Spain

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Introduction to software protection under Spanish law

Body of law

Copyright protection of software is regulated in Spain under Royal Legislative Decree 1/1996 of 12 April, approving the consolidated text of the Copyright Act (hereinafter, the "Copyright Act")[1]. This law transposes the EU Copyright Directives (Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society, Directive 2004/48/EC on the enforcement of intellectual property rights; Directive 96/9/EC on the legal protection of databases; and, in particular, Council Directive 91/250/EEC of 14 May 1991 on the Legal Protection of Computer Programs — hereinafter referred to as the "Software Directive").

Title VII of Book I of the Copyright Act (Articles 95-104) specifically regulates copyright in computer programs. These provisions are considered *lex specialis* with respect to the general provisions of Copyright Act, as *lex generalis*.[2] This means that the general provisons of the Copyright Act will apply to computer programs to the extent that Book I, Title VII does not contain any specific provisions.

Object of protection

Computer programs are specifically included in the non-exhaustive list of literary, artistic and scientific works protected by copyright, in Article 10.1(i). Computer programs are defined in Article 96 as "any sequence of instructions or indications destined to be used directly or indirectly in a computer system to performe a function or task or obtain a determined result, whatsoever its form of expression or fixation", and include their preparatory material. Computer Program copyright protection is also extended to technical documentation and user manuals. Only original computer programs benefit copyright protection[3]. According to Article 96.2 of the Copyright Act, the computer program needs to be the own intellectual creation of the author, which has led authors and judges to hold that the work must be new and bear, in some manner, the print of the author's persona (which, in computer programming, does not have to

[1] Official State Bulletin (BOE) Nº 97 of 22/April/1996. Last amended by Law 23/2006 of 7 July. While the name in Spanish is "Ley de Propiedad Intelectual", which confusingly seems to refer to the concept of Intellectual Property, a more correct translation of "Propiedad Intelectual" is Copyright (and neighbouring rights), and this is the name we are using.

[2] Copyright Act, Art. 95.

[3] Copyright Act, Art.10: "Are object o copyright any *original* literary, artistic or scientific works…"

be a high level at all)[4]. The ideas and principles behind computer programs including those which serve as the basis for its interfaces are explicitly denied copyright protection[5]. Malware such as computer viruses, is also excluded from protection.

Authors/Beneficiaries

The Copyright Act generally provides that copyrights in a work belong to the author, who is the person or group of persons who creates the work[6]. In respect of computer programs, Article 97.4 adds, however, that where computer programs are created by one or more employees in the execution of their duties or following the instructions given by their employer, the employer will be deemed to be the exclusive rightsholder of the economic rights in the computer programs so created, unless expressly provided otherwise[7]. In these circumstances, employee authors will maintain their moral rights over the work (see below), while the economic rights belong — by legislated automatic transmission of rights — to the employer[8].

The law also provides for works with multiple authors. Joint works (works that are the unique result of the collaborative efforts of a variety of persons) are the property of all the authors and the rights correspond to them as they may agree. In default, the rights are held equally. Each author may exploit his/her contribution to the work, provided this exploitation does not prejudice exploitation of the work as a whole[9].

The rights over a "collective work" — a program created by initiative and under the coordination of a person that edits and disseminates it (an "editor", basically), and consisting in the composition of several contributions (made for this purpose by different authors) which merge into a single and unique work — without being able to attribute ownership rights to one author in particular — belong to the editor, unless contractually provided otherwise[10].

Finally, the Copyright Act also establises the concept of a "composed" or "composite" work, being a work which incorporates one or more previously existing works without the colaboration of the prior author. Rights in the composed work belong to the person who performs such composition, without prejudice to the rights of (and the need for authorisation from) the prior author[11].

[4]Implementing Art. 1.3 of the EC Software Directive. Real Marquez, M: *The requirements of originality in Copyright*, UAIPIT, December 2001.

[5]Copyright Act, Art. 96.4.

[6]Copyright Act, Art.1 (also Arts. 2, 14 and 17 and for computer programs, Art. 97.1).

[7]Copyright Act, Art. 97.4.

[8]Castro Bonilla, A: "Autoría y Titularidad en el derecho de autor", http://www.informatica-juridica.com/ (last visited, 01.08.2010).

[9]Copyright Act, Arts. 7 and 97.3.

[10]Copyright Act, Arts. 8 and 97.2.

[11]Copyright Act, Art. 9.

Economic rights

According to Article 99 of the Copyright Act, the economic rights in computer programs comprise the exclusive rights to perform or authorise the performance of :

(a) permanent or temporary reproduction of a computer program by any means and in any form, in part or in whole (including when the acts of loading, executing, displaying, transmission and storage of the program require a reproduction);

(b) translation, adaptation, arrangement or alteration of a computer program, and the reproduction of any such transformed work; and

(c) any form of distribution to the public, including the rental, of the original computer program or copies thereof.

Article 99 does not mention the right of public communication (e.g. transmission of a program in intangible form via Internet), however as the other provisions of the Copyright Act apply in the absence of specific provision, it is understood that Article 20 of the Copyright Act grants the rightsholders the exclusive right to publicly communicate the computer program.

Exceptions to exclusive rights

Article 99, last paragraph, expressly provides that the first sale in the European Union of a copy of a program by the rightholder or with his consent shall exhaust the distribution right of that copy within the Community, with the exception of the right to control further rental of the program or a copy thereof. This is understood to apply only to tangible copies (i.e. programs on a CD or DVD, flashcard, etc.), as the distribution right is limited to the computer programs in tangible media.[12] And it does not exhaust the reprodution and transformation rights.

The other exceptions are set out in Article 100 of the Copyright Act:

(1) In the absence of specific contractual provisions, no authorisation by the rightholder is required for reproduction or transformation of a computer program that are necessary for its use by the lawful user in accordance with its intended purpose, including error correction.

(2) Reproduction by way of a back-up copy of a computer program by a person having a right to use it may not be prevented, insofar as that copy is necessary to use the program.

(3) A person having a right to use a copy of a computer program is entitled, without the authorisation of the rightholder, to observe, study or test the functioning of the program in order to determine the ideas and principles which underlie any element of the program, provided he/she does so while lawfully performing any of the acts of loading, displaying, running, transmitting or storing the program.

[12] Copyright Act, Art. 19.

This article basically restates the three exceptions of Article 5 of the Software Directive.

Articles 100.5-100.7 of the Copyright Act explain in detail the circumstances in which a legitimate user of a computer program may reproduce and/or translate a computer program without the prior authorisation of the rightsholder, in order to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs[13].

The Act expressly provides that these exceptions, except that set out in Article 100.1 (reproduction and transformation necessary for use) are compulsory law. Hence, contractual provisions to the contrary are deemed not to be valid. However, the exercise of these statutory rights is often difficult in practice because the licensee generally has no access to the source code of the application and it is not obvious to enforce this access legally.

Moral rights

The Copyright Act makes no mention of moral rights in relation to computer programs. These are regulated by Article 14 of the Act, which is understood to apply to computer programs like any other protected work[14]. These rights include the paternity right and the right to oppose modifications and applications which might affect the honor or reputation of the author[15]. These rights are inaliable and unwaivable[16], and remain in force following the death of the author.

[13]Copyright Act, Art. 100.5. The authorization of the rightholder shall not be required where reproduction of the code and translation of its form within the meaning of article 99, a) and b) are indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs, provided that the following conditions are met: a) the reproduction or translation is performed by a person having a right to use a copy of the program, or on his behalf by a person authorized to do so; b) the information necessary to achieve interoperability has not previously been readily and easily available to the person referred to in subparagraph a); c) the reproduction and the translation are confined to the parts of the original program which are necessary to achieve interoperability. Art. 100.6. The exception of the paragraph 5 above shall only apply provided information obtained in this manner: a) is only used to achieve the interoperability of the independently created computer program; b) is only communicated to third parties when necessary for the interoperability of the independently created computer program; c) is not be used to develop, produce or market a computer program that is substantially similar in its expression, or for any other acts which infringe copyright. Art. 100.7. The provisions of this article may not be interpreted in such a way as to allow its application to be used in a manner which unreasonably prejudices to rightholders legitimate interests or conflicts with a normal exploitation of the computer program. (unofficial translation by the author)

[14]In application of Article 6bis 1 of the Berner Convention. See also Preinfalk Lavagni, I: *El derecho moral del autor de programas infromáticos*, Tirant Monografías, 2010.

[15]The Copyright Act also contains the right moral right to make the work known to the public.

[16]Copyright Act, Art. 14, first line.

Term of protection

Article 98 of the Copyright Act provides that the same term of copyright applies to computer programs as for general protected works: 70 years following the 1st January after the death of the author. For juridical persons holding rights (employers or rightsholder in a collective work), the term is 70 years from the 1st January of the year after first legitimate public dissemination of the program (or its creation, if it is not published)[17].

Rights in a co-authored (joint) work last until 70 years after the death of the last co-author. As regards collective works, having a unique rightsholder (the editor), the copyrights last for 70 years after first legal publication of the work. However, if the natural authors are mentioned in the published versions, rights in the work have the same general term: life (or dissemination) plus 70 years.

Copyright assignment

Economic rights in computer programs may be transferred to third parties, *mortis causa* or *inter vivos*[18]. This is done by operation of law in the case of employee created works, as we have seen above. Otherwise, all *inter vivos* transfers must be formalised in writing (paper or electronic)[19]. The transfer of rights is limited to the specific rights, use, term and geographic scope stated in the contract/license. If the contract does not state these terms, transfers are deemed non-exclusive, for 5 years, for the country where the transfer is made, and only for the purposes that are necessarily deduced from the contract and necessary for fulfilling its purpose.

If there is no contract for the transfer of rights, no rights are transfered.[20] However, in the case of commissioned works (e.g. from consultant programmers), the commissioner will have a limited use right, limited in the same manner as above: having only such rights as are necessarily deduced from the circumstances of the engagement, and necessary for fulfilling its purpose[21]. In addition, depending on the degree of participation of the commissioning party (client) (e.g. providing the program design and detailed specifications), one could consider the resulting work to be either a collective work, for which the client is rights holder *ab initio* as editor of the work, or even a collaborative work in which the client is co-author.

[17] Copyright Act, Art. 98.2.

[18] Copyright Act, Arts. 42 and 43.

[19] Copyright Act, Art 45.

[20] See e.g. Galán Corona, "La protección jurídica del software", Noticias / CEE, Valencia, Ed CISS Nº73, Año VII, February 1991.

[21] See Ribas Alejandro, J: "Protección de los Programas de Ordenador", in Informática y Derecho, Merida, Ed. UNED, Nº 9, 10 and 11, 1996. Delgado Echevarría, J: *Comentario a la Sentencia del 12 de diciembre del 1988*, in CCJC, Madrid, Ed. Civitas Nº 18, sept-dic 1988. This is reinforced by Copyright Act, Art. 99, last paragraph, applied by analogy, which states that unless otherwise stated, the transfer of a use right in the software is deemed non-exclusive, non-transferable and only to satisfy the needs of the user.

Transfers of rights can be exclusive or non-exclusive. There is no such concept as "assignment" or "sale" of all the rights or copyright property to a third party (this is contradictory to the concept of moral rights)[22]. The closest transfer to an "assignment" is an irrevocable, exclusive transfer or license of all the rights, for all purposes, for all the duration of the rights and all the countries of the world.

Exclusive transfers must be expressly stated as such, and may be for one, several or all the copyright rights. The exclusive licensee may grant non-exclusive licences to third parties, and also has legal standing to defend the rights in court, independently from the original rightsholder. The exclusive licensee must also exploit the work, or lose its license.

The Copyright Act establishes specifically that, unless proof is provided to the contrary, the granting of any use license will be considered non-exclusive and non-transferable, only for the purpose of satisfying the needs of the user[23]. Non-exclusive rights may not be onwards-transfered, nor sub-licensed.

Copyright transfers may be royalty bearing or for free. This issue is independent of the rights that are granted. Payments may be one-off, or a proportional participation in the profits of exploitation of the work (royalties)[24].

Copyright enforcement

Article 102 of the Copyright Act establishes the terms of breach of copyright: the unauthorised performance of any exclusive rights (reproduction, transformation, distribution, public communication), and in particular:

(a) the commercialisation (putting into circulation) of any copies of a program which the marketer knows or could be deemed to know are illegal

(b) the possession for commercial purposes of any such copies

(c) the commercialisation or possession for commercial purposes of tools which are exclusively aimed at facilitating the unlawful removal or avoidance of technical means which protect the computer program (TPMs)[25].

This latter provision (Article 102(c)) is specifically aimed at protecting DRM and technical protection measures, and it was not considered necessary to change these provision in 2004 or 2006 to implement the EU Copyright Directives. Criminal law also penalises any copyright infringement for commercial purposes ("for profit" motive), with specific emphasis on removing TPMs[26].

[22] Ródriguez Tapia (Ed), *Comentarios a la Ley de Propiedad Intelectual*, "La Cesión".
[23] Copyright Act, Art. 99 last paragraph.
[24] Copyright Act, Art. 44.
[25] In line with the Software Directive.
[26] Spanish Penal Code, Art. 270. Note that the technical protection measures do not have to be "effective".

Unprotected software and public domain software

As set forth above, only software that is original in the sense that it is an intellectual creation of the author benefits copyright protection. Non-original software does not come into consideration for copyright protection and can, in principle, be used freely. Due to the functional nature of many programs, the degree of originality for software is not considered to have to be particularly high, and basically a subjective criteria: of being the result of personal effort that is not copied from another work, is sufficient[27].

Under Spanish law, public domain is limited to works for which the copyrights have expired[28]. This software — if there is any today! — can be used, reproduced or executed freely, without permission or the payment of a fee. It can in certain cases even be presented by third parties as their own work, and by modifying the original work, third parties can take certain versions of the public domain software out of the public domain again.

FOSS under Spanish law

From a conceptual and legal point of view, FOSS is like any other computer program, and benefits from the protection granted by copyright law. Spanish copyright law fully supports the rights of the copyright holder (usually the author) to establish determined conditions in the software license, having the exclusive right to exercise or authorise the exercise of the rights of reproduction, transformation and distribution (and public communication). So, save for public policy prohibitions, a rightsholder is free to choose the conditions under which he or she licenses a computer program to third parties.

Under Spanish law, FOSS would be considered as software to which users generally have more rights, via the FOSS license agreement, than they would have with a proprietary or "non-free" software license[29]. And, like any other software license, the FOSS license conditions must be respected by the licensee (user), or the license permissions may be revoked.

Copyright issues

Multiple authorship

Although FOSS can be written by one person or be owned by one legal entity[30], generally speaking, after some time it is extended, improved, corrected and gen-

[27] Rodríguez Tapia, "Artículo 10 TRLPI", in *Comentarios a la Ley de Propiedad Intelectual*, op cit, p. 56.

[28] Copyright Act, Art. 41.

[29] Nonius, J. (2002). *Introducción a las licencias de software libre.* Online now at http://campusvirtual.unex.es/cala/epistemowikia/images/d/d2/Introducci%C3%B3n_a_la_propiedad_intelectual_%28por_Jorge_Nonius%2C_20_de_abril_de_2002%29.pdf (last visited 10.02.2011).

[30] Such as software developed by employees (Copyright Act, Art. 96), and software developed for hire under a contractual transfer of copyrights.

erally transformed, becoming the result of the work of several authors who can make claims to it. The question is whether later additions create a collaborative work (a work created by collaborating authors), or whether the original software is the work and every contribution created during the further development of the software, a derivative or composed work. The legal consequences are different.

Qualification of FOSS

For FOSS to be a work created by means of a collaborative process, i.e. to be considered a "collaborative work" of co-authors, it is not necessary for every co-author to have contributed equally[31] (rarely the case), nor are co-authors required to work on it at the same time (in most cases, not the case) although to be considered an author the contributor must intervene during the creative process (i.e not a tester or non-substantial bug-fixer). However, to be a co-author, the contribution needs to be worthy of protection by copyright. The provider of an idea is not a co-author, nor is the person who corrects a technical error or merely follows instructions[32].

Whereas the first version of a software program, if written by several people, can in many cases be qualified as a collaborative work (co-authorship), this seems much less the case for the later versions, which are based on the original work without, however, there being any "consultation" or direct collaboration between the authors. These later versions would be qualified as "derivative works", or possibly collective works (if the author/editor of the new version collated a series of different programs to form a distinct new software based on the original). Therefore, in terms of the legal consequences, a distinction needs to be made between the rights of the original co-authors and the rights of subsequent authors who carry out work based on the original.

Rights of the original co-authors

Co-authorship usually concerns the creation of a single "unique" work that is more than the collection of its component parts[33]. The contributions may be indivisible, i.e. each individual contribution is not clearly identifiable, e.g. when two authors write a text together. But it is not necessarily the case: under Spanish law there may be co-authorship even when the several components are distinguishable, but brought together in a single work in which all the authors are involved — what one may call "horizontal" collaboration[34].

As we have seen above, in the case of collaborative works, the authors are free to regulate the exercise of the copyrights by agreement. Co-authors can agree how the program is made public (e.g. under a FOSS license) and how decisions

[31] Carrasco Perrera, A, *Comentario al Artículo 7 TRPLI*, en Bercovitz Rodríguez Cano, R (Coordinador) *Comentarios a la ley de propiedad Intelectual*, op cit, p. 124.

[32] Case 24th July 1995, Audiencia Provincial de Valencia (Civil).

[33] Bercovitz Rodriguez Cano, R: *Comentarios a la Ley de Propiedad Intelectual*, 3rd Ed, 2007, p.114 ss.

[34] Case 17th December 1998, Audiencia Provincial of Asturias, Section 5 (Civil).

regarding the copyrights are made, e.g. by normal or special majorities, or give one of them the right to make all decisions regarding this work. They can also reach an agreement as to the economic rights, such as royalty payments, and moral rights e.g. under whose name the work will be published[35].

If the co-authors have not reached an agreement, neither of the authors is allowed to exercise the copyright separately, however each may exploit his/her own contribution separately if this exploitation does not prejudice exploitation of the work as a whole. So if a programmer wishes to use his or her contribution in another manner, this will be possible, provided this does not create, for example, a competing product. In the absence of agreement, unanimity is required for decisions, and in the absence of unanimity the court decides, and the court will decide according to the provisions of the Civil Code in relation joint properties[36] (which usually means a majority rule, and by default contributions are deemed equal unless proof to the contrary is provided). The court will also weigh different factors to be taken into account, including good faith, the degree of collaboration, the degree of substitution of the different contributions, etc.[37]

As each author has the right to exploit his/her contribution, it is clear that he/she may, in his/her name and without intervention of the other authors, institute legal proceedings for an infringement of copyright in the work, and in her contribution. This is clear in so far as such proceedings are for an injunction to end the infringement[38]. What is not so clear is the right to individual compensation and it is thought that for these cases, the consent of the co-authors is required (see above). However, in some cases the lack of unanimity may result in the inadmissibility of this claim, e.g. if heirs of a programmer are unable to agree as to whether to institute a claim[39].

Authors of derivative / composed FOSS works

After some time FOSS will, in most cases, be a derivative work of the original or a composed work which includes it. Derivative works and composed works are works which reproduce parts or characteristics of the original work, and in which the new authors bring an original contribution (thus creating a new work) by way of transformation or composition of the orignal. The author(s) of the derivative or composed work hold independent and full copyright rights in the new work. They are, however, restricted because the derivative or composed work cannot be exploited without the consent of the holder of the copyright on the original work. Under FOSS licenses this consent is not a problem, subject to respecting the terms and conditions (e.g. regarding further distribution of the derivative work)[40]. This issue gives rise to certain difficulties as it is not

[35] Bercovitz Rodriguez Cano, R: op cit, p. 136 ss.
[36] "Comunidades de bien", Spanish Civil Code, Arts. 392 ss.
[37] Bercovitz Rodriguez Cano, R: op cit, p. 134 ss.
[38] Copyright Act, Art. 4, al. 2.
[39] J. Miquel, in Bercovitz Rodriguez Cano, op cit, pp. 139-140.
[40] The copyright holders on the original work don't obtain any rights in the derivative work.

always clear if the use of the previous work is by way of mere reproduction (or compilation into a new work), or by transformation of the previous work — depending on the FOSS licenses, different conditions may apply. This may be key to understanding the impact of copyleft obligations in the GPL (v2 or v3).

The management of copyrights in FOSS — transfers?

In order to manage copyrights in FOSS better, it may be useful to collect all copyrights concerning a FOSS project within one person or organisation. The existence of this organisation will simplify the management and enforcement of the (eventually joint) copyrights[41]. The collective management of copyrights is perfectly possible under Spanish law, and is usually, but not necessarily, regulated by an exclusive license or transfer of copyrights to the person or organisation in question. As an alternative, the rightsholders may authorise an organisation to take legal action in respect of their work — as a fiduciary, the party to whom the legitimation is granted shall not act for himself but on account of others who have so authorised him/her (being the current rightsholders)[42].

Moral copyrights

Generally speaking, FOSS originated in the United States, and FOSS licensing tends to attach less importance to the question of moral rights of the author[43], however it must be noted that one common factor among all FOSS licenses is the obligation to maintain attribution to the original authors, and indicate any modifications — a contractual form of guaranteeing certain moral rights (paternity and integrity).

The Open Source Definition specifies that the author of software distributed under a FOSS license cannot oppose the use of the software by certain people and groups[44] or for certain areas of application[45]. This runs contrary to the moral rights of an author with respect to the uses to be made of his/her work. It is clear under Spanish law that an author is not able to give up his/her moral

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They can however, restrict or stop the exploitation of the derivative work (Art 9, Copyright Act).

[41] FSFE (Free Software Foundation Europe) recommends that developers of Free Software projects use its Fiduciary License Agreement (FLA) to assign their rights to a fiduciary (preferably the FSFE). For an analysis of the FLA also under Belgian law, see Y., VAN DEN BRANDE, "The Fiduciary Licence Agreement: Appointing legal guardians for Free Software Projects", IFOSS L. Rev., Vol 1, Issue 1, p. 9.

[42] An analogy is the right of collecting societies to take action in respect of the rights they manage.

[43] Creative Commons tried to solve the moral rights issue when transposing the — original American — licenses to local law. Xalabarder Plantada, R: *Las licencias Creative Commons: ¿una alternativa al copyright?*; UOC Papers. N.º 2. UOC. http://www.uoc.edu/uocpapers/2/dt/esp/xalabarder.pdf (last visited 10.02.2011).

[44] OSD Clause 5.

[45] OSD Clausule 6. Bruce Perens indicates, e.g., that an author of FOSS cannot provide a clause that prohibits the use of the software by regimes such as the former South African apartheids regime (B., PERENS, "The FOSS Definition", http://perens.com/OSD.html).

rights in his/her work[46]: any waiver to exercise in the future one's moral rights is void, including moral rights on software[47]. The author of a work distributed under the FOSS license should theoretically therefore be able to oppose any use of his/her work by people or groups or for certain purposes which affect his honour or reputation, based on his/her moral rights.

Moral rights are also carried through to derivative works: the author of the original work will therefore, based on his/her moral rights, not only be able to oppose the use by third parties of his work, but also the use of derivative works which affect his/her honour or reputation.

Enforcing FOSS licenses

The question whether a FOSS license can be enforced under the Spanish legal system depends on whether a valid license has been granted. The essential questions are: (i) between whom is a license reached, (ii) has the license been validly reached and (iii) what are its terms?

Another dimension to this debate is whether a FOSS license can only be considered a contract (requiring formalisation as such: an offer and its acceptance, being a manifestation of consent to be bound by the terms, often absent in FOSS practice), or seen as merely conditions to an authorisation or form of donation (donation not of the software, but of the non-exclusive rights to use them). Doctrine in Spain generally holds that copyright licenses are contracts[48], although there may be scope in Spanish law for arguing against the need to prove the requisites of a contract, and merely defend the instrument as establishing the conditions to be applied to the authorisation to use the software (breach of which gives rise to a mere breach of copyrights).

Note however that it will not be in the interest of the licensee to prove that a license has not been granted (whether by contract or otherwise), as by default the law provides that third parties may not exercise any exploitation rights without due authorisation (or eventually, if a license can be deemed, the licensee's use rights are de minimis use rights provided by law: those necessary for fulfilling the purpose of a contract). So from a licensee's point of view, there is no point in attacking the existence of the license, but, should there be any conflict, rather the validity and scope/interpretation of the terms.

License parties

[46] See above, section_title.

[47] As an example, the Fiduciary License Agreemet of FSFE expressly stipulates that it leaves the moral and/or personal rights of the author unaffected (FLA §1 (2)).

[48] Rodríguez Tapía, JM, in Rodríguez Tapía, op cit, *Comentarios*, p. 407 and Gete Alonso y Carrera, Mª del Carmen, in Bercovitz Rodríguez Cano, op cit, p. 765. This is based on both the wording of the Copyright Act as to licenses ("cesiones", in Articles 42-50), and the Spanish Civil Code as to obligations — license conditions being seen as obligations imposed on the licensee by the rightsholder.

If a rightsholder makes his/her work available under a FOSS license, the answer as to parties is usually clear: the license is reached between the rightsholder and the licensee. In case of several co-authors, the situation may be more complicated, and the question as to with whom the licensee reaches a contract depends on the mutual agreement between the co-authors[49].

Often, a FOSS program will be the work of several authors who did not work in joint collaboration. After all, FOSS is usually created via a chain of authors who all contribute to the creation of the program that is, in the end, licensed to the user/licensee. In so far as each new author makes an original contribution to the work, a derivative work is produced[50]. The licensee of the eventual work will need to have the consent of every author in the chain who made an original contribution to the final work, starting with the author of the first work or version. This consent can be direct, or indirect by giving consent in the FOSS license to the next author to modify and distribute the work (verbatim or as modified).

Insofar as an "editor" (such as Red Hat or Novell) collates different FOSS works into a new package, a collective work may be created, and the licensee will have a license from, and need the consent of, the editor — who in turn will have to manage the upstream licenses.

Most FOSS licenses solve this by creating binding conditions between the licensee and all authors in the chain. GPL version 3, for instance, contains the following clause: "Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License"[51] and GPL version 2: "each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor"[52].

In this way the user of the software obtains a license of all authors in the chain. This chain of licenses is valid under Spanish law, and it is argued that it must be this way, as non-exclusive licensees (the intermediate creators, in the chain) are not entitled to relicense or sublicense the original work.

Validity of the license — as a contract or otherwise

Contracts in Spanish law require an offer and acceptance of the offer by way of a manifestation of a consent to be bound by the terms of the offer[53]. Conventional IT agreements are reached by the explicit acceptance of the terms and conditions by the licensee through signing the terms and conditions, by opening the packaging, by clicking or selecting an "I agree" button, or indeed by any

[49] See above on "Authors/Beneficiaries".

[50] See above, "Authors of derivative / composed FOSS works".

[51] GNU GENERAL PUBLIC LICENSE (GPL) version 3, article 10, http://www.gnu.org/copyleft/gpl.html.

[52] GNU GENERAL PUBLIC LICENSE (GPL) version 2, article 6, http://www.gnu.org/licenses/old-licenses/gpl-2.0.html.

[53] Spanish Civil Code, Arts. 1254 ss.

other action from which acceptance can be deduced. These methods to reach a licensing agreement have been sufficiently tried and tested and, at least between commercial parties, are generally considered to be valid[54].

Typically, in a FOSS environment, however, software is made available with the simple specification on a website ("licensed under the GPLv2 license") or in the source code of the software itself (in the code file header and with luck, in a "COPYING.txt" file or a `/legal/` folder). The license is not usually required to be explicitly accepted, nor are the terms presented to the licensee/user. Having to click and confirm every time could in some cases interfere with the use of the software[55]. In addition, the Open Source Definition opposes demanding explicit agreement to the license conditions with the aim of confirming the agreement between licensor and licensee[56].

The question is double: whether in these cases a valid license has been entered into, and what are the applicable terms. The answer to the first question must be affirmative. The reason is that the user of a copyright protected work needs to be able to indicate the grounds on which he/she is authorised to use the work. As we have seen, using software without the rightsholder's consent implies a copyright infringement. This implies that everyone who wants to use software which they find via the internet, needs to actively look for a license. If the user cannot prove he/she has a license[57], he/she must refrain from using it.

The trouble is that, without having had an opportunity to review the terms and thus consent to them (and, sometimes in the case of FOSS, the rightsholder not properly indicating the applicable terms, if any, other than stating that the software is "free software"), the licensee may be in a position to argue that certain terms are not applicable or part of the agreement. Against this, the licensor would generally argue that, in the absence of proof to the contrary, the FOSS license conditions are the only terms under which he or she licenses the FOSS, and thus if the user now disagrees to any of the terms, then the licensor has granted no license to the licensee and any use of the software is thus a breach of copyright. Furthermore, Spanish courts would look, in the professional sector, at the uses and customs in the sector, to determine if sufficient opportunity was granted to read and accept the terms, and it is now fairly well established that free software licensing terms are available to be read in the source code or on the project website, and most software developers know and apply this custom. Accordingly, as regards professional developers who are FOSS licensees, it would

[54] Aurelio López-Tarruella Martínez: *Contratos internacionales de software*, Editorial Tirant Lo Blanch. Barriuso Ruiz, C: *La Contratación Electrónica*, Dykinson 1998, p. 161. RUIZ PERIS, (Dir.): *Oferta, perfección y prueba del contrato electrónico*, in "Nuevas formas contractuales y el incremento del endeudamiento familiar", Madrid: Consejo General del Poder Judicial, 2004, pp. 215-242.

[55] This created signficant debate within the Debian community when Mozilla Foundation required acceptance of the Firefox/Thunderbird end user license as part of the installation process, and thus led to the creation of a fork, Iceweasel.

[56] OSD Criteria 10, online at http://opensource.org/docs/osd.

[57] Unless a legal exception applies.

be very difficult to argue that there was no binding license between the parties, or that the terms are unknown[58].

As we have noted above, it is doubtful whether any user would benefit from disputing the existence of a FOSS license (except with regard to disclaimers, for which see below). If the user disputes the conclusion or validity of the FOSS license, this implies that no legally valid copyright license was granted and the user therefore is not allowed to use the software at all.

Violation of license conditions

Breach of a FOSS license by a user/licensee could constitute a double infringement in Spain: contractual breach of binding license obligations, and breach of copyrights of the rightsholder. The rightsholder may take action in civil courts under both claims (and due to the possibility of arguing against the existence or need for a contract, it would be recommended to sue on both grounds). In addition, breach of copyright provides several interesting remedies[59].

Disclaimers and liability

Typically, FOSS licenses contain very strong disclaimer clauses, which attempt to discharge the author from all liability[60]. The argument given for this is that FOSS is often made available without a fee, as a result of which the author/rightsholder generates insufficient income to pay for liability insurance and legal costs[61].

Although this reasoning is certainly valid for the amateur programmer, it applies much less for professional programmers who build their business model around FOSS[62]. To cover the eventuality of being held liable for a warranty of

[58]They may be some doubt as to certainty, as the FOSS licenses are in English, however it is also a use and custom of the sector that most technical documentation is in English, thus a court may accept that use of English language for the license is acceptable. This would not apply to consumer licensees.

[59]See section_title below.

[60]See e.g., the BSD license (http://www.opensource.org/licenses/bsd-license): THIS SOFTWARE IS PROVIDED BY <copyright holder> "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL <copyright holder> BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

[61]B., PERENS, "The Open Source Definition", *Open Sources: Voices from the Open Source Revolution*, http://perens.com/OSD.html (last visited 10.02.2011).

[62]See e.g., M., OLSON, "Dual Licensing", in *Open Sources 2.0: The Continuing Evolution* (Ed. C., DiBona, D., Cooper and M., Stone), O'Reilly, 2006, p. 35.

title or quality, professional suppliers of FOSS or related services often provide guarantees and technical support[63].

Article 1902 of the Spanish Civil Code provides for strict liability and indemnities for wilful misconduct ("culpa") or negligence ("negligencia") in an extra-contractaul context (i.e. tort, including breach of copyrights), as does Article 1101 for contractual liability. Damages for wilful misconduct may not be excluded at all, and those caused by negligence are subject to review by the courts. Liability under these provisions would apply both in the context of any problem with relation to title (copyright in the code) or quality of the software. In addition, with respect to quality, suppliers in a commercial relationship are liable to repair damages caused by hidden defects (Articles 1461 and 1484 Civil Code).

More specifically as regards title, although in Spanish law there is no such concept as a "warranty of title", it is implicit that a licensor must have sufficient rights to be able to grant a FOSS license — in absence of which, the supplier will not only be in breach of the third party's copyright (and thus, in breach of the obligation to ensure the licensee's right of quite enjoyment[64]) but also liable under the aforementioned provisions relating to fraud or negligence.

However, between professionals, the law allows parties to regulate liability (except for fraud, and even negligence may not be wholely excluded), for example limiting damages to the price paid for software or establishing a process for maintenance and bug correction. In all circumstances, the courts will look at the balance of rights and obligations between the parties, in which case for FOSS significant weight may be given to the free (gratis) nature of FOSS, as well as the wide scope of rights granted to the licensee, as a balance against the wide disclaimers.

It is doubtful whether the exoneration clauses or disclaimers contained in FOSS licenses comply in full with the general validity requirements under Spanish law, especially in relation to a consumer licensee. These requirements include that the clauses are not against the principle of good faith, do not upset the balance of obligations and rights between the parties, and are not subject to the unilateral discretion of one party (the licensor). Thus it will depend on each circumstance whether the disclaimer clauses will be seen as valid or not: the drafting of the clause, the balance of the parties, the knowledge and experience of the licensee, etc. When the disclaimer does not include the now-standard expression "to the extent permitted by mandatory applicable law" (as in the BSD or MIT License), the clause may be struck out as invalid, in part or in whole, as contradictory to the aforementioned provisions of the Civil Code (if not also consumer protection laws, see below). It is also important to look at how the licensor presents the product (differentiating, for example, system libraries or components, such as MySQL, and end-user products such as Firefox or the GIMP). For a product

[63]The GNU General Public License expressly allows this (GPL v. 2, art. 11; GPL v. 3, art. 7).

[64]"Goce pacífico" by analogy with rental agreements, under Spanish Civil Code, Article 1552.

that is presented as finished and ready for use, the exoneration clause will be considered invalid much more easily, than for a product for which the licensor clearly formulated a reservation[65].

In so far as the aforementioned conditions have been complied with, exoneration provisions will be enforceable in principle, unless the stipulating party could be considered as a professional seller in a relationship with a consumer purchaser[66]. As mentioned above, professional sellers are required to repair hidden defects in the products they sell, except if the purchaser is a specialist in the sector, under Article 1484 of the Spanish Civil Code. Contractual provisions may modify this, if they are validly incorporated in the contract and not invalidated for other reasons (see above, and in particular by consumer protection laws). If the hidden defects are known, and this state is not declared to the purchaser, then the supplier will be liable not only to repair the defect but also for damages and interest[67]. The professional seller of FOSS may therefore be liable in principle, unless he can provide proof of his ignorance of the bugs/mistakes. In practice while this proof will be hard to provide (through due diligence in testing, programming process and methodology, etc), take into account that it is generally accepted that software is buggy and virtually impossible to make perfectly.

Finally, these disclaimers will usually be held invalid with respect to consumer users, both due to the scope of the disclaimers (being deemed abusive[68]) and due to the fact that a consumer in Spain would not be expected to be able to understand a disclaimer in English (the language of most FOSS licenses) and thus held not to be incorporated in the consumer contract. On the other hand, it could be argued that as there is no commercial relationship between the parties (and thus, the licensor is not a "seller" of a product), then consumer protection law may not apply to the full extent[69]. This argument is reinforced by the free (gratis) nature of most FOSS.

The copyleft principle

Principle

A characteristic found in several (but not all[70]) FOSS licenses is the so-called "copyleft" principle. Copyleft FOSS licenses, in return for the use rights that are granted, require anyone who redistributes the copylefted software or any derivative works of it to third parties, to do so under the same license conditions[71].

[65] To this extent, the EUPL establishes that the work is "in development" and not finished.

[66] Many FOSS projects would not be seen as "sellers".

[67] Spanish Civil Code, Art. 1486.

[68] RDL 1/2007 on Consumer Protection, Arts. 82 et seq.

[69] RDL 1/2007 on Consumer Protection, Art. 114 et seq, and in particular Art. 115.

[70] Neither the principles (freedoms) of the Free Software movement, nor the Open Source Definition mandate the copyleft clause. Several FOSS licenses don't contain a copyleft clause. Examples of permissive (non copyleft) licenses are the modified Berkeley Software Distribution (BSD) license and the Apache 2.0 license.

[71] E.g., GPL version 3, Art. 5 stipulates: "You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore

Thus, usually it would not be legally possible to incorporate and redistribute copyright protected parts of copylefted software in a proprietary licensed work.

It has been argued that this copyleft principle can restrict the commercial use possibilities of the software[72]. Warnings have also been issued regarding the dangers that companies may run if a negligent or vindictive employee were to incorporate a piece of copyleft code in a proprietary software program. In theory this could mean that the company would be obliged to make its proprietary software available under a copyleft FOSS license or remove it from the market. Although caution is necessary, one can ask whether these "worst-case scenarios" are realistic under Spanish law. The sanction for incorporating copyleft code in proprietary software and distributing this under a closed or proprietary license will usually be restricted to (a) a prohibition to distribute the software whose license has been breached or (b) the obligation to remove this piece of code from the program. In addition, if the unlawful use has caused damage to the author, this damage will need to be reimbursed, but not more than the damage actually suffered (e.g. indemnities to the original copyright holder)[73]. But in all events it is unlikely the owner of the proprietary software would be obliged to release all its code under the copyleft FOSS license.

Validity of copyleft obligations

The question relating to the validity of the copyleft clause coincides with the question whether a rightsholder is able to validly establish the conditions under which derivative or composite works must be distributed. The answer to this question is affirmative: while the righsholder of the original work does not hold any copyright in the derivative work, he or she is entitled to determine the conditions for the creation and redistribution of a derivative work of his/her original work[74]. A derivative work can therefore only be exploited subject to the consent of the copyright owner of the original work[75].

As copyright holder, an author is thus able to authorise the use of his/her work for a particular use, and link certain conditions to this. This right to determine the destined use or conditions of use of a work is clearly stated in the Copyright Act, in Article 43[76]. The rightsholder can therefore impose the

apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it". GPL version 2, Art. 2 b stipulates: "You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License".

[72] See e.g., M., OLSON, "Dual Licensing", in *Open Sources 2.0: The Continuing Evolution* (Ed. C., DiBona, D., Cooper and M., Stone), O'Reilly, 2006.

[73] See "Damages" below.

[74] Copyright Act, Article 99.b.

[75] Bercovitz Rodríguez Cano, op cit, pp. 1349 et seq.

[76] Copyright Act, Article 43: "licenses are limited to the right or rights expressly granted, the modes of use expressly provided and the time and territory which are determined". To be read in line with Article 1.255 of the Spanish Civil Code regarding the autonomy of contracting

copyleft condition based on these rights.

All rights are subject to control against abuse, including copyright: contractual conditions must comply with mandatorily applicable laws (such as consumer protection, data privacy, etc.) morality and public order. An author cannot therefore randomly exercise his/her economic and moral rights. However, exercising his/her copyrights (by determining the conditions of exploitation) cannot be considered as an abuse of rights "as such": only in exceptional cases will an author who invokes his/her copyrights be guilty of an abuse of rights[77]. We consider that licensing a work under a copyleft restriction will in principle not constitute an abuse of right, because the author, in general, will be able to prove a legitimate moral or tangible interest (and indeed a public interest to maintain the code in the "commons"). A legitimate moral interest could be that of wanting to keep the work within the FOSS community, including in modified form.

It is argued that the copyleft provisions may only affect works to which the rightsholder is granted rights to control: the original work, derivative works, and composite works incorporating the original work. Copyright rights are not granted with respect of independent works not included in this list, and it may be considered an abuse of (copyright) rights trying to extend those conditions or provisions beyond that which the Copyright Law has permitted the author to control. Including for example, works in the public domain, works not protected by copyright, and independent works e.g. stored on the same carrier as the licensed work[78].

However there is also an argument that, the license being considered a contract, the licensee may be bound by whatever (legally valid) conditions are imposed in the license, even outside the scope of copyright law and including as to "non-derivative/composite/collective" works. This is subject to limitations, of course. Competition law, for example, would prohibit certain forms of product bundling or restrictions on legitimate uses[79], and consumer protection law would prohibit restrictions imposing conditions on certain forms of claims for redress or indemnities.

In addition, it has been argued that copyleft restrictions may run contrary to the exhaustion principle (with regard to the distribution right). However, the Copyright Act specifies: "The first sale in the European Union of a copy of a program by the copyright owner or with his consent results in the exhaustion of the right to control the distribution of that copy in the European Union, with the exception of the right to control the further leasing and lending out of

parties to determine the conditions of contract, subject to other laws, morality and public order.

[77]Spanish Civil Code, Article 1.255. See Mª del Carmen Gente-Alonso, in Bercovitz Rodríguez Cano (Ed), "Comentarios" op cit, p. 772.

[78]Note that the Open Source Definition prohibits this under criteria 9.

[79]Ley 15/2007 de 3 de julio de Defensa de Competencia (e.g. Art. 2.2.e, on bundling in certain conditions)

the program or a copy thereof."[80] Note that his "exhaustion" only applies to controlling the tangible copy which has been lawfully released in the European market. This does not affect the right of the author to lay down certain conditions regarding the use of the (intangible) work on that copy. The conditions of use established in the license on this work "run" with the tangible copy, as the sole authorisation to exploit the intangible work on that copy.

FOSS cases in Spain

While there have been several cases regarding the use of free content (specifically within the context of paying collecting societies' levies, or not, and the burden of proof[81]), there have been no cases regarding free and/or open source software. The judicial consideration of "copyleft" as a concept within the aforementioned free content cases is interesting, showing an increasing awareness of judges with respect to FOSS licensing models.

Legal procedures

Legal action

With regard to the enforcement of copyrights in Spain, Articles 138-140 of the Copyright Act provide for a broad range of actions, in line with the EC IPR Enforement Directive 2004/48/EC. These actions include:

a) Preliminary measures including (i) seizure of both infringing software/goods and devices, (ii) embargo of bank accounts where profits may have been deposited, and (iii) suspension of non-authorised activities

b) Injunctions to (i) cease and desist from the illicit activity, (ii) remove from the market any infringing articles, (iii) destroy any illict software and devices, and (iv) suspend ISP services used infringing IPR rights.

c) Damages and interest (see below)

Legitimation for taking action is vested in the copyright holder or an exclusive licensee of the infringed copyright (i.e. either or both may take action). Non-exclusive licensees may not, however a third party (e.g. a fiduciary) may be authorised by a copyright holder to take action on his/her behalf. Only authors may claim for breach of moral rights.

Proceedings are taken before the Civil Courts, in accordance with the standard procedures of the Civil Procedure[82]. While the principles of international private law applicable to software (applicable in Spain as in any other EU jurisdiction) may complicate the question as to where a case may be brought, Spanish courts

[80] Copyright Act, Art. 99 in fin. See also Software Directive, Art. 4, c.

[81] E.g. Decisions of 21st February and 8th May 2008, Audiencia Provincial de Madrid, or Decision 28th of July 2009, A.P. Guipúzcoa.

[82] Law 1/2000, 7th January 2000.

follow EU Regulations in the matter (Brussels and Rome I and II Regulations[83]). Depending on the cause of action taken (IPR breach, contractual breach) and the nature and domiciles of the parties, the courts and applicable law may vary.

Criminal law also sanctions copyright breaches for commercial (profit) purposes[84], providing jail sentences up to two years and/or equivalent fines (12-24 months) for those who, for profit and in prejudice to a third party, reproduce, distribute or publically communicate a work or its derivative, in any media, without the corresponding authorisation from the rightsholder. The same sanction is given to those who would import, export or stock copies of works without authorisation, and those who manufacture, import or deal in any device specifically aimed to supress or neutralise technological protection measures applied to protect software or other protected works.

Damages

Damage caused by copyright violations are compensated under Spanish law in accordance with the Articles 138 and 140 Copyright Act, and generally applicable principles of law relating to unlawful acts (extracontractual infringements) and breaches of contract[85]. According to the specific provisions of Article 140 of the Copyright Act, an injured party of a copyright breach may request compensation for the loss actually suffered and profits that were not gained. This can be calculated as either a) the negative economic consequences (including loss of profit / profits made by the infringer) or b) the amount the licensor would have received had the infringer asked for consent to use the protected work in the infringing manner[86]. Dual damages, triple damages or other forms of punitive or special damages are not awarded under Spanish law. Costs spent on tracing and prosecuting infringements may also be compensated[87] and authors, when involved may also claim for breach of moral rights, giving rise to further damages.

Infringements of software copyrights follow the same regime as infringements of every other copyright[88]. The aforementioned principle is therefore applicable in the case of copyright infringements of software. Infringements of copyright protected software distributed under a FOSS license would be sanctioned in the same manner (including provisional and precautionary measures such as seizure of infringing works, interlocutory injunctions, etc.). In no way whatsoever has the author given up his/her rights.

It is yet to be seen whether the argument that, having given up rights to royalties

[83] "Brussels Regulation" Reg. (EC) No. 44/2001 on Jurisdictional Competency, and "Rome I adn II Regulations", Reg. (EC) No. 593/2008 and Reg. (EC) No. 864/2007 respectively.

[84] Spanish Criminal Code, Fundamental Law 10/1995, as amended, Articles 270-272.

[85] Article 1902 of the Spanish Civil Code for breach of non-contractual obligations (negligence, wilful misconduct) and 1101 for contractual obligations.

[86] This is in line with Arts. 13 and 14, IPR Enforcement Directive 2004/48/EC.

[87] Copyright Act, Art. 140.1.

[88] Copyright Act, Art. 103.

in the FOSS license, the licensor's right to damages would be limited, is correct. We would differ. Besides establishing his/her reputation and recognition, an author can have other reasons to make a work "freely" available[89]. The author may also have a direct monetary advantage from the free distribution of his work. The simplest way is circulating the free works with advertising. Another way is providing specific services relating to the work. The free circulation of the work ensures the work has many users. The author generates his/her income from the provision of support and consulting services, licensing "proprietary" add-ons[90], or so-called "dual licensing" the code. This model uses — as the name indicates — two different licenses for distribution of the software. The first license is often a FOSS copyleft license and ensures the work is circulated quickly and has a wide range of users. A second license (without the copyleft obligations) can then be obtained against payment by interested parties who want to use the work without their own additions or modifications being affected by copyleft[91].

Recommended literature

General literature on copyright law

- Rodrigo Bercovitz Rodríguez-Cano (Ed): "Comentarios a la Ley de Propiedad Intelectual", (3rd Edition, 2007), Tecnos, Madrid.
- Rodrigo Bercovitz Rodríguez-Cano et al., "Manual de Propiedad Intelectual", Tirant lo Blanch, Valencia.
- José Manuel Rodríguez Tapia et al., "Comentarios a la Ley de Propiedad Intelectual", Aranzadi, Navarra 2007.
- Alejandra Castro Bonilla, AUTORÍA Y TITULARIDAD EN EL DERECHO DE AUTOR, http://www.informatica-juridica.com, last visited 10.08.2010.

[89] See e.g. C., DIBONA, D., COOPER and M., STONE, "Introduction", in *Open Sources 2.0: The Continuing Evolution* (Ed. C., DiBona, D., Cooper and M., Stone), O'Reilly, 2006.

[90] Extensions or additions to the free work to which the author reserves all rights, and which can only be used against payment.

[91] See e.g. M., OLSON, "Dual Licensing", in *Open Sources 2.0: The Continuing Evolution* (Ed. C., DiBona, D., Cooper and M., Stone), O'Reilly, 2006, p. 35.