), the former expressly reversed by: *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502 (1917). *Ethyl Gasoline Corporation v. United States*, 309 U.S. 436 (1940). *United States v. Univis Lens Co.* 316 U.S. 241 (1942). *Quanta Computer v. LG Electronics* 553 U.S. 617 (2008). *Bowman v. Monsanto Co.* 133 S.Ct. 1761, U.S. 2013. See *General Talking Pictures Corp. v. Western Electric Co.*, 304 U.S. 175 (1938) regarding breach of license and patent infringement (restriction on the sale of patented product vs. restriction on post-sale use). See also *Quanta v. LGE* at 2113 and 2115 as well as *Static Control Components v. Lexmark Intern., Inc.* 615 F.Supp.2d 575 (E.D.Ky. 2009) regarding development of the doctrine of patent exhaustion. 5 Chisum §16.03[2][a] at 16-365.

are not codified into the US Patent Act. Thus, the US patent exhaustion doctrine is a pure case law concept.⁴⁷¹

Effects of patent exhaustion on the patent holder's exclusive rights

In essence, patent exhaustion is an *affirmative defense* to a claim of patent infringement.⁴⁷² Patent exhaustion doctrine prohibits a patent holder from *selling* a patented article and then invoking patent law to control *post sale use* of the article.⁴⁷³ Namely, by exhausting the patent holder's monopoly in the sold item, the initial, authorized sale terminates all patent rights in the patented item.⁴⁷⁴ While the patent holder retains control over the patented invention, the doctrine of patent exhaustion limits the patent holder's right to control what the purchaser, or any subsequent owner, can do with an article embodying the invention.⁴⁷⁵ The scope and the extent of patent exhaustion includes the right to *use* and *resell*, but *not* the right to *make* new copies of the patented article.⁴⁷⁶ Accordingly, unrestricted sale of a patented article, by or with the authority of the patent holder, exhausts the patent holder's right to control use and further sale of that article by enforcing the patent under which it was first sold.⁴⁷⁷ However, *repair/reconstruction* dichotomy limits the doctrine of exhaustion: The authorized sale does not allow the purchaser to make *new copies* of the patented

⁴⁷¹ 15 U.S.C. § 1114. 17 U.S.C. §109(a). 1 Raymond Nimmer §2:43 at 2-103. 17 U.S.C. §109(a).

⁴⁷² Keurig, Inc. v. Sturm Foods, Inc. 732 F.3d 1370, 1373 (Fed. Cir. 2013) (Keurig v. Sturm Foods). Excelstor Technology v. Papst Licensing GmbH & Co. 541 F.3d 1373, 1376 (Fed. Cir. 2008). Monsanto v. Scruggs at 1332-36.

⁴⁷³ Excelstor Technology v. Papst Licensing at 1376. Quanta v. LGE at 2122.

⁴⁷⁴ Bowman v. Monsanto at 1763. Tessera, Inc. v International Trade Commission 646 F.3d 1357 (Fed. Cir. 2011) at 1369. Quanta v. LGE at 2115. 5 Chisum §16.03[2][a] at 16-362.8. Merges, Menell, et. al 2012 at 382-383.

⁴⁷⁵ Bowman v. Monsanto at 1766. 1 Raymond Nimmer §2:43 at 2-103. Merges, Menell, et. al. 2014 at 38-43.

⁴⁷⁶ Bowman v. Monsanto at 1766. Quanta v. LGE at 2118. Tessera v. Int'l Trade Comm'n at 1370. US v. Univis Lens at 249. Mitchell v. Hawley at 547. Adams v. Burke at 456. 5 Chisum §16.03[2][a] at 16-362.8 - 16-362.9.

⁴⁷⁷ Anton/Bauer, Inc. v. PAG, Ltd. 329 F.3d 1343, 1349 (Fed. Cir. 2003). Jazz Photo Corp v. International Trade Commission, 264 F.3d 1094, 1105 (Fed. Cir. 2001). (Jazz Photo v. Int'l Trade Comm'n).

invention.⁴⁷⁸ Even unconditional sale of a patented device is subject to prohibition against reconstruction of the patented article.⁴⁷⁹

Preconditions for patent exhaustion in the US

There are several preconditions for patent exhaustion, such as the following: (1) the first sale or other disposition must be *authorized* by the patent holder; (2) the patent holder must have received *reward* for the patented article under the sale; (3) the sold article must *embody all essential features of the patented invention*, and thus be capable of no other non-infringing uses; (4) the patented article must have been *sold in the US* to trigger exhaustion of the US patent rights; and finally, (5) the sale must be *unconditional*, *i.e.* not subject to a contract based limitation (or license restriction) on exhaustion.

Due to development of SCOTUS case law, there has been some debate over whether the fourth and the fifth requirements are still good law, and if yes, to what extent. Specifically, after Quanta v. LGE, the rulings of Mallinckrodt v. Medipart (holding that no exhaustion with conditioned sale) and Jazz Photo v. Int'l Trade Comm'n (holding that no exhaustion with a first sale outside the US) are subject to possible reconsideration by future case law developments.⁴⁸⁰ Also several law professors have held in their Amicus Brief that CAFC erred in its holding of territorial exhaustion in Jazz Photo v. Int'l Trade Comm'n when it interpreted SCOTUS old holding in Boesch v. Graff. The law professors argued that once a sale authorized by a US patent holder has occurred *anywhere in the world*, the sold article should be beyond reach of the patent monopoly, resulting in international exhaustion, and thus preventing the patent holder from relying on patent law to control that article.⁴⁸¹ However, CAFC recently reaffirmed in Lexmark Int'l v. Impression Products that both Mallinckrodt v. Medipart

⁴⁷⁸ Bowman v. Monsanto at 1766. Mitchell v. Hawley at 548. 5 Chisum §16.03[3] at 16-449 – 16-487.

⁴⁷⁹ Mallinckrodt, Inc. v. Medipart, Inc. 976 F.2d 700, 709 (Fed. Cir. 1992). (Mallinckrodt v. Medipart).

⁴⁸⁰ Static Control Components v. Lexmark Intern at 585-586. Fuji Photo Film Co. Ltd. v. Jazz Photo Corp., 394 F.3d 1368, 1376 (Fed. Cir. 2005). 5 Chisum §16.03[2][a] at 16-368 - 16-390. See also Merges & Duffy 2013 at 1208-1209.

⁴⁸¹ IPR Professors Amicus Brief 2015 at 2-3, 8-9, 16-17 and 32-34.

and Jazz Photo v. Int'l Trade Comm'n are still good law even after Quanta v. LGE – at least until SCOTUS holds otherwise.⁴⁸² These rulings will be discussed below in more detail. However, following CAFC decision in favor of Lexmark, Impression Products filed a petition for writ of *certiorari* with SCOTUS. SCOTUS decision, awaited in 2017, will be a landmark case shaping the scope of the US patent exhaustion doctrine and providing a response to two key questions: (1) whether a conditional sale transferring title to the patented article, but imposing post-sale restrictions on use or resale of the patented article prevents patent exhaustion and enables the patentee to enforce the post-sale restrictions through infringement remedy; and (2) whether the principle of international exhaustion established by SCOTUS in copyright case applies also to exhaustion of patents, resulting in that a sale of a patented article authorized by a US patentee outside the US exhausts the US patent rights in the sold article.

The concepts of authorized sale and reward

Exhaustion is triggered only by a sale *authorized by the patent holder*.⁴⁸³ Also *authorized* sale of the patented article manufactured by the patent holder's *licensee* acting within the scope of its license exhausts the rights in the sold article.⁴⁸⁴ However, any use of patent by licensee outside the scope of the license constitutes patent infringement. Patent holder is allowed to grant license for specified field(s) of use. Also licensee's customer buying products manufactured outside the scope of the license is liable for patent infringement.⁴⁸⁵ The US Patent Act does not define the concept of *sale* or the act of *selling*, which are important elements of the patent exhaustion doctrine.⁴⁸⁶ For the purpose of analyzing what constitutes patent infringement under §271(a) of the US Patent Act due to *sale* of a patented invention, it is argued that sale usually means a *transfer of entire title in a good* to another. Transfer of less than entire title constitutes a

⁴⁸² See also Jian.

⁴⁸³ Quanta v. LGE at 2112. Tessera v. Int'l Trade Comm'n at 1369. US v. Univis Lens at 249. 5 Chisum §16.03[2][a] at 16-367 – 16-368.

⁴⁸⁴ Unidisco, Inc. v. Schattner, 824 F.2d 965, 968 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1042. Intel Corp. v. ULSI System Technology, Inc., 995 F.2d 1566, 1568 (Fed. Cir. 1993), *cert. denied*, 510 U.S. 1092 (1994). 1 Raymond Nimmer §2:43 at 2-104.

⁴⁸⁵ General Talking Pictures v. Western Electric at 117.

⁴⁸⁶ 5 Chisum §16.02[5][b] at 16-89.

license, not a sale of good.⁴⁸⁷ However, the *form of transaction* is not decisive for determination of patent exhaustion. Instead, finding exhaustion depends on whether there has been such a disposition that it may be fairly said the patent holder has received *reward* for use of the article.⁴⁸⁸ Even if the reward would not represent full value, exhaustion may be triggered in case of unconditional sale.⁴⁸⁹ Further, even sales under a *covenant not to sue* has been considered to authorize sales for the purpose of patent exhaustion. A non-exclusive license, in turn, has been held equivalent to a covenant not to sue. The only relevant question for patent exhaustion is whether the agreement *authorizes sales*: the substance (*i.e.* does the agreement authorize sales), not form (*i.e.* whether the instrument is termed as a license or a covenant not to sue) of the agreement is decisive for finding exhaustion.⁴⁹⁰

Further, the authorized sale of an article that *substantially embodies a patent* (even if it does not completely, but yet materially, practice the patent) exhausts the patent holder's rights in that particular article.⁴⁹¹ The authorized sale of an article which is *capable of use only in practicing the patent* is a relinquishment of the patent monopoly with respect to the sold article.⁴⁹² Accordingly, patent exhaustion applies even to an incomplete product that has no substantial use other than to be further manufactured into a completed patented and allegedly infringing article (*i.e.* does not have other non-infringing uses).⁴⁹³ Namely, sale of an uncompleted article embodying the *essential features of the patented invention* exhausts the patent rights in the sold article.⁴⁹⁴ It does not make any difference whether completion of the article requires deleting or addition

⁴⁸⁷ 4 Moy at §14:41 and §14:42.

⁴⁸⁸ *United States v. Masonite Corp.*, 316 U.S. 265, 278 (1942). ([US v. Masonite](#))

⁴⁸⁹ [Static Control Components v. Lexmark Intern](#) at 586.

⁴⁹⁰ *TransCore, LP v. Electronic Transaction Consultants Corp.*, 563 F.3d 1271, 1274-77 (Fed. Cir. 2009). ([TransCore v. Electronic Transaction Consultants](#)) 5 Chisum §16.03[2][a][v] at 16-424 – 16-428.

⁴⁹¹ [Static Control Components v. Lexmark Intern](#) at 584. [Quanta v. LGE](#) at 2113 and 2122. [US v. Univis Lens](#) at 250-251.

⁴⁹² [US v. Univis Lens](#) at 249. For general analysis on this case and patent exhaustion in context of computer systems, see 5 Chisum §16.03[2][a] at 16-390 – 16-406.

⁴⁹³ *Cyrix Corp. v. Intel Corp.*, 846 F. Supp. 522 (E.D. Tex 1994) at 540. [US v. Univis Lens](#) at 249-251. See also *LG Electronics, Inc. v. Asustek Corp.*, 248 F.Supp 2d 912 (N.D. Cal. 2003). ([LGE v. Asustek](#)). 5 Chisum §16.03[2][a] at 16-366 – 16.377.

⁴⁹⁴ [US v. Univis Lens](#) at 250-251.

of a component in order for the article to practice the patent. Instead, the nature of the final step to practice the patent is decisive: if the final step is common and non-inventive, the article embodying all essential features of the patent is subject to exhaustion.⁴⁹⁵ Essential features are the *inventive features* of the patent.⁴⁹⁶ Thus, finding patent exhaustion requires analysis of the patent claims embodied by the sold article and comparison of those claims to the allegedly infringed patent. According to Osborne, determination of whether the article embodies the patentable invention or, in other words, contains essential features, *i.e.* the patentably distinctive features of the patented invention, requires claim construction, examination of prosecution history and pertinent prior art.⁴⁹⁷

Exhaustion of method claims

Exhaustion applies to both apparatus claims as well as method claims. Method patent claims are exhausted by sale of item substantially embodying the method. In Quanta v. LGE, SCOTUS specifically rejected the plaintiff's argument that method claims are never exhaustible. According to SCOTUS, while patented method may not be sold in the same manner as an article or device, methods may, nonetheless, be "embodied" in a product, the sale of which exhausts the patent rights in the sold product. In fact, SCOTUS has several times found method patents exhausted by the sale of a patented article embodying the method. SCOTUS has stated that exclusion of method patents from the scope of exhaustion would practically dilute the patent exhaustion doctrine as a whole as patentees could avoid exhaustion by drafting claims in a manner that describes a method rather than an apparatus. Therefore, as Intel's products (manufactured and sold under the LGE's license) embodied the essential features of LGE's patents (including method claims), first authorized sale of the products did not restrict combination of the Intel products bought by Quanta with other non-Intel components as the said activity did not add more than a standard finishing to complete the patented article.⁴⁹⁸

⁴⁹⁵ Quanta v. LGE at 2120.

⁴⁹⁶ Quanta v. LGE at 2119 and 2122.

⁴⁹⁷ Osborne at 646.

⁴⁹⁸ Quanta v. LGE at 2111, 2113 and 2117. See also US v. Univis Lens at 246-250.

Principle of territorial patent exhaustion

Under the current state of law, US patent rights are not exhausted until the patented product is first sold in the US.⁴⁹⁹ Although contrary arguments have also been posed, patent holder's authorization of international first sale does not affect exhaustion of the said patent holder's rights in the US.⁵⁰⁰ Accordingly, the predominant view is that the US follows the principle of *national exhaustion* of patent rights. Still, after Quanta v. LGE, the relevant question remained, what in global business, where invention may be conceived, developed and licensed in different countries, and related products sold all over the world, is sufficient to constitute "sale in the US" for the purpose of the patent exhaustion doctrine.⁵⁰¹

CAFC reaffirmed in Lexmark Int'l v. Impression Products the holding of Jazz Photo v. Int'l Trade Comm'n, under which the principle of international exhaustion does not apply. Accordingly, there is no exhaustion with a first sale of patented article outside the US. According to CAFC, a US patent holder, merely by selling or authorizing the sale of a patented article abroad, does not authorize the buyer to import the article and sell and use it in the US. Importation of the article patented in the US constitutes a patent infringement in the US absent patent holder's authorization. Interestingly enough, CAFC reminded that a buyer may rely on a foreign sale as a defense to infringement, but only for the purpose of establishing an *express or implied license* – which is a defense separate from exhaustion, as under Quanta v. LGE, based on the patent holder's communications or other circumstances of the sale.⁵⁰² CAFC ruling in Lexmark Int'l v. Impression Products is important since it affirmed that notwithstanding SCOTUS copyright holding in Kirtsaeng v. John Wiley & Sons under which copyright exhaustion is subject to principle of international exhaustion, patent exhaustion remains subject to the principle of territorial exhaustion.⁵⁰³ Accordingly, while copyright holders may not

⁴⁹⁹ Jazz Photo v. Int'l Trade Commission at 1050. Merges & Duffy 2013 at 1209. 4 Mills, Reiley, *et. al.* § 21:35 at 21-154.

⁵⁰⁰ Fuji Photo Film v. Jazz Photo at 1376. Static Control Components v. Lexmark Intern at 588.

⁵⁰¹ Merges & Duffy 2013 at 1209.

⁵⁰² Lexmark Int'l v. Impression Products at 8-9.

⁵⁰³ Kirtsaeng v. John Wiley & Sons, Inc., 133 S. Ct. 1351 (2013). (Kirtsaeng v. John Wiley & Sons)

assert their US copyrights against importation and distribution of copies first sold by the copyright holder or its licensee abroad, authorized sale of patented articles do not exhaust patent holder's exclusive rights in the US. Therefore, importation of said products to the US is prohibited without the patent holder's authorization. The reason for the different outcome is that copyright exhaustion is governed by §109(a) of the US Copyright Act, while patent exhaustion is a case law doctrine, providing courts with more discretion to balance the patent interests between patent holder's monopoly and free competition.⁵⁰⁴ However, Impression Products filed a petition for writ of *certiorari* with SCOTUS, a new ruling by SCOTUS is awaited, SCOTUS is expected to finally address the question whether the principle of international exhaustion established by SCOTUS in copyright case applies also to exhaustion of patents. The ruling will be important for global commerce: under the current state of law, US patentees may first sell the products abroad, and then sue importers of the products in the US for patent infringement.

Unconditional sale

Finally, under the fifth main precondition, the sale must be *unconditional* in order to trigger patent exhaustion. If the condition is breached, patent holder may request remedy by action of patent infringement. CAFC held in Mallinckrodt v. Medipart that if the sale is conditional, prohibiting *reuse* of the sold product, then reuse of the product in breach of the condition constitutes patent infringement (provided of course that the condition is legal, *i.e.* within the patent grant and otherwise justified under mandatory law and policy). CAFC also held that if reuse of the product is unlicensed, then the repair/reconstruction doctrine does not apply either, and accordingly, even repair of the product constitutes patent infringement.⁵⁰⁵ Federal District Court of Kentucky, however, noted in Static Control Components v. Lexmark Intern that SCOTUS *changed* the exhaustion doctrine in Quanta v. LGE, by essentially *broadening the scope* of the doctrine compared to earlier Federal Circuit case law. Namely, according to the District Court, SCOTUS overruled the CAFC holding in Mallinckrodt v. Medipart by its

⁵⁰⁴ Jian at 168.

⁵⁰⁵ Mallinckrodt v. Medipart at 708-710. 1 Raymond Nimmer §2:43 at 2-105.

holding in Quanta v. LGE.⁵⁰⁶ Looking at the facts, in all three cases, licensors imposed *restrictions on use* of the products, but *not on resale* of the products by the direct licensee: While CAFC held in Mallinckrodt v. Medipart that conditional license imposing *restrictions on reuse* of the product does *not* exhaust the patent rights (thus rendering also repair of the sold product infringing),⁵⁰⁷ SCOTUS instead held in Quanta v. LGE that *unconditional sale*, *i.e.* sale which does *not* impose *restrictions on resale* of the product, *does* indeed *trigger exhaustion* and *prohibits* patent holder from invoking patent law *to control post-sale use* of the article.⁵⁰⁸ Federal District Court of Kentucky ruled in Static Control Components v. Lexmark Intern, allegedly in line with SCOTUS holding, that *single-use restriction* imposed by the seller on the sold product was invalid under patent law, since patent rights in the product were exhausted by its first authorized, unconditional sale. Thus, the patent holder was prevented from controlling post sale use of the products.⁵⁰⁹ Accordingly, as opposed to *restriction on the sale* of patented product (*i.e.* permitted conditional sale, which precludes patent exhaustion),⁵¹⁰ post-sale restrictions on use are, under Static Control Components v. Lexmark Intern, not allowed.⁵¹¹

However, in a recent ruling (Lexmark Int'l v. Impression Products), CAFC reaffirmed that Mallinckrodt v. Medipart is still good law even after Quanta v. LGE. According to CAFC, a patentee, when selling a patented article subject to a single-use/no-resale restriction that is lawful and clearly communicated to the purchaser, does not by that sale give the buyer, or downstream buyers, the resale/reuse authority that has been expressly denied. Such resale or reuse remains unauthorized and therefore constitutes infringing conduct under §271 of the US Patent Act. CAFC reminded that SCOTUS did *not* address in Quanta v. LGE patent holder's sale with or without a restriction, but only a sale by a separate manufacturer (Intel) under a license granted by the patent holder,

⁵⁰⁶ Static Control Components v. Lexmark Intern at 577 and 582-583. See also IPR Professors Amicus Brief 2015 at 17-22 and 32-34.

⁵⁰⁷ Mallinckrodt v. Medipart at 709.

⁵⁰⁸ Quanta v. LGE at 2116 and 2122.

⁵⁰⁹ Static Control Components v. Lexmark Intern at 585-586 and 588.

⁵¹⁰ Quanta v. LGE at 2121.

⁵¹¹ Static Control Components v. Lexmark Intern at 582. Quanta v. LGE at 2122.

which granted an unrestricted right to sell the products.⁵¹² Therefore, under the current state of law, in the absence of specific contract language against exhaustion, after the initial, authorized sale of a patented article (in the US), the patent holder's rights with respect to the particular article are exhausted, providing the buyer with the rights to use and resell the patented article.⁵¹³ As *Impression Products* has filed a petition for writ of *certiorari* with SCOTUS, SCOTUS will soon address the question on whether a conditional sale transferring title to the patented article, but imposing post-sale restrictions on use or resale of the patented article prevents patent exhaustion and enables the patentee to enforce the post-sale restrictions through infringement remedy.

Exhaustion of patents in computer programs under the US law

Exhaustion of patent(s) in copies of computer programs are subject to the general rules on patent exhaustion established by the case law of SCOTUS and CAFC. Accordingly, exhaustion of patents in copies of computer programs requires that (1) the transaction involves sale of software (either as a standalone product, stored on a material medium or embedded in a device); (2) the sale is authorized by the patent holder; (3) the patent holder has received reward for the patented article under the sale; (4) the sold article embodies all essential features of the patented invention; (4) the patented article is sold in the US to trigger exhaustion of the US patent rights; and finally, (5) the sale is unconditional, *i.e.* not subject to a contract based limitation (or license restriction) on exhaustion.

SCOTUS or CAFC have not specifically addressed exhaustion of patents in context of computer programs. Therefore, there is no CAFC precedence available on, for example, what constitutes sale of software for the purpose of patent exhaustion. However, both CAFC in *DSC v. Pulse* and the US Court of Appeals, Ninth Circuit (9th Cir.) in *Vernor v. Autodesk* have ruled on the elements of sale of software in copyright context.⁵¹⁴

⁵¹² *Lexmark Int'l v. Impression Products*.

⁵¹³ Jian at 168.

⁵¹⁴ *DSC Communications, Corp. v. Pulse Communications, Inc.* 170 F.3d 1354 (Fed. Circ. 1999). (*DSC v. Pulse*.) *Vernor v. Autodesk, Inc.*, 621 F.3d 1102 (9th Cir. 2010), *cert. denied*, 132 S.Ct. 105. (*Vernor v. Autodesk*).

Further, the US District Court of the Southern District Court of New York (SDNY) has in Capitol Records v. ReDigi addressed copyright exhaustion in connection with online sale of music files and rejected the digital first sale doctrine in the context of copyrighted phonorecords.⁵¹⁵

While the doctrine of patent exhaustion is governed solely by the case law developed principles regarding authorized, unconditional sale of patented articles and despite that sale of software triggering copyright exhaustion does not necessarily meet the elements of sale required for patent exhaustion, the copyright first sale rulings on sale of software and (non-) exhaustion of copyrights in digital context may give useful insight on how courts have approached those concepts in copyright context and whether those principles could also be applied in patent context despite the different statutory and case law basis of the doctrines. Therefore, in the absence of case law on sale of software for the purpose of patent exhaustion and exhaustion of patent rights in digital context, these copyright cases will be addressed below.

Exhaustion of copyrights in computer programs under the US law

Under §109(a) of the US Copyright Act, the owner of *a particular copy* lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to *sell* or *otherwise dispose* of the possession of *that copy*. Also the case law affirms that the *owner of an authorized copy* of a work is under the US Copyright Act entitled to *sell* and *otherwise dispose* of the copy.⁵¹⁶ However, making of new copies of the copyrighted work is not allowed under the copyright exhaustion doctrine. Copyright exhaustion does not apply when the copyright holder distributes its work by other, more limited transaction than sales, such as a license.⁵¹⁷ Software vendors often prefer *licensing* as opposed to *selling* their software in order to avoid certain exceptions of laws applying to owners of copies, which limit software

⁵¹⁵ Capitol Records, LLC v. ReDigi, Inc., 934 F.Supp.2d 640 (S.D.N.Y. 2013). (Capitol Records v. ReDigi).

⁵¹⁶ 17 U.S.C. §109(a). Vernor v. Autodesk at 1107-1108. Bobbs-Merrill Co. v. Straus, 210 U.S. 339, 350-351 (1908).

⁵¹⁷ 1 Raymond Nimmer §1:112 at 1-293.

vendors' exclusive rights as copyright holders.⁵¹⁸ Therefore, the boundaries of sale vs. license are important to understand for evaluation of the exhaustion doctrine.

CAFC has held in DSC v. Pulse that the following factors are certainly attributes of *ownership* of a copy of a computer program: (1) licensee's right to permanent possession of a copy of a computer program; (2) subject to a single payment. However, according to CAFC, those attributes are not decisive for finding sale: If the licensee's right to use the computer program is subject to many other restrictions compared to rights enjoyed by "*owners of copies*", including *restrictions on right to transfer* the copy to a third party, the question is rather of a restricted license, not sale of a copy. Therefore, copyright exhaustion does not take place, either. On the other hand, different copies of a computer program without the said additional restrictions were considered to have been sold, not licensed.⁵¹⁹ Accordingly, licensing of a copy of a computer program with permanent right to use the copy against a lump sum fee does by no means always constitute sale of a copy of the program, but absent further restrictions in breach of the status of owner of the copy, the said outcome is not precluded. This CAFC holding, which should still be good law, may according to Prof. Lemley have relevance also when considering patent exhaustion in context of computer programs.⁵²⁰

Note that the holding of CAFC is more restrictive compared to the holding of CJEU, which ruled in UsedSoft v. Oracle that sale of a copy of a computer program is constituted by making the copy available in the EU (in any form and by any means) for the purpose of being used for an unlimited period and in return for payment of a lump-sum fee. CJEU specifically emphasized that resale of the copy is permitted notwithstanding the contract provision of non-transferable license when the copyright holder has granted a right to use the copy for an unlimited period subject to payment of a fee corresponding to the economic value of the copy. Such transaction constitutes sale

⁵¹⁸ Lemley, Menell, *et. al.* at 299-300.

⁵¹⁹ DSC Communications, Corp. v. Pulse Communications, Inc. 170 F.3d 1354, 1360-1363 (Fed. Circ. 1999). (DSC v. Pulse.) See also Lemley, Menell, *et. al.* at 306, noting that license provisions prohibiting transfer of the software product are in contradiction with the first sale doctrine in copyright law, allowing the owner of a copy to dispose of it without the copyright holder's permission.

⁵²⁰ Cohen & Lemley at 34-35.

involving transfer of the right of ownership of the copy and thus triggers exhaustion of the distribution right irrespective of the license restriction prohibiting transfer of the license.⁵²¹ Therefore, while the grant of unlimited license to use a copy of a computer program against lump sum fee constitutes sale of software involving transfer of title in the copy, thus triggering exhaustion of the distribution right in the EU notwithstanding any transfer restrictions in the license, the same transaction is held in the US as a restricted license and not sale of a copy, due to the restrictions on transfer of the copy, thus precluding exhaustion of the distribution right.

Despite that the decision in DSC v. Pulse was given by CAFC, copyright cases are usually adjudicated in the US Courts of Appeals for the Circuits which, in turn, may at times have circuit splits, *i.e.* disagree on interpretation on certain aspects of law. Therefore, until the matter is decided by SCOTUS, there is no single authority defining what constitutes sale of software for exhaustion of copyrights in the US, since each circuit has its own precedents, unlike in patent cases, where CAFC is the sole authority (with the caveat that even CAFC may disagree with itself from time to time).⁵²² The decision of CJEU in UsedSoft v. Oracle, in turn, governs the whole EU, since all the member states should interpret the harmonized law in a uniform manner.

The US Court of Appeals, Ninth Circuit (9th Cir.) clarified the boundaries of sale vs. license in the context of software copyrights in Vernor v. Autodesk: According to the three-fold test of the Ninth Circuit, user of a computer program is a *licensee* rather than an *owner* of a copy of a computer program where the copyright owner (1) specifies that the user is granted a *license*; (2) significantly restricts the user's ability to *transfer* the program; and (3) imposes notable *use restrictions*, such as restrictions on modification or reverse-engineering the software or prohibition to remove any proprietary marks from the program or its documentation. The Ninth Circuit specifically noted in its decision that the ruling does not create circuit split by being in conflict with CAFC decision in DSC v. Pulse, in which CAFC held that a user bound by a restrictive license

⁵²¹ Paragraphs 49, 59, 61, 72 and in UsedSoft v. Oracle.

⁵²² Jian at 168.

agreement may not be entitled to relief under the first sale doctrine.⁵²³ Thus, it should be rather safe to assume, based on the status of current case law, that the main elements of a sale (as opposed to license) under the US laws include an indefinite license for single payment of license fee without restrictions on subsequent transfer of the copy, irrespective of whether the transaction is called a sale or a license.⁵²⁴

When it comes to electronic distribution, a copy of a computer program distributed online results in reproduction of additional copies of the program. The copy, even if lawfully owned by the user, transferred over the Internet is not the same copy as received by a subsequent acquirer, receiving another copy produced in violation of the copyright holder's exclusive reproduction right in connection with distributing the program over the Internet. The sender will retain its own copy of the program until s/he deletes it. The US Copyright Act does not cover first sale in connection with *forward and delete* online distributions. When the Digital Millennium Copyright Act (DMCA) was drafted, the US Copyright Office advised against adopting the *digital first sale doctrine*, arguing that the common law doctrine was meant to concern only tangible property.⁵²⁵

The US District Court of the Southern District Court of New York (SDNY) affirmed this position in Capitol Records v. ReDigi, holding that the first sale defense is limited to *material items, like records, that the copyright owner put into the stream of commerce*. SDNY noted the first sale defense is limited to the assertions of the *distribution right*. Court found, nevertheless, that Redigi had violated Capitol's exclusive *reproduction right*: according to the court, "*same material object*" cannot be transferred over the Internet. Under §101 of the US Copyright Act, reproduction occurs when a copyright work is *fixed* in a *new material object*. Therefore, reproduction right is necessarily implicated when a copyrighted work is embodied in a new material object. This is also the case when digital music files are stored on new servers and hard drives after their transfer over the Internet. According to the court, the first sale defense does

⁵²³ Vernor v. Autodesk at 1111-13.

⁵²⁴ Lemley, Menell, *et. al.* at 307-309.

⁵²⁵ Kennedy, Rasenberger, *et. al.* §12:12 at 12-34 – 12-35.

not apply to the unlawful copies, *even if* only one file would exist before and after the transfer. As the distribution covered *reproductions* of the *copyrighted code* embedded in new material objects, *i.e.* the ReDigi server and user' hard drives, the first sale doctrine did not apply.⁵²⁶ SDNY pointed out that the outcome of the ruling was based on the wording of §109(a) of the Copyright Act, which plainly applies to lawful owner's "*particular*" copy (phonorecord) that by definition does not allow uploading and selling the copy on Redigi website. According to SDNY, establishing the digital first sale doctrine would require a legislative amendment to the US Copyright Act that is not within the authority of courts.⁵²⁷ It is still unclear whether ReDigi has appealed on the SDNY's ruling on the digital first sale doctrine to the Second Circuit Court of Appeals.

In comparison to the ruling in Capitol Records v. ReDigi CJEU held, as discussed in Section 4.1.1 (Patent Exhaustion in Europe), that also electronic distribution of a copy of a computer program licensed for an unlimited period against a lump-sum fee results in exhaustion of copyrights in the copy, and permits reproduction of the program by the subsequent acquirer, if the first purchaser deleted its own copy or made it otherwise unusable.⁵²⁸ Therefore, in Europe, the owner of a copy is allowed to resell the copy in digital form and the subsequent acquirer is allowed to download the resold copy on his computer under Article 5(1) of the Software Directive without violating the copyright holder's exclusive right to reproduce the program.

It should be noted that Capitol Records v. ReDigi case concerns phonorecords and not copies of computer programs. SDNY could possibly have reached a different conclusion acknowledging digital first sale doctrine in connection with transfer of copies of computer programs over the Internet. Namely, while the same §109(a) covers both exhaustion of copyrights in copies of computer programs and phonorecords, there is a special provision in the US Copyright Act similar to Article 5(1) of the Software Directive under which CJEU reasoned the exhaustion of the distribution right in digital

⁵²⁶ Capitol Records v. ReDigi at 649 and 655. For comparison of Capitol Records v. ReDigi with UsedSoft v. Oracle see Günther.

⁵²⁷ Capitol Records v. ReDigi at 648-649 and 655.

⁵²⁸ Paragraphs 70, 72 and 81 in UsedSoft v. Oracle.

context. §117(a) of the US Copyright Act includes so called *essential step defense*, which allows an *owner of a copy* of a computer program to make or authorize the making of another copy or adaptation of that computer program provided that such a new copy of adaptation is created as an essential step in the utilization of the computer program with a machine and that it is used in no other manner or that such a new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful. Therefore, it is not impossible that US Courts of Appeals for the Circuits (or SCOTUS) having jurisdiction over copyright cases, would end up acknowledging digital exhaustion doctrine in case of computer programs under the reasoning that transfer of title (meeting the elements of sale under DSC v. Pulse and Vernor v. Autodesk) in the copy of computer program results in exhaustion of the distribution right in the said copy, after which the subsequent lawful owner of the copy is entitled to download, including reproduce, the copy under §117(a) of the US Copyright Act. Due to existing codification of the essential step defense, founding digital first sale doctrine for copies of computer programs would not even require a legislative amendment by Congress in §109(a) of the Copyright Act, as suggested by the court in Capitol Records v. ReDigi with respect to digital first sale doctrine of phonorecords and other copyrighted works. This would also be in line with the approach adopted in the EU: also computer programs are subject to *lex specialis*, the Software Directive, whereas other copyrighted works are governed by the Information Society Directive. While CJEU has not to date address exhaustion of other works in digital context, the wording (Recital 29) of the Information Society suggest that only tangible copies of other categories of works are subject to exhaustion.

Additional considerations on the exhaustion of patents in computer programs

CAFC or SCOTUS have not yet addressed exhaustion of patents in copies of computer programs, let alone in digital context. However, the elements of sale of software established in DSC v. Pulse and Vernor v. Autodesk may provide guidance on what elements meet sale of software for patent exhaustion. Such sale must also meet the general preconditions for patent exhaustion established by the case law of CAFC and SCOTUS, including the conditions for authorized, unconditional sale. In a nutshell, it

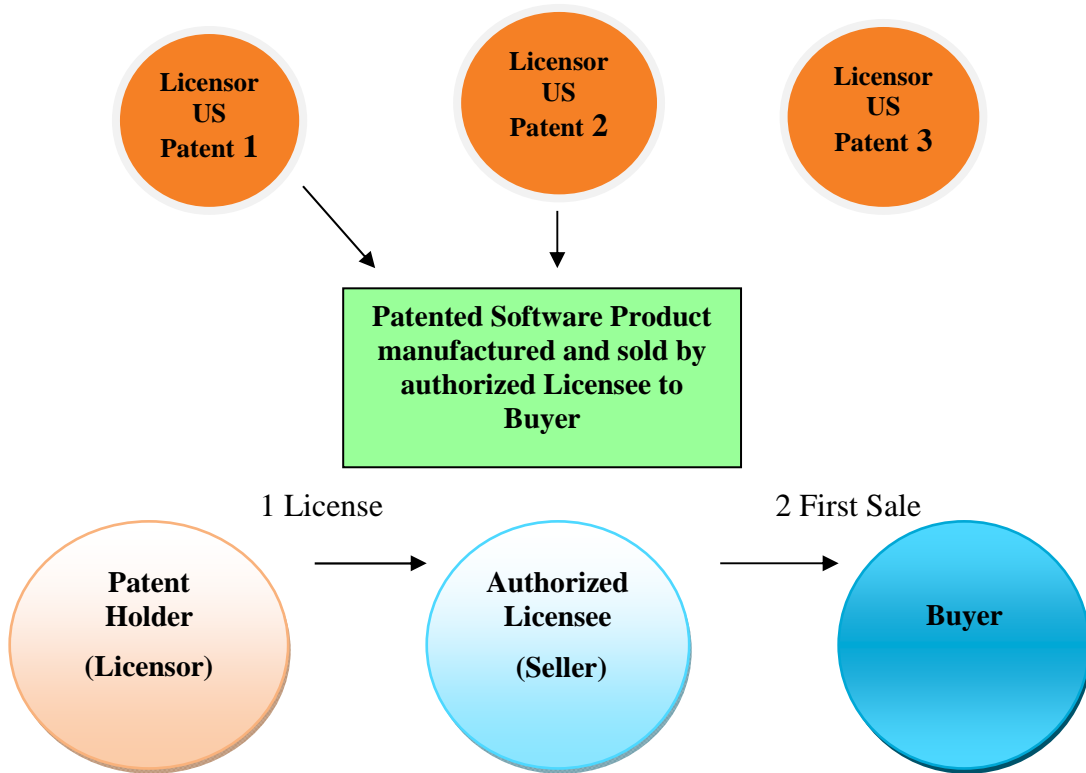
may be concluded that the first sale in the US of copy of a computer program embodying the essential features of the patented invention and licensed under the authorization of the patent holder for an unlimited period of time subject to single payment and without reuse/resale restrictions (in order to meet the requirement of unconditional sale under Mallinckrodt v. Medipart) should result in exhaustion of US patents in the copy of the program. This should apply in terms of copies of computer programs irrespective of their form, *i.e.* whether the copy is sold as standalone product, stored on a tangible medium and/or embedded in a device and also irrespective of the category of patent claims (apparatus, method or other claims) relevant for the copy of the program. Because of the requirement of unconditional sale, software licenses rarely meet the elements of sale required for exhaustion of patents (and/or copyrights) in copies of computer program.

Further, it is unclear whether the doctrine of patent exhaustion enables transmission of *digital copies* of computer programs in the Internet. Traditionally, the first sale doctrine has been held to cover only tangible articles of patented products. While SDNY ruled in Capitol Records v. ReDigi that the distribution right of copies of phonorecords is not exhausted because exhaustion applies, under §109(A) of the US Copyright Act, to the *particular copy* of the lawful owner, the said conclusion does not necessarily preclude digital first sale doctrine in context of copies of computer programs, since reproduction of the program by the subsequent acquirer could be justified under §117(A) of the US Copyright Act, which limits the exclusive rights of the copyright holder and allows an owner of a copy to make another copy of the program if it is created as an essential step in using the program with a machine. Therefore, in case of sale of software involving a transfer of title in a copy of a computer program, even a subsequent owner of the copy could have right to reproduce the copy in connection with transfer of the copy in the Internet. Because the statutory basis of the exception is the US Copyright Act, this limitation on exclusive rights of the copyright holder does not, of course, permit making of new copies of the program under the exclusive rights of a patent holder. On the other hand, exclusive rights of a patent holder do not govern distribution of the patented article (apart from its use, sale or importation), due to which the crucial question should be, whether the reproduction of the program, *i.e.* making a new copy by the subsequent buyer is allowed under the

patent exhaustion doctrine despite of the exclusive rights of the patent holder to make new copies of the patented article. The current state of law remains open on this point until specific decisions are given by CAFC or SCOTUS on exhaustion of patent rights in digital goods.

Patent exhaustion in the US may be illustrated as below.

PICTURE 8: PATENT EXHAUSTION IN THE US



PICTURE 8: PATENT EXHAUSTION IN THE US

The first sale (Arrow 2) of Patented Software Product by Licensee to Buyer under the authorization of Patent Holder granted under License (Arrow 1) exhausts certain patent rights in Patented Software Product *provided that* (1) Licensee acts within its license, *i.e.* the sale is authorized; (2) Patent Holder has received reward for Patented Software Product; (3) Patented Software Product practices the said patent rights and/or substantially embodies the patent rights and is thus not capable of other non-infringing uses; (4) Patented Software Product must have been sold in the US to trigger exhaustion of the US patent rights; and (5) the first sale is unconditional, *i.e.* not subject to a contract based limitation (or license restriction) on exhaustion.

In this scenario, Patented Software Product practices Patent 1 and includes the essential features of Patent 2. Patented Software Product does not practice Patent 3 nor include its essential features. Consequently, first authorized, unconditional sale of Software Product in the US exhausts US patent rights under US Patents 1 and 2, but not under US Patent 3.

4.1.3 Comparison of the Exhaustion Doctrines

The similarities of the European and the US exhaustion doctrines relevant for computer programs include that copyright doctrines are both based on statutory law, *i.e.* the Software Directive in the EU and (national copyright acts implementing the directive) and the US Copyright Act, respectively. While the case law of CJEU on copyright exhaustion doctrine governs the whole EU, the US Courts of Appeals for the Circuits may have circuit splits, which means that the state of law is not settled until SCOTUS has ruled on the matter. Further, while there is case law on copyright exhaustion in digital context both in the EU and the US, the ruling of CJEU in Usedsoft v. Oracle governs computer programs whereas the ruling of SDNY in Capitol Records v. ReDigi governs music files. Therefore, the different outcomes of the rulings are not fully comparable, which results in that these outcomes may not provide comparable guidance either for analysis of the patent exhaustion doctrines in context of computer programs.

On the other hand, patent exhaustion doctrines are case law developed principles both in the EU and the US, although national patent acts are amended to comply with the CJEU case law, and the UPC Agreement as well as the Unitary Patent Regulation will codify the principles on exhaustion of European patents and unitary patents in the EU law. The US Patent Act, in turn, does not include any provisions on exhaustion of patents. Further, while both the EU and the US are members of the TRIPS Agreement governing trade related aspects of IPRs, the TRIPS Agreement specifically states that exhaustion of IPRs is not governed by the said Agreement.⁵²⁹ Patent exhaustion is examined under the legal doctrine of the respective territory where the patent is in force (in case of US patents and national patents in the EU) and/or under the EU law (in case of European and unitary patents).⁵³⁰

There are differences in the objectives and rationality between the European and the US patent exhaustion doctrines despite that the practical impact of the doctrines is rather similar: exhaustion of patent rights in the sold article, allowing the owner of the article

⁵²⁹ Article 6 of the TRIPS Agreement.

⁵³⁰ On external effects of the patent exhaustion doctrine as well as the differences and similarities between the patent exhaustion doctrines in Europe and the US, see Rahnasto at 119-123 and 137-144.

to use and resell it. Due to the territorial nature of patent rights, patent is in force only in the respective state, which granted the patent (or in case of unitary patents, within the participating member states), providing the patent holder with the right to prevent others from importing the patented product into the said territory. The purpose of the European patent exhaustion doctrine is to enable the *free movement of goods* and *remove restrictions on the trade within the EEA*, which today consists of 28 EU states as well as Iceland, Liechtenstein and Norway.⁵³¹ Thus, under Article 34 of the TFEU, *quantitative restrictions* on imports and all *measures having equivalent effect* are prohibited in the EEA.⁵³² Also agreements with the objective to prevent or restrict competition as well as abuse of dominant position are prohibited in the EU under Articles 101 and 102 of the TFEU, since they may affect trade between the member states.⁵³³ However, as the local rules governing ownership of property are not prejudiced, also *industrial and commercial property*, such as patents and other IPRs, are respected. Therefore, restrictions on import justified on the grounds of protection of IPRs may be allowed under certain conditions.⁵³⁴

The objective of the EU is to prevent division of the internal markets to different territories maintaining price differences. Due to the nature of industrial rights such as patents, conferring the patent holder an exclusive right to exclude others from commercially exploiting the invention within a certain territory, full exploitation of patents may, however, result in a collision with Articles 34 and 101-102 of the TFEU governing internal markets and competition.⁵³⁵ CJEU has ruled that the existence or exercise of patent rights (or higher prices for patented compared to unpatented products) are not prevented in the absence of prohibited agreement or abuse.⁵³⁶ Under the *specific*

⁵³¹ Centrafarm v. Sterling Drug at 504-505 and 507. Westkamp at 292. Týc 5 at 96-101. Unge at 140-141.

⁵³² Article 34 of the Consolidated Version of the Treaty on the Functioning of the European Union 2012 O.J. (L C 326) Volume 55. (TFEU). See also Enchelmaier at 409-410. Raitio 2016 at 349-350.

⁵³³ Articles 101 and 102 of TFEU. Anderman at 578-579. Raitio 2016 at 405.

⁵³⁴ Articles 345 and 36 of TFEU. Centrafarm v. Sterling Drug at 504-506. Norrgård at 93. Raitio 2016 at 376 and 406.

⁵³⁵ Raitio 2016 at 405-406.

⁵³⁶ Parke v. Probel at 73. For example, refusal by IPR holder to grant a license for third parties does not necessarily constitute an abuse of dominant position. See AB Volvo v. Erik Veng (UK) Ltd. (C-238/87) 1988 E.C.R. 6211. Wikberg at 305-307. Kur & Dreir at 393-394.

subject matter – test of CJEU, right holders are entitled to derogate from the principle of free movement of goods and requirements of competition law only to the extent required for the protection of the *specific object* of IPRs. The *specific object* of patent is to (1) *manufacture* the patented product; and (2) *first put it on the markets*, either directly or through an authorized licensee; as well as (3) the right to oppose any infringement. Thus, CJEU has separated the *existence* of IPRs from the *exercise* of IPRs: Patent holder is entitled to object to importation of a patented product manufactured by third parties, but derogation from the free movement of goods is not justified, when the patented product is lawfully put on the market by the patent holder or with his consent. Therefore, patent holder cannot prevent importation of the patented product released on the market with his consent in other member states, as it would lead to division of markets and restriction on trade between the member states beyond what is required to enjoy the specific object of patent.⁵³⁷ CJEU reminded also in UsedSoft v. Oracle that the objective of the principle of exhaustion is to limit right holder's exclusive right to what is necessary to safeguard the specific subject matter of IPRs concerned in order to avoid partitioning of markets.⁵³⁸ It has been argued that CJEU could under this economic reasoning extend the digital first sale doctrine also to copyrightable works other than software. This approach would be in line with the efforts of the EU to create a digital single market.⁵³⁹ *Parallel importation* of patented products further the free movement of goods at the expense of exploiting the exclusive territorial rights. Thus, the European patent exhaustion doctrine is, effectively, a mechanism to balance the discrepancy between the exclusive IPRs and the principle of free movement of goods within the internal markets.⁵⁴⁰

In comparison to the specific object of patent set by CJEU, according to SCOTUS, the purpose of patent is fulfilled with respect to any patented article, when the patent holder has received reward by the sale of the article: Once that purpose is achieved, patent law

⁵³⁷ Centrafarm v. Sterling Drug at 503-504 Mylly 2009 at 262-263 and 487-488. Enchelmaier at 410-413. Norrgård at 93-94. Kur & Dreir at 53. Raitio 2016 at 406-407.

⁵³⁸ UsedSoft v. Oracle at Paragraph 62. See also Westkamp 2016 at 501-503.

⁵³⁹ Hilty at 76. Westkamp 2016 at 499.

⁵⁴⁰ Raitio 2010 at 418-422. Raitio 2016 at 406.

does not permit restriction on use and enjoyment of the sold article.⁵⁴¹ While the *object of patent* is similar under the case law of CJEU and SCOTUS, the underlying *objective of patent exhaustion doctrine* established in the US is somewhat different from its European counterpart: As opposed to the EU consisting of 28 independent states, the US is a federal union consisting of 50 united states. The federal union, however, already forms a free trade area from patent perspective, as any patent conferred in the US covers the whole federal union, thereby preventing division of the 50 states into separate markets as opposed to national patents of each EEA member states (before any unitary patents are granted). Therefore, while the ultimate concern behind development of the European patent exhaustion doctrine is securing the free movement of (patented) goods within the EEA, in the US the underlying objective is reconciliation of the existence of IPRs and the privileges of owners of patented articles. The common objective is, however, that exhaustion of patent rights promotes dissemination of patented goods also in the US by precluding geographical restraints on alienation, as ruled by SCOTUS already in Adams v. Burke in 1873.⁵⁴²

Accordingly, the rationale underlying the US patent exhaustion doctrine is that an unconditional sale of a patented article exhausts the patent holder's right to control the buyer's use of that article after the patent holder has bargained for and received full value for the goods.⁵⁴³ The patent holder's reward, although fair or full value, is limited to a *single recovery*. The exhaustion doctrine prevents the patent holder from extracting a royalty at two stages of the distribution chain, upon first sale and then upon resale of the patented product. Prohibition of double recovery is in line with a longstanding holding of SCOTUS, according to which the primary purpose of patent laws is not to create fortunes for the owners of patents, but to promote the progress of science and useful arts, by encouraging dissemination of patented technology after recovery of one

⁵⁴¹ Bowman v. Monsanto at 1766.

⁵⁴² Raymond & Dodd §10:27. Adams v. Burke at 456-457.

⁵⁴³ Keurig v. Sturm Foods at 1373. See also Cavanaugh, Pirozzolo & Schafroth at 40.

monopoly royalty – just enough to incentivize innovation. Finally, exhaustion also promotes alienation of patented goods, thereby reducing transaction costs.⁵⁴⁴

Therefore, both the European and the US patent exhaustion doctrines limit the exclusive rights of patent holders for the benefit of lawful owners of patented products once the patent holder has *enjoyed the object of patent* under the European doctrine, or *received reward for the patented goods* under the US doctrine, despite that the ultimate objective in Europe is the free movement of goods on one hand, and on the other hand, the reconciliation of patent holder's rights with the rights of the owners of the patented products in the US. Thus, exhaustion doctrines, irrespective of the jurisdiction, operate as tools, which mitigate the tension between the exclusive rights of IPR holders and freedom of owners of protected items as well as increase competition in general by enhancing alienation of goods and adjusting prices between territories.

The preconditions and justifications for the European and the US exhaustion doctrines may be merging: The US first sale doctrine has traditionally, under the line of cases holding unconditional sales as a precondition for exhaustion, allowed enforcement of patent holders' contract based restrictions on product sales with the effect of avoiding exhaustion within the restrictions.⁵⁴⁵ On the hand, the European approach has traditionally been that upon first sale of a product in the EU, IPRs in the product are exhausted and while breach of contractual restrictions aiming to preclude exhaustion do not result in IPR infringement, their violation may constitute breach of contract.⁵⁴⁶ For example, in a trademark case Peak (arguably applicable also to exhaustion of patent rights), CJEU held that any provision in the sales contract concerning release of the goods on the EEA imposing territorial restrictions on the right to resell the goods is binding only between the parties of the contract, but does not preclude exhaustion of the rights in the goods. Exhaustion occurs solely by virtue of the first putting of the goods on the market in the EEA. If the right holder put the goods on the market, no further

⁵⁴⁴ IP Professors Amicus Brief 2015 at 3-7. Motion Picture Patents v. Universal Film at 511. Bloomer v. Millinger at 350. US v. Masonite at 277-78.

⁵⁴⁵ Mallinckrodt v. Medipart and Lexmark Int'l v. Impression Products.

⁵⁴⁶ Mylly, U-M 2012 at 389-390. See also Supreme Court of Finland in KKO 2003:88.

consent is required for resale of the goods in the EEA. Therefore, a provision in the sales contract prohibiting resale in the EEA does not preclude that the goods would have been released on the markets by the right holder and thus does not prevent exhaustion despite of resale in breach of the contract provision.⁵⁴⁷ CJEU adopted a similar view also in context of computer programs in UsedSoft v. Oracle in which it held that copyright holder's distribution right is exhausted upon first sale in the EU by the right holder or with his consent, of any copy, whether tangible or intangible, of the program and hence, despite of a contract term prohibiting further transfer, the right holder can no longer oppose the resale of the copy.⁵⁴⁸ On the other hand, in Copad v. Christian Dior, CJEU held that a trademark holder may, under certain conditions, oppose resale of luxury goods by the licensee in breach of license agreement (*e.g.* outside the permitted distribution network) even after first sale in the EU, if the right holder is able to show that such resale damages the reputation of the trade mark.⁵⁴⁹ During Spring 2017, SCOTUS will give a new precedence on the effects of conditional sale as a mechanism to control exhaustion. The outcome will have a significant impact on global commerce, if reuse/resale restrictions are still held valid.

Further, CJEU specifically stated in UsedSoft v. Oracle that if exhaustion would be limited solely to copies of computer programs sold on a material medium, it would allow the right holder to control the resale of copies downloaded from the Internet and to demand further remuneration on the occasion of each new sale even though the first sale of the copy already enabled the right holder to obtain appropriate remuneration – thus going beyond the *specific subject matter* of the IPRs concerned. Here, CJEU clearly referred to the *first sale vs. resale* and *single vs. double recovery* dichotomy (often cited by SCOTUS) in the context of computer programs without direct connection to the free movement of goods within the EEA.⁵⁵⁰

⁵⁴⁷ Peak Holding AB v. Axolin-Elinor AB (C-16-03). (Peak) at Paragraphs 51-56.

⁵⁴⁸ UsedSoft v. Oracle at Paragraph 77.

⁵⁴⁹ Copad SA v. Christian Dior couture SA (C-59/08) (Copad v. Christian Dior).

⁵⁵⁰ UsedSoft v. Oracle at Paragraph 63.

4.2 PATENT EXHAUSTION IN CONTEXT OF FOSS

4.2.1 Preconditions for Patent Exhaustion of FOSS

4.2.1.1 Overview

As outlined in Section 1.3.1 (Research Questions), the inquiry under the Research Question 1 of this study is: Does sale, licensing and/or redistribution of FOSS trigger patent exhaustion? Further, the Research Question 1 is divided in three sub-questions: What are (i) the preconditions for the existence; as well as (ii) the scope; and (iii) the extent – and thereby the practical impact – of the patent exhaustion doctrine in the context of sale, licensing and/or redistribution of FOSS in Europe and the US?

This Section 4.2.1 (Preconditions for Patent Exhaustion of FOSS) aims to shed light on the sub-question (i) of the Research Question 1, and thus examines what are the preconditions for the application of the patent exhaustion doctrine in the context of sale, licensing and/or redistribution of FOSS in Europe and the US. Now, when FOSS licensing is examined in context of patent exhaustion, it is worth reminding that – in a nutshell – the elements of patent exhaustion include (1) in Europe: (A) placing the product on market; (B) in the EEA; (C) under *consent* of the patent holder; and (2) in the US: (A) first (unconditional) sale; (B) in the US; (C) *authorized* by the patent holder; (D) in consideration of *reward* for the patented article; (E) embodying all *essential features* of the patented invention. Accordingly, the shared elements of the European and the US patent exhaustion doctrines appears to be (1) the *first sale* of the patented article; (2) *authorization* of the patent holder; and (3) *territoriality* of the exhaustion. The features of various transactions forming first sale and/or otherwise triggering exhaustion in Europe and/or the US are first briefly summarized in this Section, followed in the next Section 4.2.1.2. (Sale of FOSS) by a more detailed analysis on what constitutes sale of software in general, and sale of FOSS specifically, for the purpose of evaluating copyright and patent exhaustion. In order to fully grasp functioning of the overlapping IPRs in FOSS, as introduced in Section 2 (FOSS and Overlapping Property Rights), understanding exhaustion of copyrights in copies of FOSS programs is important for analyzing patent exhaustion in the context of FOSS.

Under the European patent exhaustion doctrine established by CJEU, patent exhaustion is triggered when a product has been *lawfully put on the market in a member state by the patent holder or with his consent*.⁵⁵¹ Further, under the provisions codifying patent exhaustion in the UPC Agreement and the Unitary Patent Regulation, the rights conferred by a European patent or a unitary patent, respectively, are exhausted after the product covered by that patent has been *placed on the market in the EU by, or with the consent of, the patent holder*.⁵⁵² Further, as an illustration of national implementation of the European patent exhaustion doctrine of CJEU, the Patent Act of Finland provides that patent exhaustion is triggered by *"patented product...put on the market within the EEA by the patent holder or with his consent"*.⁵⁵³ The legislative history of the Patent Act does not provide further guidance on what kinds of transactions are included within patented product *"put on the market"*, but bluntly repeats that patent rights in products *"released on markets"* or *"brought into circulation"* within the EEA are exhausted.⁵⁵⁴

As comparison, the Finnish Copyright Act refers, in terms of copyright exhaustion, to *"work... sold or otherwise permanently transferred with the consent of the author within the EEA"*.⁵⁵⁵ The Software Directive refers again to *"the first sale in the Community of a copy of the computer program by the right holder or with his consent"* as a precondition for copyright exhaustion.⁵⁵⁶ The Information Society Directive, in turn, provides that distribution right is exhausted within the Community where *the first sale or other transfer of ownership* in the Community of that object is made by the right holder or with his consent.⁵⁵⁷ While the precondition for exhaustion of distribution right under the Information Society Directive appears to include also other transfers of ownership in addition to sale, its Recitals provide that exhaustion does not arise in case of online services, for example, where a copy of the work is made by a user of an online

⁵⁵¹ Centrafarm v. Sterling Drug at 503-504 and 507.

⁵⁵² Article 29 of the Agreement on Unified Patent Court and Article 6 of the Unitary Patent Regulation.

⁵⁵³ §3.2 of the Patent Act of Finland.

⁵⁵⁴ HE 215/1992. HE 225/2005. See also HE 45/2015 at 93.

⁵⁵⁵ §19 of the Copyright Act of Finland.

⁵⁵⁶ Article 4(2) of the Software Directive.

⁵⁵⁷ Article 4(2) of the Information Society Directive.

service with the consent of the right holder. Instead, under the Information Society Directive, exhaustion would apply only where IPRs are incorporated into a material medium, *i.e.* an item of goods, thus obviously precluding exhaustion in online context.⁵⁵⁸ However, the Software Directive takes as *lex specialis* precedence over the Information Society Directive in matters regarding protection of computer programs.⁵⁵⁹ Despite the wording of the Software Directive referring to the "first sale" as the sole trigger for exhaustion of the distribution right, it has long been argued that the concept of sale in the Software Directive would cover also *other forms of transactions* in addition to *sale* and, specifically, that *transfer of ownership* is the correct test for evaluation of preconditions for exhaustion under the Software Directive.⁵⁶⁰ CJEU confirmed finally in UsedSoft v. Oracle that the test of transfer of ownership is indeed the correct test for evaluation of exhaustion of the distribution right under the Software Directive.⁵⁶¹

Now, when it comes to the US patent exhaustion doctrine established by SCOTUS, the US case law provides that patent exhaustion is triggered by an *unconditional sale* of an article substantially embodying the patent.⁵⁶² In comparison, the US copyright exhaustion doctrine, in turn, is triggered under §109(a) of the Copyright Act by the *first sale of a lawful copy*. Under the European copyright exhaustion doctrine, the right holder's *consent* is an important element of copyright exhaustion. In the US, right holder's consent is not required for exhaustion of the distribution right based on first sale of the copy, as long as the copy of a copyrighted work is *lawful*. This may at times lead to more limited exhaustion of distribution right in Europe compared to the US. Under the US doctrine, lawful copies based on *e.g.* compulsory licensing models are subject to exhaustion under law even in the absence of copyright holder's specific authorization.

⁵⁵⁸ Recitals 28 and 29 of the Information Society Directive. See also UsedSoft v. Oracle at Paragraph 8-11 and 55-59. Haarmann at 99.

⁵⁵⁹ Article 1(2)(1) of the Information Society Directive. UsedSoft v. Oracle at Paragraph 56.

⁵⁶⁰ Vasudeva at 167. Guibault & van Daalen at 114.

⁵⁶¹ UsedSoft v. Oracle at Paragraph 42.

⁵⁶² Quanta v. LGE at 2122.

As neither CJEU nor SCOTUS have specifically applied the patent exhaustion doctrine on sale of products embodying software patents (although sale of other computer technology is covered by their decisions), patent exhaustion in context of FOSS should be evaluated both in Europe and the US in light of the general patent exhaustion doctrine established by CJEU (as codified in the new UPC Agreement and the Unitary Patent Regulation) and SCOTUS supplemented with additional analysis, where appropriate, based on (local) case law on what constitutes sale of software as opposed to licensing of software in Europe and the US, respectively. The cases concerning sale of software have been given in the context of copyright exhaustion. CJEU finally confirmed in UsedSoft v. Oracle that, for the purpose of copyright exhaustion under the Software Directive, sale of software is constituted by any form of product marketing characterized by the grant of a right to use a copy of a computer program for an unlimited period in return for payment of a fee designed to enable the copyright holder to obtain a remuneration corresponding to the economic value of the copy of the work. The definition given by CJEU for the concept of "sale of a copy" is an autonomous concept of EU law, which should be interpreted in a uniform manner in the whole EU for the purpose of applying the Software Directive.⁵⁶³

However, what constitutes sale of software in Europe for the purpose of (copyright and/or patent) exhaustion, does not necessarily constitute sale of software in the US for the purpose of first sale doctrine. In fact, the tests for sale of software are different in Europe and the US: CAFC has ruled that the right to permanent possession of a copy of a computer program against a single payment are indeed strong attributes of a sale, but unlike CJEU, CAFC found that finding the concept of sale may be rebutted if there are *other substantial restrictions* on, for example, the right to transfer the copy.⁵⁶⁴ Further, according to the three-fold test of the Ninth Circuit, even a license may constitute sale of a copy of a computer program as long as the license is not restrictive, and specifically: (1) named as a license; and (2) limiting the ability to transfer the copy of the program; and/or (3) including other significant restrictions contradictory to the

⁵⁶³ UsedSoft v. Oracle at Paragraphs 40, 49 and 72.

⁵⁶⁴ DSC v. Pulse.

rights of an owner of a copy of a computer program under the Copyright Act.⁵⁶⁵ While the above concepts of sale of software defined in the US case law governing exhaustion of copyrights in copies of computer programs may be relevant also for evaluating sale of software for the purpose of patent exhaustion, SCOTUS has stated that for the purpose of patent exhaustion, by the end of the day, the form of the transaction is not decisive: the relevant question is, ultimately, whether the patent holder has received reward for the patented article.⁵⁶⁶ Further, CAFC has held that patent exhaustion may be triggered even by a license if it authorizes sales.⁵⁶⁷ Therefore, it is worth discussing in the next Section 4.2.1.2 (Sale of FOSS) whether sale, licensing and/or distribution of FOSS may meet the elements of *sale of software* and/or *other transaction providing* the FOSS licensor with *adequate reward* and thus triggering, not only exhaustion of copyrights, but also exhaustion of patent rights embodied by the respective copy of the FOSS program.

4.2.1.2 Sale of FOSS

The assumption is made in this study that what constitutes sale of software for the purpose of copyright exhaustion, constitutes also *one element* of the test of exhaustion of patent rights in a copy of a FOSS program, *i.e.* whether the copy is "*put on the market*" under the European patent exhaustion doctrine and/or the "*first sale*" under the US patent exhaustion doctrine. In this study, *transfer of ownership* is considered as the decisive test for sale of software, including FOSS. National courts of EU member states have held in context of copyrights that transfer of ownership in the copy of a computer program is constituted by (1) *permanent transfer* (without time limitations); (2) of the copy embodied on a *fixed medium*; (3) against a *lump sum fee*.⁵⁶⁸ However, CJEU has finally confirmed that for the purpose of exhaustion under the Software Directive, *sale of a copy of a computer program* is constituted by any form of product marketing

⁵⁶⁵ Vernor v. Autodesk.

⁵⁶⁶ US v. Masonite.

⁵⁶⁷ TransCore v. Electronic Transaction Consultants.

⁵⁶⁸ KKO 2003:88. Bundesgerichtshof [BGH] [Federal Court of Justice] July, 6, 2000, ZR 244/97 (Ger.). Regarding discussion on exhaustion in the Netherlands and Germany, see Guibault & van Daalen at 114-115.

characterized by the grant of a right to use a copy of a computer program *for an unlimited period of time* in return for a *payment* of a fee designed to enable the copyright holder to obtain a remuneration corresponding to the economic value of the copy. CJEU also held, unlike some earlier national courts in Europe, that *also digital distribution* of a copy *triggers exhaustion*, when the right holder authorized downloading of the copy from the Internet to a data carrier and granted, for consideration, right to use the said copy for an unlimited period of time. This means that the earlier, third criteria of a copy fixed on a tangible medium is no longer valid, and also online distribution of computer programs may result in exhaustion of the distribution right under the Europe copyright exhaustion doctrine. Upon exhaustion of the distribution right, the lawful acquirer of the copy has the right to resell the copy even if the license terms would state that the license is non-transferable. Subsequent acquirer(s) are also entitled to reproduce the copy on additional media as lawful acquirers provided that the previous owner had deleted its own copy of the program or otherwise made it unusable.⁵⁶⁹ Therefore, further distribution of the copy in digital form, for example, on the Internet should be allowed. In the US, CAFC has, however, acknowledged in DSC v. Pulse that while permanent transfer of software against single payment are indeed strong attributes of sale of software, those criteria are not dispositive of sale, if the user's rights are otherwise subject to several contract based restrictions not in line with the status of owner. Such restrictions may include, for example, prohibition to transfer the program further (in direct conflict with §109(a) of the US Copyright Act regarding exhaustion) or prohibition to use the program with other than licensor's hardware.⁵⁷⁰ Also the Ninth Circuit concurred with the said opinion in Vernor v. Autodesk, holding that the fact that the user had the right to possess the software indefinitely and without liability for recurring license payments, is not dispositive of finding a sale of software as oppose to license.⁵⁷¹

Prof. Lemley of Stanford University has suggested that the CAFC ruling in DSC v. Pulse may have relevance also in connection with examining sale of software in the

⁵⁶⁹ UsedSoft v. Oracle at Paragraphs 49, 63, 70, 72 and 88.

⁵⁷⁰ DSC v. Pulse at 1360-1363. See also Lindberg at 99.

⁵⁷¹ Vernor v. Autodesk at 1114.

context of patent exhaustion.⁵⁷² Therefore, despite the caveats on its application due to its copyright (not patent) background, the said test, together with further guidance from Vernor v. Autodesk regarding the concept of sale as well as Capitol Records v. ReDigi regarding exhaustion in digital context, are used in support of evaluating sale of software under the US patent exhaustion doctrine. Accordingly, the holding of CJEU in UsedSoft v. Oracle regarding both the concept of sale and exhaustion in digital context, is used in support for evaluating sale of software under the European patent exhaustion doctrine. It is acknowledged that the holding of CJEU in UsedSoft v. Oracle concerning the concept of sale of software is given for the purpose of the Software Directive. However, as the same condition, *i.e.* sale of software, is relevant for both copyright and patent exhaustion, the generally accepted concept of sale, which according to CJEU, means an agreement by which a person in return for payment, transfers the right of ownership in an item of intangible or tangible property, is used here for guidance on what constitutes "sale of software" in the absence of a definitive ruling by CJEU on exhaustion of patent rights as a consequence of sale of software.

When the European and the US tests are combined, it appears that the common criteria for the concept of sale, or in essence: transfer of ownership, includes (1) permanent transfer of a copy of a computer program; and (2) absence of periodic license payments. The US test appears to be stricter, requiring also that possibly – if the ruling in Capitol Records v. ReDigi is applied by way of analogy – (3) the copy of a computer program is embodied on a tangible media; and (4) the legal instrument does not restrict the right to transfer the copy of a computer program or include other restrictions not in line with the rights of a lawful owner of a copy under the US Copyright Act. Finally, the concept of first sale based on transfer of title in the copy of a FOSS program triggering, not only exhaustion of distribution right of the copy, but also exhaustion of patent rights in the copy, will be analyzed in light of the general guidance by CJEU and SCOTUS on conditions for transactions triggering patent exhaustion.

Now, if FOSS licenses are reflected against the above criteria constituting deemed transfer of ownership in a copy of a computer program, the following observations may

⁵⁷² Cohen & Lemley at 34-35.

be noted: The first criteria of transfer of ownership in a copy of a computer program requires that the legal instrument governing use of the copy allows *permanent transfer* of the said copy. FOSS licenses do not impose any time limitations on use nor obligations to return or destroy copies of FOSS programs upon expiration of the license, since there is no license term limited in time. In fact, many FOSS industry licenses grant non-exclusive and perpetual license rights, which may be terminated only based on breach of the license terms and/or defensive termination due to filing a patent action.⁵⁷³ Time limitations and obligations would be in breach of both the Free Software Definition and the Open Source Definition outlined in Section 1.1.1 (Concepts) by limiting the freedoms and rights granted under FOSS licenses. While the BSD and MIT licenses remain silent on duration and termination of the license grants, the GPLv2§4 merely provides that breach of the license results in an automatic termination of the licensed rights. Therefore, the rights granted under the GPLv2§§1-3 remain in force as long as the licensee remains in compliance with the terms of the GPLv2. On the other hand, American scholars have argued that, under common law, any contracts of indefinite duration not specifically defined as "perpetual", may be terminable at will by either party.⁵⁷⁴ However, FOSS licensees should not have particular concerns that FOSS licensors would terminate their licenses due to reasons other than those defined in the respective license. Termination under other grounds would be contrary to the basic freedoms under FOSS, and termination due to breach should provide FOSS licensor's with adequate protection in most cases, including industry context. While each license subject to this study provides users with perpetual license rights terminable only by operation of (local mandatory) law and/or based on contract, this, however, does not mean that the rights under FOSS licenses would be periodic. Accordingly, FOSS licenses by definition will meet the first criteria of transfer of title, *i.e.* grant of permanent right to use the copy, required by exhaustion of rights in the copy of a FOSS program.

⁵⁷³ See for example the MPLv2§5 and the EPLv2§7. See also Nimmer LCOMTECH §10:55.

⁵⁷⁴ Nimmer LCOMTECH §10:55.

The second criteria of transfer of ownership in a copy of a computer program requires that the legal instrument governing use of the copy grants the right to use the copy against a *lump-sum fee* or at least without payment of period license fees. When considering exhaustion in digital context, the relevant question appears to be whether the right holder has received *appropriate remuneration* for use of the protected subject matter.⁵⁷⁵ Further, while CJEU refers to a fee designed to enable the right holder to obtain a remuneration corresponding to the economic value of the copy, academic scholars in Europe have argued that transfer of title in a copy free of charge may also result in exhaustion of the distribution right, although the transfer of title would not be effected by operation of a sale, but rather a gift or donation.⁵⁷⁶ Also CJEU appeared to concur with this conclusion: according to CJEU, the right of distribution of a copy of a computer program is exhausted if the right holder authorized, *even free of charge*, the downloading of the copy from the Internet on the data carrier and granted, in return for payment of a fee intended to enable the right holder to obtain a remuneration corresponding to the economic value of the copy, the right to use the copy for an unlimited period.⁵⁷⁷ Therefore, the key appears to be that the right to use the copy must not be subject to payment of periodic fees, not whether the transfer of title is free of charge or in consideration of a monetary payment. It must of course be noted, that this element is examined here from the perspective of what constitutes transfer of ownership of a copy of a computer program. Therefore, when the additional elements of patent exhaustion are evaluated later in this Section 4.2.1 (Preconditions of Patent Exhaustion of FOSS), it must be remembered, that under the US doctrine, the requirement of reward is an important element of patent exhaustion, as will be discussed in more detail in Section 4.2.1.5 (Reward).

The second criteria of transfer of title in a copy of a computer program, *i.e.* the prohibition of periodic payments, seems to be met in connection with FOSS licensing: FOSS may be licensed either free of charge or sold for a single payment, but not subject to payment of recurring royalties. Nothing in the Free Software Definition prevents sale

⁵⁷⁵ UsedSoft v. Oracle at Paragraph 63.

⁵⁷⁶ Guibault & van Daalen at 115. Haarmann at 99. Harenko, Niiranen, *et. al.* at 157.

⁵⁷⁷ UsedSoft v. Oracle at Paragraph 72.

of F/OSS, provided that FOSS licensees always retain the freedoms to copy, modify and distribute FOSS programs under the respective FOSS license without additional restrictions such as royalty obligations.⁵⁷⁸ For example, the GPLv2 specifically allows distribution of copies of the program both for free and for a fee provided that the recipients of the program are given all the freedoms under the GPLv2. Thus, both copies of GPL-licensed programs as well as additional services on top of FOSS, such as warranties or maintenance, may be sold at any price to anyone.⁵⁷⁹ Further, the FSF has always maintained that sale of *free software* is permitted, and even encouraged, since the *freedoms* to copy, modify and distribute the program are the decisive attributes of free software, not the *price* of the distribution.⁵⁸⁰ On the other hand, the Open Source Definition differs from the Free Software Definition in this respect: Section 1 of the Open Source Definition requires free of charge distribution of *open source software*, while it does permit charging fee for other aspects of the distribution, such as support or warranty services.⁵⁸¹ However, the GPLv2 and also the MIT license *specifically permit* sale of copies of the software and the BSD license *does not prohibit* charging a fee for distribution of the software. Therefore, technically, those licenses are not in strict compliance with Section 1 of the Open Source Definition, as software under all of the licenses subject to this study may be sold against a lump sum fee, even if no royalties or other recurring fees may be charged for the GPL-licensed software. Open source software, such as BSD and the MIT licensed software, may also be closed, unlike free software subject to copyleft-clause, as part of proprietary software subject to proprietary license including also royalty obligations, thereby diluting the requirement of free distribution under the Open Source Definition. However, then the software is no longer FOSS, but proprietary software. Accordingly, as FOSS licenses subject to this study permit distribution of software for free or against a lump sum fee, but not subject to recurring royalties, the said FOSS licenses by definition will meet the second criteria of

⁵⁷⁸ Free Software Definition.

⁵⁷⁹ GPLv2§1 and the Preamble.

⁵⁸⁰ Free Software Foundation (FSF): Selling Free Software. Available at <http://www.gnu.org/philosophy/selling.en.html>. (Last visited June 9, 2015). Moglen, Ravicher, *et. al.* at 3-4. Haapanen 2011 at 249-250.

⁵⁸¹ Open Source Definition Annotated. Available at <http://opensource.org/osd-annotated> (Last visited June 9, 2015). See also Guibault & Van Daalen at 117-120.

transfer of title, *i.e.* the absence of recurring license fees, required by exhaustion of rights in the copy of a FOSS program.

The third criteria of transfer of ownership in a copy of a computer program requires – possibly in the US, but not in Europe – that the copy is fixed on a tangible media in order to trigger exhaustion of the distribution right in the copy. Based on the holding of CJEU in UsedSoft v. Oracle, it is now clear in the EU that a copyright holder's exclusive distribution right under Article 4(1)(c), with the exception of the right to control further rental of the copy under Article 4(2), of the Software Directive is exhausted also when the right holder allowed the copy to be downloaded from the Internet to a data carrier and also granted, for appropriate consideration, a right to use the copy for an unlimited period of time. This results from the holding of CJEU that a sale within the meaning of Article 4(2) of the Software Directive is constituted by any form of product marketing act by which the copy is made available in the EU, in any form, and by any means, for the purpose of being used for an unlimited period and in return for payment of a fee designed to enable the copyright holder to obtain a remuneration corresponding to the economic value of the copy of the work.⁵⁸² Accordingly, under the European *copyright* exhaustion doctrine, the distribution right of a copy of a FOSS program is exhausted upon first sale of the copy, *i.e.* when the copy of a FOSS program is first made available either (1) on tangible media; (2) by allowing the copy to be downloaded from the Internet to a data carrier; or (3) by any other means what so ever, provided in each case (1)-(3) that the copy is licensed by the right holder for an unlimited period of time and in return for free of charge or a lump-sum payment. The assumption is made here that sale of software, including also a copy of a FOSS program, meeting the above elements laid down by CJEU constitutes also "*placing the product on market*" as required by the European *patent* exhaustion doctrine.

In a recent US case, SDNY ruled in Capitol Records v. ReDigi – for the first time ever in the US – on whether a lawfully purchased digital music file could be resold on the Internet under the first sale doctrine. The specific question was *whether* transfer of the said file over the Internet, where only one file exists before and after the transfer (the so

⁵⁸² UsedSoft v. Oracle at Paragraph 49.

called *forward plus delete* – concept) constitutes reproduction within the meaning of the US Copyright Act. SDNY held that yes, it does. Therefore, distribution right of the said new, unauthorized copy of the digital file is not exhausted, either. According to the facts of the case, lawful owners of digital music files originally bought from iTunes, uploaded their files to ReDigi service for resale so that other users of the service could buy those files. When uploading the music files on ReDigi service, the files were transferred from one material object, the seller's computer, to another object, ReDigi server, and again to the buyer's computer, when s/he downloaded the file. These two stages of copying constituted unauthorized reproduction under the US Copyright Act despite that the earlier copies were deleted. SDNY held that the first sale defense is limited to *material items, like records, that the copyright owner put into the stream of commerce*. The copies of music files sold on ReDigi were not the original material items and thus did not constitute lawful copies. Accordingly, the first sale defense under the §109(a) of the US Copyright Act did not apply to distribution of those copies.⁵⁸³ This case may clarify the US doctrine also with regard to exhaustion of distribution rights in computer programs in digital context, by implying that exhaustion applies only to a lawful copy of a computer program fixed on a material medium. Already a long ago, it was held in "offline context" that what constitutes a sale for the Uniform Commercial Code (UCC), may constitute also a sale of software under the first sale doctrine.⁵⁸⁴ Under the UCC, sale is defined as *transaction of goods*. Goods, in turn, mean *all things movable*. As a copy of a computer program embodied on tangible media is a movable item, it may also amount to goods under the UCC.⁵⁸⁵ On the other hands, also counter arguments may be found on application of the holding in Capitol Records v. ReDigi to computer programs: As discussed above, courts could possibly reach also the opposite conclusion in context of computer programs and justify the digital first sale doctrine, if the other elements of sale of software are met, under the essential step defense, which allows an *owner of a copy* of a computer program to make a copy of the

⁵⁸³ Capitol Records v. ReDigi at 648, 650 and 655.

⁵⁸⁴ Novell, Inc. v. Network Trade Center, Inc., 25 F. Supp. 2d 1218 (D.Utah 1997) at 1229-1230. See also Determann & Fellmeth at 27-30.

⁵⁸⁵ § 2-105(1) of the UCC. See also Rosen at 75 arguing that software is not goods.

computer program if such new copy is created as an essential step in the utilization of the computer program with a machine.⁵⁸⁶

When the SDNY holding in Capitol Records v. ReDigi is compared to the CJEU holding in UsedSoft v. Oracle, it may be noted that they concern different stages of digital distribution: CJEU concerned the initial, authorized downloading of a copy from the Internet to a material medium, triggering exhaustion of rights in the said copy, and also allowing subsequent reproduction of the copy by the lawful acquirer in connection with its resale, thus enabling resale of the copy on the Internet – unlike in Capitol Records v. ReDigi. SDNY, did not, however, specifically discuss (the rather theoretic scenario) whether distribution rights of lawful copies downloaded from iTunes *sold on the same material items* on which they were first fixed, would have been within the first sale defense. However, in context of discussing unauthorized reproduction of the files, SDNY stated, as referred above, that "the first sale defense is limited to *material items...that the copyright owner put* into the stream of commerce." This implies that, indeed, exhaustion of distribution right applies only to a specific copy fixed on a tangible media, and put into the stream of commerce by the copyright holder. This interpretation of the US copyright exhaustion doctrine excludes the view adopted by CJEU that distribution right in a copy lawfully downloaded from the Internet under the authorization of the copyright holder is exhausted. The interpretation adopted by SDNY appears to be contradictory with the views of some US scholars, which have already a long ago argued that under §109(a) of the US Copyright Act, exhaustion applies to a lawful copy, which is *ultimately* fixed in a material object.⁵⁸⁷ Accordingly, under the US copyright exhaustion doctrine, the distribution right of a copy of a FOSS program is exhausted upon first sale of the copy, *i.e.* when the copy of a FOSS program is first made available by the copyright holder on tangible media. Either a decision by Courts of Appeal for the Circuits or, finally by SCOTUS, would provide greater clarity on the question whether exhaustion of the distribution right always requires that the copy is delivered on tangible media. Since the Redigi is a copyright case and while it may give

⁵⁸⁶ §117(a) of the US Copyright Act.

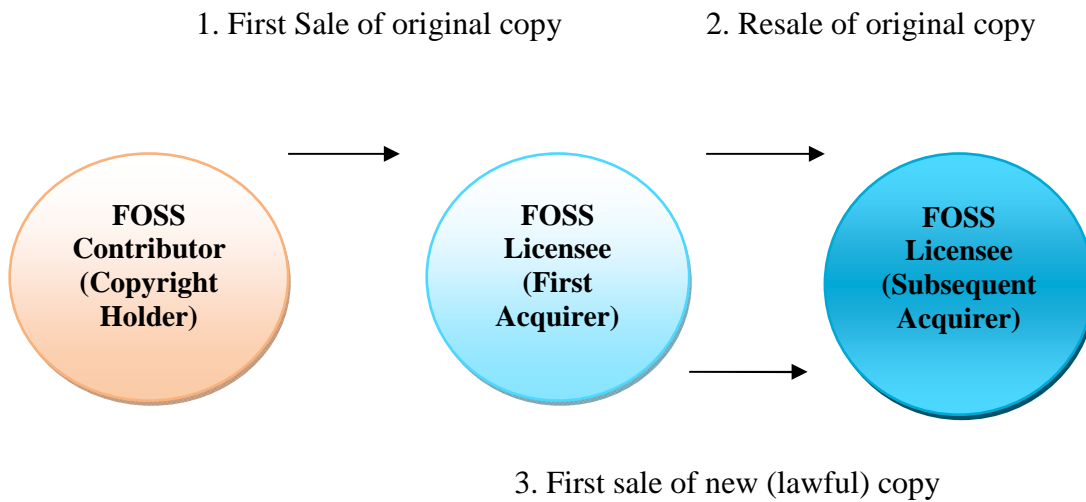
⁵⁸⁷ Determann & Fellmeth at 22-23 and 30.

guidance on exhaustion of rights in digital context, it does set definitive limits for exhaustion of patent rights. Therefore, it is not precluded that exhaustion of patent rights is found in connection with digital copies provided however, that the right holder's right to making articles embodying the patented invention is not infringed.

Finally, the fourth criteria of transfer of ownership in a copy of a computer program requires in the US the absence of further restrictions on the right to *transfer* the copy or *other restrictions* not in line with the rights of a lawful owner under the US Copyright. Now, when taking a look at the FOSS licenses subject to this study, it may be noted, that the licenses allow transfer of the software provided that the FOSS licensee meets *the license conditions* regarding notice, source code distribution and/or other requirements. If those conditions are met, the original copy of the FOSS program may be freely transferred further. The FOSS licenses also permit distribution of an unlimited number of additional copies reproduced in verbatim or modified form of the original copy. Further, both the GPLv2 and the MIT license expressly allow sale of copies of the FOSS program. Therefore, there should be no such restrictions on alienation of a copy of a FOSS program that would preclude FOSS licenses meeting the fourth element of sale of software under the US doctrine. Other rights of a lawful owner of a copy under the US Copyright Act includes, as already shortly discussed in Section 2.1.3 (Software Copyrights in the US) the essential step defense limiting copyright holder's exclusive reproduction right in addition to the first sale defense limiting copyright holder's exclusive distribution right. However, as FOSS licensees are, by definition, entitled to both reproduce and distribute copies of FOSS programs subject to compliance with license conditions, it may be argued that FOSS licenses do not impose such additional restrictions, which are not in line with the rights of a lawful owner under the US Copyright. The requirement of absence of restrictions on alienation of the copy in order to constitute sale of software in copyright context is actually similar to the requirement of unconditional sale under the US patent exhaustion doctrine, which will be discussed in more detail in Section 4.2.1.4 (Unconditional Sale) below. Accordingly, under the US *copyright* exhaustion doctrine, the distribution right of a copy of a FOSS program is exhausted upon first sale of the copy, *i.e.* when the copy of a FOSS program is first made available (arguably) on tangible media, provided that the copy is licensed by the right holder for an unlimited period of time and in return for free of charge or a lump-

sum payment *and* without restrictions on resale of the copy, or other restrictions in contradiction with the status of a lawful owner. The assumption is made here that sale of software, including also a copy of a FOSS program, meeting the above elements laid down by CAFC and Ninth Circuit constitutes also "*sale*" required by the US *patent* exhaustion doctrine. Exhaustion of distribution right in a copy of a FOSS program based on sale of software in digital context may be illustrated as below.

PICTURE 9: FIRST SALE IN DIGITAL CONTEXT IN EUROPE AND THE US



PICTURE 9: FIRST SALE IN DIGITAL CONTEXT IN EUROPE AND THE US

Europe: The first sale, *i.e.* the initial release of a copy of a FOSS program under a FOSS license (Arrow 1) by FOSS Contributor (Copyright Holder) to FOSS Licensee (First Acquirer) exhausts distribution right of the said copy *irrespective of whether* the FOSS program is first made available (1) on tangible media; or (2) by FOSS Contributor allowing the copy to be downloaded by FOSS Licensee from the Internet to a data carrier. Further, exhaustion of the distribution right also permits resale of a new copy (Arrow 3) on the Internet, as the Subsequent Acquirer is entitled to rely on exhaustion of the distribution right and reproduce the program as required for its use despite Copyright Holder's exclusive reproduction right of the copyrighted work. Further, also distribution rights of *new copies* of the FOSS program made by the First Acquirer of the FOSS program released by FOSS Contributor under the FOSS license permitting reproduction and modification of the original copy are exhausted upon first sale of those *copies (produced with the consent of FOSS Contributor)* by First Acquirer made available (1) on tangible media; or (2) by allowing the copy to be downloaded by FOSS Licensee (Subsequent Acquirer) from the Internet to a data carrier.

US: The first sale, *i.e.* the initial release of a copy of a FOSS program under a FOSS license (Arrow 1) by FOSS Contributor (Copyright Holder) to FOSS Licensee (First Acquirer) exhausts distribution right of the copy arguably *only when* the FOSS program is first made available on tangible media. Exhaustion of the distribution right (alone) does not permit resale of the copy (Arrow 2) on the Internet, as the Copyright Holder retains the exclusive reproduction right of the copyrighted work. However, also distribution rights of *new (verbatim or modified) copies* of the FOSS program made by First Acquirer of the original copy released by FOSS Contributor under the FOSS license permitting reproduction and modification of the FOSS program are exhausted upon first sale of those *lawful copies* by the First Acquirer arguably *only when* first made available on tangible media.

4.2.1.3 Unconditional Sale

As discussed above, the conclusion drawn in Section 4.2.1.2. (Sale of FOSS) is that FOSS licensing may constitute sale of (free and/or open source) software for the purpose of copyright exhaustion. However, the concept of sale as such may not be sufficient to trigger exhaustion of patent rights in software. When it comes to the US patent exhaustion doctrine, the sale must also be *unconditional*, i.e. *not impose restrictions on resale* of the patented article, in order to trigger exhaustion.⁵⁸⁸ The requirement of unconditional sale under the US patent exhaustion doctrine is similar to the requirement of absence of restrictions on alienation of the copy in order to constitute sale of software under the US copyright exhaustion doctrine. Whether FOSS licensing entails restrictions on transfer of a copy of a FOSS program or may be considered as an unconditional sale, is already shortly discussed above in copyright context. However, further analysis is required for the purpose of evaluating exhaustion of patent rights in a copy of a FOSS program. As affirmed by the US District Court for the Northern District of California, the GPL permits distribution of software only if the distributor satisfies several specific conditions, such as including a copy of the GPL along with the distributed program.⁵⁸⁹ Also the permissive BSD license states that "redistribution and use in source and binary forms, with or without modification, are permitted *provided that the following conditions are met*." Further, the MIT license provides that "permission is hereby granted... *subject to the following conditions*". Despite that the FOSS licenses subject to this study include conditions on copying, modification and/or distribution of software, each of the licenses permit sale, including other redistribution and/or licensing, of software provided that the license conditions are met. As discussed in Section 4.1.2 (Patent Exhaustion in the US), *conditional sale* is understood to mean *sale imposing restrictions on resale* of the patented product.⁵⁹⁰ Despite the conditions on modification and distribution of GPL-licensed software included in the GPLv2 §§1-2, it is expressly mentioned in the GPLv2 that the said license is *designed to make sure*

⁵⁸⁸ Quanta v. LGE at 2116 and 2122.

⁵⁸⁹ XimpleWare v. Versata Order Granting-In-Part Defendants' Motions to Dismiss. No. 5:13-cv-05161-SI-PSG (N.D. Cal. Nov 25, 2014) at 11.

⁵⁹⁰ Quanta v. LGE at 2116 and 2122.

that the licensee has the freedom to distribute copies of free software, and to charge for such distribution.⁵⁹¹ Further, additional restrictions, including any attempt to restrict transfer of software, are expressly prohibited under the GPLv2§4. Accordingly, the GPL license does not restrict the right to transfer software. Therefore, it may be argued that FOSS licensor contributing and/or redistributing software under the terms of the GPLv2 provides the software with licensees based on an unconditional sale from patent perspective. Former FSF Counsel has noted, in connection with an analysis on implied patent license under the GPLv2, that the elements of implied license found in Hewlett-Packard v. Repeat-O-Type⁵⁹², *i.e.* "seller" "sells" "without restriction" are also present in licensing of software under the GPLv2, thus arguably allowing an unconditional sale of a copy of the GPLv2 licensed program, triggering exhaustion of patent rights in the said copy.⁵⁹³

Further, CAFC has held that the requirements regarding attribution and transparency of modifications create *conditions* for protecting the economic rights in the FOSS license, and are thus enforceable conditions under the US Copyright Act. The court also reminded that under Californian law, the words "*provided that*" usually denote a condition. The court distinguished independent contractual covenants from conditions of a copyright license, holding that mere covenants do not limit the scope of the license, whereas breach of conditions may result in copyright infringement.⁵⁹⁴ Further, while FOSS licensing may not be deemed *unconditional copyright license* under the above analysis, it must be borne in mind that, in essence, those restrictions are *conditions on grant of the express copyright license*. However, if emphasis is put on the fact that the reward of the patent holder rests on the consideration received by the FOSS licensor based on FOSS licensee's compliance with the license terms (*i.e.* copyright conditions), such as attribution and code contributions, then the relation between exhaustion of patents and the license conditions is closer, and may compel the conclusion that FOSS

⁵⁹¹ Preamble of the GPLv2.

⁵⁹² Hewlett-Packard Co. v. Repeat-O-Type Stencil Manufacturing Corp., 123 F.3d 1445 (Fed. Cir. 1997), *cert. denied*, 523 U.S. 1022 (1988). (Hewlett-Packard v. Repeat-O-Type)

⁵⁹³ Ravicher 2005.

⁵⁹⁴ Jacobsen v. Katzer at 1381-1383.

license conditions are conditions for not only the copyright grant, but specific reward, and bargained for consideration for the consummation of rights in the respective patents embodied by the FOSS program in general. However, if the license conditions of the FOSS licenses subject to this study are met, there are no (additional) conditions imposing *restrictions on resale* of the copy of the FOSS program from patent perspective. Namely, the instrument governing first sale of the patented article may include *general obligations* such as the obligation to pay the sales price of the patented article as a condition for transfer of ownership in the sold article as well as *restrictions on resale* of the patented article. If such general obligations are met, they do not render the sale conditional, *i.e.* restrict resale of the patented article and preclude exhaustion of patent rights in sold articles. As discussed in Section 3.1.2 (Acceptance of License vs. Conclusion of Contract), consideration is one element of a valid contract under the US laws. Without such element, an (ordinary) contract concerning (first) sale of a patented article would not be valid in the US, while consideration alone does not render the sale conditional. Perhaps the same analogy could be drawn also in context of FOSS: compliance with copyright conditions of the FOSS license forms the bargained for consideration between the FOSS licensor and the FOSS licensee(s): If the copyright conditions are met, release of a copy of a FOSS program under a FOSS license may amount to an unconditional sale from the perspective of patent exhaustion, and may thus trigger exhaustion of patent rights embodied by the sold copy of the FOSS program. This could apply irrespective of whether the patent holder is a contributor or a mere distributor of FOSS: in both cases it benefits from the downstream licensees' compliance with the license terms of the respective FOSS license.

Finally, it is worth reminding that SCOTUS held in Quanta v. LGE that since the respective license agreement concerning sale of patented products did not impose restrictions on resale, the sale was unconditional despite that a *separate* master agreement did require the buyer to give notice to its customers that the seller's license does not extend to customer's own combinations. However, the Master Agreement expressly provided that breach of the Master Agreement would not amount to breach of

the License Agreement.⁵⁹⁵ Therefore, the contractual structure governing the sale may have an essential impact on whether or not the patent exhaustion doctrine actually applies to sale of FOSS in each given case.⁵⁹⁶ This should, however, not change the above analysis of patent exhaustion in FOSS context, because if the copyright conditions are met, the FOSS licensee is free to resell the copy of the FOSS program.

4.2.1.4 Reward

After discussing in Section 4.2.1.2 (Sale of FOSS) on whether FOSS licensing may constitute sale of software triggering exhaustion of distribution right in the copy of a FOSS program, it is worth noting that while it was considered that FOSS licensing may amount to *sale of FOSS* triggering copyright exhaustion, SCOTUS has held that, by the end of the day, the *form of transaction* is not decisive for finding patent exhaustion. Instead, the decisive test for patent exhaustion is, according to SCOTUS, whether there has been such a disposition of the article that the patent holder has received *reward* for using the invention. SCOTUS ruled that in order for the disposition, whether *a sale or a license*, of the patented article to trigger exhaustion, the patent holder must have received *reward* for use of the patented article.⁵⁹⁷ However, the reward does not always have to be equal to the contemplated full value for use of the patent.⁵⁹⁸ For comparison, CJEU has held that for exhaustion of distribution right in a copy of a computer program based on sale of software, the relevant question is whether the copyright holder who authorized, *even free of charge*, the downloading of that copy from the Internet, received a fee intended to enable him to *obtain a remuneration corresponding to the economic value of the copy*.⁵⁹⁹ Further, while CJEU referred effectively to a payment in form or a remuneration corresponding to the value of the copy, academic scholars have argued that transfer of ownership in a copy also free of charge may result in exhaustion of the distribution right when the transfer of ownership is effected, for example, by

⁵⁹⁵ Quanta v. LGE at 2110.

⁵⁹⁶ Merges & Duffy 2013 at 1209.

⁵⁹⁷ US v. Masonite at 278.

⁵⁹⁸ Static Control Components v. Lexmark Intern at 586.

⁵⁹⁹ UsedSoft v. Oracle at Paragraph 72.

operation of a gift or a donation.⁶⁰⁰ Further, also CJEU expressly stated that even authorizing the download free of charge may result in exhaustion, if the right holder otherwise received a remuneration corresponding to the economic value of the copy. Therefore, as shortly discussed already earlier, the key appears to be whether the transfer of ownership is free of charge or in consideration for a lump sum fee, but not subject to recurring royalties.

The rulings of SCOTUS and CJEU mandate discussion on reward in the context of FOSS licensing. Although FOSS is often distributed free of charge, there is no restrictions on selling it for monetary consideration. Free software refers to freedom, not price: software can be free even if it is not delivered for gratis.⁶⁰¹ Further, even if FOSS would be distributed for free, FOSS licensor may still gain sufficient consideration from the mere FOSS licensing model. CAFC has held that even the lack of money changing hands in FOSS licensing does not mean that there were no economic consideration involved in FOSS licensing model. According to CAFC, FOSS licensing involves substantial economic benefits reaching even far beyond traditional royalties involved in sale of software. By way of example, FOSS licensing model may help in generating market share for products, increase worldwide reputation and attract free of charge code contributions.⁶⁰² Therefore, sale, licensing and/or distribution of a copy of a FOSS program against lump sum fee permitting permanent use of the program *may* indeed constitute *sale* for the purpose of not only copyright, but also patent exhaustion. Namely, when the question is of a permanent transfer of ownership of a copy of a FOSS program made available on fixed medium (in the US) and/or for download on the Internet (in Europe) under the authorization of the patent holder, both copyrights and patents may be exhausted in the sold copy irrespective of whether the transaction is called a sale, licensing and/or distribution of FOSS and provided, of course, that the transaction is unconditional, *i.e.* does not impose restrictions on resale of the copy. Considering that the FOSS licenses subject to this study do not impose restrictions on

⁶⁰⁰ Guibault & van Daalen at 115. Haarmann at 99. Harenko, Niiranen, *et. al.* at 157.

⁶⁰¹ 2 Raymond Nimmer §11:7 at 11-16 – 11-17.

⁶⁰² Jacobsen v. Katzer at 1379.

resale of the copy of a FOSS program, the said FOSS transaction may constitute sale, triggering exhaustion of patents (and copyrights) in the copy.

4.2.1.3 Authorization of the Patent Holder

Patent exhaustion requires that the first sale of the patented product, including also release of a copy of a patented FOSS program, is *authorized*. Specifically, under the European patent exhaustion doctrine, patent exhaustion is triggered when the patented product has been *lawfully put on the market by the patent holder or with its consent*.⁶⁰³ Under the US patent exhaustion doctrine, patent exhaustion is triggered by a sale *authorized by the patent holder*.⁶⁰⁴ (Note the difference to the US copyright exhaustion doctrine, under which copyright holder's authorization for first sale is not required, but the sold article must be a *lawful copy* of the protected work.) Accordingly, under both the European and the US patent exhaustion doctrines, first sale of a patented article (1) by the *patent holder*; or (2) its *authorized licensee* results in exhaustion of the patent rights embodied by the sold article.

In the context of sale, licensing and/or distribution of FOSS, this means that *exhaustion of patent rights* in a copy of a FOSS program occurs, by way of example, in the following circumstances: patent holder *releases a copy* of a FOSS program *under and in compliance with a FOSS license* subject to this study either free of charge or against a lump sum payment, such transaction, by definition, meeting also the elements of sale of software. The copy subject to exhaustion of patent rights may be either (A) a copy of the patent holder's own, *original*, FOSS program (owned and copyrighted by the patent holder, *i.e.*, the patent holder is a FOSS contributor) *contributed* by the patent holder or its authorized licensee on behalf of the patent holder; *or* (B) a copy of a FOSS program received by the patent holder from other FOSS licensor(s), and *redistributed* by the patent holder or its authorized licensee on behalf of the patent holder in *verbatim* form (*i.e.*, the patent holder is a FOSS distributor); *or* (C) a copy of a FOSS program received by the patent holder from other FOSS licensor(s), and *licensed* by the patent holder or

⁶⁰³ Centrafarm v. Sterling Drug at 503-504 and 507.

⁶⁰⁴ Quanta v. LGE at 2112.

its authorized licensee on behalf of the patent holder in *modified* form (*i.e.*, the patent holder is also a FOSS contributor of a copyrighted joint work covered also by its patent rights).

When it comes to authorization of sale of a copy of a FOSS program, a German court held in a case regarding exhaustion of copyrights in a copy of a FOSS program licensed under the GPLv2, that exhaustion did *not* apply to copies of the FOSS program sold on tangible media. The defendant had violated the license conditions of the GPLv2§2, due to which it had lost its license rights under the GPLv2§4 and therefore, copies made by the defendant were put into circulation *without the consent* of the authors. Absent consent, the sale was unauthorized, and accordingly, did not trigger exhaustion of copyrights in the infringing copies.⁶⁰⁵ However, even if a patent holder would sell a patented article in breach of the respective (downstream) FOSS license governing copying, modification and distribution of the copyrights in the copy of the FOSS program, the said breach does not exclude exhaustion of patent rights in the sold copy as long as the elements of patent exhaustion doctrines in Europe and/or the US, are met. Of course, the patent holder could be liable towards the copyright holder(s) of the FOSS program for alleged copyright infringement due to breach of the said FOSS license. Such infringing activity, however, does not necessarily affect the license rights of other downstream FOSS licensees, which received the infringing copies from the patent holder: if the FOSS licensees comply with the terms of the respective FOSS license, the upstream party's, including patent holder's) infringement does not automatically terminate the downstream users' rights. Namely, the GPLv2 license expressly states that even if a distributor infringes the license terms, the parties who have received copies from the infringing distributor will not have their licenses terminated as long as such recipients themselves remain in full compliance with the license.⁶⁰⁶ This outcome was noted also by the German court in the copyright exhaustion case.⁶⁰⁷

⁶⁰⁵ Welte v. D-Link.

⁶⁰⁶ GPLv2§4.

⁶⁰⁷ Welte v. D-Link.

4.2.1.6 Territoriality of Exhaustion

As discussed in Section 4.1.1 (Patent Exhaustion in Europe) and Section 4.1.2 (Patent Exhaustion in the US), the patent exhaustion doctrines currently in force in Europe and the US are still of territorial nature: Under the European doctrine, exhaustion of patents rights in a copy of a FOSS program requires placing the copy covered by "European" patent(s) on the markets in the EEA, or in case of unitary patents, in a participating member state. Respectively, under the US doctrine, exhaustion of patents rights in a copy of a FOSS program requires placing the copy covered by US patent(s) on the markets in the US. Accordingly, in each case the territorial reach of patent exhaustion depends on (1) where the patents reading the copy of the FOSS program are registered; as well as (2) where the respective copy of the FOSS program is sold or otherwise released on the market.

When it comes to exhaustion of patent claims embodied by the sold FOSS program, the EU law does not appear to clearly specify to what extent the patent must be embodied by the sold article in order to trigger exhaustion of patent rights. Under the US patent exhaustion doctrine, patent rights "substantially embodied" by the sold product are sufficient to trigger exhaustion of those patent rights. However, deep claim construction and analysis is not within the scope of this study. Therefore, this topic is not further examined in this context.

4.2.1.7 Analysis of the Findings

Based on the above analysis on the current European and the US patent exhaustion doctrines, the answer to the Research Question 1: "Does sale, licensing and/or redistribution of FOSS trigger patent exhaustion?" must be answered on a case by case basis. If the following preconditions for patent exhaustion are met, the answer is most likely *yes*: Sale, licensing and/or redistribution of a copy of a FOSS program may trigger patent exhaustion when: The copy of a patented FOSS program is released (1) *under and in compliance with* a FOSS license subject to this study granting a perpetual right to use the copy against a single payment or free of charge without imposing restrictions on resale of the copy; (2) by or under authorization of the patent holder; *and* (3)(A) within the EEA and/or participating member states in order to trigger exhaustion

of patents granted in the EEA and/or unitary patents, respectively; or (3)(B) in the US to trigger exhaustion of patents granted in the US.⁶⁰⁸ As may be noted from the above test, finding patent exhaustion requires always fulfilment of various preconditions, which may vary also depending on the respective jurisdiction where the copy of a FOSS program is released in commerce. Therefore, the elements of patent exhaustion must always be evaluated on a case-by-case basis.

Under the *copyright* exhaustion doctrine, the distribution right of a copy of a FOSS program is exhausted upon *first sale of the copy* (1) under the European copyright exhaustion doctrine when the copy of a FOSS program is first made available either (A) on tangible media; (B) by allowing the copy to be downloaded from the Internet to a data carrier; or (C) by any other means whatsoever, provided in each case (A)-(C) that the copy is licensed by the right holder for an unlimited period of time and in return for free of charge or a lump-sum payment; and (2) under the US copyright exhaustion doctrine when the copy of a FOSS program is first made available on tangible media, provided that the copy is licensed by the right holder for an unlimited period of time and in return for free of charge or a lump-sum payment *and* without restrictions on resale of the copy, or other restrictions in contradiction with the status of a lawful owner under the US Copyright Act.

Accordingly, there are two crucial differences between the European and the US copyright exhaustion doctrines: When a license is granted for an unlimited period of time against a lump sum fee, any attempt by the copyright holder to restrict further transfer is void, and does not prevent resale of the copy by the licensee under the European doctrine, because prohibiting a lawful owner from reselling the copy is not within the specific subject matter of copyright.⁶⁰⁹ However, restrictions on transfer of copy may preclude exhaustion under the US doctrine. Another important difference concerns online distribution, which may trigger exhaustion of distribution rights in copies under the European, but obviously not under the US copyright exhaustion

⁶⁰⁸ Note, however, that case law is about to develop on this point of law, and may soon be affirmed to change from territorial exhaustion to international exhaustion of patents under the US patent exhaustion doctrine as discussed in Section 4.1.2 (Patent Exhaustion in the US).

⁶⁰⁹ UsedSoft v. Oracle at 63.

doctrine. In Europe, the decision of CJEU finally settled the law, which raised many questions on how exhaustion should be applied in the era of the Internet.⁶¹⁰

Finally, the objectives of exhaustion and FOSS licensing are actually similar: both permit charging a fee for the act of sale, but preclude collecting double royalty: both copyright and patent exhaustion prevent doubly royalty by the right holder for use and resale of the sold article, whereas FOSS licensing model precludes double royalty by the copyright and/or patent holder for exercising the freedoms under the FOSS license. Despite the foregoing, neither concept precludes resale of the article, whether a copy of a FOSS program or another item, by the lawful acquirer of the article upon exhaustion of rights in the article. FOSS licensing, of course, provides many other freedoms to the FOSS licensee on top of rights secured by copyright and/or patent exhaustion, as will be discussed below in Section 4.2.2.3 (Exclusive Rights Retained by FOSS Licensor).

4.2.2 Impact of Patent Exhaustion on Use of FOSS

4.2.2.1 Overview

This Section 4.2.2 (Impact of Patent Exhaustion on use of FOSS) aims to shed light on the sub-questions (ii) and (iii) of the Research Question 1 set forth in Section 1.3.1 (Research Questions) and thus examines (ii) the scope; and (iii) the extent – and thereby the practical impact – of the patent exhaustion doctrine in the context of sale, licensing and/or redistribution of FOSS in Europe and the US. The sub-question (ii) of the Research Question 1 is approached by discussing in Section 4.2.2.2 (Exclusive Rights Subject to Exhaustion) what is the *scope* of rights secured by a lawful owner of the patented product, including a copy of a patented FOSS program, based on exhaustion of patent rights in the copy. Further, the sub-question (iii) of the Research Question 1 is approached by discussing in Section 4.2.2.3 (Exclusive Rights Retained by the Patent Holder) what exclusive rights are retained by the patent holders in connection with selling, licensing and/or redistribution of FOSS programs, and how the rights granted to users under the FOSS licenses subject to this study do or do not provide comfort against potential claims of patent holders engaged in FOSS licensing.

⁶¹⁰ Determann & Fellmeth at 19-22. Guibault & van Daalen at 115-116. Vasudeva at 167-168.

4.2.2.2 Exclusive Rights Subject to Exhaustion

As discussed in Section 4.2.1 (Preconditions for Patent Exhaustion of FOSS), sale, licensing and/or redistribution of a copy of a FOSS program may trigger patent exhaustion when: The copy of a patented FOSS program is released (1) *under and in compliance with* a FOSS license subject to this study granting a perpetual right to use the copy against a single payment or free of charge without imposing restrictions on resale of the copy; (2) by or under authorization of the patent holder; *and* (3)(A) within the EEA and/or participating member states in order to trigger exhaustion of patents granted in the EEA and/or unitary patents, respectively; or (3)(B) within the US to trigger exhaustion of patents granted in the US. The elements of patent exhaustion must always be evaluated on a case-by-case basis.

As discussed in Section 4.1.1 (Patent Exhaustion in Europe) and 4.1.2 (Patent Exhaustion in the US), patent exhaustion triggers the rights to *use* and *resell* the sold article, including the copy of a patented FOSS program without a separate authorization of the patent holder. In comparison, when it comes to the copyright exhaustion, first sale of a copy of copyrighted work, including the copy of a FOSS program, exhausts the exclusive distribution right of the copyright holder in the copy permitting the owner (1) to *distribute* (including *resell*) the copy of a FOSS program within the EEA under the European copyright exhaustion doctrine; or (2) *sell and otherwise dispose of* the copy of a FOSS program in the US under the US doctrine of copyright exhaustion.

Since any FOSS licenses, by definition, permit further *distribution* of the copy of a FOSS program (of course subject to compliance with the license conditions of the respective FOSS license) copyright exhaustion does not appear to add any additional rights for the FOSS licensee from a copyright perspective. Quite the contrary: Copyright exhaustion is limited to exhaustion of the distribution right, and does not exhaust the rights to *copy* the work nor *create or distribute derivative* works of the copy, which rights are retained by the copyright holder. Therefore, a FOSS licensee's rights are wider when the FOSS licensee uses a copy of a computer program under a FOSS license compared to a proprietary license even if the distribution right of the copy would have been exhausted. Namely, as opposed to proprietary licenses, which limit the licensee's right to copy,

modify and/or distribute verbatim (unmodified) and modified copies of computer program, FOSS licenses expressly permit all of those acts.

On the other hand, *exhaustion of patent rights* appears to provide FOSS licensees with some additional security on top of exhaustion of the distribution right under the copyright exhaustion doctrine as well as the express copyright licenses granted under the FOSS licenses subject to this study. Namely, exhaustion of patent rights in a copy of a FOSS program should ensure that a FOSS licensee is allowed to freely *use* and *resell* the respective copy despite of the FOSS licensor's patents reading the copy of a FOSS program. While the GPLv2 states that the *act of running* of the Program *is not restricted* and that *charging fee for distribution (i.e. sale)* of copies of the program is allowed, and the BSD license expressly states that *use* is *permitted*, neither of those licenses *expressly* allow *use* or *resale* of a copy of the FOSS program under the patents of a FOSS licensor.⁶¹¹ Therefore, patent exhaustion appears to trigger an additional right to *use* and/or *resell* the copy of a FOSS program under the FOSS licensor's patents reading the respective copy without the concern that such use and/or sale would infringe the FOSS licensor's patent rights. As the MIT license expressly grants the right to *use ... and/or sell* the software, exhaustion of patent rights does not appear to give additional comfort for the MIT licensees beyond the wording of the license grants from the copyright perspective. However, in the absence of an express patent license in the MIT license, exhaustion of patent rights in a copy subject to the MIT license certainly provides FOSS licensees with added security from patent perspective based on exhaustion of the rights to use and resell the copy irrespective of FOSS licensor's patents reading the copy.

Interestingly, some scholars have argued that even if copyright exhaustion would not permit making new copies, it might in certain circumstances allow circumvention of the license conditions under a FOSS license: Namely, where exhaustion of rights applies to the copy of a FOSS program, exhaustion of copyrights in the said copy would result in that the lawful owner of the copy could *dispose of the respective copy (in verbatim form)* as s/he deems fit *free from the copyrights in the copy* – including also license conditions of the respective FOSS license, such as a copyleft-clause and/or source code

⁶¹¹ Section 0 of the GPLv2. The BSD license.

distribution requirement. The same observation has been raised in the context of US laws. However, whether the question is examined under European or the US laws, exhaustion would not, of course, permit production of new verbatim or modified copies of the FOSS program nor distribution of the modified copies, which can only be performed under and in compliance the express license grants and conditions of the respective FOSS license.⁶¹² Even if the exhaustion doctrine would apply, thus rendering the verbatim copy free of any copyright restrictions, the practical impact seems to be irrelevant: by way of example, verbatim distribution of the copy of a GPL licensed program, if originally received in source code form, would have to be redistributed in verbatim in source code form preserving copyright notices and license terms, *etc.* in the software.

4.2.2.3 Exclusive Rights Retained by the Patent Holder

As discussed above, exhaustion of patent rights in copies of FOSS programs secure at most the right to *use* and *resale* the copy of a FOSS program in *verbatim form* (*i.e.* without any modifications) free from the FOSS licensor's exclusive patent rights. However, exhaustion does not from user's perspective solve all patent related concerns in connection with exploiting the copy of a FOSS program, as patent exhaustion does not provide the user with the right to *make* new copies of the FOSS program, irrespective of whether the question is of European or the US patent exhaustion doctrine. Therefore, if a FOSS licensor owns patent(s) reading the FOSS program, the FOSS licensee using the copy of a FOSS program must still secure the right to *make* new copies of the program, in order to be able to fully exploit the program within the express copyright grants included in the FOSS licenses subject to this study.

Further, under the US exhaustion doctrine, if the FOSS program is distributed online through the Internet, and not embodied on a tangible media, it is possible that as the said distribution does not amount to sale of software (under the elements established in the copyright context), it is possible that patent rights in a copy allowed by the FOSS licensor to be downloaded from the Internet are not exhausted in the first place, unlike

⁶¹² Vasudeva at 165.

in Europe. If that is the case, an additional instrument is needed to secure even the mere rights to *resell* the program under the GPLv2 and the MIT license, in addition to the rights to *make* new copies of the program under all of the FOSS licenses subject to this study.

Finally, application of the European and – at least for now – also the US patent exhaustion doctrines results in territorial exhaustion of the rights to use and resell the patented article. Under the European patent exhaustion doctrine, European patent rights (whether the question is of a national patent and/or EPO patent) are exhausted in the whole EEA (or in case of or unitary patents, the participating member states) based on sale of a copy of a patented FOSS program in the EEA. Accordingly, under the US patent exhaustion doctrine, US patent rights are exhausted only in the US based on sale of a copy of a patented FOSS program in the US. Thus, the outcome is *regional exhaustion of patent rights*, which, in turn, leads to fragmented loss of rights to enforce the patent rights of the patent holder exhausted by global sales of products covered by patents in different jurisdictions, preventing also distribution (importation) of copies of patented FOSS programs into a territory, where the copies are not (yet) put on markets by the patent holder and/or its authorized licensee.

Interestingly, in case of copyright exhaustion, the copyright license grants included in the FOSS licenses subject to this study, would result in that copies made by users under and in compliance with the FOSS licenses would, most likely, be held copies made with the consent of the copyright holder (under the European copyright exhaustion doctrine) or lawful copies (under the US copyright exhaustion doctrine). Since the FOSS licenses subject to this study do not include any territorial restrictions, the first authorized sale of a copy of a FOSS program would result, as the lawful copies are spread across territories, in practice exhaustion of the distribution right on an international basis, which outcome in the US where SCOTUS affirmed that copyrights are subject to the principle of international exhaustion.⁶¹³

⁶¹³ Kirtsaeng v. John Wiley & Sons.

4.2.2.4 Analysis of the Findings

Even if the doctrine of patent exhaustion would trigger exhaustion of patent rights in a copy of a FOSS program sold, licensed and/or redistributed by FOSS licensor under and in compliance with the respective FOSS license, thereby triggering the rights to use and resell the respective copy of the FOSS program free from any patent claims, due to territoriality of patents and related doctrine of exhaustion, the exhaustion of patent rights would – from users' perspective – at best result in fragmented freedom to exercise patent rights embodied by (the copy of) the FOSS program: Apart from Japan following the principle of international exhaustion, patent exhaustion is often considered to be of territorial nature: patent rights in (copies of) FOSS programs sold in the US would likely be exhausted *only* in the US with the caveat of developing case law: it must be remembered that at the moment, there is some debate on whether the US doctrine of patent exhaustion could result in an international exhaustion of the patent rights. We await SCOTUS to provide us with more clarity on this point of law, as it granted *certiorari* in a pending *Lexmark* case.⁶¹⁴ However, it is clear that the European patent exhaustion doctrine results in exhaustion only in the EEA, or in case of unitary patents, in the participating member states. Accordingly, even national patent rights in a copy in a FOSS program sold, licensed and/or redistributed by FOSS licensor under an in compliance with the respective FOSS license within the EEA would be exhausted within the *whole* EEA, *but not beyond* that territory. Therefore, use and sale of the FOSS program outside of the respective territory, where the patent rights are exhausted, could result in infringement of the patent holder's exclusive rights to use, make, sell and/or import the patented article.

To put exhaustion of rights into perspective, sale of a copy of computer program results in an *international exhaustion of copyrights* in the copy under the US doctrine of copyright exhaustion. As ruled by the Court of Appeals for the Ninth Circuit in Vernor v. Autodesk and latest affirmed by SCOTUS in Kirtsaeng v. John Wiley & Sons, the US follows the principle of international exhaustion of copyrights. However, despite that also Finland used to follow the principle of international exhaustion of copyrights, today

⁶¹⁴ Lexmark v. Impression Products. See also IPR Professors Amicus Brief 2015.

sale of a copy of a computer program in EEA triggers of exhaustion of copyrights the copy within the EEA, not internationally.⁶¹⁵ Further, as patent exhaustion doctrine does not give the right to make new copies of the patented FOSS program, an important right expressly granted under copyrights of the FOSS licensor in accordance with FOSS licenses subject to this study, exhaustion does not result in meaningful dilution of FOSS licensor's patent portfolios and therefore does not provide complete protection with FOSS users against potential patent claims raised by FOSS licensors.

Obviously the several uncertainties as to the application and insufficient extent leaving *making, using* and *selling new copies* of the FOSS program unauthorized as well as the territorial nature of patent exhaustion doctrine preventing *importation of copies beyond the respective territory* were also recognized within the FOSS community: In order to mitigate the concerns related to the functioning of the patent exhaustion doctrine in different jurisdictions, a new section, also called as "*the uniform rule of patent exhaustion*" was introduced into the GPLv3§10 in connection with the latest revision round of the GPL.⁶¹⁶ The uniform rule of patent exhaustion expressly prohibits FOSS licensors from enforcing patent claims against those to whom the GPLv3-licensed code is distributed, precluding thus both FOSS contributors and FOSS distributors from asserting their patent rights against FOSS users. The exhaustion rule also prohibits FOSS licensors from imposing additional restrictions on downstream licensees such as demands for acceptance of patent licenses or payment of patent royalties. Further, the exhaustion rule includes a mechanism of "entity transaction", under which the patent license undertakings given by one organization will automatically follow to the acquiring entity in connection with any transaction, whether involving a share deal, an asset deal or a merger.⁶¹⁷

It is important to note that the uniform patent exhaustion rule covers both FOSS contributors and mere FOSS distributors and results in exhaustion of patent rights embodied by the respective FOSS program subject to the GPLv3 irrespective of the

⁶¹⁵ Article 4(2) of the Software Directive. Harenko, Niiranen, *et. al.* at 157-158.

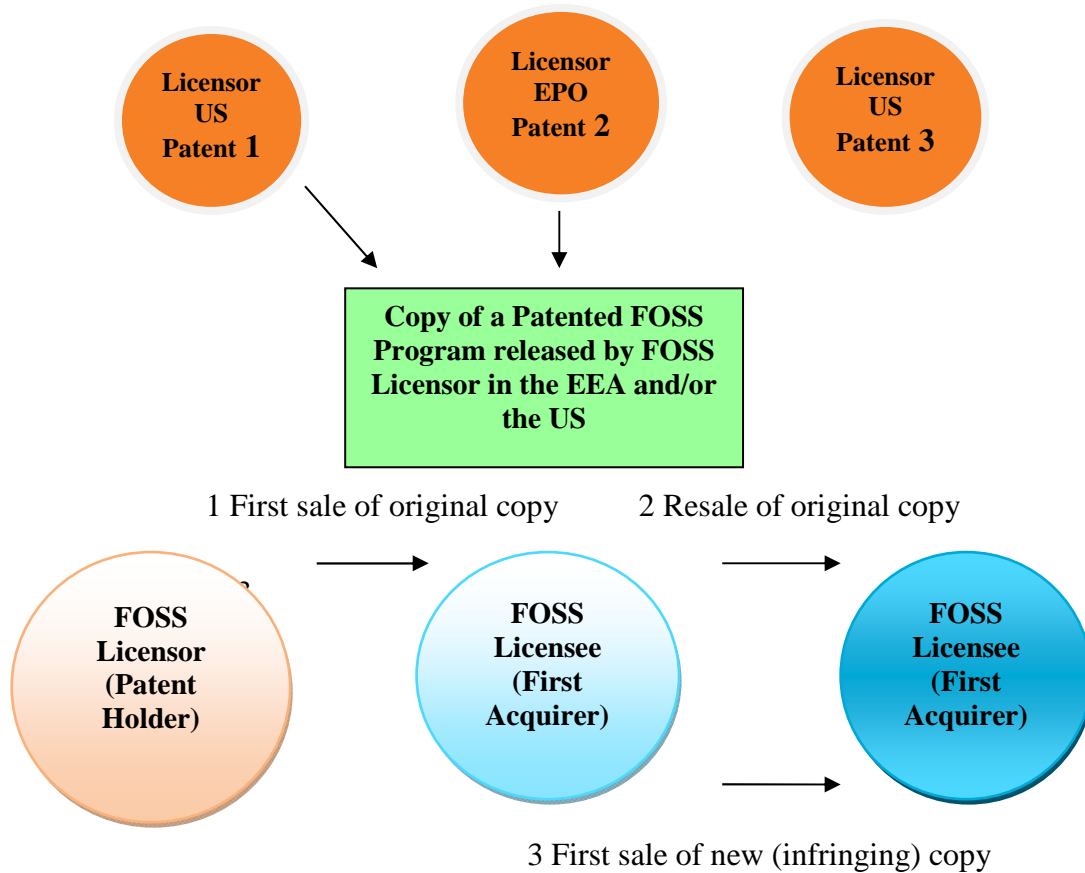
⁶¹⁶ Moglen & Choudhary at 27-28

⁶¹⁷ GPLv3§10.

national rules of patent exhaustion in each jurisdiction. Because it results in exhaustion also in connection with *redistribution of FOSS not amounting to sale of FOSS*, its impact is essentially broader to what is constituted by ordinary territorial exhaustion of patent rights.

It is evident the exhaustion of patent rights results only a rather limited exposure to patent holder's portfolio even in connection with FOSS, and therefore does not solve users' all concerns related to potential infringement of FOSS licensor's patents when using FOSS under the BSD, the MIT and/or the GPLv2 licenses. Additional legal instruments are needed by users to secure exploitation of each exclusive right held by the patent holder with respect to the copy of the FOSS program released under those licenses. This is important considering also that the express license grants included in the FOSS licenses subject to this study are copyright grants. Therefore, even if exhaustion of copyrights results in exhaustion of mere distribution right, the copyright grants provide rights to copy and modify the FOSS program and distribute modified versions of the FOSS program without territorial restrictions. However, the license grants included in the FOSS licenses subject to this study do not *expressly* permit using, making or selling new copies of the FOSS program under patents of the FOSS contributor and/or distributor. Therefore, the question of patent rights in connection with FOSS licensing should be reviewed also from the perspective of implied patent license doctrine as existing in the US. For comparison, the possibility of existence of implied licenses is also examined from the perspective of the general principles of contract law in Finland.

PICTURE 10: PATENT EXHAUSTION IN CONTEXT OF FOSS



PICTURE 10: PATENT EXHAUSTION IN THE US

Release under a FOSS license (Arrow 1) of a copy of a patented FOSS program by (or under the authorization of) Patent Holder (FOSS Licensor, *i.e.* a contributor and/or distributor) to FOSS Licensee under and in compliance with the FOSS license exhausts certain patent(s) rights in the copy of the patented FOSS program.

In this scenario, the copy of the patented FOSS program practices Patent 1 and includes the essential features of Patent 2, but does not practice Patent 3 nor include its essential features. Consequently, release of the copy of the FOSS program within the EEA exhausts rights in Patent 2. Authorized sale of the copy of the FOSS program in the US exhausts rights in Patent 1, but does not exhaust rights in Patent 3, since the copy does not practice and/or embody the essential features of Patent 3. Neither of the scenarios permit making a new copy of the FOSS program by FOSS Licensee under the patent exhaustion doctrine, due to which making and selling a new copy by FOSS licensee (Arrow 3) is always prohibited, unless the FOSS licensee is able to secure additional patent licenses from the patent holder(s) by operation of law and/or contract.

5. FOSS AND IMPLIED PATENT LICENSE

5.1 INTRODUCTION TO THE DOCTRINE

5.1.1 Implied Patent License in the US

Patent license may be described as patent holder's waiver of the right to sue for patent infringement.⁶¹⁸ Patent licenses do not always have to be formal, express license grants, such as those included in detailed, written patent license agreements. Under the doctrine of implied patent license developed by SCOTUS mainly based on its precedent in De Forest Radio v. US and the subsequent Federal Circuit case law, patent licenses may also be implied: Namely, (1) any *language* or *conduct* of the patent holder; (2) from which another party may properly *infer* that the patent holder consents to use of the patent; and (3) upon which the other party *acts*; may constitute a license, not a tort. Implied licenses, in general, are based on affirmative grant of consent to make, use or sell the patented invention.⁶¹⁹ Accordingly, implied license means a patent holder's waiver of the right to exclude others from making, using, selling, offering to sell or importing the patented invention.⁶²⁰ Implied license limits the patent holder's ability to assert its patent rights. However, whether the license is for free or for a reasonable compensation, depends on the prevailing circumstances.⁶²¹

Essentially, implied license is an equitable defense to claim of patent infringement, and defense of estoppel or other equitable defenses require consideration of equities. Equity may be used in adjudication of a case where adherence to the letter of the law would lead to formally correct, but unfair outcome. There are various estoppel theories in the US patent law: estoppel may also be used as a defense against a patent infringement

⁶¹⁸ Henry v. A.B. Dick at 24.

⁶¹⁹ De Forest Radio Telephone & Telegraph Co., v. United States, 273 U.S. 236, 241-242 (1927). Wang Laboratories, Inc. v. Mitsubishi Electronics America Inc., 103 F. 3d 1571 (Fed. Cir. 1997) *cert. denied*, 1997 WL 33562068 (U.S.) at 1581. Stickle v. Heublein at 1559.

⁶²⁰ Winbond Electronics Corp. v. International Trade Commission, 262 F.3d 1363, 1374 (Fed. Cir.2001) at 1374. Wang Labs v. Mitsubishi Electronics at 1580. See also Spindelfabrik Suessen-Schurr, Stahlecker & Grill GmbH v. Schubert & Salzer Maschinen-Fabrik Aktiengesellschaft 829 F.2d 1075 (Fed. Cir. 1987) at 1081.

⁶²¹ De Forest Radio Telephone & Telegraph Co., v. United States, 273 U.S. 236, 241-242 (1927). 5 Chisum §16.03[2][b] at 16-431 – 16.432.

claim under the doctrine of equivalents.⁶²² Generally, under the Federal Circuit decisions, the party arguing existence of implied license, bears the burden of showing that an implied license is granted.⁶²³

The concept of implied license relates closely to the concept of patent exhaustion.⁶²⁴ Implied license may also arise (merging with the concept of patent exhaustion) when a patent holder sells a component in order to construct a patented device or carry out a patented process,⁶²⁵ or alternatively, based on the patent holder's commercial obligations under, for example, a distribution agreement whereby the patent holder appoints a distributor to sell a patented device.⁶²⁶ Implied licenses have also been found when the sold product has no other non-infringing uses except for in the patented combination.⁶²⁷ Under the Federal Circuit case law, implied license by sale of a non-patented equipment used to practice a patented invention requires (1) *no non-infringing uses* for the equipment; and (2) *circumstances plainly indicating* that grant of license should be inferred.⁶²⁸ On the other hand, implied licenses have been rejected where the sold product has had other non-infringing uses, such as repair or replacement parts.⁶²⁹

Implied license may be triggered under at least four theories, which each describe different kind of conduct resulting in implied license. Those theories are called (1)

⁶²² Lim at 18. 6A Chisum §19.05[3][b] at 19-658. 4 Moy §13:89.

⁶²³ Glass Equip. Dev. Inc. v. Besten, Inc., 174 F.3d 1337, 1342 (Fed. Cir. 1999). 5 Chisum §16.03[2][b] at 16-441 – 16-442 and 16-448.

⁶²⁴ 1 Raymond Nimmer §2:43 at 2-106 – 2-107 and §7:59 at 7-140 – 7-141.

⁶²⁵ Anton/Bauer, Inc. v. PAG, Ltd. 329 F.3d 1343 (Fed. Cir. 2003). (Anton/Bayer v. PAG) Hewlett-Packard Co. v. Repeat-O-Type Stencil Manufacturing Corp., 123 F.3d 1445 (Fed. Cir. 1997), *cert. denied*, 523 U.S. 1022 (1988) (Hewlett-Packard v. Repeat-O-Type). Aro Manufacturing. Co. v. Convertible Top Replacement Co. 377 U.S. 476, 484 (1964). 5 Chisum §16.03[2][b] at 16-430 and 16-440 – 16-441.

⁶²⁶ Genetic Implant Systems, Inc., v. Core-Vent Corp. 123 F.3d 1455 (Fed. Cir. 1997). 5 Chisum §16.03[2][b] at 16-430. 1 Raymond Nimmer §2:43 at 2-104.

⁶²⁷ Edison Electric Light Co. v. Peninsular Light Power & Heat Co., 101 Fed. 831 (6th Cir. 1900).

⁶²⁸ Met-Coil Systems Corp. v. Korners Unlimited, Inc., 803 F.2d 684, 686 (Fed. Cir. 1986). 5 Chisum §16.03[2][b] at 16-434 – 16-440 and 16-440 – 16-448.

⁶²⁹ Radio Corporation of America v. Andrea, 90 F. 2d 612, 615 (2d Cir. 1937). 5 Chisum §16.03[2][b] at 16-433.

equitable estoppel; (2) legal estoppel; (3) acquiescence; and (4) conduct.⁶³⁰ *Equitable estoppel* requires misleading conduct on the part of the patent holder, which suggests that the patent holder will not enforce its patents. By way of example, equitable estoppel may be found, if (1) the alleged infringer is aware of the patent; (2) the patent holder objects to the infringer's activities; (3) the patent holder does not seek relief until much later; and (4) the patent holder's conduct misleads the alleged infringer to believe that the patent holder will not enforce its patent rights.⁶³¹ However, there are no fixed factual circumstances for finding equitable estoppel. According to case law, often merely the following three elements are sufficient for establishing implied license under equitable estoppel: (1) Patent holder *communicates*, either by words, conduct (action or inaction) or silence, something *in a misleading manner*; (2) the other party acts in *reliance* on that communication; and (3) the other party would be materially *harmed*, if the patent holder would later on assert any claim inconsistent with its earlier conduct.⁶³²

The first element, *i.e.* misleading communication (by statement, conduct or silence), may be met, for example, if the patent holder does *not interfere* with the other party's activities based on which the other party infers that the patent holder will not bring a claim for infringement against the infringer. This requires, of course, that the alleged infringer is *aware* of the patent holder and/or its patent. The alleged infringer should also know, or reasonably infer, that the *patent holder was aware* of its infringing activities. For example, as outlined above, if the patent holder *objects* to the alleged infringer's activities, but defers for a *very long time* (say, a few years) for bringing a claim against the alleged infringer, the latter may be able to use equitable estoppel as a defense in the suit. Thus, a verbal charge of infringement followed by silence may not be enough. The last two elements, *i.e.* reliance on the patent holder's communication combined with harmful behavior causing material *prejudice* to the alleged infringer,

⁶³⁰ Wang Labs v. Mitsubishi Electronics at 1580.

⁶³¹ Wang Labs v. Mitsubishi Electronics at 1581.

⁶³² A.C. Aukerman Co. v. R.L. Chaides Construction Co. 960 F.2d 1020 (Fed. Cir. 1992) at 1041. See also AT&T Corp. v. Microsoft Corp (Not reported in F.Supp.2d) 2004 WL 188078 (S.D.N.Y), which affirmed the three-prong test set for equitable estoppel in Aukerman v. R.L. Chaides Const. 6A Chisum §19.05[3] at 19-652. See also Scott §4.26[G] at 4-88.4 – 4.88.5.

(while separate elements) taken together, are also called as *detrimental reliance*. It is important to note that detrimental reliance may be based either on *action* or *inaction* constituting the required communication. Patent holder's silence or inaction should, however, be combined with other circumstances inducing reliance on abandoning the claim, because silence or inaction alone are rarely enough to constitute misleading communication. Therefore, silence or inaction should be coupled with other factors making the conduct misleading. Reliance is a critical element of estoppel. To show reliance, the alleged infringer should have some relationship or communication with the patent holder, which provides security with the alleged infringer to continue with its activities, as unilateral expectations of the alleged infringer are not alone sufficient to establish reliance. Prejudice, in turn, may be for example, a chance of economic position.⁶³³

The common feature of the various theories based on equitable estoppel is that the alleged infringer has acted as a direct consequence of the other party's conduct: implied license cannot arise out of one party's unilateral expectations. In order to find equitable estoppel, there should exist *conduct* by the patent holder and *action* taken by the alleged infringer based on the conduct.⁶³⁴ As equitable estoppel is an equitable defense to patent infringement suit, the alleged infringer bears the burden of proof as to each element of equitable estoppel. Because the doctrine is based on equity, the court should take into account also other evidence and facts as a whole. However, if the defense is successful, the relief granted on equitable estoppel is broad, and may bar the whole suit.⁶³⁵

Estoppel is closely related to the equitable defense of *laches*, which is a defense limiting the patent holder's right to recover for patent infringement *prior* to filing a claim for patent infringement simply due to *delay* in the filing. However, laches does not bar recovery for the infringing actions carried out *after* filing the claim. Patent holder may obtain both an injunction and damages for patent infringement occurred after filing the

⁶³³ Aukerman v. R.L. Chaides Const. at 1042-43. 6A Chisum §19.05[3][b] at 19-658 – 19-674. 6A Chisum §19.05[3][c] at 19-674 – 19-676.2. Bandag, Inc. v. Al Bolser's Tire Stores, Inc., 750 F.2d 903, 926. (Fed. Cir. 1984).

⁶³⁴ Stickle v. Heublein 716 F. 2d 1550, 1558 (Fed. Cir. 1983).

⁶³⁵ Aukerman v. R.L. Chaides Const. at 1043.

claim, unless the alleged infringer is able to establish the elements of equitable estoppel. Thus, laches and estoppel may be characterized as case law based, non-statutory bars to patent infringement claims, as opposed to the statutory bar under the US Patent Act discussed in more detail above in Section 2.2.3 (Software Patents in the US). When it comes to required unreasonable delay in filing the claim under laches, courts have used the statutory time bar of the US Patent Act as a benchmark, and held that a six year delay is *presumed* unreasonable, shifting the burden on the patent holder to show an adequate excuse for the delay in filing the claim. Duration of the delay is counted as of the moment when the patent holder knew or should have known of the alleged infringer's activities constituting infringement.⁶³⁶ The main difference between laches and equitable estoppel is that whereas the main elements of laches are patent holder's *unreasonable delay* together with *material prejudice* to the infringer attributable to the delay, the main elements of estoppel are patent holder's *misrepresentation* as well as the infringer's *reliance*. Further, while laches precludes only damages prior to filing of the claim, estoppel precludes recovery of damages for infringement both before and after filing of the claim. Therefore, the relief granted under estoppel is much broader than in laches. Also, while presumption of laches arises out of six year's delay in filing a claim, there is no reason why shorter period of time (such as patent holder's silence lasting for 3,5 years) could not trigger defense of equitable estoppel. Under estoppel, delay in filing a claim may be one factor in assessing the element of misleading conduct, but it is not a requirement of equitable estoppel. Finally, unlike estoppel, laches does not require that the alleged infringer is aware of the patent holder and/or the patent.⁶³⁷

SDNY has distinguished equitable estoppel from *implied license by equitable estoppel*. The court affirmed that the test for equitable estoppel includes the following elements: (1) the patent holder's *misleading conduct* leading the alleged infringer to reasonably infer that it did not intend to enforce its patent against the infringer; (2) the alleged infringer's *reliance* on the said conduct; and (3) *material prejudice* to the alleged infringer if the patent holder was allowed to proceed with its patent infringement

⁶³⁶ 6A Chisum §19.05 at 19-541, 19-543 and §19.05[2] at 19-556.2 – 19-556.7, §19.05[3][a] at 19-654.

⁶³⁷ 6A Chisum §19.05[3][a] at 19-654 – 19-657. 6A Chisum §19.05[3][b] at 19-663, 9-668. 1 Raymond Nimmer §2:45 at 2-109. McCarthy, Schechter & Franklyn at 332-333.

claim.⁶³⁸ Implied license by equitable estoppel, in turn, may arise when there is (1) *reliance* by the alleged infringer on the patent holder's *conduct* or lack of conduct in creating the infringing good; and (2) *knowledge* of the patent at the time of the infringement.⁶³⁹ The tests of equitable estoppel and license by equitable estoppel are nearly identical, but the primary difference between the concepts is that implied license requires affirmative consent, whereas ordinary equitable estoppel focuses on misleading conduct.⁶⁴⁰

Legal estoppel, in turn, may be found in circumstances where a patent holder has (1) assigned or licensed its patent right; (2) received *consideration*; and (3) sought to derogate from the granted right.⁶⁴¹ In other words, the grantor of a property right or an interest cannot derogate from the grant by its subsequent actions, taking back something for which it already received consideration.⁶⁴² Finally, the concepts named *acquiescence* and *conduct* may also trigger implied license. In order to find implied license under those concepts, the alleged infringer must show a nexus between the patent holder's (1) waiver or conduct; and (2) the allegedly infringing action.⁶⁴³ Finally, it is important to understand one crucial difference between the doctrines of patent exhaustion and implied patent license. Under the patent exhaustion doctrine, resale of a patented article can be restricted in the sales agreement, but exhaustion of patent rights cannot be disclaimed *after* an authorized sale of the patented article. Under the implied patent license doctrine, however, it is possible to expressly disclaim implied license, which as a contract based theory, is based on the totality of circumstances.

The defense of implied license by equitable estoppel in the US against (literal) patent infringement claim may be illustrated as below.

⁶³⁸ AT&T v. Microsoft at 2.

⁶³⁹ AT&T v. Microsoft at 5.

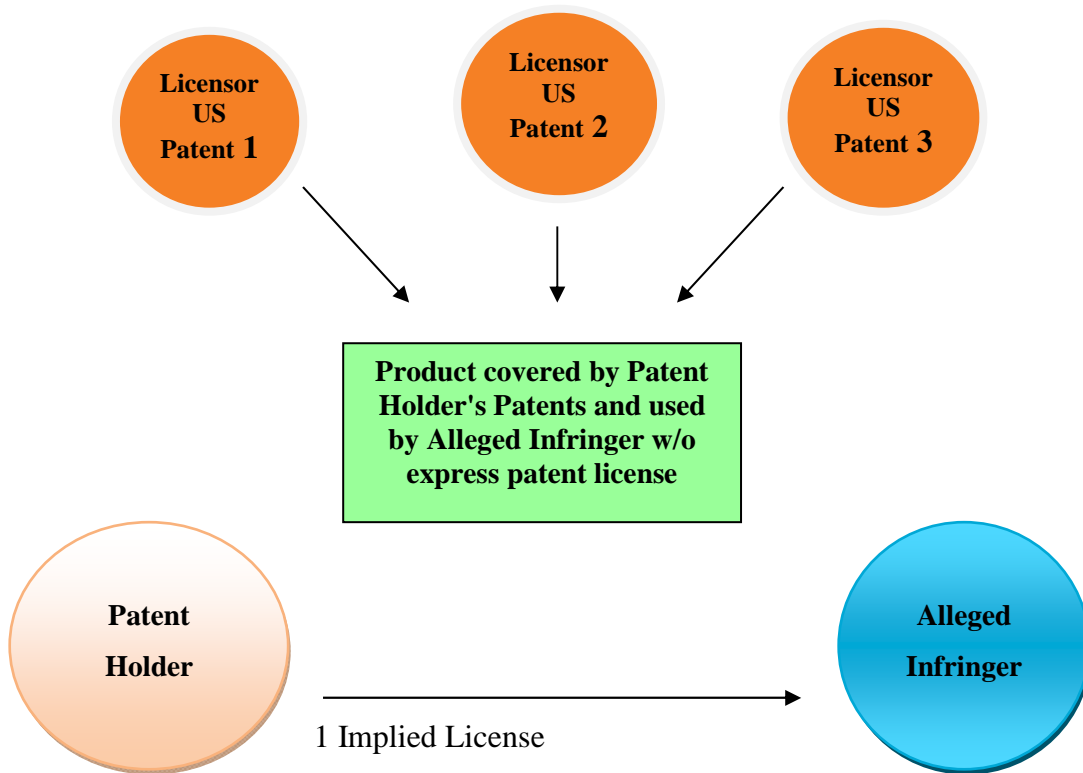
⁶⁴⁰ AT&T v. Microsoft at 5. Wang Labs v. Mitsubishi Electronics at 1581.

⁶⁴¹ Wang Labs v. Mitsubishi Electronics at 1581.

⁶⁴² Spindelfabrik v. Schubert at 1080.

⁶⁴³ AT&T v. Microsoft at 6-7. De Forest Radio v. US at 241.

PICTURE 11: IMPLIED LICENSE BY EQUITABLE ESTOPPEL IN THE US



PICTURE 11: IMPLIED PATENT LICENSE IN THE US

Implied License (Arrow 1) may arise based on (1) any *language* or *conduct* of Patent Holder; (2) from which Alleged Infringer may properly *infer* that Patent Holder consents to use of the patent; and (3) upon which Alleged Infringer *acts*.

In this scenario, Alleged Infringer uses, makes, copies, modifies, distributes and/or sells copies of a computer program practicing Patent(s) 1-3 owned by Patent Holder. Patent Holder has released the computer program for download on the Internet, without, however, granting an explicit patent license. Despite the said fact, Alleged Infringer may be allowed to practice Patents 1, 2 and/or 3 owned by Patent Holder, if (1) Patent Holder has, in one way or another, communicated to Alleged Infringer, that it will not sue Alleged Infringer for use of the computer program; (2) Alleged Infringer has relied on the said misleading communication; (3) termination of the license would result in material prejudice to Alleged Infringer.

5.1.2 Implied Patent License in North Europe and Finland Specifically

Conclusion of Patent License Agreements

Apart from certain aspects of competition law such as the principle of free movement of goods governing also sale of patented articles as well as recent UPC Agreement and Unitary Patent Regulation, European patent laws nor contract laws governing patent license agreements are not harmonized by any statutory EU law or case law of CJEU. Therefore, the existence of the implied patent license doctrine, if any, in Europe should be analyzed from the perspective of local laws of EU member states. Accordingly, in this study the doctrine of implied patent license is discussed from the angle of North European laws, and the laws of Finland, specifically. The Finnish patent case law does not appear to acknowledge the doctrine of implied patent license: To date, the Supreme Court of Finland has not given one single decision on the conditions for the existence, let alone scope or impact of implied patent license. As required by the TRIPS Agreement, Finnish patent may be maintained in force for up to twenty years from the filing date of the patent application. The starting point is that the patent holder may sue the alleged infringer for patent infringement at any point during the term of the patent.⁶⁴⁴ While the Patent Act of Finland provides the patent holder with an exclusive right in the patented invention, it does not confer users of patented inventions any affirmative rights in the continued use of the invention except for in very limited circumstances.⁶⁴⁵ If, for example, a person had exploited or made substantial preparations for commercial exploitation of the invention at the time when the patent application was published, such a user may be entitled to a compulsory patent license (also with regard to the time preceding the grant of the patent), if special reasons are in favor of granting such a license and provided that the person was not, nor reasonably could have been, aware of the patent application. Compulsory license may also be granted in other circumstances if *considerable public interest* favors granting the license.⁶⁴⁶ To the contrary, a user accused of an alleged infringement of a patented

⁶⁴⁴ §§40, 57-59 and 61 of the Patent Act of Finland.

⁶⁴⁵ §3 of the Patent Act of Finland.

⁶⁴⁶ §§47-50 of the Patent Acts of Finland, Sweden, Norway and Denmark.

invention cannot avail itself of an established defense of equitable estoppel or implied patent license doctrine in Finland. Namely, in the absence of statutory or case law on implied patent license by equitable estoppel or other theory in Finland, one could conclude that the Finnish patent system does not presently include any doctrine of implied patent license. However, the absence of an established doctrine of implied patent license does not preclude even a Finnish court from finding an implied patent license in an individual case. While establishing such a defense in practice may be an uphill battle for the alleged infringer, the alleged infringer is entitled to bring evidence before the court regarding the existence of an implied patent license. Namely, under the rules of evidence included in Chapter 17 of the Judicial Code of Finland, a party to a dispute has the right to present the chosen evidence to court and state its position on the counterparty's evidence. Courts are *free to evaluate* the value of the evidence and other factors arising in the proceedings. After fair consideration of the evidence and the factual circumstances in depth, the court should decide what is shown in the case. In a civil action, the plaintiff and the defendant should show the facts, on which the claim or the defense is based. In order for the court to take a factor as a basis of the decision, the party should be able to present *credible evidence* unless otherwise provided by law.⁶⁴⁷ Therefore, nothing should prevent the alleged infringer from arguing at, also a Finnish court, that he has indeed the right to continue using the patented invention based on an implied license. In such a case, the most viable arguments may be grounded on the alleged infringer's (quasi) contract based right to use the patented invention in the absence of a right to use the invention by operation of statutory or case law.

The starting point in North European (including Finnish and Swedish) contract laws is the *freedom of contract*: There are no formality requirements governing conclusion of contracts unless otherwise expressly legislated. Therefore, oral agreements are as binding as written, although written agreements are the easiest to prove.⁶⁴⁸ Even amendment of any agreement may be concluded without adhering to formalities, if the

⁶⁴⁷ §§1-2 of Chapter 17 of the Judicial Code.

⁶⁴⁸ Hemmo I at 180. Lehrberg at 11-12. Domeij 2010 at 30. Domeij 2007 at 137. Oesch 2004 at 920. Oesch 2007 II at 78-81. Koktvedgaard & Levin at 474.

original agreement is not subject to any formality requirements.⁶⁴⁹ Because patent license agreements are not governed by any special law in Finland (or in Sweden, for that matter), they are neither subject to formality requirements. In the absence of specific law governing license agreements, the general principles of contract law and the law of obligations as well as provisions governing other types of agreements may be applied to construction of license agreements either directly or by way of analogical interpretation.⁶⁵⁰ The importance of these sources of law is of essence considering also that there is no meaningful case law on interpretation of patent license agreements by the Supreme Court of Finland.⁶⁵¹ However, when it comes to application of law by analogy, there should exist sufficient similarities between the contract types subject to comparison.⁶⁵² It has been argued – with caveats – that in some cases the general principles reflected by the Sale of Goods Act may, if adjusted to context, have relevance also in interpretation of patent license agreements in addition to directly governing sale of patents as movable goods. However, the said conclusion is not supported by legislative history of the Finnish (nor the Swedish) Sale of Goods Act.⁶⁵³ Sometimes an analogy may be drawn even between rental and license agreements, because under both types of agreements, property is exploited without ownership rights. In any event, competition law as well as bankruptcy law will set boundaries for drafting of patent license agreements like mandatory laws in general. Finally, special emphasis must be

⁶⁴⁹ Hemmo I at 40.

⁶⁵⁰ Contracts Act of Finland (449/1999). Oesch, Pihlajamaa, *et. al.* at 176. Domej 2010 at 16 and 30-32. Domej 2007 at 137. Sund-Norrgård 2011 at 119. Oesch 2004 at 917-918 and 925. Oesch 2007 II at 81. Koktvedgaard & Levin at 445.

⁶⁵¹ By way of a non-exhaustive summary, the Supreme Court of Finland has given the following decisions related to patents: (1) Transfer of ownership: KKO 1993:49, KKO 1985-II-97; (2) Infringement: KKO 2003:127, KKO 1981-II-184, KKO 1978-II-46, KKO 1973-II-62, KKO 1970-II-79, KKO 1963-II-39, KKO 1955-II-100, KKO 1939-II-521, KKO 1939-II-4, KKO 1938-II-595, KKO 1938-II-147; (3) Precautionary measures: KKO 2003:118; (4) Invalidation: KKO 1998:16, KKO 1985-II-85, KKO 1984-II-117, KKO 1983-II-20: KKO 1979-II-57, KKO 1978-II-82, KKO 1978-II-74, KKO 1977-II-108, KKO 1977-II-105, KKO 1944-II-49, KKO 1942-II-148, KKO 1941-II-71, KKO 1940-II-26, KKO 1939-II-474, KKO 1938-II-480 (5) Defect in sold product due to third party patent: KKO 1990:147; (6) Recovery to bankruptcy estate KKO 1998:31; (7) Employment invention: KKO 1978-II-127, KKO 1964-II-48; and (8) Mortgage and foreclosure: KKO 1998:31.

⁶⁵² Halila & Hemmo at 27-28.

⁶⁵³ §1 of the Sale of Goods Act (1987/355) of Finland. Oesch 2007 at 13. Haarmann at 229. Wilhelmsson, Sevón, *et. al.* at 8 and 10. Oesch 2004 at 918-919. Domej 2010 at 17-19. Koktvedgaard & Levin at 454-456. HE 93/1986. See also Lindberg & Westman at 372-375.

laid on the general principles of IPR law governing transfer of IPRs in part or in whole.⁶⁵⁴ Accordingly, patent license agreements have been considered as atypical agreements which should be interpreted so that their special characteristics are taken into account.⁶⁵⁵

Apart from compulsory licenses, the Patent Act of Finland includes only one provision directly governing patent licenses. Under §43 of the Patent Acts, where a patent holder has granted another person the right to exploit the invention commercially (*a license*), the licensee is entitled to *assign* the right only *if so agreed*.⁶⁵⁶ This non-mandatory provision of law means, in practice, a prohibition for the licensee to transfer the license unless the parties have agreed that the license may be transferred.⁶⁵⁷ Some scholars are of the opinion that the same applies also to sublicensing.⁶⁵⁸ Comparable section is included also in the Swedish, Norwegian and Danish Patent Acts, which is not surprising, since the Nordic patent laws were drafted in close cooperation.⁶⁵⁹ According to legislative history of the Patent Act of Finland, patent holder has, in accordance with the general principles of law of obligations, the right to dispose of the invention and the related rights. Consequently, the patent holder may transfer rights in the invention in whole or in part, or alternatively, grant a license under the patent. The legislative history states only briefly that general provisions on transfer of patent rights or grant of patent licenses were not included in the Patent Act, because the *circumstances surrounding disposal* of the said rights vary extensively from case to case, and the general provisions of contract law will apply also to patent license agreements. However, licensee's prohibition to grant further rights under the patent license in the absence of agreement with the patent holder was codified in the Patent Act, since it conforms to the general

⁶⁵⁴ Oesch, Pihlajamaa, *et. al.* at 176. Oesch 2004 at 913, 918 and 925. Oesch 2007 II at 78-80. Koktvedgaard & Levin at 444 and 474. Domeij 2010 at 33.

⁶⁵⁵ Domeij 2010 at 17.

⁶⁵⁶ §43 of Patent Act of Finland.

⁶⁵⁷ Domeij 2010 at 16-17.

⁶⁵⁸ Oesch 2007 II at 81. Oesch, Pihlajamaa, *et. al.* at 185.

⁶⁵⁹ §§43 of Patent Act of Sweden, Norway and Denmark. Koktvedgaard & Levin at 450. Domeij 2010 at 334-336. Oesch, Pihlajamaa, *et. al.* at 40.

principles of contract law.⁶⁶⁰ It is worth noting that even the requirement to specifically agree on the right to *transfer the license* is not subject to any formality requirements, meaning merely that the license may not be transferred unless so agreed between the patent holder and the licensee. However, even §43 of the Patent Act concerning transfer of license does not specifically require written agreement on the transfer.

Since the Contracts Act as well as the general principles of contract law and IPR law are the governing sources of guidance on patent license agreements in Finland in the absence of specific legislation, the analysis turns to conclusion and construction of a patent license agreement under those sources of law.⁶⁶¹ While the mechanism for concluding a contract under the Contracts Act applies also to patent and technology license agreements, it fits best to individual contracts. As discussed in Section 3.1.2 (Acceptance of License vs. Conclusion of Contract), some peculiarities relate to adhesion to standard contracts such as FOSS licenses drafted in advance for the purpose of using the terms for several licensees.⁶⁶² However, the mechanisms may apply also to conclusion of patent licenses in connection with the FOSS licenses subject to this study, since those licenses do not include an explicit patent grant, and therefore, some *additional circumstances* should be present, triggering an agreement on patent license between the patent holder and the respective FOSS licensee(s).

General Principles on Conclusion of Implied Agreements in Nordics

As shortly discussed in Section 3.1.2 (Acceptance of License vs. Conclusion of Contract), the traditional mechanism of concluding a contract is based on an express, either oral or written, offer and acceptance.⁶⁶³ However, academics acknowledge also other valid mechanisms for concluding a contract: the factual circumstances, *i.e.* mere actions and/or practices, including silent acceptance or acceptance through conduct, in the absence of any oral or written communications may also result in formation of a contract. Such practices are often found in connection with offering services for public

⁶⁶⁰ HE 101/1966 at 20-21. See also Domeij 2007 at 137 and Domeij 2010 at 16-17.

⁶⁶¹ Oesch 2004 at 918.

⁶⁶² Hemmo I at 146.

⁶⁶³ §1 of the Contracts Act (228/1929) of Finland.

(such as public transportation or pay parking) against monetary consideration and silent acceptance by using the services without any particular communications between the parties to the contract.⁶⁶⁴ The theory boils down to the concept of *tacit agreements*: tacit, implied or silent agreements may be formed through engagement in operations showing existence of an agreement, even though no specific offer or acceptance, nor moment or manner of concluding the contract, can be pointed out. For example, cooperation showing existence of a contract, *continued performance* after terminated contract negotiations, *silent* yet mutual *amendment* of agreement through continued acts or *unilateral waiver of a right* may all imply tacit conclusion of a contract. Where the agreement is based rather on silent conduct than oral or written communications, it may not be feasible to address the formation of the agreement or the construction of its content through the offer-acceptance mechanism. Instead of identification of an offer and an acceptance, the focus is on the consideration (1) whether the parties' *conduct* is sufficient to show *existence* of the agreement; and if a silent agreement is deemed concluded (2) what is the *content* of the agreement. In general, mutual agreement on the most crucial terms of the contract, including patent license agreements, is often required to show existence of the agreement irrespective of the manner of concluding the contract. On the other hand, if the parties have already cooperated for a while as if they had an agreement, a court would unlikely challenge the existence of an agreement.⁶⁶⁵

It has been argued that tacit agreements should be considered as an *exception* to traditional express agreements. One of the main reasons for the reluctant approach to acceptance of tacit agreements is to avoid binding parties by contractual obligations against their will. However, the presumption against tacit agreements may be overcome, if the parties' conduct and the circumstances are heavily in favor of finding a tacit agreement. Where tacit agreements are found, the objective is often to protect *reliance* of the contracting party on the other party's continuous performance taking, however, into account the relying party's possibility to inquire the other party's *intentions* behind the continued performance not conforming to the express agreement. Accordingly,

⁶⁶⁴ Hemmo I at 98-99 and 131. Ramberg & Ramberg at 95.

⁶⁶⁵ Hemmo I at 133-134. Ramberg & Ramberg at 95-96 and 105. Domej 2010 at 32-33.

under the Nordic doctrine on tacit agreements, the analysis on the formation of tacit agreements should be based on the evaluation of the *totality of the circumstances*, requiring strong grounds for existence of a tacit agreement. Grounds against tacit consensus may lead fairly easily to the rejection of a tacit agreement.⁶⁶⁶

Party's passivity may be one of the factors in the totality of the circumstances when considering the formation of a tacit agreement. However, as tacit agreements constitute an exception to the ordinary manner of concluding a contract, a failure to act on the counter party's contract breach does not automatically trigger silent acceptance of the breaching conduct. Forfeiture of right to remedies due to past breaches neither rarely triggers a tacit acceptance of continuous breaches based on a tacit amendment of the agreement. Domeij is of the opinion that a patent holder's awareness of a third party's exploitation of its patented invention even combined with the patent holder's passivity in enforcing the patent do not constitute sufficient grounds for a contractual grant of (an implied) patent license. According to Domeij, Swedish courts have generally rejected the grant of a license based on mere passivity.⁶⁶⁷ While mere passivity may only rarely lead to agreement, it may have value as evidence, reversing the burden of proof and resulting in that the one accused of passivity should be able to show that the parties had, in fact, not concluded an implied agreement. The circumstances where a party had not reacted in due course but stayed passive, for example after becoming aware of the other party's conduct, may indicate that the party considered himself bound by the (implied) agreement.⁶⁶⁸

Case law on Implied Agreements in Finland

The Supreme Court of Finland has given only a few decisions on tacit agreements none of which, however, cover transfer or license of IPRs.⁶⁶⁹ It is still worth having a look at the rulings on tacit and silent agreements given by the Supreme Court. The Supreme

⁶⁶⁶ Hemmo I at 133-136.

⁶⁶⁷ Domeij 2010 at 34.

⁶⁶⁸ Ramberg & Ramberg at 108.

⁶⁶⁹ Tacit agreement has been found in cases KKO 1993:35, KKO 1995:94 and KKO 1997:152. The Supreme Court has rejected existence of contract in KKO 1993:160 and KKO 1994:123.

Court has noted that while the Contract Acts governs conclusion of contracts within the field of the act, it has been acknowledged already for a long time that due to development of the society as well as new practices adopted in exchange of goods and services, all circumstances relating to conclusion of contracts cannot be addressed by the traditional offer-acceptance mechanism of the Contracts Act. In such a case, the alternatives are either to apply the principles regarding expression of will of the Contracts Act in a manner required by the new circumstances or to conclude existence of the agreement based on external factors such as the parties' conduct. The parties' conduct is evaluated from the perspective of what kind of conduct may in certain circumstances objectively lead to finding the existence of an agreement and related obligations without basing the conclusion only on the concept of expression of will and the related grounds. According to the Supreme Court, the traditional principles of the Contracts Act appear insufficient, by way of example, in terms of contracts concluded by using different technical means, such as vending machines or contracts that are concluded on a daily basis with a vast amount of parties.⁶⁷⁰

The Supreme Court has stated that an agreement, which is not subject to a requirement of written form or other formality requirement, may be concluded also orally or even as a consequence of the parties' conduct or behavior. However, according to the Supreme Court, in order to find this kind of a silent agreement, the parties must have reached a *consensus* on both the *conclusion* of an agreement and its *content*. According to the Supreme Court, case law and legal literature are cautious when it comes to agreements not based on express statements of will. The reason of this is to avoid situations where a person would be bound by a contractual relationship not accepted by her or in cases where a person had neither expressed her will to be bound by the contractual relationship in any other manner. Because of these reasons, finding a tacit or silent agreement requires *strong grounds* favoring existence of the agreement according to the Supreme Court.⁶⁷¹

⁶⁷⁰ KKO 2010:23.

⁶⁷¹ KKO 2011:6.

The Supreme Court addressed express (oral) and silent (tacit or implied) agreements as well as passivity also in another ruling, in which the court noted that the circumstances prevailing a conclusion of an oral agreement and its implications are essentially different from the so called silent agreement. According to the Supreme Court, an *oral agreement* is concluded when the parties by oral statements express their will to conclude an agreement with certain content or their will to amend the agreement. The *conclusion of a silent agreement* is not based on the parties' specific expression of will. Instead, the *existence of the agreement* or the *waiver of a right* is concluded based on the parties' *conduct* such as *a long-term acceptance of certain situation* or the parties' *established practices*. Oral agreement is thus based on different set of facts than a silent agreement. A party arguing that there exists an implied agreement must refer to the existence of the implied agreement at court.⁶⁷² When considering the existence of a silent or implied agreement, the Supreme Court has taken into account the *factual circumstances* and the *parties' conduct* surrounding the alleged contractual relationship. The Supreme Court has rejected existence of an implied agreement regarding responsibility to pay for consultancy services where the facts against the conclusion of the agreement were stronger than the facts in favor of the agreement. The court noted that based on the parties' *conduct*, no such *mutual understanding* existed between the parties that would have entitled the plaintiff to compensation for the preparatory actions in connection with the negotiations regarding a potential business cooperation. The Supreme Court considered a wide variety of facts and noted that such facts as the parties' *discussions* about establishing a mill to which the plaintiff's alleged consultancy services related, the fact that the actions taken by the plaintiff also *benefited* the

⁶⁷² KKO 2012:86. While the Court of Appeal found that an employer and employee had a silent agreement regarding the amendment of their express employment agreement, the Supreme Court was of the opinion that the said ruling was incorrect. The employer argued as her defense that the parties had orally amended the written employment agreement. The Court of Appeal had indeed rejected the employees' claims, but based the decision on the parties' silent agreement. The Supreme Court, however, returned the matter to the Court of Appeal as the employer had not raised the defense of a silent agreement, but an oral agreement. The Supreme Court reminded that under 25:17.1§ of the Code of Judicial Procedure, in a matter where settlement is allowed, a court cannot base the judgment on a fact which the party had not raised to support her claim or defense. This rule applies even if the court would otherwise be aware of the fact. As the employer's rejection of the employees' claims were based on the alleged existence of the express, oral amendment agreement, the dispute did not concern existence of an implied (tacit) agreement despite the fact that the employer had raised as her defense the employees' passivity in claiming the additional bonuses. Therefore, the Supreme Court concluded that the Court of Appeal was mistaken when it based its ruling on the existence of an implied (tacit) agreement.

defendants and the defendants were *aware* of the said actions and *did not expressly reject* those actions all supported the conclusion of the contract. On the other hand, such facts that the defendant had taken the actions to benefit her own interests and claimed compensation also from other parties than the defendants, were held against existence of the agreement. The parties' e-mail *correspondence* also revealed that the defendants did not consider them responsible for any payments.⁶⁷³

Conduct triggering an implied agreement has also been found where a car driver was imposed an obligation to pay a private parking ticket under the agreement based on the totality of the circumstances. Because of the visible signs including the parking conditions, sanction for the breach and an undertaking to the terms by parking the car, the driver was held to be well aware of the prohibition to park the car at the private parking as well as the fact that a breach of the prohibition was sanctioned by a ticket.⁶⁷⁴

In another case, the Supreme Court held that where the parties had for over a year been negotiating a tenancy agreement and the owner of the building had done, on request of the potential new tenant, substantial construction work and even refused to renew the lease of the previous tenant, the owner's actions were based on *justified expectations* due to the other party's *conduct*. Therefore, the owner was entitled to damages relating to the costs of the construction work as well as the lost rent. The court was of the opinion that the withdrawing party had in an *unjustified manner upheld* the owner's *reliance* on conclusion of the tenancy agreement until the very withdrawal and the withdrawal was not attributable to the owner. Thus, the Supreme Court protected the justified expectations of the owner even though no contractual relationship was concluded. The court noted, however, that while the starting point is that negotiations are not binding and a party is usually entitled to withdraw from the negotiations without negative consequences, the negotiations should not be carried out in bad faith or so that the other party is misled and therefore suffers damage. Especially, when a party has invoked the other party's *justified reliance* on conclusion of the contract, which has already led to preparatory acts, unjustified withdrawal may result in liability to

⁶⁷³ KKO 2011:6.

⁶⁷⁴ KKO 2010:23.

compensate the other party for its damage due to violation in the conclusion of the contract and put the other party to a position where it would be had the parties not commenced the negotiations.⁶⁷⁵

The Supreme Court of Finland has not addressed grant of IPR licenses under tacit or implied agreements. To the contrary, the Supreme Court has rejected, based on narrow interpretation of the transfer of copyrights, finding grant of broader rights than clearly mentioned in the agreement.⁶⁷⁶ On the other hand, the Supreme Court has also noted that the principle on restrictive interpretation of copyright license does not always apply, since it generally concerns the relationship between an author and licensee. The Supreme Court held that the licensee had assigned further broader rights compared to those that it received from the original author in violation of the applicable agreement and §28 of the Copyright Act. Accordingly, use of the work by the licensee's contracting party was unauthorized, resulting in liability for compensation.⁶⁷⁷

The Market Court has examined silent acceptance of copyright license as a defense to alleged copyright infringement based on sale of music files on the Internet. A popular rock band, the Hurriganes, had in the 1970s concluded various agreements with a recording company concerning the production and marketing of phono records of the band's performances. The agreements were later transferred to another music label in connection with a business transfer. Both labels had made the phono records available to public on the Internet through download and streaming, and provided the right holders with royalty reports and effected royalty payments. Heirs of the rock band's deceased guitarist brought an action against the music label for copyright infringement based on unauthorized digital distribution of the albums "Rock and Roll All Night Long" and "Road Runner". The question before the court was, whether the music label had, either under the express agreements or, secondarily, based on a silent acceptance of the right holders, received the right to distribute Hurriganes music on the Internet.⁶⁷⁸

⁶⁷⁵ KKO 2009:45.

⁶⁷⁶ KKO 1984 II 26 and KKO 2005:92.

⁶⁷⁷ KKO 2011:92.

⁶⁷⁸ MaO:191/15.

The Market Court noted that the party adhering to transfer of copyright has the burden of proof regarding the transfer and its scope. According to the court, transfer of copyright is subject to *the principle of restrictive interpretation*, under which the agreement concerning transfer of copyright is not deemed to include any other rights than those expressly evident from the agreement. The court held that the agreements granted the music company broad rights to record the performances on tangible storage media such as phono records or tapes and making those copies available to public. The court noted that the defendant, which argued that the agreements provided it with the right to also distribute the music as digital files or through network service, had the burden of proof regarding the right. The Market Court found that the express wordings of the agreement did not appear to provide a broader right than the right to make available to public tangible copies of the phono records. While the plaintiffs were of the opinion that the old agreements did not cover Internet distribution, the defendant argued, however, that *the parties' intention* and *the prevailing practices* on the market were to assign all rights in the performances to the music company. Court noted that the defendant's evidence was not sufficient to support this. Therefore, the court turned to examine whether the parties had concluded a silent agreement. Market Court noted that *conclusion of a silent agreement is not based on specific expressions of will*, but the existence of an agreement or a waiver of a contractual right is inferred from their *other actions* such as a *longstanding acceptance of a certain state of affairs* or following *established practices* in their cooperation. The burden of proof is on the party invoking the conclusion of a tacit agreement, which at the case at hand, was the defendant. According to the Market Court, silent acceptance concerns usually circumstances where a party is passive regarding the other party's breach of a (rather clear) contract provision, which results in the breaching party to infer that the other party will not object to such breach. The Market Court distinguished the case at hand from said facts by noting that the case in question concerned *grant of rights* that were *not mentioned in the original agreements* at all: the express agreements concerned distribution of tangible copies of phono records, while the defendant had distributed phono records also as digital music files and through network service. The defendant had also referred to a royalty percent unilaterally set by the defendant. The Market Court held that the *threshold for accepting grant of such a right through silent acceptance is high*. Market

Court found, based on several factors, that the plaintiffs had not provided their complaint too late and had not waived their right to enjoin digital distribution of the recordings based on silent acceptance in the absence of sufficient evidence to support the defendant's defense of silent acceptance. The plaintiffs did not dispute the fact that they had received royalty payments for the Internet distribution, but argued that they had notified the defendant of the unauthorized distribution within a reasonable period of time after having become aware of it, and requested the defendant to seize the Internet distribution. The court held shown that the plaintiffs became aware of the digital distribution in July 2011. The plaintiffs had in June 2012 provided the defendant with a complaint arguing that the digital distribution violates the applicable agreements. Further, the plaintiffs had already within a few months after becoming aware of the digital distribution, requested information from the defendant on copies of royalty reports and agreements under which the music company allegedly had right to distribute Hurriganes music on the Internet. Further, there was no evidence that the defendant would have contacted the plaintiffs earlier on digital distribution of the music. When examining whether the plaintiffs' complaint was given early enough, the Market Court also took into account the fact that the plaintiffs, unlike the recording company, were not professionals within the music industry.⁶⁷⁹

While the Market Court rejected in the above case the existence of implied or silent agreement regarding grant of broader license rights than those included in the express license agreement, the Market Court refused to apply the principle of restrictive interpretation in a recent case concerning grant of photo rights. The court held that despite the parties had not agreed the exact scope of the license, the license was not deemed to include territorial restriction in the absence of express limitation. On the other hand, the court still rejected silent acceptance on grant of broader rights to licensee's group company. The plaintiffs were professional photographers working in their own company, who had taken photos for the defendant's marketing purposes. There was no written agreement regarding the scope of the defendant's right to use the photos. According to the plaintiffs, the defendant, a Finnish limited liability company,

⁶⁷⁹ MaO:191/15.

had the right to use the photos only in the defendant's own marketing in the territory of Finland. The defendant was of the opinion that it had the right to use the photos also in the marketing of its group companies. The question brought before the court was therefore, whether the defendants had violated the photographers' rights under §49a of the Copyright Act of Finland, and accordingly, what is the scope of the photo license.⁶⁸⁰

The Market Court considered it shown that the plaintiffs had concluded the allegedly breached agreements directly with the defendant, the Finnish company. According to the court, the *scope of the agreement* should be *constructed objectively* based on the parties' *mutual will*. A party's *one sided understandings* on the contents or the legal meaning should not be given a decisive importance. The Market Court noted that the *principle of restrictive interpretation should not be applied automatically* where the contracting parties are in *equal position*. Therefore, principle of restrictive interpretation was not applicable in the case at hand. Further, according to the court, it was not shown that either party would have been subject to any specific obligation to provide information or inquiry in connection with concluding the agreement, the omission of which would have had an impact on construction of the license scope. Because the question was of constructing the scope of an *oral agreement* and not *interpretation of a written agreement*, the interpretation rules concerning interpretation of the agreement according to its wording or restrictive interpretation were held unsuitable. According to the Market Court, content of the agreement is determined, in addition to the *express terms* of the agreement, also by *standard terms* attached to the agreement, or in the absence of those, *non-mandatory provisions of law* and *usages and practices* prevailing in the field. The court took into account the *international marketing practices*, and held that as the scope of the use right was not agreed (based on available evidence), the license to use the photos in marketing was held not limited to Finland. Therefore, the evidence did not support finding that the plaintiffs would have granted licenses to defendant's group companies. While the plaintiff's claims based on the defendant's alleged grant of license to its foreign group companies were rejected and related claim for compensation dismissed, the defendant was held to have granted a license to its

⁶⁸⁰ MaO:59/17.

Finnish group company. However, as the right transferred by defendant to the Finnish group company was *not based on* the plaintiffs' *silent acceptance*, the defendant was held to have infringed the plaintiffs' photo rights.⁶⁸¹

Construction of Patent License Agreements

When a contract does exist, but its scope is unclear, contract construction is required. Contract construction may be used to clarify contents of the contract, when, for example, the content is ambiguous or there are holes in the contract.⁶⁸² If wording of a license agreement, whether concerning licensing of patents and/or other technology, remains unclear and/or contradictory, the very few relevant sections of the Patent Act of Finland or other Nordic countries, for that matter, are usually insufficient to resolve the question of construction. Therefore, the ambiguity must be resolved by adhering to the general principles of contract law regarding construction of contracts.⁶⁸³ Contract construction means confirming contents of the contract, including also patent and technology license agreements, based on (1) wording of the *contract*; (2) *circumstances* surrounding the negotiations; (3) other oral and written *communications* and materials during the negotiations; (4) *conduct during the negotiations*; as well as (5) – *restrictively* – also *conduct after conclusion* (*i.e.* during the term) of the contract, such as the parties' practices or usage. Most of the materials within the scope of contract construction thus concern materials available at the time of concluding the contract (*i.e.* items 1-4 above), with the exception of the parties' conduct during the contract term. Accordingly, the totality of the circumstances should be taken into account in contract construction. In addition to the express (oral or written) communications, also the parties' implied assumptions and the objectives of the agreement should be considered.⁶⁸⁴ Therefore, in the Nordic civil law system, the actual agreement between the parties consists of much more than the black on white within the four corners of a

⁶⁸¹ MaO:59/17.

⁶⁸² Lehrberg at 12. Ramberg & Ramberg at 127 and 143.

⁶⁸³ Oesch 2004 at 918. Oesch 2007 II at 82. Sund-Norrgård 2012 at 296.

⁶⁸⁴ Hemmo I at 583-584, 598, 607 and 656. Hemmo II at 40. Lehrberg at 27. Saarnilehto at 150. Oesch 2007 II at 81. Ramberg & Ramberg at 143.

contract document unless, of course, the scope of the materials subject to contract construction is expressly limited by a contract based *entire agreement*-clause.

Contracts, including patent license agreements, must be constructed within the limits of law. The sources of laws setting boundaries for construction of patent license agreements include (1) mandatory law; (2) trade custom and other established practices; (3) non-mandatory law (either statutory or case law); and (4) objective legal considerations upon which supplementary legal rules may be created.⁶⁸⁵ Apart from the boundaries of competition and bankruptcy laws, there are rather few provisions of mandatory law applying to patent license agreements, considering also that the mandatory provisions of contract law concern mainly consumer agreements. Therefore patent and/or technology license agreements may usually be concluded and constructed under the principle of freedom of contract subject to §36 of the Contracts Act limiting enforceability of unreasonable contract terms.⁶⁸⁶

When it comes to carrying out contract construction in practice, the starting point for construction of a patent license agreement is the *wording* of the agreement. The assumption is that the parties have been able to express in the written agreement their actual intentions regarding the cooperation. This presumption is strong and applies generally irrespective of the contract type, *i.e.* individual or standard contract, business or consumer contract and/or contract on one-time or continuing performance. Wording of a license agreement has been taken as a basis for contract construction also in Finnish case law. When constructing the wording of the contract, terms are given their *ordinary meaning*. Further, ambiguous terms should be constructed in the context of the whole contract, taking into account the agreement in its entirety and constructing the ambiguous terms against the right context.⁶⁸⁷

⁶⁸⁵ Ramberg & Ramberg at 146 and 149. Oesch 2007 II at 81. Sund-Norrgård 2011 at 118-119. Sund-Norrgård 2012 at 296.

⁶⁸⁶ Hemmo I at 566-567. Oesch 2007 II at 84-86.

⁶⁸⁷ Oesch, Pihlajamaa, *et. al.* at 176. Hemmo I at 584-587, 591-597 and 608. Sund-Norrgård 2011 at 119. Lehrberg at 28. Ramberg & Ramberg at 144-147. See also Market Court of Finland in MaO:191/15 re construction of the scope of a copyright license agreement based on its wording.

However, if the *intention of the parties* behind the agreement is in contradiction with the wording of the agreement, under Finnish law, the intention is decisive. Therefore description of the background and *recitals* or *whereas* clauses at the beginning of a license agreement are of essential importance for contract construction, since those terms reflect the parties' intentions.⁶⁸⁸ In connection with construction of contract contents, the parties' mutual understanding of the contents may be used to construct implied terms in order to fill in the gaps in the contract as an alternative to supplementing the contract with non-mandatory provisions of law. Rambergs note that in the Swedish Commissions Act, *practices adopted by the parties* illustrating their implied intentions are compared to express contract provisions, and thus provide for an example of a situation where the parties' usages (*i.e.* conduct) are also of importance for filling in contract gaps by implied terms in a similar manner as in common law jurisdictions.⁶⁸⁹ Parties' intentions and established practices have been examined by Finnish courts also in connection with construction of the scope of license grants. The Market Court of Finland has rejected a broader scope than the exact wording of the license grant since the evidence was not sufficient to show that the parties' intentions or established practices supported finding such a broader license grant allowing digital distribution of copyrighted content in addition to physical copies, which fell within the express wording of the license grant in the license agreement.⁶⁹⁰

The impact of intention on interpretation is heavier in individually drafted and negotiated agreements as opposed to standard contracts. Standard contracts are not necessarily drafted to specifically reflect the parties' mutual intentions, nor do they include individually negotiated provisions. While the parties' individual intentions may have less relevance in connection with standard contracts, nothing prevents taking intentions into account also in connection with standard contracts if they can be recognized. On the other hand, under the *unclarity-rule*, if standard contracts are unclear

⁶⁸⁸ Oesch, Pihlajamaa, *et. al.* at 176. Hemmo I at 607 and 621. Lehrberg at 27.

⁶⁸⁹ Ramberg & Ramberg at 149-150. §2 of the Commissions Act of Sweden. Similar provision is included also in the Act on Commercial Representatives and Salesmen of Finland. See §2 of the Act on Commercial Representatives and Salesmen of Finland (417/1992). See also Domeij 2010 at 20-21.

⁶⁹⁰ MaO:191/15.

or vague, ambiguous terms may be interpreted against the drafter, which assumably could have made the provision clearer. However, as the purpose of the unclarity-rule is to protect the weaker party, its weight may be heavier in consumer contracts. Contract construction focusing on parties' intentions (including the contract and conduct) may be described as *party-oriented approach*, which takes priority in contract construction over the secondary *object-oriented* construction rules to be applied only if clarity on content cannot be reached by the primary approach.⁶⁹¹ Intention of the parties is of crucial importance also for the construction of the contents of implied agreements. Said construction requires showing that both parties share *a common understanding* on the scope of the implied agreement, which may be visible, for example, from the objective circumstances. *Unilateral expectations* are not adequate to constitute the contents – at least unless the other party was or should have been aware of them.⁶⁹²

Other well-established rules of contract construction in Nordic contract laws include the following, mainly object-oriented rules: (1) a specific way of marking down a contract provision supersedes a general impression (such as hand written over typed provision); (2) a provision added later into the contract supersedes an earlier contradicting provision; (3) the principle of *loyalty* requires each party to contribute to the fulfillment of the contract instead of concentrating only on one's own interests; (3) *de minimis* – rule, under which a party should not be burdened with heavier obligations than constructed under the most favorable interpretation of its undertakings; (4) *ordinary* – rule; (5) *reasonableness* – rule; (6) *effectivity* – rule; and (7) *restrictive interpretation*.⁶⁹³ It has been argued that especially the principles of loyalty and reasonableness are important tools for construction of license agreements.⁶⁹⁴

Finally, there are certain principles within the field of IPR law, which are specific to and must be taken into account in construction of IPR related agreements: One of those established rules is the *principle of narrow interpretation* governing transfer of IPRs in

⁶⁹¹ Hemmo I at 582-586, 602 and 624. Ramberg & Ramberg at 150.

⁶⁹² Ramberg & Ramberg at 130. Annola at 66.

⁶⁹³ Hemmo I at 581, 585-586, 624. Lehrberg at 28. Ramberg & Ramberg at 35-36.

⁶⁹⁴ Oesch 2004 at 925. As to principle of loyalty, see Domeij 2010 at 23-27.

part, *i.e.* license (as opposed to assignment of IPRs in whole). The Supreme Court of Finland has held that an agreement concerning transfer of copyright should be interpreted restrictively and without including other rights within the scope of the transfer than what is clear under the contract. The starting point is that the author has the exclusive right in the work and may decide on its exploitation. Therefore, the alleged infringer has the burden to show that it had broader rights use the work either under a contract or otherwise compared to the express wordings of the agreement. Since the defendant had not produced sufficient evidence to show that the author had otherwise (than under the contract) granted broader rights, the defendant was liable for copyright infringement.⁶⁹⁵ The principle of narrow interpretation is based on the exclusive nature of IPRs, and has three elements in connection with licensing of patent rights: (1) Only those rights are deemed granted, which are expressly set forth in the license agreement: thus, ambiguous grant is interpreted in favor of the patent holder; (2) patent license cannot be transferred without the consent of the patent holder as set forth in §43 of the Patent Act; and (3) if a licensee assigns the patent license, the assignment cannot be broader than the licensee's own rights as one cannot grant better right to another than one holds himself.⁶⁹⁶ Accordingly, the exclusive right related to a patent belongs presumably to the inventor or its assignee.⁶⁹⁷ It has been stated that the traditional emphasis on protection of the right holder and its exclusive rights at the expense of the licensee mandated by the rule on restrictive interpretation is today outdated, since its objective is to protect the weaker party (often author of a copyrighted work) and thus does not have relevance in commercial licensing by corporate entities. Therefore, it has been argued that as opposed to copyright licensing, the rule should not apply to patent licensing, because there is allegedly much less reason to protect patent holder from inadvertent licensing compared to copyright holders.⁶⁹⁸

⁶⁹⁵ See decisions of the Finnish Supreme Court KKO 2005:92, and the Market Court MaO:191/15 regarding narrow interpretation of transfer of copyrights.

⁶⁹⁶ Oesch 2007 II at 82. Oesch 2004 at 925.

⁶⁹⁷ Oesch 2007 II at 81.

⁶⁹⁸ Sund-Norrgård 2012 at 299-300.

Accordingly, the starting point for construction of patent and technology license agreement is the wording of the agreement: the scope of the license grant is, first and foremost, decided by the wording of the agreement. However, as other methods of contract construction are applied in accordance with the general principles of contract law, the result of construction may well go beyond the wording.⁶⁹⁹ Therefore, also the circumstances prevailing at the time of contract formation as well as the parties' conduct after conclusion of the contract must also be taken into account in construction of patent and technology license agreements. The parties' joint intentions constructed in light of the license agreement *as a whole*, including the recitals or whereas clauses, are decisive and will supersede even the wording of the patent license agreement, if the wording and the intentions are contradictory. Further, it has been argued that the *new trend* in construction of contracts includes increased emphasis on *external effects* of the interpretation. Therefore, *public interest* and the impact of effects of contract construction on external parties from the perspective of competition, consumers and/or other end users should be taken into account in construction of patent and technology license agreements. Namely, it has been argued that public interests may, in certain circumstances, even supersede the private interests in construction of patent license agreements. By the end of the day, *pacta sunt servanda*: also patent license agreement must be followed in compliance with its content determined in accordance with the wording of the contract and the intentions of the parties.⁷⁰⁰ Usually detailed drafting of patent license agreements is preferred in order to avoid complex contract construction disputes due to ambiguous contract drafting.⁷⁰¹ Also opposite views have been presented: it is argued that license agreements could also be shorter and more loose, basing the cooperation on the principle of loyalty and implicit contract obligations.⁷⁰²

Potential Implied Patent License Agreements in Finland

⁶⁹⁹ Oesch 2004 at 924 and 927. Sund-Norrgård 2012 at 296-297.

⁷⁰⁰ Oesch 2007 II at 81-83 and 92. Oesch, Pihlajamaa, *et. al.* at 176. Sund-Norrgård 2013 at 296 and 300.

⁷⁰¹ Oesch, Pihlajamaa, *et. al.* at 176 and 190.

⁷⁰² Sund-Norrgård 2012 at 288.

In theory, implied patent licenses might arise in connection with (1) finding a conclusion of an implied (tacit or silent) patent license agreement; supplementing the earlier express agreement with implied patent license terms in connection with (2) contract construction of an express agreement; or (3) implied amendment of an express agreement. In each case, the analysis would be based on the totality of the circumstances, including the parties' communications, conduct and intentions. The party (most likely defendant) invoking the implied patent license should proactively raise the defense of implied license at court and produce sufficient evidence in support of the defense. Now, when implied rights are examined in the context of patents, it appears that Nordic patent and/or contract laws do not recognize a strong, if any, doctrine on implied patent license. The Nordic Patent Acts provide the patent holder with the exclusive right to exploit the patented invention: Other parties are not, without the patent holder's consent, entitled to use the patented product or process or to make, sell, offer for sale or import patented products or products obtained by the patented process.⁷⁰³ Except for the few references to compulsory licenses,⁷⁰⁴ the Nordic Patent Acts do not govern the grant of patent licenses or otherwise include general provisions on the continued exploitation of the patented invention.

In North Europe, the case law is scarce on patent licenses in general. To the best knowledge, there is no one single precedent on the grant of an implied patent license in Finland. Finnish court has acknowledged the possibility of an implied license based on a silent acceptance in case of copyrights in the digital context, but has finally rejected such implied license in the absence of sufficient oral or written evidence on the existence of tacit acceptance.⁷⁰⁵ According to both Nordic case law and legal literature, tacit, silent and implied agreements should be found only in exceptional circumstances where the grounds for finding an implied agreement are, considering the factors as a whole, essentially stronger than the factors against finding the tacit or implied

⁷⁰³ §§3 of the Patent Acts of Finland, Sweden, Norway and Denmark.

⁷⁰⁴ §§48 of the Patent Acts of Finland, Sweden, Norway and Denmark. See also §§4 of the Patent Acts of Finland, Sweden, Norway and Denmark.

⁷⁰⁵ MaO:191/15.

agreement. Some practicing attorneys have argued that the concept of estoppel or similar theories are not established defenses to patent infringement in Finland.⁷⁰⁶

Domeij has approached the conclusion of patent license agreements, including the concept of implied patent licenses, from the traditional civil law mechanism of contract conclusion, *i.e.* the identification of an offer and an acceptance.⁷⁰⁷ While it may be true in terms of (the absence of) case law precedents, in recent legal literature academic scholars even in Finland and Sweden, do acknowledge that sometimes patent licenses may be inferred, for example, from the patent holder's *passivity*, without additional communications on the part of the patent holder. However, the said construction of license rights is not common and by way of example, Swedish courts have rejected at least copyright licenses based on mere passivity. According to Domeij, third parties who have without patent holder's acceptance used an invention, can only adhere to the *statutory time bars* included in the Patent Act as a defense to infringement. However, Domeij notes, with reference to the UK doctrine of implied license, that in some cases an implied patent license could be found also in Sweden, for example, if there is some business relationship between the parties, the patent holder was *aware* of the alleged infringer's activities, and by some act had *indicated* its *acceptance* of the those activities. By way of example, passive acceptance of royalties (and why not other consideration?) based on use of the patent may indicate acceptance of an implied patent license. On the other hand, patent holder's objections against use of the patent may preclude finding an implied patent license. If an implied patent license is established, the patent holder loses its right to prevent use of the patent, but may be entitled to a reasonable compensation based on such activities.⁷⁰⁸

Many European patent laws include time bars for bringing a suit for patent infringement. For example, Finnish, Swedish and French Patent Acts include a time

⁷⁰⁶ Tommila & Siivola at FI:9.

⁷⁰⁷ Domeij 2010 at 33-34.

⁷⁰⁸ Oesch, Pihlajamaa, *et. al.* at 182. Domeij 2010 at 34-35.

limitation of 5 years for seeking compensation based on patent infringement.⁷⁰⁹ Swedish and French practicing attorneys have not, however, specifically raised defenses of implied license, equitable estoppel and/or laches in global country reviews, which may refer to absence of established defenses under those theories in the respective countries. Finnish attorneys have noted that courts may, when determining injunction and damages, consider also facts constituting equitable estoppel, while no precedents exist so far.⁷¹⁰ In Germany, the claims of patent infringement are subject to three to 10 years' statute of limitation, except for claims for damages, which may be brought within 30 years of the infringing act and claims relating to patent license agreements subject to the general time bars.⁷¹¹ For comparison, both estoppel theories and implied patent licenses exist in German case law, although their practical relevance may be limited. Estoppel may be at hand if the patent holder delayed enforcing its rights for a long period of time, actively inducing reliance in the user on the patent holder's intention not to enforce the patents. Evaluation is done based on the totality of the circumstances.⁷¹² Finally, UK as a common law country recognizes very similar forms of defenses to patent infringement as the US legal system, including, for example the concepts of implied license, laches, acquiescence and estoppel.⁷¹³

⁷⁰⁹ §58.3 of the Patent Act of Sweden. Lundgren at SE:8. Gozzo & Hägg at 25. Article L615-8 of Intellectual Property Code of France. Bloch at FR:2. 5 Mills, Reiley, *et. al.* §27:5 at 27-11. §58 of the Patent Act of Finland. Tommila & Siivola at FI:9. Domeij 2010 at 34-35.

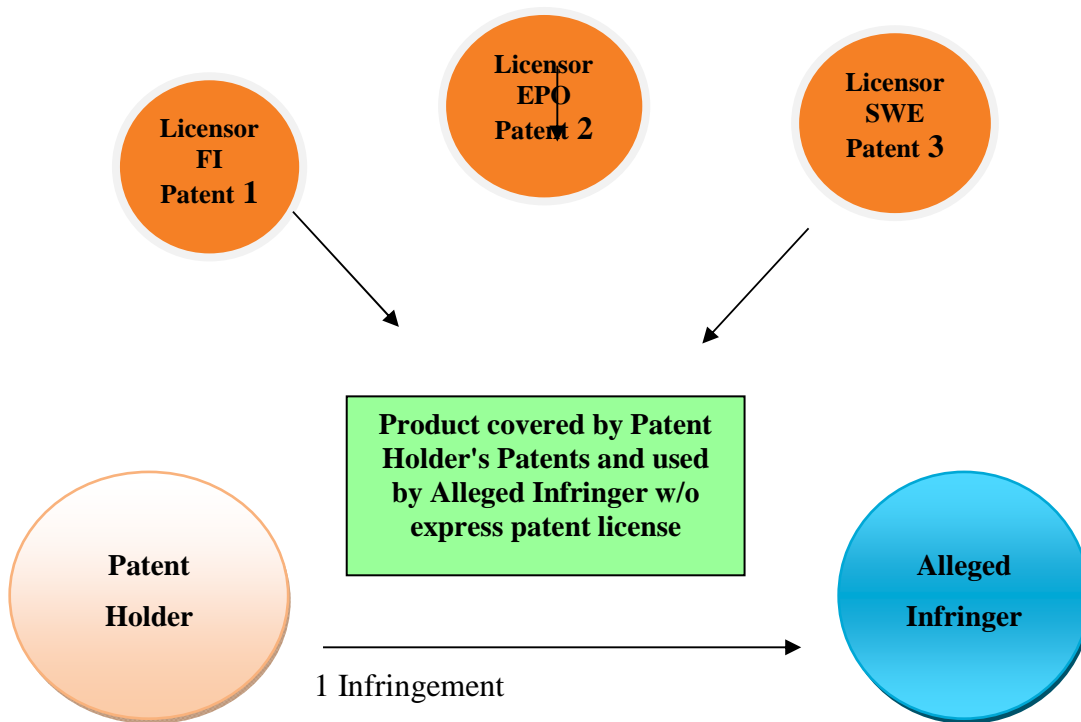
⁷¹⁰ See for example Gozzo & Hägg, Guillot and Hilli, Segercrantz, *et. al.*

⁷¹¹ §141 of Patent Act of Germany. §195 and §195 of the Civil Code of Germany. Vom Feld & Bärenfänger DE:26. Büchling at 37.

⁷¹² Vom Feld & Bärenfänger DE:25 – DE:26. Büchling at 37. See also Domeij 2010 at 35-36.

⁷¹³ 5 Mills, Reiley & Highley §33:8 at 33-14. See also Domeij 2010 at 34-35.

PICTURE 12: (NO?) IMPLIED PATENT LICENSE IN FINLAND



PICTURE 12: (NO?) IMPLIED PATENT LICENSE IN FINLAND

Defenses of implied patent license or equitable estoppel are not established in statutory or case law in Finland. However, courts may consider factual circumstances similar to elements of implied license such as silent agreement in determining infringement and/or sanctions.

In this scenario, Alleged Infringer uses, makes copies, modifies, distributes and/or sells copies of a computer program practicing Patent(s) 1-3 owned by Patent Holder. Patent Holder releases the computer program for download on the Internet, without, however, granting an explicit patent license. The starting point is that Alleged Infringer is liable for the infringing activities (Arrow 1), but statute of limitations precludes Patent Holder from claiming damages for a longer period of time than 5 years prior to compensation proceedings. Despite the said starting point, courts in Finland may take into consideration also other circumstances, such as tacit acceptance or silent agreement as defense to alleged patent infringement.

5.1.3 Comparison of the Implied Patent License Theories

The defense of implied license to patent infringement is a common law doctrine developed in the US case law and found also in the UK common law system.⁷¹⁴ The focus of this comparative analysis is on the differences between the US common law system and the civil law system of Finland. Implied license is, essentially, a waiver of the patent holder's statutory right to exclude others from making, using or selling the patented invention. Implied license may prevent injunction, but not necessarily reasonable royalties based on exploitation of the patented invention. The US doctrine of implied license, most often arising under the theory of equitable estoppel, is based on the principles of equity: patent holder may not be entitled to injunction or damages if, based on the totality of the circumstances, the patent holder's conduct has created a license, upon which the alleged infringer directly acted. Therefore, implied license can never arise out of unilateral expectations nor even reasonable hopes. Implied license arising under equitable estoppel or other theories (such as laches, acquiescence or legal estoppel, for that matter) are not codified to nor derive from any US statutes. The question is of pure case law doctrines. However, while the doctrines were established already within the last 100 years in the US case law, implied license under any of the above doctrines are still not common in the US, either.⁷¹⁵

North European practicing attorneys appear to every now and then note in global legal country reviews that their Patent Acts do not include statutory provisions on the doctrines of implied license or equitable estoppel. However, the lack of statutory law on implied license by no means indicate that there does not, or could not, exist such concepts of law in the legal system subject to review: Neither do the US or the UK laws include statutory provisions on implied license. However, the doctrines were established in common law system(s) over the decades and through countless number of patent infringement cases adjudicated by the Supreme Courts of the lands. Now, the doctrines are good law, but still rarely applied in practice. Accordingly, the lack of statutory law on these concepts neither precludes existence of implied license nor equitable estoppel

⁷¹⁴ Willoughby at 29.

⁷¹⁵ Wang Labs v. Mitsubishi Electronics at 1580-81. LGE v. Asustek at 10.

in Finland or other Nordic countries. The real challenge to development of these doctrines appears to be the scarce amount of case law on patent licensing, in general. While nothing should prevent courts from taking elements of implied license or estoppel into account in Nordic courts, these questions appear to be at table much more rarely in the North European countries, where case law on patents is scarce on many questions of patent law and licensing, specifically. Therefore, considering that there is much less case law concerning patents in the Nordics compared to the US, it is by no means any wonder that there is neither established case law on the defenses of implied license or equitable estoppel in Finland. This means, in practice, that one of the main defenses against enforcement of patent is statute of limitations, precluding damages beyond five years prior to the compensation proceedings. However, even in Nordics, when determining patent infringement and related sanctions, courts are free to take into account factors which could lead to similar consequences as implied license, *i.e.* precluding injunction and/or damages. In the context of potential disputes arising out of patent infringement and/or licensing, this could include analysis of contract conclusion and construction in light of the totality of the circumstances, paying attention to factors, which are in favor of a tacit license, based on, for example, passivity of the patent holder while being aware of the alleged infringer's activities together with some affirmative conduct on the part of the patent holder inducing reliance in the alleged infringer on the patent holder's intention not to enforce its patent rights. The Market Court of Finland has acknowledged the possibility of an implied license based on tacit acceptance due to passivity in a copyright case.⁷¹⁶ Also some Nordic scholars acknowledge the concept of tacit or implied agreement, which may be present when the parties silently shared common understanding although express agreement cannot be found. This technic of contract formation is noted to resemble the Anglo-American model which recognizes express and implied agreements.⁷¹⁷

In the US, implied license was devised to mitigate the tension not settled by the, somewhat older, doctrine of patent exhaustion: Even if patent exhaustion has not

⁷¹⁶ MaO: MaO:191/15.

⁷¹⁷ Ramberg & Ramberg at 130.

resulted in loss of patent holder's statutory right to exclude, implied license may provide the alleged infringer the right to practice the patent by operation of *equity*, either based on sale of a patented product or other grounds. The objective of patent exhaustion doctrine is, in turn, to *prevent recovery of double royalty* by the patent holder, by exhausting patent holder's right to control patented device upon its unconditional sale.⁷¹⁸

5.2 IMPLIED PATENT LICENSE IN CONTEXT OF FOSS

5.2.1 Preconditions for Implied Patent License under FOSS

5.2.1.1 Overview

As outlined in Section 1.3.1 (Research Questions), the inquiry under the Research Question 2 of this study is: Do the most common FOSS licenses, *i.e.* the BSD, the MIT and the GPLv2 licenses, which do not include express patent license grants, still trigger implied patent licenses? The Research Question 2 is divided into three sub-questions: What are (i) the preconditions for the existence; as well as (ii) the scope; and (iii) the extent – and thereby the practical impact – of the implied patent license in the context of sale, licensing and/or redistribution of FOSS in Europe and the US?

This Section 5.2.1 (Preconditions for Implied Patent License under FOSS) aims to shed light on the sub-question (i) of Research Question 2, and thus examines what are the preconditions for the existence of implied patent license in the context of sale, licensing and/or redistribution of FOSS in Europe and the US. Since the doctrine of implied patent license has stronger presence in the common law system of the US compared to civil law countries of (Northern) Europe, including Finland, the preconditions for existence of implied patent license is primarily examined under the laws of the US together with comparative observations based on the general principles of contract law as existing in Finland.

Now, when it comes to the preconditions of implied patent license under the US laws, it is reminded that under SCOTUS precedents (1) any *language* or *conduct* of the patent

⁷¹⁸ LGE v. Asustek at 10-12.

holder; (2) from which another party may properly *infer* that the patent holder consents to use of the patent; and (3) upon which the other party *acts*; may constitute a license. Under one of the most common implied license theories, merely the following three elements may be sufficient to establish implied license under equitable estoppel: (1) Patent holder *communicates*, either by words, conduct (action or inaction) or silence, something *in a misleading manner*; and the other party (2) acts in *reliance* on that communication; and (3) would be materially *harmed*, if the patent holder would later on assert any claim inconsistent with its earlier conduct. Therefore, the test used for finding an implied patent license in connection with FOSS licenses subject to this study is a three-fold test based on (1) *communications*, *i.e.* words (whether oral or written), silence and/or conduct of the FOSS licensor inducing; (2) *reliance* on the FOSS licensor's conduct based on which the FOSS licensee *infers* existence of the implied patent license and *acts* accordingly; as well as (3) *harm* resulting from the consequences, if the FOSS licensee is required to seize its operations based on infringement of the FOSS licensor's patents.

The elements required for finding an implied patent license are analyzed below in more detail. Accordingly, in Section 5.2.1.2 (Wordings of the FOSS licenses) the wordings of the FOSS licenses subject to this study are discussed and reflected in Section 5.2.1.3 (Intentions of the Parties) against the intentions and objectives of the parties, including not only drafters of the FOSS licenses, but also the subsequent contributors and/or distributors. Section 5.2.1.4 (Conduct and Communications of the FOSS Licensor) focuses on other actions of the FOSS licensor, which may, in addition to the wordings of the FOSS licenses, induce reliance on the existence of an implied patent license on the part of the FOSS licensees. Section 5.2.1.5 (Reliance on the FOSS Licensor's Conduct), in turn, focuses on the FOSS licensee and its reliance based on justified expectations in connection with using FOSS. Further, Section 5.2.1.6 (Harm) addresses some consequences of enforcing patents reading FOSS on the FOSS projects as well as FOSS licensees. Section 5.2.1.7 (Other Estoppel Theories) includes an overview of other potential theories for finding implied license in connection with FOSS. Section 5.2.1.8 (Disclaiming Implied Patent Rights) briefly touches upon avoidance of implied licenses before summarizing in Section 5.2.1.9 (Analysis of the Findings) the prerequisites for implied patent license in connection with FOSS. Finally, the scope and

extent of implied patent licenses, if any, based on the BSD, the MIT and/or the GPLv2 licenses are discussed in Section 5.2.2 (Impact of Implied Patent License on Use of FOSS). It will be examined in more detailed, for example, whether those patent licenses could be deemed to have been given not only by a FOSS contributor, but a mere FOSS distributor. It will also be discussed whether the implied patent licenses, if any, cover only the contributor version, or could the implied patent licenses extend also to derivative works of downstream licensees.

5.2.1.2 Wordings of the FOSS Licenses

Under the common law doctrine of implied patent license, the analysis first turns to communications of the FOSS licensor. Communications may consist of *words* (whether written and/or oral), *silence* as well as *conduct* (action or inaction) of the FOSS licensor. The most obvious expression of the FOSS licensor is of course the wording of the respective FOSS license under which the FOSS licensor decides to contribute and/or distribute software. Wording of the contract is also the starting point of contract construction under the (North) European principles governing license agreements.

If the best practices regarding drafting of patent and technology license agreements are followed, the license agreement would expressly define, among others, (1) under which *IPRs*, such as patents and/or copyrights, the licenses are granted; (2) which *exclusive rights* of the respective right holder are granted under the license, such as the patent holder's rights to make, use, sell, offer for sale and import the patented article and/or the copyright holder's rights to copy, modify and distribute the copyrighted work; (3) what version(s) of the FOSS program are subject to the license; and (4) under *who's* IPRs (e.g. the FOSS contributor and/or distributor and/or their affiliates) the licenses are granted. However, none of the most common FOSS licenses, the BSD, the MIT nor the GPLv2 licenses, include these kinds of clear license grants. For example, neither of those licenses specify under which IPRs, such as copyrights and/or patents, the licenses are granted: The BSD, the MIT or the GPLv2 licenses do not expressly state, for example, that "the FOSS licensor hereby grants, under copyrights and patents owned by the FOSS licensor, the rights to..." Therefore, it remains inherently unclear under what IPRs the FOSS licenses are granted. Thus, clarification must be sought from the exclusive rights of IPR holder expressly mentioned within the license grants.

When it comes to the exclusive rights explicitly licensed under the BSD, the GPLv2 and the MIT license, the wordings vary: Under the GPLv2, the FOSS contributor (not mere FOSS distributor⁷¹⁹) grants the licenses to *copy, modify* and *distribute* the GPL-licensed program.⁷²⁰ These rights are all within the exclusive rights of a copyright holder.⁷²¹ None of the exclusive rights of a patent holder, *i.e.* the rights to use, make, sell, offer for sale, or import⁷²² are mentioned within the license grants of §§1-2 of the GPLv2. The GPLv2 even states that *activities other than copying, distribution and modification are not covered by, and are outside of the scope of the license.*⁷²³ This may be construed as meaning that all *express licenses* are granted under copyrights only, and no patent licenses are expressly granted under the GPLv2. On the other hand, §0 of the GPLv2 also states that "*the act of running the program is not restricted.*" The reference to act of running the program means, simply put, *using* the FOSS program, which is an act within the patent holder's exclusive rights. Therefore, the right to freely use the program under §0 of the GPLv2 is one of the elements strongly supporting patent license in the GPLv2. Further, none of the FOSS licenses subject to this study neither *disclaims* any patent rights implicitly or otherwise granted under the FOSS licenses. Despite that the license grants of the GPLv2 do not explicitly mention the rights to use, make or sell the software, most of the expressly licensed exclusive rights of a copyright holder, *i.e.* the rights to copy, modify and/or distribute, could not be carried out without performing the acts, such as using and making copies of the patented article falling within the exclusive rights of a patent holder. Therefore, an implied license could be inferred from this fact. Namely, it would not make much sense for a licensor to affirmatively grant a license to perform certain acts under some of its exclusive rights, and concurrently prohibit the expressly and/or implicitly licensed acts on other grounds. If that was the case, the license grant would effectively be moot.

⁷¹⁹ GPLv2§6

⁷²⁰ GPLv2§§1 and 2.a

⁷²¹ Article 4(1) of the Software Directive. §2 of the Copyright Act of Finland. 17 U.S.C. § 106.

⁷²² Chapter III, Article 64 of the EPC. §3 of the Patent Act of Finland. 35 U.S.C. § 271

⁷²³ GPLv2§§0-3.

Also the license grants of the BSD and the MIT licenses center round copyrights, granting the rights to "redistribute with or without modifications" under the BSD license and to "copy, modify and distribute" under the MIT license. While the BSD and the MIT licenses do not mention patents at all, both the BSD and the MIT licenses, however, grant the right to *use* the software, which is one of the exclusive rights of a patent holder, and an act, which is not restricted by copyright.⁷²⁴ Using and distributing the software, in turn, inevitably requires copying the software, *i.e. making* a new patented article, which is also one of the exclusive rights of a patent holder. Further, the MIT license also mentions the right to *sell* the software, which is yet another exclusive right pertaining to the patent. Therefore, one could argue that based on the wording of the BSD and the MIT licenses, the BSD and the MIT licenses grant an *implied (or express) patent license* to *use* and *make* copies of the software *under patent rights*. Further, it may be argued that under the MIT license, the *implied patent license* covers also the right to *sell* the software *under patent rights*. *Effectively*, all of the FOSS licenses under review, *i.e.* the BSD, the MIT and the GPLv2 licenses give the recipients the rights to use, make and sell the software. Other academic scholars, practicing attorneys, industry lawyers as well as legal counsel seem to have concurred already for a long time with the existence of an implied patent license under all FOSS licenses subject to this study.⁷²⁵ It has been argued, though, that the grounds in favor of implied patent license would be stronger under the MIT license compared to the BSD license, because the MIT license includes a couple of more references to patents, namely, the right to "*sell*" and "*deal in*" the software, which are absent in the BSD license, possibly increasing patent related concerns under the BSD license.⁷²⁶ The difference, however, should not be decisive for finding an implied patent license, considering that by the end of the day, existence of the patent license must in any event be inferred from the totality of the circumstances.

⁷²⁴ 1 Nimmer §2.18[A].

⁷²⁵ Meeker 2015 at 161. Moglen, Ravicher, *et. al.* at 33-34. Mann at 18. Rosen at 75-79 and 85-86. Ilardi at 299. Välimäki 2006 at 208.

⁷²⁶ Nadan 2009 at 2.

It must also be borne in mind that even if the license grants in the BSD, the MIT and the GPLv2 licenses do not include clear patent license grant, the same vagueness applies also to licensing of copyrights under the FOSS licenses subject to this study: None of those licenses state expressly that the licenses are granted "*under copyrights*" of the contributor, although the GPLv2§0 does state that activities other than copying, distribution and modification are not covered by the license. Further, the BSD license does *not* expressly mention *each exclusive right of a copyright holder* in the license grant, since it does not expressly mention the right to "*copy*" the software (which is one of the exclusive rights pertaining to copyright and relevant to software), while still granting the rights to "*redistribute and use the software with or without modifications*". However, there is no doubt that a licensee using a FOSS program under the BSD license has right to copy the software and commit the said act, which is a prerequisite for redistributing and using the software in the first place. It has been argued that the failure to mention any specific form of IPRs under which the licenses are granted, would in fact mean that the licenses are granted under *all forms* of IPRs relevant to computer programs, including also patents.⁷²⁷ Further, some of those FOSS licenses also refer to a bunch of other rights, not specifically within any exclusive right under patent and/or copyright, such as the reference in the MIT license to "deal in the software" (despite being considered in some court cases to relate to the exclusive rights of a patent holder). Thus, some amount of the fear, uncertainty and doubt related to the existence and sufficiency of implied patent licenses in connection with FOSS licensing may appear exaggerated.

Despite the absence of a clear grant of a patent license, the GPLv2 does address patents explicitly in the GPLv2§7. GPLv2§7 is named as the *Liberty or Death* – clause by its drafter, Richard Stallman.⁷²⁸ The last sentence of the GPLv2§7 expressly defines the intentions behind drafting of the GPLv2 license: It states that "This section is *intended* to make thoroughly clear what is believed to be the *consequence of the rest of this License*". Therefore special emphasis must be put on the analysis of the GPLv2§7.

⁷²⁷ Nadan 2009 at 2.

⁷²⁸ Hass at 219.

Below sections will repeat the GPLv2§7 in verbatim form, followed by analysis of each sentence of the section.

Under GPLv2§7.1, “If, as a consequence of a *court judgment* or *allegation of patent infringement* or for *any other reason* (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License.” Obviously, the purpose of the above obligation is to address claims relating to both affirmed and alleged infringement of *third party patents* as well as other matters, which might endanger FOSS licensors' compliance with the terms and conditions of the GPLv2 license. In terms of own *patents held by the FOSS distributor* reading software released under the GPLv2, the section prevents, together with the GPLv2§4, patent holder from trying to modify the terms of the GPLv2 for the purpose of avoiding licensing own patents for free use, copying and distribution of the software by each recipient. In terms of *third party patents*, some scholars have argued that the existence of third party patents would not prevent distribution of the software under the GPLv2§7 before the third party patent holder has actually *accused* the FOSS distributor of patent infringement and the dispute is litigated or settled. Namely, considering the amount of invalid, bad patents not meeting the requirements of novelty, non-obviousness and/or utility, the likelihood of infringing a valid patent claim may in some cases be even low. According to the said interpretation, invalid and other unenforced patents would thus not prevent distribution of the program under the GPL, and distribution of software before allegation of infringement would be permitted. However, such a distribution always involves risk of subsequent patent infringement suit against the distributor and/or users.⁷²⁹ Permitted or not under the GPLv2, the said distribution knowing of third party patents may not be wise. As discussed in Section 2.2.3 (Software Patents in the US), distribution of FOSS knowing about the relevant third party patent may constitute willful infringement resulting in enhanced damages.

The GPLv2§§7.2 and 7.3 continue as follows: "If you cannot distribute so as to *satisfy simultaneously* your obligations under *this License and any other pertinent obligations*,

⁷²⁹ Fitzgerald & Suzor at 441. Rosen at 134.

then as a consequence you may *not distribute the Program at all*. For example, if a patent license would not permit *royalty-free redistribution* of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to *refrain entirely from distribution* of the Program." Some IP economists argue that this clause "explicitly singles out patents", calling the clause as a *compulsory royalty-free patent license*, because it requires that if the GPLv2 licensed program reads any patents, the patents must be licensed for free to all downstream users, without the possibility to cover related R&D costs. The IP economists divide effects of the compulsory royalty-free patent license into two categories: (1) impact of the compulsory patent license to the FOSS licensor's *own patents*; and (2) obligation to acquire licenses from third party patent holder(s) for the benefit of the FOSS licensor and each downstream licensee. In both cases, whether the FOSS licensor is incorporating software covered by its own patents or third party patents, the FOSS licensor must license those patents for everyone's free use under the terms of the GPLv2. Therefore, according to those economists, the GPLv2 *expressly negates patents* – the precise goal of the FSF. Further, they see that the clause is "not an issue" as to patents owned by the FOSS licensor, because "the patent owner *can license their use*" under the GPL, thereby distinguishing licensing of own patents from licensing of third party patents.⁷³⁰

The other side of the coin is, though, that each FOSS licensor may not *want to license* its patents for free to all, if any, downstream users. As mandated by the GPLv2§7.3, if the patent holder is not willing to accept grant of an (implicit) royalty-free patent license, s/he must not distribute the program under the GPLv2. As the GPLv2§7.3 prevents the patent holder from simultaneously distributing the program and claiming for patent royalties, the GPLv2 may be interpreted to trigger a royalty-free implied patent license should the patent holder choose to, despite the license, distribute software under the GPLv2. It is important to understand that the requirement of royalty-free distribution covers *each and every* downstream licensee, whether receiving the program

⁷³⁰ Evans & Layne-Farrar at 19-20.

directly or indirectly from the FOSS licensor.⁷³¹ FOSS licensor can neither release the GPLv2-licensed software under another (FOSS or proprietary) license, if it is not also the copyright holder of the software. Namely, in the event the patent holder does not own the copyrights in the software, it does not have the right to change the applicable license terms, and thus faces the choice of royalty-free patent license or refraining from distributing the software in its entirety.

There appears to be a consensus that the GPLv2§7 requires, effectively, grant of free of charge patent license under patents embodied by the distributed program. If the free distribution rights cannot be secured from third party patent holders and/or the FOSS licensor does not want to license their patents for free, the evident outcome is that the program may be used only for internal purposes and/or in accordance with the respective proprietary license, if any, in case of dual license. However, distribution rights under the GPLv2 are lost, which may result in real harm for the patent holder wishing to distribute the program without exposure to its own patents.⁷³²

Further, the GPLv2§7.4 includes a severability clause, should the section be held (partially) invalid: “If any portion of this section is held *invalid or unenforceable* under any particular circumstance, the *balance* of the section is *intended to apply* and the section as a whole is intended to apply in other circumstances.” It has been argued that the above provision alone would not have a meaningful effect if the first part of the Liberty of Death clause was deemed invalid or unenforceable, because the essence of implied license lies in the GPLv2§7.1.⁷³³

Considering the Preamble, the wide copyright license grants (which could not be exercised without infringing the respective patent holder's exclusive rights to use, make and sell) as well as the GPLv2§0 leaving running of the program unrestricted, one could also argue that the GPLv2 could trigger an implied patent license even in the absence of

⁷³¹ Tsai at 561-562.

⁷³² Hass at 248. Nordic legal literature does not appear to (yet) include comprehensive discussion on implied patent licenses under FOSS licenses. For some discussion from the perspective of Swedish and Danish laws on patent rights and the GPLv2§7 as well as other licenses, see Olofsson at 97-99 and Matzon & Gøtrik at 11.

⁷³³ Hass at 248.

the GPLv2§7 based on the rest of the license as well as the totality of the circumstances. Existence of patent license based on wordings of the GPL is also supported by GPLv2§6, which states that “You may not impose any further restrictions on the recipients' exercise of the rights granted herein.” §6 prevents request for separate patent license for FOSS released under the GPLv2.

Finally, the last part of the GPLv2§7 provides that: “It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the *sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices.* Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; *it is up to the author/donor to decide if he or she is willing to distribute software through any other system* and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.” The last part expresses very clearly the *objective* and *intention* of the GPL licensing model: to keep free software clean from patents. It would be hard for a patent holder to later on argue that it did not grant any patent rights to recipients of the software despite the deliberate choice to either contribute and/or distribute software under the GPLv2.

Based on the above observations, one could argue that under the GPLv2§7, licensing of any patents whether owned and/or otherwise held by the FOSS licensor (either FOSS contributor or "mere" FOSS distributor) is required for distribution of the program covered by the GPLv2, even if the said obligation is not drafted in the form of an affirmative license grant. The intent behind the Liberty or Death – clause could be simplified as follows: "If you own and/or hold patents in the software, do not distribute the software under the GPL. If you do redistribute, you will license all of those patents to everyone for free." Some industry lawyers are of the opinion that the Preamble of the GPLv2 read together with the GPLv2§0 and the GPLv2§7 do constitute an implied

patent license despite that the GPLv2, like any other early FOSS licenses, do not include an explicit patent license within the license rights granted under the GPLv2§1-3.⁷³⁴

The FSF view on the GPLv2§7 is clear and concise: patent holders who wish to distribute free software must face the choice of either avoiding distribution or distributing the GPLv2 licensed software and granting a royalty-free, irrevocable, non-exclusive license under patents reading the distributed software. FSF refers to IBM, one of the largest patent holders in the world, as company having made the latter choice, thus inspiring patent holders all around the world to license their patents, like contributed copyrights, to the FOSS community and, expressing the matter by language conforming to the free software philosophy, rather giving the software liberty than giving it death.⁷³⁵

Finally, also arguments *against* finding an implied patent license may be found from wordings of the FOSS licenses subject to the study: Both the BSD and the MIT licenses refer only to copyright holders in connection with the warranty disclaimers. Under the BSD license, "the *copyright holders* and *contributors* provide the software on "as is". The MIT license, in turn, states that "In no event shall the authors or the copyright holders be liable for any claim". The form of warranty and liability disclaimers may suggest that only the copyright holders grant license rights under the BSD and the MIT licenses, not patent holders.⁷³⁶ On the other hand, copyrighted software is a *work product*, unlike a patentable idea. Therefore, clauses referring to provision of software on "as is" basis, may have nothing to do with the existence of patent rights in the software. Further, some lawyers have acknowledged that the GPLv2§7 includes an express patent obligation, but have interpreted the said Liberty or Death clause to cover only third party patents, by requiring pass through of any patent licenses received from third parties. Under said view, though, the express patent obligation would not cover the FOSS contributor's and/or redistributor's own patents.⁷³⁷

⁷³⁴ Ilardi at 295.

⁷³⁵ Moglen, Ravicher, *et. al.* at 40.

⁷³⁶ Rosen at 78.

⁷³⁷ Nadan 2009 at 2.

When it comes to the GPLv2 license, XimpleWare argued in its Second Amended Patent Complaint against Versata, Ameriprise and other defendants accused of patent infringement based on use of GPLv2 licensed software, that the GPLv2 does not include a patent license. XimpleWare obviously adhered to literal contract construction of the GPLv2, basing its interpretation solely on the wording of the license grant. Namely, XimpleWare noted in its Second Amended Patent Complaint that the Preamble of the GPLv2 referring to patents is *not* an operative part of the license. Further, XimpleWare argued that while only the GPLv2 §§7-8 mention patents, they do not, however, grant a patent license. Accordingly, XimpleWare claimed that infringement of XimpleWare patents was constituted through use of Versata products without entering into a commercial license with XimpleWare and without strict compliance with the GPLv2.⁷³⁸

Finally, if wording of the BSD, the MIT and the GPLv2 licenses are subject to literal contract construction focusing only on the express license grants and without giving emphasis on the parties' intentions and objectives of the FOSS licenses, one can of course conclude that no patent licenses are, explicitly or implicitly, granted under the FOSS licenses subject this study. Lawyers arguing from this perspective have referred to the decision in State Contracting & Engineering v. Florida. CAFC noted that whether the question is of express or implied licenses, license is a contract governed by ordinary principles of state contract law. Applying Florida law in construing the contract, CAFC examined a broad license grant and decided that since it failed to include an express patent grant, it showed that had the parties *intended* to convey patent rights, they would have done so explicitly. The licensee, the State of Florida, had drafted the contract, and the contract was interpreted against the drafter.⁷³⁹ However, the above contract may be distinguished from the FOSS licenses subject to this study: The contract drafted by the State of Florida did include a patent license for one use but not to another. While both the GPLv2 and the above contract address patents in some clauses, only the latter had an express patent license for defined field of use: Unlike the GPLv2, which does not

⁷³⁸ XimpleWare Corp. v. Versata Software, Inc. (No. 5:13-cv-05160-SI-PSG) (N.D. Cal. May 31, 2014), Second Amended Complaint at 8, 10 and 20.

⁷³⁹ State Contracting & Engineering Corp. v. State of Florida 258 F.3d 1329, 1339-1340 (Fed. Cir. 2001), *cert. denied* 543 U.S. 1131 (2002).

include a clear patent license grant, the latter contract may reflect the parties' intentions to permit only the expressly mentioned uses, by excluding others from the scope of the license. Under the US laws, contract should be constructed within its legal and commercial context. For example, in addition to the express rights granted under a license agreement, courts have found also implied rights where they have been *necessary to achieve the purpose* of the contract, in order to avoid commercially counterintuitive results.⁷⁴⁰

5.2.1.3 Intentions of the Parties

Now, while the wordings of the FOSS licenses subject to this study are indeed ambiguous, yet broad, they do reflect the *intentions* of the writers who drafted those licenses. Under the Nordic principles of contract construction, intentions of the parties supersede even the express wordings of the contract, if they are contradictory. Therefore it is worth visiting the intentions and objectives behind drafting of these licenses at the UC, Berkeley, the MIT as well as the FSF at the end of the 1980s. When it comes to the BSD license, it is common belief that the lawyers in the University of California, who wrote the BSD license, *intended* to license the Berkeley Software Distribution *under all IPRs* owned by the UC. The BSD license was drafted to meet these objectives, even if their lawyers' drafting did not fully achieve the objectives.⁷⁴¹ The MIT license, in turn, was drafted to expressly grant the rights to "*deal in the software without restriction*". While meaning of the phrase is, again, ambiguous it should at least not limit the copyright or the (implied) patent grants under the MIT license.⁷⁴² To the contrary, it may reveal that the contributors' *intention* was to give the software for everyone's free use without restrictions based on exclusive IPRs.

Further, when the license grants of the GPLv2 are constructed in light of the *agreement as a whole*, more complete picture of the intended licensing model may be obtained. Therefore, the license grants included in the GPLv2§§1-3 must be read in the complete

⁷⁴⁰ 1 Raymond Nimmer §7:49 at 7-121 and §7:58 at 7-138 – 7-139.

⁷⁴¹ Rosen at 78.

⁷⁴² Rosen at 86.

context of the license, and specifically together with the Preamble as well as the GPLv2§§0&7. While the GPLv2 provides that "activities other than copying, distribution and modification are not covered" by the license, it also states that "*the act of running the Program is not restricted.*"⁷⁴³ Further, the Preamble states that "Any free program is threatened constantly by software patents. We wish to avoid the *danger that redistributors of a free program will individually obtain patent licenses*, in effect making the program proprietary. To prevent this, we have made it clear that *any patent must be licensed for everyone's free use* or not licensed at all."

The Preamble of the GPLv2 reflects the objectives of the FSF to keep free software free from patent restrictions, which effectively turn free software to proprietary software. The enforcement mechanism of the objective is the request, addressed to each FOSS licensor (both FOSS contributor and "mere" FOSS distributor) that *any patent rights they may have*, are licensed freely to each downstream FOSS user. Therefore, based on both common law inquiry of implied license under equitable estoppel and the Nordic civil law principles of contract construction, the *objectives* of the GPLv2 do reflect the *intentions* of the drafters *setting a strong message thus inducing justified reliance* on the downstream FOSS licensees that all FOSS licensors, whether those who wrote the license, as well as those who made the deliberate choice to contribute and/or distribute software under it, will not sue the downstream FOSS users for patent infringement. Also some practicing attorneys agree that the important strategy of the GPL licensing model, as illustrated by the Preamble, is to ensure that patents are not used to block the *intentions* of the GPLv2, and accordingly, the said intentions are enforced under the GPLv2§7, which mandates that patent rights must be exercised in compliance with the licensing scheme of the GPLv2.⁷⁴⁴

Simply put, if contract is considered ambiguous, contract construction may be used to fill in the gaps in the contract. Also extrinsic evidence, such as course of dealing or course of performance, may be used to explain the contract, if not excluded by the parties in the agreement. For example, implied licenses have been found when contract

⁷⁴³ GPLv2§0.

⁷⁴⁴ James at 71-72. See also Tsai at 562 and Lemley, Menell, *et. al.* at 374.

construction has focused on *intention of the parties* in the prevailing commercial circumstances.⁷⁴⁵ On the other hand, one could also argue that since the licenses subject to this study are *standard terms*, they do not necessarily reflect the intentions of the entities contributing and/or distributing software under the licenses, but merely the intentions and objectives of the entities having drafted the licenses. This stand may be, though, rebutted in terms of many eager advocates of the FOSS community, choosing the given FOSS licenses specifically due to their objective to support software freedom and thus also its enforcement mechanism: implied patent licenses.

Because the FOSS licenses subject to this study do not include clear grant of patent licenses stating specifically which exclusive rights of a patent holder are licensed under the patents owned by the FOSS contributor and/or the FOSS distributor (and/or their affiliates?), existence of other strong factors in favor of implied license in addition to the wordings of the FOSS licenses as well as intentions and objectives of the parties, such as evidence on other conduct or communications of the FOSS licensor would support existence of implied patent license based on the totality of the circumstances.

5.2.1.4 Conduct and Communications of the FOSS Licensor

In addition to the express wordings of contract constructed in compliance with the parties' intent, also conduct, including *action*, *inaction* and/or *silence* as well as other communications may be sufficient to constitute implied license to practice patents of the FOSS licensor. This Section 5.2.1.4 (Conduct and Communications of the FOSS Licensor) focuses on both conduct and communications of the FOSS licensor, which may contribute towards finding an implied license to practice the FOSS licensor's patents.

In fact, several practicing attorneys and academic scholars, including former FSF Counsel and Legal Director of SFLC, have been of the opinion that the mere act of *releasing* software under a FOSS license permitting free use of the software may trigger

⁷⁴⁵ 1 Raymond Nimmer §7:41 at 7-108-7-110 and §7:42 at 7-111.

an implied patent license.⁷⁴⁶ In this connection, references in the analysis on implied patent license and the GPLv2 have often pointed to case Hewlett-Packard v. Repeat-O-Type. Under Hewlett-Packard v. Repeat-O-Type mere unconditional sale of a product indicates that in consideration for the purchase price, the seller promises that it will not interfere with the buyer's use of the product. Therefore, the buyer has an implied license to use the product under the seller's patents for any purposes reasonably contemplated by the parties.⁷⁴⁷ As discussed in Section 4.2.1.2 (Sale of FOSS), distribution of GPL-licensed software may meet the elements of sale both in Europe and the US. FOSS lawyers have argued that even if FOSS would be licensed and not sold, implied license would still exist, because the wordings of the FOSS licenses refer to several exclusive rights of a patent holder.⁷⁴⁸

On the other hand, the above reasoning could be questioned: One could also argue that Hewlett-Packard v. Repeat-O-Type is not helpful in finding implied patent license based on sale with regard to each exclusive right of a patent holder, since while *sale* may imply the right to *use* and *repair* the sold article, it does not trigger the right to *reconstruct* the patented article. CAFC expressly stated in the decision that "*a purchase carries with it the right to modify as long as reconstruction of a spent product does not occur.*" CAFC also acknowledged that there is no bright line test on the repair/reconstruction, and thus no clear answer either on whether modifications amount to reconstruction, infringing the seller's patent(s). Therefore, implied license based on sale of a patented product appears to merge with the US patent exhaustion doctrine introduced in Section 4.1.2 (Patent Exhaustion in the US). The ruling apparently gives the buyer an implied license under any patents of the seller relevant for the product. However, while the purchaser has the right to consume the product for any reasonably contemplated uses, the purchaser does not have the right to reconstruct, *i.e.* make new copies of the patented article – the exact purpose of FOSS licenses. According to CAFC, reconstruction, *i.e.* recreation of a patented combination, constitutes patent

⁷⁴⁶ Ravicher at 3. Pugh & Majerus at 2. Nadan 2009 at 3. Fitzgerald & Suzor at 441-442. Rosen at 126. Kubelka & Fawcett at N59.

⁷⁴⁷ Hewlett-Packard v. Repeat-O-Type.

⁷⁴⁸ Moglen, Ravicher, *et. al.* at 33-34.

infringement, because such activity is *beyond the implied authorization* to use and sell the patented device.⁷⁴⁹

Despite the above, the position that mere act of releasing software under the GPLv2 constitutes an implied patent license, is also supported by the express wording of the GPLv2§7. Namely, patent holder cannot distribute software under the GPLv2 by simultaneously demanding royalties for patent rights embodied by the software. Thus, the mere act of distributing software under the GPLv2 may indeed imply a royalty-free license.⁷⁵⁰ One of the defendants accused of patent infringement in the FOSS patent litigation XimpleWare v. Versata, based its defense of FOSS patent infringement on the argument that by the *act of releasing* software under the GPLv2, XimpleWare *gave up* its right to seek compensation, including any patent royalties, for the mere use of that software, regardless of whether that act is termed as a *license*, *waiver* or *estoppel*: "Plaintiff *chose* to distribute its software to the public under the GPL for its own commercial reasons. In so doing, Plaintiff *represented* to the consuming public that mere use of its software was "*not restricted*." Plaintiff cannot wish that representation away now that it inconveniences its litigation strategy. Plaintiff's arguments amount to a "bait and switch," seeking to recover payment for mere use that Plaintiff, *through its adoption of the GPL*, *told the world* would be unrestricted."⁷⁵¹ The foregoing argument catches very well some of the crucial elements of implied license by equitable estoppel: the communication and conduct of the FOSS licensor inducing reliance on the part of the FOSS licensees.

Interestingly, implied license by equitable estoppel has also been found in connection with release of design to *standardization organization* without disclosing the proprietary patent rights in the design. The entire code of conduct between the parties over 6 years (such as release of the design and various benefits based on wide adoption of the design) led the manufacturer of the component to properly infer the patent

⁷⁴⁹ Hewlett-Packard v. Repeat-O-Type at 1451-1453.

⁷⁵⁰ Rosen at 126.

⁷⁵¹ United HealthCare Services, Inc.'s Reply in Support of its Motion to Dismiss Second Amended Complaint. No. 5:13-cv-05161-SI-PSG (N.D. Cal. July 3, 2013).

holder's consent for its activities.⁷⁵² Implied license by equitable estoppel was successfully used as defense also in Qualcomm v. Broadcom where the dispute concerned standard H.264 video compression technology: Qualcomm, having joined a standard setting organization (SSO), but failing to disclose its patents relevant for the released standard and later on accusing Broadcom of infringing its patents relevant for the standard, was estopped from enforcing the patents against, not only Broadcom, but all H.264 standard-compliant products.⁷⁵³

In addition to the act of releasing software under a FOSS license, also other conduct and/or communications may contribute towards finding an implied patent license. Also the FOSS licensor's *inaction*, such as refraining from actively asserting patent rights while being aware of the FOSS licensees' infringing activities, may constitute one factor in the totality of the circumstances in favor of finding an implied patent license. Sometimes the said inaction is coupled with an affirmative statement by the FOSS licensor that s/he is not going to assert the patents against the FOSS licensees. In fact, several industry players, including major FOSS licensors with extensive patent portfolios have, during the last ten years, publicly announced that they will not enforce their patents against FOSS licensees. It appears that especially the year 2005 marked an arising number of *industry patent pledges* and *defensive patent pools* in support of the FOSS community, obviously due to the emergence of global software patent wars.

By way of example, Red Hat Inc., the provider of enterprise Linux platform, announced that it will refrain from enforcing any patents against parties, which exercise their patents by using software under certain FOSS licenses, including the GPLv2. When giving the *patent promise*, Red Hat noted that while it is of the opinion that software patents impede innovation in software development and are inconsistent with FOSS licensing, it has been *forced* to acquire software patent portfolios for defensive purposes. *In real world*, a very small number of companies own a very big number of software patents. Those patents may easily be misused because of their questionable

⁷⁵² Wang Labs v. Mitsubishi Electronics at 1272-1273.

⁷⁵³ Qualcomm Inc. v. Broadcom Corp., 548 F.3d 1004, 1022-27. (Fed. Cir. 2008).

nature and high costs of patent litigation. Thus, despite acquiring software patents, by giving the patent promise, Red Hat reinforced its dedication to FOSS collaboration.⁷⁵⁴

IBM, the frequent FOSS contributor, joined the forces in 2005 by pledging 500 US patents and their foreign counter parts for free use of FOSS under any OSI approved FOSS licenses, including the licenses subject to this study. IBM retained the right to enforce the patents and file a lawsuit against any party, which asserts its own patents against any FOSS.⁷⁵⁵ In this context it is also worth mentioning the patent pledge of Sun Microsystems: Sun pledged the same year 1.600 OS technology patents to *open source* community (excluding however, any *free software* licensed under the GPLv2) by releasing the OpenSolaris OS under the Common Development and Distribution License (CDDL or *cuddle*, as called by Sun). Sun's pledge marked one of the very big, unless the biggest ever, open source patent pledges of the technology industry so far. However, the developers of the GNU/Linux OS did not get benefit of the Sun patent license, since the GNU/Linux OS is licensed under the GPLv2 instead of the CDDL, and the licenses are, due to respective reciprocal requirements, incompatible with each other.⁷⁵⁶

In addition to industry patent promises and patent pledges not to sue FOSS licensees, industry stakeholders have also formed shared *defensive patent pools* to protect FOSS projects. By way of example, Open Invention Network (OIN) was formed in 2005 for the purpose of protecting the GNU/Linux OS by providing access to certain patents. OIN is supported by such industry players as Google, IBM, Red Hat, NEC, Philips, Sony and SUSE.⁷⁵⁷ Finally, Google, the maintainer of the Android platform, also announced its commitment to promote innovation and FOSS as an important tool for the said purpose. Accordingly, in 2013 Google issued *Open Patent Non-Assertion Pledge*, under which Google promised to each FOSS licensee developing, distributing or using FOSS under a license meeting the Open Source Definition and/or the Free Software

⁷⁵⁴ Red Hat Patent Policy.

⁷⁵⁵ IBM Non-Assert Against OSS. See also Ghidini & Arezzo at 370-371.

⁷⁵⁶ Jones.

⁷⁵⁷ Open Invention Network.

Definition that Google will not bring a lawsuit against the said FOSS licensees for patent infringement based on exploitation of FOSS. Thus, also the FOSS licenses subject to this study, *i.e.* the BSD, the MIT and the GPLv2 licenses are within the Google Patent Pledge. As the other patent promises, also Google patent pledge covers only FOSS and does not excuse infringement of the pledged patents by software that is not FOSS. Google has also retained the right to *defensive termination*, by conditioning the patent pledge on FOSS licensee not asserting or profiting from the assertion of any patents against Google or its affiliates. Accordingly, Google has the right to terminate the patent pledge with respect to any FOSS licensee, which files a lawsuit or other legal proceedings against Google or its affiliates.⁷⁵⁸

While the patent pledges given by Red Hat, IBM and Google are effectively *promises*, not *licenses*, their legal effect provides for under the US, and why not also under the European legal system, an (equitable) defense for patent infringement, constituting additional conduct and communications in support of the implied patent license, if any, under or in connection with the FOSS licenses subject to this study.

5.2.1.5 Reliance on the FOSS Licensor's Conduct

In order to find implied patent license under equitable estoppel, FOSS licensee's *reliance* on the existence of (an implied) license is an important element for finding the license. Therefore, the conduct and communications of the FOSS licensor must induce reliance in the FOSS licensee that the patent holder will not sue the FOSS licensee for patent infringement, based on which the FOSS licensee acts. The common belief is, indeed, that FOSS licensees are entitled to rely on the contributor's *intention* to grant implied license for all ordinary uses of the software contributed under a FOSS license.⁷⁵⁹ In this respect, the Preamble of the GPLv2 would be quite misleading, if the FOSS licensor should later on aim to enforce patents against the FOSS licensees: under the Preamble, "The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to

⁷⁵⁸ Google Open Patent Non-Assertion Pledge.

⁷⁵⁹ Mann at 18.

guarantee your freedom to share and change free software – to make sure the software is free for all its users.⁷⁶⁰ FOSS user, often a private individual with no legal training, could well be misled to understand that it has all the rights to freely use the free software without restrictions on the part of the FOSS licensor.

Construction of implied license under the GPLv2§7 makes also sense: GPLv2§7 purports to *induce reliance* in the licensees on the secured right to exploit all exclusive rights of copyright holders *free from any patent related concerns*. If the FOSS contributor and/or the FOSS distributor would breach the GPLv2§7 (or any other section of the GPLv2 for that matter) they would *lose* all of their *own licenses* due to operation of the GPLv2§4. Namely, distributing GPLv2 licensed software unfree from patent restrictions, whether third party or own patents, will constitute a breach of the GPLv2, automatically terminating all inbound licenses under the GPLv2§4. Termination of the FOSS licensor's all own inbound licenses under the GPLv2 may constitute a bigger threat for the FOSS licensor than the downstream FOSS licensees practicing its patent rights under and in compliance with the GPLv2. Thus, FOSS licensors may be left better off by granting implied outbound patent licenses as opposed to automatic termination of their own express inbound copyright licenses.

FOSS licensee's reliance may be based on several factors: the wordings of the FOSS licenses subject to this study, conduct of the FOSS licensors, such as the mere act of releasing software for everyone's free use under a FOSS license, FOSS licensor's informed decision to refrain from asserting its patents against FOSS licensees, FOSS licensor's affirmative promise not to assert its patents against FOSS licensees or any other similar conduct (either action or inaction) and/or communications implying that the FOSS licensor is not going to assert its patents reading the licensed FOSS against the FOSS licensees. By way of example, the IBM Non-Assert Against OSS is expressly given by IBM with the *intention* that developers, users and distributors of FOSS *rely* on the promise given by IBM.⁷⁶¹

⁷⁶⁰ Preamble of GPLv2.

⁷⁶¹ IBM Non-Assert Against OSS.

When it comes to the FOSS licensee, in turn, courts may assess *actions taken by the FOSS licensee* in reliance of the right to practice the FOSS licensor's patents: For example, merely the fact that the FOSS licensee chose FOSS for its operations, downloaded the FOSS program probably free of charge from the Internet, commenced running and developing FOSS and potentially incorporated FOSS into its internal platforms or as part of commercial products and/or services, may all imply actions taken by the FOSS licensee in reliance of necessary rights to actually exploit the said FOSS program.

Considering that the *principle of loyalty* plays a very important role also in the Nordic doctrine of contract construction, it cannot be totally excluded that FOSS licensee's justified expectations on *patent peace* would be taken into account and protected against the contracting party, *i.e.* the FOSS licensor, also by North European courts. The said construction might also be in line with reasonableness-considerations, another core principle of North European contract law, since the FOSS developer is often the weaker party without considerable patent portfolios nor financial resources for patent litigation. With that being said, the purpose is, of course, not to undermine the exclusive IPRs validly held by the FOSS licensor and enforceable against all those parties not using FOSS under and in compliance with the respective FOSS license, but to focus on possible outcome based on due exercise of the principle of equity and loyalty.

Finally, it has also been argued that if FOSS licenses, including also the BSD, the MIT and the GPLv2 licenses, are deemed *bare licenses* under the US legal system as opposed to *real contracts*, additional circumstances inducing reliance or reasonable expectations of the parties are actually not relevant at all. This is because an express, bare copyright license does not necessarily include a bare patent license. As bare licenses are, under the US laws, held as unilateral acts, they do not establish mutual undertakings nor are subject to contract law principles governing the parties' relationship. This would make the existence and extent of potential implied rights even more unclear.⁷⁶² The differences of bare licenses and real contracts are discussed in more detail in Section 3.1 (Elements of FOSS License). However, as the doctrine of

⁷⁶² Rosen at 79 and 126.

implied patent license is based on the concept of quasi-contract, it may not fall into either category of legal instrument in the theoretical division of FOSS licenses into bare licenses and real contracts. Therefore, strict interpretation of effects of the division may be misguided in any event.

While there are factors in FOSS licensing, which may induce reliance on the FOSS licensee in favor of finding implied license by equitable estoppel, it has been argued that the element of reliance under equitable estoppel may still be very hard to prove, because implied license by this theory would also require *knowledge* of the patent by the FOSS licensee.⁷⁶³ As discussed in Section 5.1.1 (Implied Patent License in the US), implied license by equitable estoppel may arise when there is (1) *reliance* by the alleged infringer on the patent holder's *conduct* or lack of conduct; and (2) *knowledge* of the patent at the time of the infringement.⁷⁶⁴

Considering that FOSS is often a derivative work consisting of numerous code contributions by various authors freely distributed by one recipient to another, it may be impossible for both the direct and indirect recipients to be aware of all patents reading the FOSS program. The indirect recipients may not even always know where the code originated.⁷⁶⁵ And as noted above, unknown third party patents may also pop up and searches of third party patents, while cannot identify all software patents out there, may still enhance the risk of willful patent infringement. Showing reliance on FOSS licensor's intent not to sue the FOSS licensee based on modifications done by the said licensee as well as licensee's knowledge of the FOSS licensor's patents reading, not only the FOSS licensor's contributor version, but also FOSS licensee's downstream modifications, could be very hard. Thus, it has been argued that the implied patent license by equitable estoppel may not actually provide a viable defense to patent infringement claim.⁷⁶⁶ If reliance on patent license is compared to reliance on copyright license in the context of FOSS licensing, detrimental reliance on the FOSS licensor's

⁷⁶³ Pugh & Majerus at 2. Nadan 2009 at 3.

⁷⁶⁴ AT&T v. Microsoft at 5.

⁷⁶⁵ Nadan 2009 at 3.

⁷⁶⁶ Pugh & Majerus at 2. Nadan 2009 at 3.

promises might be easier to prove in terms of copyright license, thus preventing the FOSS contributor from revoking the copyright license under the doctrine of promissory estoppel.⁷⁶⁷

5.2.1.6 Harm to FOSS Licensee

Finally, the third element of implied license under equitable estoppel, in addition to patent holder's communications inducing reliance on the part of FOSS licensee, is *harm* resulting from possible termination of activities carried out by the FOSS licensee under the respective FOSS license. Namely, in order to find implied license under equitable estoppel, ramp-down of FOSS licensee's activities taken in reliance of the implied license must result in *prejudice* to the FOSS licensee, if it is required to stop its operations due to alleged infringement of FOSS licensor's patents. The prejudice caused by termination of FOSS development should not be hard to prove.⁷⁶⁸

Arguments of various members of the FOSS community provide one perspective to harmful effects of patents to FOSS licensees. As argued by SFLC, FSF and OSI in their Amicus Brief in Alice v. CLS Bank, patenting software alone constitutes monopolization of ideas, which violates constitutional principles and practically interferes with software innovation.⁷⁶⁹ Vast enforcement of software patents may result in harm and stop FOSS projects in their entirety. Richard Stallman has discussed on the harmful effect, or quoting him verbatim – *the danger of software patents* – on users who wish to develop, distribute or run free software. Stallman's perspective to software patents is introduced below in order to highlight some concerns that members of FOSS community may have faced in connection with FOSS development.

Stallman summarizes patent as a government issued monopoly on using certain idea for up to twenty years. As discussed in Section 2.2 (Patent Protection of Computer Programs), it is a fairly long time in the technology industry. Because use of patented ideas is prohibited, software developers have no choice but trying to grasp – from the

⁷⁶⁷ Meeker 2008 at 229.

⁷⁶⁸ Pugh & Majerus at 2.

⁷⁶⁹ Alice v. CLS Bank at 19.

complex patent applications, which ideas are patented. Those, often very simple, ideas must then be circumvented around when developing software. The task of conducting patent searches and finding out which particular ideas in the whole wide world are patented and could prohibit using the program, is however, impossible: First, ideas expressed in patent applications are first kept secret and published only 18 months after filing the application, so there is always a delay in gaining knowledge of (potentially) prohibited ideas. When finding out about the patent, the idea may by then already be implemented in the program, thus rendering the development work useless and requiring hours of extra work to circumvent the ideas with alternative implementations, if even possible. Further, as there are hundreds of thousands software patents out there in the world, it would be simply impossible to read all patent applications on a global, or even national, scale. And even if relevant hits might be found, it could be nearly impossible to actually figure out, both for ordinary software developers and patent professionals alike, what is the specific scope of the protected subject matter, due to the complicated language used in patents. Thus, in order to find out whether or not implementation of some feature is allowed, consultation of attorneys is often required for the purposes of analyzing the patent, the scope of which even the patent holder may not fully appreciate.⁷⁷⁰

While it may be very hard for a software developer to understand what is actually patented, also avoiding a patented idea is hard. Therefore unknown patents can come up every now and then. If it happens, merely the threat of infringement may lead to disruption on the FOSS project, and even compelled downgrade of the software due to (threatened or actual) injunction, not to mention damages and attorneys' fees. If the claim is raised by a FOSS licensor, either a contributor or a distributor, against FOSS licensees, the threat may appear not only gross but counterintuitive, since contributing or distributing code under the FOSS license may have induced reliance in the FOSS licensees on their right to actually use the free software freely, as implied by the wording and spirit of the FOSS license. The danger of software patents is the very reason why many players in the technology industry advocating free innovation and

⁷⁷⁰ Stallman at 143-146. See also Lemley at 79.

FOSS started giving patent promises and building defensive patent pools around ten years ago, in order to defend FOSS users on the harm presented by the constant threat of patent infringement. Therefore, while the harm resulted by patent claims are described above on a general level, the harmful effects reach each FOSS user allegedly infringing a patented invention.⁷⁷¹

5.2.1.7 Other Estoppel Theories

FOSS user may, in addition to implied license by equitable estoppel, adhere also to other legal doctrines available under the US laws in defense of patent infringement claim, such as acquiescence, conduct and legal estoppel.⁷⁷² As discussed in Section 5.1.1 (Implied License in the US), the doctrine called acquiescence may trigger an implied license based on the patent holder's *waiver* of its patent rights and the right to sue based on the allegedly infringing action. Acquiescence requires that the relevant circumstances, including the patent holder's conduct, indicate waiver of the patent rights based on which the alleged infringer, the FOSS licensee, has had reason to rely on the patent holder's consent to practice the patents. Also equity must support finding of the implied license. Consequently, even if no equitable estoppel theory should apply, letting users exploit the FOSS program freely and not inform them of the patent holder's intention to enforce the respective patent rights reading the FOSS program might trigger an implied license based on acquiescence.⁷⁷³

There is also a closely related concept of conduct, which may trigger implied license. As described in more detail in Section 5.1.1 (Implied License in the US), in order to find implied license by conduct, there must be some relation between the patent holder's conduct and the allegedly infringing action. The focus may again turn to the FOSS licensor's conduct and the act of releasing software under a FOSS license and letting the FOSS licensee use the software without objecting to the said use, thus inducing reliance on the part of the FOSS licensee and causing the alleged infringement by the FOSS

⁷⁷¹ See also Lemley at 82-83.

⁷⁷² Pugh & Majerus at 1. Nadan 2009 at 2.

⁷⁷³ Pugh & Majerus at 2.

licensee.⁷⁷⁴ The concepts of conduct and reliance are discussed in more detail in Section 5.2.1.4 (Conduct and Communications of the FOSS Licensor) as well as Section 5.2.1.5 (Reliance on the Conduct of the FOSS Licensor).

Further, the doctrine of implied license by *legal estoppel* may also operate as a defense in some FOSS patent infringement cases. Legal estoppel is triggered by the patent holder's conduct when it affirmatively grants a license to the buyer, receives consideration for the license and yet later on tries to take back the granted rights. By way of example, a FOSS licensee accused of patent infringement could argue that it has indeed received the rights use, make and sell the patented program under the respective FOSS license on the ground that the FOSS license grants the rights to use, copy and/or and distribute the FOSS program. Thus, at least two of the required elements of legal estoppel appear to be at hand, that is, the grant of rights as well as the FOSS licensor's attempt to derogate from the granted rights by accusing the FOSS licensee of patent infringement. The third element of legal estoppel, *i.e.* the existence of consideration under the FOSS licenses could be, with respect to the GPLv2 and other free software licenses, found in the reciprocal requirements.⁷⁷⁵

As noted in Jacobsen v. Katzer, FOSS licensing model brings many advantages to FOSS licensors, which may amount to sufficient consideration. CAFC held that "The choice to exact consideration in the form of compliance with the open source requirements of disclosure and explanation of changes, rather than as a dollar-denominated fee, is entitled to no less legal recognition." Therefore, the requirement to comply with the license conditions and related benefits such as free of charge code contributions and right to be credited as author may well be sufficient to constitute consideration required by the doctrine of implied license by legal estoppel. For example, the copyright author's right to credit when credit is due, is generally not protected by the US Copyright Act unlike in Europe, where moral rights are protected by law. In the US, the emphasis is on economic rights of author, and the law does not recognize moral

⁷⁷⁴ Nadan 2009 at 3.

⁷⁷⁵ Pugh & Majerus. See also Meeker 2015 at 161.

rights nor provide cause of action for breach of personal rights of authors.⁷⁷⁶ FOSS licensing model may also be useful in establishing industry standards, providing the FOSS community with an open platform for further development.⁷⁷⁷ Therefore, the benefits derived by the FOSS licensor may meet the third element of legal estoppel, providing the FOSS licensee with an additional defense mechanism against alleged infringement of the FOSS licensor's patents.

According to some lawyers, after receiving legal certainty on the existence of the concept of consideration in FOSS licensing due to the ruling in Jacobsen v. Katzer, the doctrine of implied license by legal estoppel finally closes the loophole and eliminates any doubt on whether FOSS licenses without express patent grants carry with them the right to practice the patents, perhaps even further accelerating the adoption of FOSS. Therefore, implied license by legal estoppel is also considered as one of the most viable defenses to patent infringement claim in connection with FOSS licensing.⁷⁷⁸

On the other hand, one could ask whether the doctrine of implied license under legal estoppel provides defense only against FOSS contributors but not against mere FOSS redistributors, which have not contributed software under a FOSS license and thus have not made the "deliberate choice" of receiving consideration in the form of license undertakings as opposed to receiving monetary value for the contribution? In addition to absence of affirmative grant of (copy)rights (under FOSS licenses which do not recognize sublicensing), neither all the elements of consideration in FOSS licensing outlined by Jacobsen v. Katzer, such as credit to authors, free code contributions to contributor's own project or increased market share, are present in the said scenario despite that FOSS licensing does bring several advantages also to mere FOSS redistributors. This provides yet another example of why it may be hard to show implied license under estoppel theories and find facts meeting each of the required element of

⁷⁷⁶ Jacobsen v. Katzer at 1382.

⁷⁷⁷ Nadan 2002 at 374.

⁷⁷⁸ Nadan 2009 at 1-3.

the chosen defense mechanism – perhaps the exact reason why no specific estoppel doctrine was identified in defense of the alleged FOSS patent infringement.⁷⁷⁹

5.2.1.8 Disclaiming Implied Patent Rights

In general, implied licenses under equitable estoppel may be disclaimed by, for example, adding an express disclaimer of all rights and licenses except for those expressly granted in the respective license agreement. As the BSD and the MIT licenses belong to the category of permissive FOSS licenses, inclusion of additional license restrictions is allowed into those license terms. Consequently, both a FOSS contributor and a mere distributor releasing software under the BSD or the MIT license may insert a disclaimer of implied patent rights into the respective license.

While disclaiming implied patent license is not restricted by operation of law, the GPLv2 does not allow any deviation from license terms in using the software nor imposing any further restrictions on the recipient's exercise of the rights granted under the GPLv2. Under the GPLv2§4, “You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License.” The GPLv2§6, in turn, states that “You may not impose any further restrictions on the recipients' exercise of the rights granted herein.” Clearly, disclaimer of implied rights (not to mention imposing FOSS licensees a requirement to acquire additional patent licenses from the FOSS contributor and/or FOSS distributor) would be a prohibited “further restriction” in contradiction with the GPLv2§0 and §7 as well as the objectives of the license laid down in the Preamble.⁷⁸⁰

For the same reason, no implied licenses, if any, granted under the GPLv2 and/or otherwise found based on totality of the circumstances, may be disclaimed by adding a further restrictions to that effect to the GPLv2 or by providing a “separate” document to the recipient of the software attempting to achieve the same purpose. Therefore,

⁷⁷⁹ United HealthCare Services, Inc.'s Reply in Support of its Motion to Dismiss Second Amended Complaint. No. 5:13-cv-05161-SI-PSG (N.D. Cal. July 3, 2013).

⁷⁸⁰ See also Meeker 2015 at 161-162.

whatever implied rights may be found based on wording of the GPLv2 and/or the totality of the circumstances, cannot be disclaimed in advance as to the GPL-licensed software. While FOSS licensee(s) accused of patent infringement generally have the burden of proof establishing the elements of implied license, the prohibition to disclaim implied rights certainly works in favor of FOSS licensees in connection with the GPLv2.

5.2.1.9 Analysis of the Findings

After trying to address so many tricky questions on whether an implied license may or may not be found under the FOSS licenses subject to this study, one of the very first questions that comes into mind in connection with the said exercise is, why in earth did not the lawyers at the UC, Berkeley, the MIT and the FSF draft clear FOSS licenses, expressly mentioning under which IPRs the licenses are granted, and which actions within the exclusive rights of copyrights and/or patents are permitted? While proper answers may be hard to find, one of the most obvious reasons for the lack of express patent rights in the FOSS licenses may have been the *legal context* in which the FOSS licenses subject to this study were drafted. As described in Section 2.2.1 (Emergence of Patent Protection for Computer Programs), at the end of the 1980s when the first FOSS licenses were written, it was not clear whether software was within the patent eligible subject matter. Most FOSS licenses written during the late 1980s and early 1990s, such as the BSD, the MIT as well as the GPLv1 and the GPLv2 licenses, were specifically meant to address copyright licensing, the main IPR protection form available for computer programs in the US at that time. This may perhaps explain to some extent why the most common, and also the oldest FOSS licenses, subject to this study do not include express patent grants.⁷⁸¹

Interestingly, the GPLv1 drafted in 1989 did not mention patents even with a single reference, while the GPLv2 drafted in 1991 did address the threat of software patents in several sections, including the Preamble, covering patents indirectly in the GPLv2§0 through reference to the act of running the program, as well as by inserting the express

⁷⁸¹ Nadan 2009 at 2. See also Meeker 2015 at 33.

patent obligation into the GPLv2§7. Despite all of the express acknowledgements of threat of patents on use of FOSS, and attempt to mitigate those risks by insertion of obligations to refrain from distributing software subject to patent related restrictions, no express patent grant was added into the GPLv2. The question follows, why an express patent license was still not added into the GPLv2? Were the used patent peace mechanisms assumed sufficient, or was the idea of a FOSS licensor suing its own licensees simply so absurd that no express license was deemed necessary?

It was only after some decisions by CAFC during the latter half of the 1990s, when patentability of computer programs became obvious in the US, immediately leading to an increasing number of software patents granted during both decades before and after the millennium, soon resulting in a tidal wave of software patent litigations. It was not before those developments, when there emerged a compelling need to address patents in FOSS licenses in a more comprehensive manner. One of the earliest FOSS licenses, unless the very first FOSS license, to include an express patent grant was the Netscape Public License v. 1.0 as well as the Mozilla Public License v. 1.0, both released in 1998, *i.e.* around ten years after releasing the FOSS licenses subject to this study. That was also the time, when the status of software patents within the patent-eligible subject matter was confirmed and FOSS licensing model had just been adopted into the industry use. After that, new versions of FOSS licenses started to include more and more often an express patent license, such as the license grant included in Apache 2.0 license drafted in 2004.⁷⁸² Today, in addition to express patent licenses grants, all kinds of safety mechanisms, such as patent retaliation or patent peace – clauses,⁷⁸³ provisions concerning territorial distribution restrictions, ideological statements on software patents⁷⁸⁴ and other patent related provisions are included in FOSS licenses.

⁷⁸² St. Laurent at 14 and 18-19.

⁷⁸³ See for example Section 8.2 Mozilla v 1.1 License.

⁷⁸⁴ See for example Preamble of the GPLv3: “Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.”

Whether implied license is available as an equitable defense in a patent infringement litigation is decided by US courts as a matter of law. Courts have *wide judicial discretionary powers* to decide, based on the totality of the circumstances, whether the elements of implied license are present. While the existence of implied license must always be decided on case by case basis, under the US legal system, practicing attorneys are of the opinion that the elements of implied license may be available as a defense in patent infringement case also in connection with FOSS licensing under the existing case law.⁷⁸⁵ However, as noted by CAFC, licenses imposed by law are rare.⁷⁸⁶ As implied patent license under estoppel theories depends on the totality of the circumstances, it may be hard to establish each necessary element required for implied license. Accordingly, as implied licenses depend on the fact of each case, it may be hard to predict in advance whether an implied license is triggered, let alone what is the scope of the implied license. This may increase transaction costs of using FOSS, both for FOSS licensors and FOSS licensees.⁷⁸⁷

When it comes to Nordic legal literature on the existence of implied patent license in connection with FOSS licenses, it appears that there are only a very few short references to American scholar's argumentation, without much, if any, own discussion on the subject. For example, in Finland Välimäki has noted, with reference to an American FOSS attorney Lawrence Rosen that FOSS licenses, such as the MIT license, must include an implied patent license granted by the author of the program to all users, since otherwise the copying, modification, distribution and free use of the program would not be possible.⁷⁸⁸ Oesch agrees with Domeij that while patent license may be rarely based on patent holder's passivity in North European legal systems, it is not impossible. By referring to Rosen, Oesch notes that patent rights may be "released" in connection with copyright licensing.⁷⁸⁹ Based on the decision of the Market Court of Finland regarding contract construction of a copyright license and possible silent acceptance of broader

⁷⁸⁵ Pugh & Majerus at 3.

⁷⁸⁶ Wang Labs v. Mitsubishi Electronics at 1580-81.

⁷⁸⁷ Nadan 2009 at 3.

⁷⁸⁸ Välimäki 2006 at 208.

⁷⁸⁹ Oesch, Pihlajamaa, *et. al.* at 182. Domeij 2010 at 34-35.

license grant, it is not excluded that a (Nordic) court would find grant of patent license solely under the wordings of the FOSS licenses subject to this study. In such a case, the patent license would not be implied, but most likely express, since it would be found, following contract construction, based on the express wordings of the FOSS license. If, on the other hand, the court found that there is no grant of patent license based on wordings of the written FOSS license, it might address the question of implied license *e.g.* under the patent holder's tacit acceptance of a patent license.⁷⁹⁰

Harenko, Niiranen, *et. al.*, in turn, have raised the concept of *implied license* in connection with databases, referring to related legislative history of the law implementing the Database Directive.⁷⁹¹ The Database Directive provides certain rights with the *authorized user* of a database, thereby limiting the exclusive rights of the author or right holder of the database.⁷⁹² When assessing the concept of authorized user, the legislative history provides that authorized user means a user, to whom the author has granted the right to use the data base under a contract. According to the legislative history, the contract does *not* have to be *express*, since merely a *tacit agreement* or a *tacit consent* is sufficient. Under the legislative history, the *presumption* is that the author of a data base has granted its consent to use the data base for any user receiving the data base, if the data base was originally *released on the markets* and, *under the consent of the author*, was reproduced, distributed or placed on the Internet.⁷⁹³ Thus, the presumption of consent, and related contractual relationship under *implied license* to use the data base is based on the mere *the act of releasing the data base on the markets*, such as placing it on the Internet, by the author. However, Harenko, Niiranen, *et. al.* note that there is no case law in Finland on implied licenses to use data bases. The party claiming a contract based right must show the existence of the contract. When assessing potential implied license based on the act of releasing content on the Internet, the general principles of copyright law and contract construction, including the principle of

⁷⁹⁰ MaO:191/15.

⁷⁹¹ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases. (Database Directive).

⁷⁹² Article 6(1) of the Database Directive.

⁷⁹³ HE 170/1997.

narrow interpretation of copyright transfers must be taken into account. Because of the rules on the burden of proof and the principles regarding interpretation of IPR related agreements, the user is advised to carefully assess whether the right to use freely available material may actually be based solely on the act of releasing the material on the Internet. Harenko, Niiranen, *et. al.* also note that if the practice within certain field is to grant express IPR licenses, it may weaken the argument of implied license. In this context Harenko, Niiranen, *et. al.* refer to copyleft-licenses as an example of explicit licenses "precluding" restrictions on use of "web materials" under copyright, thus possibly inducing the absence of implied copyright license of freely available software on the Internet, as the practice is to grant express copyright licenses. However, when referring to copyleft licenses, said scholars are obviously not taking any views on potential *implied patent licenses* under the copyleft licenses granting *express copyright licenses*.⁷⁹⁴ Further, while the line of argumentation regarding implied vs. express license of copyrights under "web materials" may be solid, it should be noted that FOSS licenses by no means "preclude restrictions" on use of copyrighted material as argued by scholars. On the contrary, FOSS licenses affirmatively *grant copyright licenses* (and not waive copyrights) subject to compliance with license conditions included in the respective FOSS license.

Finally, it may be fair to conclude that the existence of implied licenses are by no means excluded from the sphere of Nordic contract and/or IPR laws. Right holder's consent to use certain materials, whether under copyrights, data bases or patents, for that matter, may be based on implied on tacit agreement, provided that the user is able to show the existence of the contract based on the totality of the circumstances.⁷⁹⁵

5.2.2 Impact of Implied Patent License on Use of FOSS

5.2.2.1 Overview

This Section 5.2.2 (Impact of Implied Patent License on Use of FOSS) aims to shed light on the sub-questions (ii) and (iii) of the Research Question 2, and thus, examines

⁷⁹⁴ Harenko, Niiranen, *et. al.* at 229-230.

⁷⁹⁵ MaO:191/15.

what is the scope and the extent – and thereby the practical impact – of the implied patent license in the context of sale, licensing and/or redistribution of FOSS in Europe (Finland) and the US. In other words, the questions examined in this Section 5.2.2 (Impact of Implied Patent License on Use of FOSS) aim to shed light on the content and boundaries of the *freedom to operate* under the FOSS licenses subject to this study without being liable for infringement of patent rights owned by the FOSS licensor (either contributor and/or distributor), and respectively, what is the effect of FOSS licensing on the FOSS licensor's patents reading the FOSS program. In other words – the aim is to provide some alternative answers to the query on *how free* is the status of free?

In Section 5.2.2.2 (Scope of Implied Rights) the exclusive patent rights of the FOSS licensor are examined from the perspective *which* of those exclusive rights the FOSS licensee may have right to exploit under the implied patent license, preventing the FOSS licensor from enforcing patent rights against the FOSS licensee based on passivity and/or other circumstances. Further, in Section 5.2.2.3 (Scope of Patent Claims) patent claims infringed by the FOSS program are discussed with the objective to understand whether the implied patent license covers only patent rights held by the FOSS licensor at the time of contributing and/or releasing software under a FOSS license, or also later rights perfected and/or acquired thereafter. Third, Section 5.2.2.4 (Licensor of Implied Rights) covers the question whether the implied license may be given only by a FOSS contributor actually releasing software under a FOSS license, or whether a FOSS distributor could be deemed to have implicitly licensed its patent rights embodied by the program merely redistributed, but not modified, by the FOSS distributor. In Section 5.2.2.5 (Licensed Version), it is analyzed, in turn, whether the implied licenses possibly found in the given case extend only to the specific version of the FOSS program either contributed and/or distributed by the FOSS licensor, or whether the implied licenses could extend even to modifications of the FOSS program by the FOSS licensees. Section 5.2.2.6 (Licensee of Implied Rights) turns to look at how far in the downstream chain of licenses the implied patent rights may run, *i.e.* do the implied rights cover only the direct recipient (FOSS licensee) of the FOSS program, or could the implied rights extend to even indirect recipients of the FOSS program, *i.e.* subsequent downstream FOSS licensees. Finally, Section 5.2.2.7 (Analysis of the Findings) will include a

concise summary of the various aspects and extent of the implied rights given under patents owned by the FOSS licensor.

5.2.2.2 Scope of Implied Rights

When thinking of the scope of overlapping IPRs potentially covered by FOSS, the answer should be clear: FOSS as computer program may be protected by copyrights and patents both in Europe and the US. As already discussed above in Section 5.2.1.2 (Wordings of the FOSS Licenses), it should also be obvious that the licenses subject to this study, *i.e.* the BSD, the MIT and the GPLv2, grant exclusive rights to copy, modify and distribute the software under copyrights of the FOSS contributor and/or FOSS distributor. However, if and on the condition, that the prerequisites for implied patent license are deemed to have been met at given circumstances, the question follows, *which* of the exclusive patent rights of the FOSS licensor may be deemed to have been implicitly licensed for the benefit of the FOSS licensee(s). As summarized in Section 2.2 (Patent Protection of Computer Programs), the exclusive rights of a patent holder include the rights to use, make, sell, offer for sale and import the patented article, in this case a FOSS program. Now, each of those exclusive rights are discussed in this Section 5.2.2.2 (Scope of Implied Rights) for the purpose of analyzing whether the said rights may be deemed implicitly licensed to FOSS licensee(s).

While the best source of law on this question would be established case law on the scope of rights granted under the licenses subject to this study, unfortunately case law on FOSS licenses is scarce in general, and specifically on questions concerning the scope of the licensed rights under the FOSS licenses. However, some guidance on the relation of patents and the GPLv2 may be sought from the rulings given in the FOSS patent litigation case XimpleWare v. Versata brought before the US District Court in the Northern District of California.⁷⁹⁶

When granting in part the defendant's Motions to Dismiss XimpleWare's First Amended Patent Complaint, the court noted that "as an express license is a defense to patent

⁷⁹⁶ Complaint, XimpleWare Corp. v. Versata Software, Inc. (No. 5:13-cv-05160-SI-PSG) (N.D. Cal. Nov 5, 2013) (Patent Complaint).

infringement, XimpleWare's direct infringement claims against Versata's customers turn on whether the customers' distribution is licensed under the GPL." The court found that mere *use* of XimpleWare's patented source code *is explicitly permitted* under the GPLv2, *as long as* the licensee *does not* itself *breach the license* by distributing the software without satisfying the license conditions.⁷⁹⁷ Thus, the court held that the *right to use* is retained by licensees unless the licensee distributes the software in breach of the license terms. The court confirmed also in a later decision in the same FOSS patent litigation case that *use* of software is *unrestricted* under the GPL, but distribution is not. According to the court, the GPL permits distribution only if the distributing party satisfies several specific conditions, such as including a copy of the GPL along with the distributed program.⁷⁹⁸ Based on the ruling of the court, it may be concluded that *use* of GPLv2 licensed software is indeed permitted despite FOSS contributor's patent rights in the software, and accordingly, does not result in infringement of the FOSS contributor's patents.

Unfortunately, no further guidance on the scope of patent licenses under the GPLv2 was received in XimpleWare case since the dispute was settled soon thereafter. However, some attorneys have taken the view that it should be safe (or at least safer) to assume based on this litigation that the GPLv2 does indeed trigger a right to use the software licensed under the terms of the GPLv2 despite of the licensor's patents practicing the software, since by the terms of the GPLv2, the right to use the GPL-licensed code is not restricted under the license. Other attorneys believe, however, that the matter is not yet settled and will not be settled until one or more definitive appellate rulings make clear whether the GPLv2 includes a patent license grant (and if yes, what is its extent) at least by implication given that unlike the GPLv3, the patent license is not clearly present in the license grants of the GPLv2§1-2.⁷⁹⁹

⁷⁹⁷ Order Granting-in-Part Defendants' Motions to Dismiss, No. 5:13-cv-05161-SI-PSG (N.D. Cal. May 16, 2014) at 9.

⁷⁹⁸ XimpleWare Corp. v. Versata Software, Inc. (No. 5:13-cv-05160-SI-PSG). Order Granting-In-Part Defendants' Motions to Dismiss. No. 5:13-cv-05161-SI-PSG (N.D. Cal. Nov 25, 2014) at 11.

⁷⁹⁹ Haapanen 2015.

There are no court cases testing the existence of patent licenses under the BSD or the MIT licenses. As noted in Section 5.2.1.2 (Wordings of the FOSS Licenses), the BSD and the MIT licenses explicitly grant at least the right to *use* the program, although the licenses do not state that the right to use is granted under patents. MIT license also expressly grants the right to *sell* the program – again without mentioning under which IPRs the right is granted. Further, both licenses grant the right to copy the program, or in other words, *make* new verbatim copies of the program – possibly practicing the FOSS licensor's patent rights. Consequently, the right to *sell* the program under BSD license as well as the right to *import* the product are the only exclusive rights of a patent holder not – directly or indirectly – covered by the BSD and the MIT licenses. Whether, however, one could draw from the said fact a conclusion that solely those words included in the licenses could trigger an implied right to practice the FOSS contributor's patent rights embodied by the FOSS program by using, making or selling the program under the FOSS contributor's patent rights may be too far fetch: if an (express) patent license is not found based on mere wording of the license, the question of patent license should be examined under the concept of implied license: implied license, in turn, is based on the *totality of the circumstances* –test, which requires that the surrounding circumstances such as the patent holder's other conduct and communications, in addition to the wording of the license, induce reliance on the existence of the implied patent license. This applies also under the principles on tacit and silent agreements under Finnish law. Thus, mere wording of the FOSS license may not be sufficient to construe an implied license, because in that case the license grant should be so clear, that it would effectively amount to an express grant of a patent license. Similarly, also the *scope* of an implied patent license depends on the circumstances, which triggered the license in the first place and thus ultimately rests upon the intention of the parties. The relevant question in each case is whether or not the particular circumstances at hand show some common understanding between the parties on the existence of patent license, thus preventing the patent holder from asserting the infringement and if yes; to what extent does the defense of implied patent license apply. Therefore, unfortunately, no explicit answer is available to the question on what are the implied rights, if any, granted under the FOSS licenses subject to this study. The definitive answer will always depend on the totality of the circumstances in given case brought in front of the court,

whether in the US or Europe (Finland). Also the free software lawyers at SFLC acknowledge that establishing the scope and coverage of implied patent license would probably be difficult, although they consider that the GPLv2 grants a patent license implicitly to recipients of the software.⁸⁰⁰

Accordingly, the only rule of law confirmed by a court to date is that GPLv2 licensed software may be *used* freely without restrictions arising from the contributor's patent rights in the software provided that the conditions of the license are complied with. The said holding is in line not only with the GPLv2§0 stating that the act of running the program is not restricted, but also with the GPLv2§7 aiming to avoid software patents: GPLv2§7 prohibits distribution of the GPLv2 licensed program if the licensor is not able to satisfy all the freedoms of the said license. Further, under the GPLv2§6, no additional restrictions, including disclaimer of patent rights, may be added into the GPL license.

Despite the inherent unclarity regarding the scope of licenses actually granted under the BSD, the MIT and the GPLv2 licenses due to lack of court cases on the exact point, some lawyers have argued that FOSS contributors releasing software under a FOSS license without explicit patent license would grant an implied license permitting all *ordinary uses* of the software, or in other words, right to practice any patent rights of the FOSS licensor by carrying out all actions reasonably contemplated by the parties as ruled in Hewlett-Packard v. Repeat-O-Type.⁸⁰¹ As the FOSS licenses subject to this study grant the rights to copy, modify and distribute the software, one could conclude from the above that all the said actions would be permitted under the implied license constituting a defense to FOSS contributor's potential patent infringement claim. Therefore, implied license under the FOSS licenses subject to this study may be even broader than the explicit patent grants included in some other FOSS licenses.⁸⁰²

⁸⁰⁰ Moglen, Fontana, *et. al.* at 35.

⁸⁰¹ Mann at 18. Fitzgerald & Suzor at 442. Ravicher 2005 at 3.

⁸⁰² Fitzgerald & Suzor at 442.

5.2.2.3 Licensor of Implied Rights

GPLv2§6 includes the so called *automatic downstream licensing* provision. Under the said provision, each time GPL-licensed software is distributed, the recipient automatically receives a license from *original licensor*, *i.e.* copyright contributor, to copy, modify and distribute the program under the GPL.⁸⁰³ Therefore, sublicensing of the copyright grants by mere (re)distributor(s) of the program appears not to be possible under the GPLv2, since the express licenses to copy, modify and distribute the GPL-licensed program under the GPLv2§§1-3 are always granted by the FOSS contributor(s), *i.e.* the copyright holder(s).⁸⁰⁴ Accordingly, if the software is redistributed under the GPLv2 without any modifications, there does not seem to exist any license nor other contractual relationship between the redistributor and the recipient of the program, at least regarding the licensed copyrights. Therefore, it could be argued that if the program is redistributed without modifications, the distributor does not grant any rights under patents either, since the license grants come from the original licensor, *i.e.* contributor (either the author or the assignee of copyrights, which released the software under the GPLv2) and not mere distributor. The direct licensing model imposed by the GPLv2§6 under which any and all licenses are granted by the *original licensor only*, could be argued to be in slight contradiction with the construction of implied license given by a *distributor* under the GPLv2§7. One way to explain this contradiction is to argue that because the express license grants in the GPLv2§1-3 cover copyrights only, also the direct licensing model under the GPLv2§6 is limited to the express copyright licenses under the GPLv2§1-3. This would also allow the interpretation under which the GPLv2§7 covers the grant of implied patent license by both copyright contributor *and* a mere distributor. The GPLv2§7 states that if distribution of GPLv2 licensed program would not be allowed in compliance with the terms of the GPLv2 due to restrictions for any reason whatsoever (patent related or not), then "you" may not redistribute the program at all. As the GPLv2§7 applies to "you", defined in the GPLv2§0 as *each licensee* of the GPL licensed software, it by definition

⁸⁰³ GPLv2§6.

⁸⁰⁴ Lemley, Menell, *et. al.*, at 375-376.

includes both downstream *copyright contributors* and mere *distributors* of the GPLv2 licensed software. Therefore, distribution by both copyright contributor and/or mere redistributor of GPLv2 licensed software implies that *neither* type of FOSS licensor does not impose any patent related restrictions on use of the software under and in accordance with the GPLv2. Therefore, under the GPLv2, licensor of implied patent rights may be argued to include both copyright contributors (original copyright holders) and mere distributors of the software despite that under the GPLv2, the copyright licenses are always granted directly by the copyright holders, and not through sublicense by mere distributors.⁸⁰⁵ This is also supported by the fact that implied licenses may be construed, not only based on the wordings of the license, but the entire set of circumstances surrounding the grant of implied license. Therefore, the analysis is not limited to construction of express wordings of an agreement, but the parties' relationship in general, reflecting the mutual meeting of minds, triggering implied license.

While not every FOSS licensor, including by definition both FOSS contributor and FOSS distributor as defined in Section 1.1.1 (Concepts), actually *grants a copyright license* under the GPLv2, due to the licensing scheme not recognizing sublicensing of copyrights, the MIT license works differently. Under the MIT license, each licensee has the right to grant sublicenses to copies of the software. Therefore, in addition to copyright contributor(s), also mere distributors of MIT licensed software may act as a licensor of copyrights by granting sub-licenses to recipients of the software. The BSD license, in turn, does not mention the right to sublicense, nor does it specifically state that all rights are granted directly by the original contributor(s) of the software, like the GPLv2 does. However, as no sublicensing rights are expressly granted in the BSD license, it is likely that the flow of license grants is constructed in the same manner as under the GPLv2, and accordingly, all *express* licenses under the BSD license are granted by the copyright holders only. The difference between the BSD or the MIT license, for that matter, and the GPLv2 licenses is, however, that unlike the GPLv2, the

⁸⁰⁵ Hardi at 295.

BSD and the MIT licenses do not prohibit introduction of additional restrictions on redistribution of software.

Now, the relevant question from the perspective of implied patent license is whether implied rights may be deemed to be given not only by the original copyright holder(s), that is contributors of the software under the BSD and the MIT licenses, or whether also mere redistributors of the software may be deemed to have granted implied patent license to recipients of the software. When it comes to the BSD and the MIT licenses, the same conclusion applies as in terms of the GPLv2: Since implied patent licenses are based on, not only the wording of the respective license, but the totality of the circumstances surrounding the relationship of the parties, nothing should prevent the conclusion that also mere redistributors of the BSD and/or the MIT licensed software would be grant implied licenses for recipients of the software – on the condition that no further restrictions are added to those licenses by the respective contributor(s) and/or the redistributor(s) as allowed by the said permissive type of FOSS licenses. Namely, unlike the GPLv2, nothing in the BSD and the MIT licenses prevent introduction of additional restrictions on licensing of the software or even closing the software as part of proprietary software subject to proprietary license. However, due to reciprocal requirement of the GPLv2§2 as well as the prohibition to add further restrictions under the GPLv2§6, even modified versions of the GPLv2 licensed software must be distributed under the terms of the GPL without any additional conditions on use of the said program. Accordingly, neither the contributor nor mere redistributor is able to disclaim implied patent rights, if any, found under or in connection with the GPLv2§7 or its other terms nor based on the totality of the circumstances. Thus, in addition to copyright contributor, also mere redistributor may be deemed to have implicitly licensed its patents reading the FOSS released and/or redistributed under the BSD or the MIT licenses.⁸⁰⁶ To the contrary, patent portfolios of affiliates of industry FOSS contributors and distributors should be "safe" from the exposure.

⁸⁰⁶ Hardi at 299.

5.2.2.4 Recipient of Implied Rights

The reach of implied patent license in downstream chain of licensees is crucial in order to understand whether only the immediate licensee, *i.e.* the direct recipient of the software, benefits from the implied license or whether it may, based on the totality of the circumstances, protect also other downstream licensees, *i.e.* subsequent recipients of the software. According to former FSF Counsel, implied license results in a *positive network effect*, which ensures that *the whole FOSS community* receives the benefit of implied license *directed at any recipient* of the software in the FOSS the community.⁸⁰⁷ Other practicing attorneys appear to concur with the opinion that under the GPLv2, the implied patent license is directed to all downstream recipients of the software.⁸⁰⁸ The GPLv2§7, under which *each recipient* of the software will get the benefit of the royalty free compulsory patent license, supports the above conclusion. Ilardi notes that even sublicensing of implied patent license could be possible under the GPLv2§7.⁸⁰⁹ The argument of *constructive sublicensing of implied patent rights* is obviously based on the fact that the GPLv2§7 requires “the royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you”. However, sublicensing of implied rights appears counter intuitive, because in the absence of an express patent grant, there must exist, in addition to the wordings of the respective FOSS (copyright) license, some additional circumstances triggering the implied patent license. Further, as implied license under estoppel theories usually require some quasi-contractual relationship between the patent holder and the alleged infringer, there should be privity of (quasi) contract between the patent holder and the alleged infringer. Such requirement may generally preclude sublicensing of implied rights. This, however, does not prevent the alleged infringer from adhering to the defense of implied license under estoppel theories even if it had received the FOSS program indirectly from other FOSS licensee, and not directly from the patent holder, which released the software under a FOSS license, or distributed FOSS reading its patents. Namely, one could argue that also the implied licenses are granted directly by the contributor and/or mere

⁸⁰⁷ Ravicher 2005 at 4.

⁸⁰⁸ Ilardi at 295. Majerus & Pugh at 2. Zhu at 4.

⁸⁰⁹ Ilardi at 295

redistributor to each direct and indirect recipient of the software based on the royalty-free compulsory patent license under the GPLv2§7 as well as other circumstances in favor of finding implied license. For the same reason, any downstream user, whether direct or indirect recipient of a FOSS program licensed under the BSD or the MIT license, should be able to assert implied patent license as defense against the patent holder (FOSS licensor) irrespective of the absence of the Liberty or Death mechanism imposed by the GPLv2§7 – provided of course that all elements of estoppel (or silent acceptance under Nordic theory) are met. Therefore, the scope of recipients of implied patent license may be as broad under the FOSS licenses subject to this study, as under other industry FOSS licenses, such as the GPLv3§11 including express patent grant directed to each FOSS licensee. However, establishing the elements of implied license may be essentially harder for indirect FOSS licensees under the FOSS licenses subject to this study compared to direct FOSS licensees. The more distant the relationship is between the patent holder and the direct or indirect FOSS licensee, the less likely it *may* be that the alleged infringer is able show FOSS licensor's conduct and communications (in addition to the wordings of the FOSS license) inducing reliance and the FOSS licensee's actual reliance on such conduct and/or communications. Of course, it is not impossible, if for example, the activities of the allegedly infringing FOSS project are well known and/or if the patent holder had given public statements regarding the FOSS activities.

5.2.2.5 Licensed Version

One crucial question regarding the extent of potential implied patent license under the FOSS licenses subject to this study concerns the scope of the *licensed version of the FOSS program*: Does the potential implied patent license cover only the particular contributor version released and/or redistributed by the FOSS licensor or could the implied patent license extend even to derivative works created by downstream licensees? Specifically, does the implied patent license apply to a derivative work created by the recipient of the FOSS program embodying *different patent claims* compared to those reading on the respective version of the FOSS program contributed and/or redistributed by the patent holder?

For comparison, most FOSS licenses, which include an express patent grant, such as the GPLv3⁸¹⁰, the Apache 2.0 license⁸¹¹ and the Mozilla Public License 2.0⁸¹² limit the patent license only to the *contributor version* released by the *copyright holder* and exclude patent licenses in any modifications created by downstream licensees as well as claims infringed by FOSS program merely distributed without copyright contributions by the patent holder. For example, under the GPLv3§11, each contributor, *i.e.* a copyright holder releasing software under the GPLv3, grants a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of the *contributor version*. Contributor version, in turn, means the specific version of the copyrightable work released by the contributor under the GPLv3, including the original program together with the said contributor's modifications based on the said program. The Apache 2.0 license provides that each contributor grants a non-exclusive, no-charge, royalty-free, irrevocable (except as stated in the section) patent license to make, have made, use, offer to sell, sell, import and otherwise transfer the work, where such license applies only to those patent claims licensable by such contributor that are necessarily infringed by their contribution alone or by combination with the work to which such contribution was submitted by the said contributor. Finally, under the MPLv2, contributor version means the combination of the contribution of others used by the respective contributor together with the respective contributor's own contribution. Further, the express patent license under the MPLv2 is granted under the patent claims of the contributor to make, use, sell, offer for sale, have made, import and otherwise transfer either its contributions or its contributor version. Therefore, the *express* patent license under the GPLv3 does *not* cover modifications created by downstream licensees. (Without, however, limiting the scope and/or extent of any implied rights possibly found under or in connection with the GPLv3.) The same applies to the express patent licenses granted under the Apache v. 2.0 as well as the MPLv2 license. Accordingly, patent claims that would be infringed solely as a

⁸¹⁰ GPLv3§11.

⁸¹¹ Apache 2.0 §3.

⁸¹² Mozilla Public License v. 2.0 §2.

consequence of further modifications of the contributor version by downstream recipients of the program are *not* covered by the express patent license granted by the FOSS licensor under the GPLv3 or the other like FOSS licenses. Modifications by downstream licensees are thus unlicensed and may infringe patents of the FOSS licensor.

Exclusion of downstream recipients' modifications essentially limits the scope of the express patent grant under the above industry licenses and thereby increases certainty regarding the exposure of the patent license to patents (if any) of the FOSS licensor. While this approach to express patent licenses may not be fully in line with the objectives of free software advocates, the limited patent licensing model was apparently adopted in response to needs of those companies, which have significant patent portfolios. Namely, as discussed in Section 1.1.5 (FOSS and Patents), it is of utmost importance for each outbound licensor of IPRs to be able to clearly identify under which IPRs it is actually granting the outbound licenses and what is the scope of the license. Patent holders taking part in the FOSS community would lose the ability to analyze what is the effect of contributing software under express patent licenses in case those patent grants would also cover modifications of downstream licensees. The number of downstream licensees and possible variation of modifications is of course unlimited due to recipients' right to freely copy, modify and distribute the software. Therefore, the contributors, of course, cannot be aware of and thus have no control over any and all modifications by recipients of their contributor versions.⁸¹³

Due to the limited scope of express patent grants compared to implied patent licenses, the boundaries of which are not determined by fixed contract wordings but the surrounding circumstances, it has been argued that the implied patent license triggered by the FOSS licenses subject to this study may even be *broader* than the express patent grants included in many other FOSS licenses. One of those reasons is that implied patent license under the FOSS licenses under review may extend beyond the contributor versions distributed by the FOSS contributor and cover even *derivative works of the*

⁸¹³ Meeker 2008 at 103-104.

downstream licensees.⁸¹⁴ That conclusion is based on the argument that the implied license could cover also *reasonably contemplated uses* of the patented article under patent claims owned or held by the FOSS licensor and would thus allow both creation and distribution of derivative works under patent claims owned or held by the licensor, which acts are all expressly consistent with the contemplated scope of the license.

The broad reach of implied patent license under the GPLv2 is – not surprisingly – supported also by the FSF counsel, which has argued that the implicit patent license under the GPLv2 is actually essentially wider than that of many explicit patent licenses.⁸¹⁵ According to the FSF counsel, extension of the implied patent license to derivative works by downstream licensees is further supported by the ruling in Bottom Line Mgmt. v. Pan Man in which CAFC held that recipient of a patented article has, in addition to right to use and sell the respective article, also the right to repair it to function properly (in other words modify the patented article), which right covers both the original as well as any subsequent purchaser.⁸¹⁶ Also other practicing attorneys concur with the opinion that implied license may cover derivative works of downstream licensees based on the conduct of releasing software under the GPL, implying the right to use and modify the software in customary ways. It has been stated that derivative work of a downstream licensee, which covers the same patented invention as the contributor version "clearly falls within the rights licensed by the GPL."⁸¹⁷

On the other hand, also opposite views have been presented. According to Rosen, the scope of implied patent license under the GPLv2 does not necessarily extend to derivative works created by downstream licensees despite that the GPL expressly grants the right to create derivative works under the copyrights of the contributor. Rosen, in turn, advises any FOSS licensees modifying and distributing software subject to the GPLv2 to obtain patent licenses from any patent holder, whether contributor or mere redistributor of the GPL-licensed software or another third party patent holder. This

⁸¹⁴ Fitzgerald & Suzor at 442.

⁸¹⁵ Moglen, Ravicher, *et. al.* at 34.

⁸¹⁶ Bottom Line Mgmt. v. Pan Man, Inc. 228 F.3d 1352, 1354. (Fed. Cir. 2000). Moglen, Ravicher, *et. al.* at 34.

⁸¹⁷ Pugh & Majerus at 2-3.

may be important since if the FOSS license was deemed a unilateral or bare license, nothing – not even the circumstances surrounding the license inducing reliance – would, according to Rosen, compel finding an implied patent license in the given FOSS license.⁸¹⁸

Also some of those who think that implied patent license under the GPLv2 may cover also derivative works, note that the arguments are weaker if the derivative work reads patent(s) not covered by the FOSS licensor's contributor version. This is because the FOSS licensor might not have *intended* to license those patents, which were not infringed by the contributor version released and/or redistributed by the FOSS licensor. Thus, the required element of implied license under any theory, *i.e.* conduct showing patent holder's intention not to sue the FOSS licensee may not be present, if no other circumstances in favor of implied license are found, except for the act of releasing the contributor version under a FOSS license. For example, as discussed above in Section 5.2.1.5 (Reliance on the FOSS Licensor's Conduct), implied license under the theory of equitable estoppel requires reliance on the FOSS licensor's conduct. The elements of reliance could be very hard to show by the FOSS licensee in case of infringing modifications, because reliance, in turn, would require that the FOSS licensee having created the derivative work based on the patent holder's contributor version is both aware of the patent holder's patent reading the derivative work and that the FOSS licensee had a reason to rely on the patent holder's intention not to sue the FOSS licensee based on use of the derivative work. Implied license under the theory of legal estoppel, in turn, requires that the FOSS licensor tries to derogate from the rights which it has already granted. If FOSS licensor's certain patent claims and/or patents were not licensed under the contributor version released and/or distributed by the said FOSS licensor, the element of derogation from the granted rights appears to be missing. Another challenge related to finding an implied license under legal estoppel is the concept of consideration: The FOSS licensee should be able to show that the element of consideration required by legal estoppel was bargained for any future patent claims

⁸¹⁸ Rosen at 126.

possibly infringed by the FOSS licensee by virtue of exploiting the right to modify the patented program.⁸¹⁹

Finally, it should also be noted that nothing in the GPLv3 excludes or limits any implied licenses or other defenses to patent infringement otherwise available under the applicable law.⁸²⁰ Therefore it may be safe to assume that whatever licenses are found implicitly based on the totality of the circumstances in connection with distribution of GPLv2 licensed code, may also be found in relation to the GPLv3 licensed software in the same or sufficiently similar circumstances meeting the elements of implied license by equitable estoppel or other legal doctrine.

5.2.2.6 *Scope of Patent Claims*

One tricky question related to the scope of implied patent license is, what patent claims owned and/or otherwise held by the FOSS licensor may be implicitly licensed for the benefit of the FOSS licensees. Specifically, does the implied license cover only those patent claims owned and/or held by the FOSS licensor at the time of contributing and/or distributing the software under a FOSS license? Or, could the implied patent license cover event those patent claims, which are issued and/or acquired after the time of releasing and/or distributing the software under a FOSS license?

For reference, the express patent grant under the GPLv3§11 is very broad and covers contributor's essential patent claims, *i.e.* patent claims owned or controlled by the contributor, *whether held at the time of contribution or thereafter acquired*, that would be infringed by any manner permitted by the GPLv3. However, as explained above in Section 5.2.2.4 (Licensed Version) in more detail, the essential patent claims expressly licensed under the GPLv3 do not include patent claims infringed only as a consequence of further modifications of the contributor version by downstream licensees. The scope of patent claims expressly licensed under the GPLv3§11 is still quite broad, as it includes not only patent claims *owned* by the contributor but also claims *otherwise held* by the contributor, provided however that the claims are sub-licensable by the

⁸¹⁹ Pugh & Majerus at 2.

⁸²⁰ GPLv3§11.

contributor in accordance with the license terms of the GPLv3. Further, the licensed patent claims under the GPLv3 includes both claims held by the contributor *at the time* of making of the contribution as well as claims perfected and/or acquired *after* making of the contribution. According to FOSS counsel at SFLC, the grant of express patent license follows in connection with business transaction. Thus, when a company with claims infringed by the contributor version acquires the program's modifier, all claims held or thereafter acquired by the purchaser are automatically licensed under the GPLv3§11. According to SFLC, Microsoft's acquisition of Nokia's mobile devices business resulted in automatic licensing of all Microsoft claims then or thereafter acquired which read on any contributor version of any GPLv3 program ever modified by Nokia. SFLC argues that the acquisition of Nokia lead to "wholesale decimation" of Microsoft patent claims on GPLv3 programs, which issue, however, is not (yet) commented by the industry according to SFLC.⁸²¹ Unfortunately, no definitive answer may be given to the question on what specific patent claims are implicitly licensed under or in connection with the FOSS licenses subject to this study: again, it depends on the totality of the circumstances constituting the required elements of implied license under equitable estoppel (in the US), silent acceptance (in Finland) or other legal theory.

5.2.2.7 Compensation Payable for Implied Rights

The express patent licenses included, for example, in the GPLv3, the Apache 2.0 as well as the MPLv2 and the EPLv1 license all grant non-exclusive, worldwide, *royalty-free* patent licenses. While implied patent licenses may be found based on the totality of the circumstances also in connection with other type of FOSS licenses not including express patent grants, in general, implied patent license does not preclude obligation to pay royalties or other reasonable compensation for the patent holder. If a FOSS licensee accused by a FOSS licensor of patent infringement is able to show the elements of an implied license, the doctrine provides the alleged infringer with affirmative defense against the patent infringement claim. Accordingly, the FOSS licensee may have the right to continue the allegedly infringing activities, and the patent holder having released and/or distributed software under a FOSS license subject to this study is then

⁸²¹ Moglen & Choudhary at 28.

not entitled to injunction against the FOSS licensee(s). The question follows, however, whether the patent holder, *i.e.* FOSS licensor, is entitled to compensation based on use of the patents under the implied license. As discussed in Section 5.1.1 (Implied License in the US), implied license does not necessarily mean that the patent holder could not claim royalties or other compensation despite the defense. Again, the outcome depends on the totality of the circumstances. However, the GPLv2§2 prohibits charging for the licensed rights granted under the GPLv2, and charging a fee for only the act of distribution is allowed. Considering also that the GPLv2§7 specifically requires the FOSS licensor to refrain from distributing the software if the software cannot be distributed strictly in accordance with the GPLv2, FOSS licensor, even if it has patents reading on the released and/or distributed software, might have hard time arguing for right to patent royalties due to exploitation of patent rights by the FOSS licensee(s). Considering also that such additional requirement would be in breach of GPLv2§6, possibly resulting in loss of copyright licenses under GPLv2§4 (to its outbound licensed software), the FOSS licensor holding patents in the software, is probably better off not asserting the patents against the FOSS community.

5.2.2.8 Analysis of the Findings

Because the GPLv2, the BSD and the MIT licenses do not include express patent license grants it would be, at least in theory, possible that an entity owning patent(s) would release software under one or more of the said FOSS licenses and later on tried to enforce the patents reading the released FOSS against the licensees.⁸²² Several questions related to the existence and extent of implied patent licenses under the GPLv2 were tried to be addressed in GPLv3 by inserting an express patent license.⁸²³

For several reasons, determining the conditions and the scope and the practical extent of patent licenses is easier under the FOSS licenses including express patent grants. However, the said fact does not mean, that the impact of patent licenses to patents of FOSS licensors would be narrower under the FOSS licenses not including express

⁸²² Fitzgerald & Suzor at 441-442. Nadan 2009 at 1.

⁸²³ Gomulkiewicz at 1033-1034.

patent grants. Quite the contrary – implied patent licenses possibly found in connection with FOSS licenses subject to this study may be essentially broader than express patent grants. Considering that the implied patent licenses under the FOSS licenses subject to this study may be deemed to be given by both a FOSS contributor and a (mere) FOSS distributor, it is important to note that the implied patent license under the FOSS licenses subject to this study may actually encompass *broader range of exposed patent holders* including both copyright contributors and mere redistributors compared to the entities granting express patent licenses under the later (versions of) FOSS licenses. For example, under the GPLv3§11, the express patent licenses are granted under the essential patent claims of the copyright contributor only, excluding any patent claims held by a mere redistributor, which does not modify the program. The same applies to the express patent grant under §3 of the Apache v.2.0 license as well as §2 of the MPLv2 license. This is yet another ground why the implied patent licenses under the FOSS licenses subject to this study, if found based on the totality of the circumstances in a given case, may actually be broader than the express patent licenses under the industry FOSS licenses with express patent grants. Therefore, it may be easier to keep track on the impact of FOSS licensing to patent portfolios of mere redistributors than contributors exploiting software under the FOSS licenses with express patent grants. Despite that express patent licenses are generally granted only by copyright contributors, there are, however, some exceptions. For example, under the Eclipse Public License v. 1.0 (EPLv1) contributor is defined as *any person or entity that distributes the program*. Such FOSS licensor, including both copyright contributor and mere distributor, grants recipients a non-exclusive, worldwide, royalty-free patent license under the licensed patents to make, use, sell, offer to sell, import and otherwise transfer the contribution.

Further, one must not forget that implied patent rights may also arise in connection with the GPLv3. Namely, the GPLv3§10 includes a *covenant not to sue*, under which each licensee, whether a copyright contributor (and simultaneously a downstream licensee) and/or mere distributor, is prohibited from initiating litigation (including a cross-claim or counter claim) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the GPL-licensed program. Claims for obtaining patent licenses or payment of royalties are prohibited also by both contributors and distributors

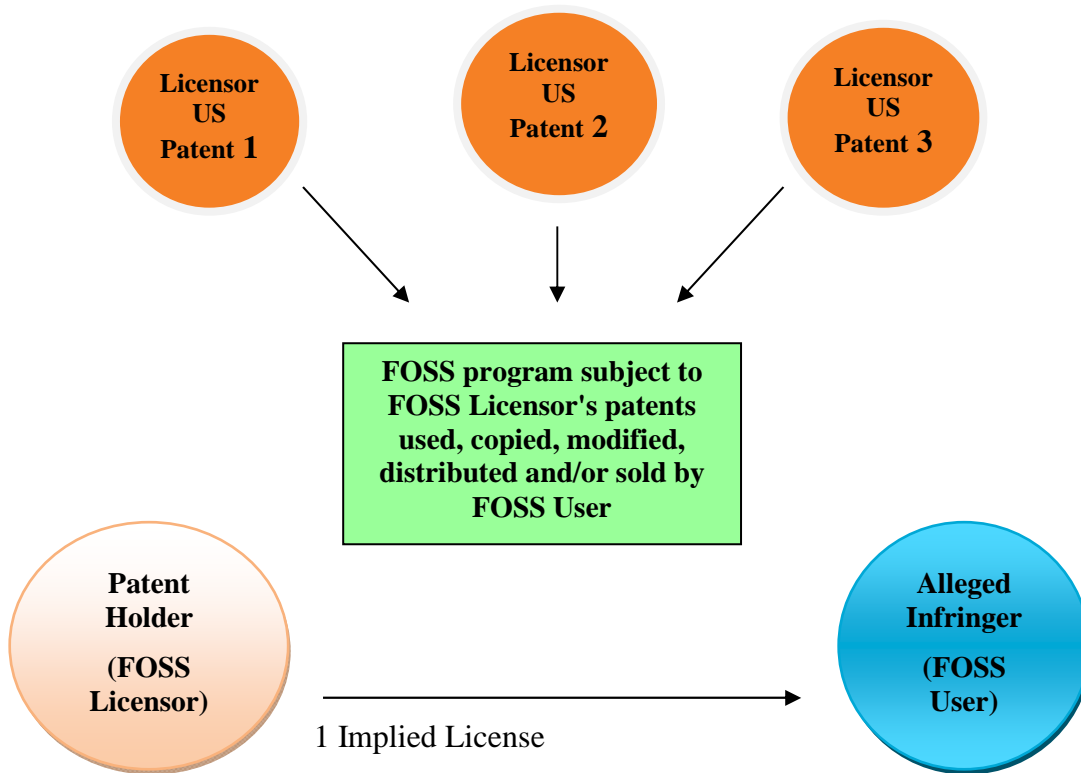
of GPLv3 licensed software, resulting thus, according to lawyers at SFLC, a *uniform rule of patent exhaustion*.⁸²⁴ The GPLv3§11 also expressly states that nothing shall be construed as excluding or limiting any *implied license* or *other defenses to infringement* that may otherwise be available *under applicable patent law*. Therefore, the comparison of broader reach of implied patent rights under the BSD, the MIT and the GPLv2 licenses compared to the GPLv3 and other industry licenses may be true only when the implied patent licenses under the FOSS licenses subject to this study are compared to the express patent licenses under the GPLv3§11 and other like industry licenses. Thus, exposure based on contribution and/or distribution of FOSS to patent holder's portfolio must always be analyzed on a case by case basis.

Finally, when it comes to the question, which *free software* license applies to a particular contribution and/or distribution, the following may be noted: In general, the *choice of license* made by the FOSS contributor upon release of its program under a FOSS license is honored, and cannot be changed by anyone else except for the respective contributor. For example, each source file of a GPL-licensed program should include the following copyright and license notice of the GPLv2: "This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (*at your option*) any later version. If a FOSS contributor chooses to release its contribution under the GPLv2 without providing the licensee with the right to choose any later version of the GPL license, then the licensee must stick with the GPLv2 (without express patent license) and cannot switch to using the contribution under the GPLv3. If, however, the license notice included by the respective contributor allows the licensee to use the software under "any later version" of the GPLv2 license, then the licensee may choose to get the benefit of the express, yet more narrow, patent license included in the GPLv3. Also the language of the GPLv3§ makes clear that prior modifications to GPL-licensed program released under the GPLv2 or other license do not fall under the explicit patent license of the GPLv3. Namely, under the GPLv3§11, the patent licenses apply to contributor, which has released the program "under this

⁸²⁴ Moglen & Choudhary at 27.

License". "License", in turn, is defined in the GPLv3§0 as the GPLv3. Therefore, each FOSS license, including the specific version of the respective FOSS license must always be reviewed in detail in order to understand potential exposure to FOSS licensor's patents, with regard to patent rights granted under the applicable FOSS license and/or by operation of law.

PICTURE 13: IMPLIED LICENSE IN CONTEXT OF FOSS



PICTURE 13: IMPLIED PATENT LICENSE IN CONTEXT OF FOSS

Implied License (Arrow 1) of may arise based on (1) any *language* or *conduct* of the Patent Holder; (2) from which the Alleged Infringer may properly *infer* that the Patent Holder consents to use of the patent; and (3) upon which the Alleged Infringer *acts*.

In this scenario, Alleged Infringer has downloaded a copy of a FOSS program and now uses, copies, modifies, distributes and/or sells the FOSS program under and in accordance with the applicable FOSS license. The FOSS program practices Patent 1, 2 and 3 owned by the Patent Holder. Patent Holder has either released the FOSS program under a FOSS license, being thus FOSS Contributor, or alternatively, is merely redistributing the FOSS program, being thus FOSS Distributor. In both cases, however, the applicable FOSS license does not include an explicit patent license. Despite the said fact, Alleged Infringer (FOSS User) may be, under the US doctrine of implied license, allowed to practice Patents 1, 2 and/or 3 owned by Patent Holder, if Patent Holder has, in one way or another, communicated to FOSS User, that it will not sue FOSS User for use of the FOSS program, and provided, that FOSS User reliance on such communications, and discontinuation of allegedly infringing activities would result in harm on FOSS User.

6. DISCUSSION OF THE RESULTS

6.1 IMPACT OF PATENTS ON USE OF FOSS

American scholars have described patent as an *invitation to a law suit*.⁸²⁵ Patent may be hard to obtain, it is only transient in time as well as territory and by good chance, even if a patent is obtained, it may be invalidated by a court because it did not meet the requirements of patentability. And even if a patent is deemed valid, it does not give any guarantee whatsoever that its holder is actually entitled to use the patented invention in the first place. Against all odds, patent endows its holder *certain superpowers*, as SCOTUS has put it, but only for a limited period of time.⁸²⁶ However, while in force, those super powers amount to a powerful weapon: *the right to exclude* others from using the patented invention.

Software industry has for long time not been safe from this scene. When patenting of software became more common, the inevitable result was the emergence of software patent litigations. Today, there are hundreds of thousands of software patents issued in the US and Europe alone, reading countless number of ideas already implemented in FOSS programs. However, in the absence of IPR indemnities and other similar defense mechanisms common in proprietary licenses, but practically impossible in the standard FOSS licenses, none of the FOSS programs are protected against third party patents held by outsiders of the FOSS community, unless of course, a FOSS user is willing and able to buy *safety as a service* from a FOSS vendor. On the other hand, most of the FOSS programs are not protected even against patents held by FOSS licensors, for that matter. Namely, it is argued that more than half of the FOSS programs out there are licensed under FOSS licenses similar to those subject to this study, which do not include express patent grants from the patent holders releasing and/or distributing software under the said FOSS licenses.⁸²⁷ The constant threat of patent claims whether by third parties or, as absurd as it sounds, FOSS licensors against FOSS licensees may leave the

⁸²⁵ Mills, Reiley, *et. al.* at 18-6.

⁸²⁶ *Kimble v. Marvel Entertainment, LLC*, 135 S.Ct 2401, 2406 (U.S. 2015). ([Kimble v. Marvel Entertainment](#)).

⁸²⁷ Nadan 2009 at 1.

FOSS community vulnerable. Patents limit the FOSS developers' *freedom to operate*, blocking use and requiring circumvention of patented ideas. Patent claims result in expensive proceedings and – from the FOSS community's perspective – in the worst case, injunctions on distribution of FOSS programs, payment of damages and downgrading functionalities of FOSS programs due to patent infringement. Thus, FOSS advocates seek all the time alternative ways to cope with the patent related risks, such as collecting prior art to invalidate as many bad patents as possible and developing own patent pools for defensive purposes. Despite the lingering threat, in-house lawyers at FOSS growth companies have said that while patent litigations, on a general level, are a huge concern, patent holders rarely sue for patent infringement unless the defendant has deep pockets and solid revenue stream. FOSS projects, in turn, are often either non-profit or small scale endeavors or founded by big industry players, due to which patent infringement litigations are in practice not that big of a concern: no one wants to sue if there's not enough to gain or if there's too much to lose, moneywise, as damage to reputation – or loss of own inbound FOSS licenses.⁸²⁸ Thus, patent claims may constitute actually a smaller threat to FOSS than proprietary software, which of course, is not safe from third party patent claims either.⁸²⁹ On the other hand, if a claim strikes, its effect may be fatal on a FOSS project: if the allegedly infringed patent is held valid and there are no patents to cross claim, the judgment on patent infringement may mark the end of an era for the FOSS project.⁸³⁰ That, ultimately, is the reason why FOSS advocates are strongly against patents, which in addition to proprietary copyrights, may turn software unfree, preventing the free development and sharing of FOSS programs.

6.2 IMPACT OF FOSS ON USE OF PATENTS

The superpowers provided by patent, that looming mirage, are not eternal. Referring to Spider-Man, SCOTUS noted that "*In this world, with great power there must also come – great responsibility.*" When patent expires, typically within 20 years of filing the

⁸²⁸ Rosen, Schellhase, *et. al.* at 50. Meeker 2015 at 156.

⁸²⁹ Ravicher 2004. See also Lemley, Menell, *et. al.* at 375.

⁸³⁰ Mann at 3.

application, also the superpowers expire and the exclusive right passes to the public.⁸³¹ Even during the term of the patent, the superpowers are not absolute. The more the superpowers are used for gaining revenue, the more they get exhausted: each authorized sale of a patented article relinquishes the superpowers as to the sold article, preventing the patent holder from invoking patent law to control the article post sale and providing the owner of the patented article with the right to use and resell it, although not the right to make new copies of the patented article. This doctrine, called as patent exhaustion, applies also to licensing of patented FOSS programs when both the conditions for sale of software and the elements of patent exhaustion are met.

Each time a FOSS licensor, either a FOSS contributor or a mere FOSS distributor, makes available a copy of a FOSS program, the said transaction amounts to a sale of software under the European and the US copyright doctrine, provided however, that under the US doctrine, the copy must obviously be made available on tangible media. Sale of software under the copyright exhaustion doctrine is likely to constitute also sale of software for the patent exhaustion doctrine. Accordingly, FOSS licensing triggers exhaustion of patent rights in the copy of the FOSS program, if the sale is authorized and meets the other elements of patent exhaustion. Authorized sale in FOSS context means that the copy is made available under and in compliance with the respective FOSS license by the copyright holder and/or its authorized licensee. If the said FOSS licensor owns also patents reading the FOSS program (and/or has obtained sufficient third party patent licenses), the authorized sale of the copy exhausts the patent rights in the copy sold by the FOSS licensor, preventing the respective FOSS licensor, that is either a FOSS contributor or a mere FOSS distributor, from claiming royalties or other compensation for using or reselling the copy of the patented FOSS program.

While the conditions of patent exhaustion are triggered relatively easily in the context of FOSS licensing, the rights secured by the FOSS licensee under the patent exhaustion doctrine include only the right to use and resell the copy without separate patent grant from the FOSS licensor. However, as the patent exhaustion doctrine does not allow the right to make new copies of the patented article, the exact purpose of FOSS licenses,

⁸³¹ Kimble v. Marvel Entertainment at 2405 and 2415.

exhaustion of patents in the copy of the FOSS program does not prevent the patent holder from prohibiting FOSS licensees from copying the FOSS program under FOSS licensor's patents despite that the FOSS license includes a right to copy under copyrights. Further, exhaustion of patent rights is only territorial: sale of FOSS in some territory does not exhausts the patents in another territory.

Some FOSS licenses, of course, include express, worldwide patent grants from the FOSS contributor and sometimes, although seldom, from the FOSS distributor to FOSS licensees. In case of an express patent license, the patent holder releasing and/or distributing FOSS loses its right to sue the FOSS licensee for patent infringement for using the FOSS program under and in compliance with the FOSS license. FOSS licensor can evaluate the exposure of such FOSS licensing quite accurately to its own patents due to the clearly defined boundaries of the express patent grant. However, even if the patent holder contributes and/or distributes FOSS under a FOSS license which does *not* include an express patent license, it does not necessarily mean that the FOSS licensor's patents remain unaffected, and the said FOSS licensing would not dilute the FOSS licensor's patents beyond the operation of law, *i.e.* patent exhaustion. Namely, the mere act of releasing and/or distributing software under a FOSS license, which does not include an express patent grant, still may, together with additional circumstances inducing reliance on the existence of the right to exploit FOSS despite the FOSS licensor's patent rights, trigger an implied patent license in such – often common law – regimes, which acknowledge the doctrine of implied license under estoppel theories. The said doctrine is well established in the common law system of the US. While there is not similar legal doctrine in Nordics, and Finland specifically, implied patent license may be based on silent acceptance also in Nordics under the theory of tacit or silent agreements. As the existence as well as the scope and extent of the said implied patent license is based on the totality of the circumstances-test as evidenced by the alleged infringer adhering to said defense, it is much more difficult, unless impossible, for a FOSS licensor to accurately define in advance the impact of such FOSS licensing to its patent portfolio. Further, while express patent grant results in worldwide license, and the patent exhaustion doctrine results in territorial exhaustion, implied licenses are at best (FOSS) community wide: applying between the respective patent holder and the alleged infringer(s) within the quasi-contractual relationship. However, the attempts to

clarify the conditions and scope of potential implied patent license under the FOSS licenses without express patent grants may increase the understanding on the relation of patents and FOSS, and thus, hopefully, decrease the fear, uncertainty and doubt of FOSS patent licensing on both the FOSS licensors and the FOSS licensees.⁸³²

6.3 PATENT LICENSE ECOSYSTEM IN THE FOSS COMMUNITY

At first glance it may seem that the industry FOSS licensors' goals in preserving their patent portfolios clean and undiluted as opposed to the FOSS licensees' goals in retaining the software freedom are completely contradictory. By the end of the day, however, reconciliation of those contradicting goals may not be impossible. For example, despite that FOSS licensors releasing and/or distributing software under the GPLv2 may be precluded from asserting patent royalties against any FOSS licensees using the software under the GPLv2, the said patent holders may enforce their patent rights against *everyone* not using the software under and in compliance with the GPLv2.⁸³³ If the FOSS licensor wants to gain from FOSS licensing model, the possibility of FOSS community wide implied patent license is the price, which the said FOSS licensor may have to pay for the various benefits received under the FOSS licensing model. Free software does not allow free riding. This does not, however, limit enforcement of patent rights by FOSS licensor against those who breach the FOSS license terms. The same applies also to FOSS licensors contributing and/or distributing software under the BSD and/or the MIT license: breach of the license conditions by FOSS licensees entitles the FOSS licensors, under most, if not all jurisdictions, to terminate the rights granted under the said FOSS licenses, including both copyright grants and/or (implied) patent licenses, if any.

Accordingly, the FOSS licensing model creates a *patent license ecosystem* within the FOSS community: Patent licenses, whether express or implied, granted or otherwise given under or in connection with FOSS licenses, are directed only at FOSS licensees, which can also derive benefit from those patent licenses only when they use FOSS

⁸³² Nadan 2009 at 1.

⁸³³ Ravicher 2005 at 5.

under and in compliance with the respective FOSS license. Patent holders, however, remain free to assert their patent rights against any and all third parties, which have not received an express or implied patent grant under or in connection with a FOSS license, as well as any FOSS licensees, which do not strictly adhere to the terms and conditions of the FOSS licenses. This principle of patent license ecosystem was affirmed also by the Californian court, which held in XimpleWare v. Versata that mere *use* of patented source code *is explicitly permitted* under the GPLv2, *as long as* the licensee *does not* itself *breach the license* by distributing the software without satisfying the license conditions.⁸³⁴ GNU/Linux OS provides one example of this patent license ecosystem. This free OS licensed under the GPLv2, is allegedly covered by hundreds of patents held by both FOSS licensors and third parties. Due to the implied nature of patent license, if any, under or in connection with the GPLv2, the platform is not protected by express patent licenses from contributors. Therefore, the scope of the patents rights, if any, conferred by the code contributors is, at best, unclear. However, some software executives think it is unlikely that contributors with patents would enforce the patents at least against the GNU/Linux OS.⁸³⁵ Today, the GNU/Linux OS is not attacked even by third party patent holders outside of the FOSS community.

6.4 JURISDICTIONAL CONSIDERATIONS

No ecosystem or community, no matter how global in its reach, is immune from the impact of local laws. This means, in practice, that even though the respective license ecosystem or community, whether FOSS or proprietary, would have gained multinational or even global coverage, construction of the contractual whole is always governed by – in the absence of expressly agreed law of the ecosystem – the local laws pointed by the applicable rules of the international private law. And even if interpretation of the community's internal rules, *i.e.* the respective license terms, would be subject to a specifically agreed governing law, members of the community can never derogate from the mandatory laws of any jurisdiction. Therefore, when analyzing the

⁸³⁴ Order Granting-in-Part Defendants' Motions to Dismiss, No. 5:13-cv-05161-SI-PSG (N.D. Cal. May 16, 2014) at 9.

⁸³⁵ Mann at FN.

impact of FOSS licensing to licensor's patent portfolio in the international context, the fact that the said impact is inevitably fragmented due to vague license terms leaving room for contract construction, differences in local laws and territoriality of patent rights should be acknowledged, understood – and for the time being – accepted. The answer to the question of what is the impact of FOSS licensing to licensor's patent portfolio, may lead to as many correct answers as is the number of relevant jurisdictions in the review at hand. This is the inevitable result as long as there is no global, harmonized law and no global patent rights, but different jurisdictions with deviating local laws and territorial patent rights. Even the UPC Agreement may not bring greater coherency to this challenge, since the contract law based theories of implied license remain a question of local, unharmonized law under the UPC Agreement.

The complexity of jurisdictional differences may at times lead even to clash of competitive interests between different jurisdictions. While there does not exist even a slightest concern that CJEU, or SCOTUS, for that matter, could shake or stir the FOSS licensing model, the roots of which are firmly grounded on the principle of the freedom of contract, yet territoriality of IPRs and related principles of exhaustion and enforcement as well as the local nature of laws governing contract construction do make a difference in interpretation of the scope of license rights granted under and/or exhausted in connection with FOSS licensing. It is not insignificant that today, distribution right of a copyrighted file gets exhausted under certain conditions even in the digital context as held in UsedSoft v. Oracle, while SCOTUS considers that the absence of tangible copies equals the absence of copyright exhaustion, as stated in Rigid Software. Having said that, the former was a software case and the latter was a case pertaining to music files. Had each courts addressed both types of copyrightable works, might the outcomes have turned more similar. Further, the approach to patentability of software in EU and the US is still very much different, although convergence has happened throughout the years. All of these deviations do, however, require analysis of the impact of FOSS licensor's patent portfolio always based on the specific facts at hand in connection with the given case. There is no short cut to conclusion, and there is no way to avoid paying attention to details, if accurate results are sought after.

6.5 FINAL REMARKS

Technology industry has developed tremendously during the last three decades since adoption of the first FOSS licenses. Both regulators and judges alike have had hard time trying to understand, let alone cope with the disruptive technologies on the level of statutory and case law. At first, the challenge was to decide what form of IPR protection, in the first place, would suit for computer programs. Copyright protection, that artificial transplant taken from the world of arts and literature, was finally chosen as the main protection instrument for computer programs, first in the US and finally also in Europe. When the law on software copyrights was finally settled on the basic questions, the emergence of the Internet created, in addition to enormous opportunities, also new challenges: digitalization of copyrighted content and technology enabling both instant copying and distribution of digital works resulted in a revolution drastically changing the parameters of law and technology. More importantly, the digital era changed also *creativity*. When contributors became able to connect with wider circles of likeminded people, they indeed got involved and involved others in creative efforts. This, in turn, lead to production of large collective works, consisting of an unlimited number of contributions by individual contributors, reflecting *collective creativity*. The same phenomenon accelerated also FOSS development model, spreading through the Internet and enabling rapid and global adoption of, and collaboration around FOSS. While technological means of restricting use and access to digital works became soon available as a counter force to the explosive amount of IPR violations in the digital context, FOSS licensing scheme specifically allowed free copying and distribution of copyrighted software as one excellent illustration of collective creativity.⁸³⁶

If the Internet was the major new thing some decades ago, the Internet of Things (IoT) along with artificial intelligence and robotization, might well result in a new revolution. IoT means, simply put, Internet-connected things gathering, collecting, storing, processing and transferring vast amounts of data. There is nothing new in those *things* as such, which could be any ordinary gadgets or widgets: a mobile health watch, a refrigerator, a car or any other object with Internet connectivity, *i.e.* the Internet of

⁸³⁶ 1 Raymond Nimmer §1:2 at 1-8 – 1-10. Merges at 242-243. Ilardi at 292.

Everything! While the concept of IoT first came up in 1999, only now there exists advanced enough technology, such as connectivity, data handling and sufficient cloud storage, required by the IoT. It may well be that in (near) future, all intelligent devices in the world will be connected to Internet. The change is expected to boost global economy and create more business opportunities for infrastructure manufacturers, developers of Internet-based software applications, providers of digital services and innovators of new, innovative business models in general.⁸³⁷

The FOSS movement has already been characterized as a permanent force in reshaping the software industry, but in the era of the IoT, the role of FOSS may become even more important.⁸³⁸ Agile approach to development of IoT based services enables adjusting the solutions to the specific needs of the users and creating collaborative ecosystems around the data. FOSS may prove useful in agile development mode, providing both tools and components for IoT solutions in a flexible as well as time and cost effective manner. Another very important factor contributing to adoption of open modes, such as FOSS, at the expense of closed models, is security. The vast amount of data processed in connection with IoT solutions will inevitably include gathering, transferring and storing lots of confidential information and personal data owned by various stakeholders. Due to the immense number of data breaches, cybercrimes and security vulnerabilities as well as software defects, many components pertaining to the IoT are constantly subject to threat of unintended data leakages.⁸³⁹ When it comes to security, FOSS is superior to proprietary software. Availability of source code and unlimited number of developers enable effective monitoring of FOSS for security vulnerabilities and intentional malware. Consequently, adoption and impact of FOSS will definitely increase in the era of IoT and mobility.⁸⁴⁰

Also other factors may increase the importance of FOSS and other open models during the era of the IoT. While the era of IoT may well result in a wave of patent applications

⁸³⁷ Stobbs §2.28 at 2-154 – 22-156. Collins, Fleisher, *et. al.* at 20.

⁸³⁸ Black Duck 2015 at 31, 36 and 39.

⁸³⁹ Chaney at 24.

⁸⁴⁰ Black Duck 2015 at 35-36.

filed around the world, it may not be that easy to obtain patent protection for an everyday object with the only added feature being Internet connectivity. Such an addition to an old, ordinary device may not meet the requirements of novelty, non-obviousness and/or involve an inventive step necessary for patentability of the invention. In order to deserve patent protection, an IoT related invention should be something quite unique. This may not be an easy task to achieve.⁸⁴¹ However, even if patent protection could in some cases be obtained for an invention based on a device with Internet connectivity, inventors may not even be that interested in seeking patent protection for the said inventions. Namely, the new device markets and IoT solutions are more fragmented compared to, say, many ordinary consumer devices, and may thus not ensure adequate rewards for the investments in patent prosecution and/or enforcement. Further, patent holders may not have sufficient incentives to sue providers of allegedly infringing IoT solutions or services until the respective volumes of sales are high enough. While the fragmented markets may serve as a disincentive to patenting, they may, together with other factors, provide corporations with incentives to lean more towards open models in their R&D activities as well as product and service offerings. Likewise, start-ups and growth companies with increasing volumes but not much cash, may not be able to buy expensive patent licenses, forcing such companies to adhere to open alternatives, which come with free patent licenses. Thus, openness may secure success also in the era of IoT – and beyond.

7. CONCLUSIONS

Based on the above analysis on the current European and the US patent exhaustion doctrines, the answer to the Research Question 1: "Does sale, licensing and/or redistribution of FOSS trigger patent exhaustion?" must be given on a case by case basis. Sale, licensing and/or redistribution of a copy of a FOSS program may trigger patent exhaustion when: The copy of a patented FOSS program is released (1) *under and in compliance with* a FOSS license subject to this study granting a perpetual right to use the copy against a single payment or free of charge without imposing restrictions on resale of the copy; (2) by or under authorization of the patent holder; *and* (3)(A) within

⁸⁴¹ Stobbs §2.28 at 2-154 and 22-156 -2-160.

the EEA (or with respect to unitary patents, in the participating member states) to trigger exhaustion of patents granted in the EEA; or (3)(B) within the US to trigger exhaustion of patents granted in the US. The doctrine of patent exhaustion triggers exhaustion of the rights to use and resell the respective copy of the FOSS program free from any patent claims of the FOSS licensor. However, due to territoriality of patents and related doctrine of exhaustion, the exhaustion of patent rights will at best result in fragmented freedom to exercise the patent rights embodied by the copy of the FOSS program. Further, patent exhaustion doctrine does not give the right to make new copies of the patented FOSS program, an important right expressly granted under copyrights of the FOSS licensor in accordance with FOSS licenses subject to this study.

Based on the above analysis on the US and European doctrines, if any, on implied patent license, the answer to the Research Question 2: Do the most common FOSS licenses, *i.e.* the BSD, the MIT and the GPLv2 licenses, which do not include express patent grants, still trigger implied patent licenses, must, again, be answered on case by case basis and depending on the jurisdiction where the dispute arose. Now, based on the above analysis on implied patent license under the US laws, implied patent license may arise under or in connection with FOSS licenses subject to this study based on the totality of the circumstances, when (1) communications, *i.e.* words (whether oral or written), silence and/or conduct of the FOSS licensor induce; (2) reliance in the FOSS licensee based on which the FOSS licensee infers existence of the implied patent license and acts accordingly; and result in (3) harm, if the FOSS licensee is required to cease its operations based on infringement of the FOSS licensor's patents. There is no equivalent, established doctrine of implied patent license in Nordic (specifically in Finland) contract and/or patent law. However, nothing prevents also Nordic courts from taking into account similar factors under the theory of tacit or silent agreements leading to similar consequences as under the US doctrine on implied patent license based on FOSS licensor's tacit acceptance. The alleged infringer, that bears the burden of existence of silent agreement, must be able to prove with sufficient evidence the existence of such implied license. Implied patent license under the US laws is based on the totality of the circumstances –test, which requires that the surrounding circumstances such as the patent holder's other conduct and communications, in addition to the wording of the respective FOSS license, induce reliance on the existence of the implied patent license.

Thus, mere wording of the FOSS license may not be sufficient to construe an implied license, because in that case the license grant should be so clear, that it would effectively amount to an express grant of a patent license. Similarly, also the scope and extent and thereby the practical impact of an implied patent license depends on the circumstances, which triggered the license in the first place. When it comes to the several sub-questions raised regarding the scope and extent of the implied patent license, such as the licensor(s) and the recipient(s) of implied rights, it is concluded that in addition to copyright contributor, also mere redistributor may be deemed to have implicitly licensed its patents reading FOSS released and/or redistributed under the FOSS license subject to this study. Also the scope of recipients of implied patent license may include both direct and indirect recipients of the FOSS program. Implied patent license under the FOSS licenses subject to this study may also extend beyond the version distributed by the respective FOSS licensor and cover even derivative works of the downstream FOSS licensees as well as patent claims afterwards acquired by the FOSS licensor. While implied license, in general, does not preclude obligation to pay royalties or other reasonable compensation for the patent holder, royalties for the exercise of the freedoms granted under the FOSS licenses, and the GPLv2 specifically, are prohibited. Patent holders contributing and/or distributing FOSS would most likely have hard time showing at court that they are entitled to compensation for exploitation of the patents despite that they have either contributed and/or distributed FOSS under licenses which either do not provide for or expressly preclude any royalties for using FOSS. Accordingly, the relevant question in each case is whether or not the particular circumstances at hand prevent the patent holder from asserting the patents against the alleged infringer and related sanctions and if yes; to what extent does the defense of implied patent license apply. There is no definitive answer on this question unless the law is settled by a court in various circumstances.

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ABBREVIATIONS

AGPL	GNU Affero General Public License
BSD	Berkeley Software Distribution
CAFC	United States Court of Appeal for the Federal Circuit
CDDL	Common Development and Distribution License
CJEU	Court of Justice of the European Union
CONTU	National Commission on New Technological Uses of Copyrighted Works
DMCA	Digital Millennium Copyright Act
ECHR	European Court of Human Rights
EEA	European Economic Area
EPC	European Patent Convention
EPLv1	Eclipse Public License v. 1.0
EPO	European Patent Office
EU	European Union
FOSS	Free and open source software
FSF	Free Software Foundation
GPLv2	GNU General Public License version 2
GPLv3	GNU General Public License version 3
GUI	Graphical user interface
HE	Hallituksen esitys
IoT	Internet of Things

IPR(s)	Intellectual property right(s)
LGPL	GNU Lesser General Public License
MIT	Massachusetts Institute of Technology
MPL	Mozilla Public License
MPL v1.1	Mozilla Public License version 1.1
MPLv2	Mozilla Public License version 2
NBPR	National Board of Patents and Registrations of Finland
NOKOS	Nokia Open Source License v. 1.0a
OIN	Open Invention Network
OS	Operating system
OSI	Open Source Initiative
PCT	Patent Cooperation Treaty
R&D	Research and development
SCOTUS	Supreme Court of the United States
SFLC	Software Freedom Law Center
SDNY	United States District Court of the Southern District of New York
SSO	Standard setting organization
TFEU	Treaty on Functioning of the European Union
UC	University of California
UCC	Universal Copyright Convention, or Uniform Commercial Code, depending on the context

UCITA	Uniform Computer Information Transactions Act (UCITA)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPC	Unified Patent Court
USPTO	United States Trademark and Patent Office
WIPO	World Intellectual Property Organizations
WTO	World Trade Organization