A Combinatorial Analysis of the European Copyright Directive[1]

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Abstract: The EU Copyright Directive was developed with the stated purpose of harmonising certain aspects of copyright and related rights, but at the time of its introduction it was an open question whether the European Union had competency to legislate on intellectual property rights. The directive was nevertheless justified on the basis of its harmonizing effect on the single market. This paper looks at the directive from a mathematical perspective and assesses the likelihood that any harmonization can have occurred.

Keywords: Copyright, Combinatorics, EU, exception clauses, competency

1. Introduction

Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society[3], also known as the *Infosoc Directive* or the *Copyright Directive* (as it will be referred to hereafter), was enacted as an implementation of the WIPO Copyright Treaty[4] on the one hand, and in order to harmonize copyright law across the member states, justified under the internal market provisions of the Treaty of Rome. At its time of inception there was substantial debate over the question of whether the European Union had competence in the field of intellectual monopolies. Until the Treaty of Lisbon, the EU did not have explicit competency in intellectual property rights, but the Commission frequently negotiated intellectual property agreements on behalf of the member states.

The first proposal for the directive was introduced in December 1997. Immediately during the first reading in the European Parliament, 58 amendments were proposed, which in May 1999 was followed up with a further 200 amendments from the Commission. The Parliament adopted nine of these amendments in the second reading, leading to the adoption by the Council of Ministers in 2001.

The harmonization aim was already partly visible in the Commission's Green Paper of July 1995[5]. The Green Paper identified a number of key issues (some 'digital', some 'analogue') presumably requiring harmonisation: applicable law, exhaustion, the scope of the economic rights, moral rights, administration of rights and technical protection. Eventually, less than half of this legislative agenda was carried over to the Copyright Directive. Surprisingly, the

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[3] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0029:EN:HTML

[4] http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html

[5] COM/95/382; http://ec.europa.eu/internal_market/copyright/docs/docs/com-95-382_en.pdf

Directive deals extensively with an issue mentioned only incidentally in the Green Paper: copyright exceptions.

The creation of exception clauses is in line with article 10 of the WIPO Copyright Treaty, which states that "Contracting Parties may, in their national legislation, provide for limitations of or exceptions to the rights granted to authors of literary and artistic works under this Treaty in certain special cases that do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the author."[6]

In the author's opinion, even a cursory examination of the Copyright Directive exposes many problems with it. The pressure from the copyright industries and, particularly, from the United States (where the largest rights holders bodies reside), to finish the legislative proces as quickly as possible, has not allowed the member states and their parliaments, or even the European Parliament, to reflect upon the many questions put before them as thoroughly that it can be described as 'adequately'. Thus, an array of controversial copyright issues went through the European legislative process in less than three years. Which is a breakneck speed, even for issues nowhere near as complex and as intertwined with fundamental issues of freedom of information, expression and the right to education as copyright is. This is even more expedient in light of the European Commission's decision early on in the process not to settle for the level of protection agreed upon at the WIPO level, but to raise the standard.

The paper proves that through combinatorial analysis is that the Directive introduces more ambiguity than it purports to eliminate. It does not increase 'legal certainty', a goal repeatedly stated in the Directive's Recitals (Recitals 4, 6, 7 and 21), but instead creates new uncertainties by using vague and in places almost unintelligible language.

If the Directive does not produce much legal certainty, it does even less in terms of approximation. This is starkly visible in the *pièce de résistance* of the Directive, article 5 on copyright 'exceptions'. The Commission's original aim of limiting the number of exemptions to a bare minimum, enumerated in an exhaustive manner, has backfired dramatically. In the course of the negotiations in the Council Working Group the Member States have managed to maintain most, if not all, of the limitations currently existing in national laws. Thus, article 5 now lists no fewer than 20 possible exemptions.

What makes the Directive a failure, in terms of harmonisation, is that the exemptions allowed under article 5 are optional, not mandatory (except for 5.1). Member States are not obliged to implement the entire list, but may pick and choose at will. It is expected most Member States will prefer to keep intact their national laws as much as possible. At best, some countries will add one or two exemptions from the list, now bearing the European Union's seal of approval.

2. Combinatorial Analysis

Article 5 of the Copyright Directive contains an exhaustive list of exceptions and limitations. Recital 32 of the preamble to the directive states that it is "an exhaustive enumeration of exceptions and limitations to the reproduction right and the right of communication to the public" but that "some exceptions or limitations only apply to the reproduction right, where appropriate". This implies that any exceptions not on the list are impermissible, even if previously existing in national law. The aim of the creation of such an exhaustive list is to "ensure a functioning internal market."

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[6] http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html

Specifically, paragraphs 2 and 3 of the Copyright Directive outline 20 different optional exceptions or limitations to the right of reproduction of copyrighted works, five of which apply to reproduction rights as defined in article 2, and another 15 of which apply to rights defined in articles 2 and 3. Each member state implementing the directive can choose to either include or leave out the exception clause. Paragraph 4 further states that "[w]here the Member States may provide for an exception or limitation to the right of reproduction pursuant to paragraphs 2 and 3, they may provide similarly for an exception or limitation to the right of distribution as referred to in Article 4 to the extent justified by the purpose of the authorised act of reproduction." This suggests that for each individual optional exception clause, four distinct possibilities are possible for implementation, namely that the exception not be implemented, that it be implemented for reproduction, that it be implemented for distribution, or that it be implemented for both reproduction and distribution. This is based on the reading of paragraph 4 that for each exception, they may also separately provide an exception to the right to reproduction, rather than the understanding that if and only if an exception has been granted for the right to distribution then they may also include an exception for reproduction, in which case there would be four rather than three distinct possibilities for implementation of each individual exception clause. Brown[7] has noted that the exceptions in 5.2 are specifically intended for reproduction rights and not for distribution rights, whereas the exceptions in 5.3 apply both to reproduction and distribution, however, 5.4 specifically references both 5.2 and 5.3.

Here it may be possible to argue that some of the exception clauses could not possibly be implemented for reproduction rights, however for the purposes of this paper we do not pursue such debate although it could potentially alter the outcome. We ignore this because, as with any debate, the resulting decision and understanding in one member state may turn out to be altogether different from the outcome of the same debate in another member state, and therefore it factors into the choice of implementation rather than the *a priori* assessment of possible implementations.

Combinatorially, any set of k switches, each of which has m different positions, will have a total of $N = m^k$ distinct configurations. We have established that there are $k = 20$ different exception clauses, and that each has $m = 4$ different positions (or $m = 3$ for the alternative reading of article 5, paragraph 4). This leads us to the result that there are

$$N = 4^{20} = 1{,}099{,}511{,}627{,}776$$

different ways to implement the Copyright Directive, simply based on the available configurations of different exception clauses. With these more than a trillion distinct possible scenarios, the *a priori* chance of any two European member states having the same implementation of the Copyright Directive is 27/1,099,511,627,776 = 2.4556 · 10-11, or approximately 2.5e-10 % (0.000000000024556%).

For purposes of aiding the visualization of how large a number 1,099,511,627,776 is, according to Wolfram Alpha[8], it is roughly four times the number of stars in the Milky Way galaxy, and roughly ten times the number of humans who have ever existed.

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[7] Implementing the EU Copyright Directive; Ian Brown; Foundation for Intellectual Property Research. http://www.fipr.org/copyright/guide/eucd-guide.pdf

[8] http://www.wolframalpha.com/input/?i=1099511627776

Recital 36 of the preamble states that a member state may choose to require payment of fair compensation for any of the exception clauses. This in fact has the effect that for each possible exception, there is the option of requiring compensation or not, for reproduction or for distribution. This brings the number of possible options for implementation up to 9 from 4, yielding a total of

$$N = 9^{20} = 12{,}157{,}665{,}459{,}056{,}928{,}801$$

implementation possibilities[9], or roughly 12 quintillion. This should be multiplied by 2 in order to account for the possibility in article 6.1 to allow for circumvention that does not infringe on articles 2 and 3, for example circumvention research, as implemented in Norway and Denmark.

Many other clauses in the Copyright Directive may substantially add to this figure, but are less easily computable. Article 5.5, stipulates that the exception clauses listed in previous paragraphs "shall only be applied in certain special cases," as per the Berne three step test. Without any explicit indication of what those specific cases are they may need to be treated separately in legislation, and therefore act as a pure multiplicative factor to the result. Articles 6 and 7 further complicate the issue by creating a number of special cases for the treatment of technological measures, not to mention a plethora of distinct possibilities for implementation of each. Fully accounting for these measures in terms of numerical implications would require legal analysis which is outside the scope of this paper, but as with article 5.5 a rudimentary analysis suggests that both articles 6 and 7 would present further multiplicative terms.

3. Implementation states

The preceding analysis suggests that *a priori*, it is highly unlikely that any two member states would come up with the same implementation of the Copyright Directive. When political realities are taken into account, the number is likely to reduce significantly, as a) member states are prone to be influenced by one another's decisions in implementing the directive, b) certain exception clauses are likely to be highly popular while others widely controversial, and c) the creation of optional clauses in directives and other treaties produces a positive onus towards full implementation of such clauses. As a result, the probability distribution for the potential implementations is not entirely uniform, which significantly raises the likelihood of two or more countries arriving at the same implementation.

On the other hand, the fact that these clauses were all made optional suggests that there was, in each case, at least one member state which did not agree with making such an exception clause mandatory. It is possible that the number of exception clauses over which disagreement existed was simply such a majority that for simplicity they were all made optional rather than making a separate paragraph containing mandatory exception clauses. Similarly, it could have been decided that agreement existed to a sufficient degree amongst the member states that making the exception clauses optional would not yield a significantly

[9] The options are: No exception, exception without payment for reproduction, exception with payment for reproduction, exception without payment for distribution, exception with payment for distribution, exception without payment for reproduction or distribution, exception without payment for reproduction but with payment for distribution, exception with payment for reproduction but without payment for distribution, and exception with payment for both reproduction and distribution.

disharmonious set of implementations. Brown[10] notes that prior to the enactment of the Copyright Directive, a number of countries already had exception clauses in their copyright acts, and that they negotiated to have them included as optional exceptions in the copyright directive.

Brown[11] provides a functional comparison of adopted legislation in 12 member states, explicitly looking at the specific details of different exception clauses as implemented.

4. Conclusions

Despite the fact that most member states will have very similar implementations of the Copyright Directive in practice, this analysis shows that the Directive itself does not provide any legal certainty or any harmonization. The idea of a single market is not served by the Directive, and in fact it could even be pushing the markets further apart by codifying complexity that did not exist previously.

Since the Directive has little or nothing to offer in terms of legal certainty or harmonisation (or anything else, for that matter), one must question the solidity of its legal basis in the EC Treaty. Over the past decade, we have all too easily accepted the EC's legislative powers in the field of intellectual property. But where do these powers originate? As all previous directives in the field of copyright and neighbouring rights, the Copyright Directive is based on articles 47.2, 55 and 95 (ex articles 57.2, 66 and 100A) of the EC Treaty. These are the same legal foundations that the Tobacco Advertising Directive (Directive 98/43/EC) was built on. In a case brought before the European Court of Justice, Germany has challenged that directive's legal basis and requested its annulment, pursuant to article 230 (ex 173) of the Treaty. On October 5, 2000, the Court delivered its judgment. The Court notes that the Directive does not not facilitate the free movement of goods or the freedom of services, and does not remove distortions to competition. In sum, the Directive lacks a proper legal basis, and should be annulled.

Annullment of the Copyright Directive should not be taken lightly. The implications are that any derived directives would also need to be called into question, in particular the Intellectual Proprety Rights Enforcement Directive. Further, it would also require review of the copyright regimes as implemented in the member states. While it is their sovereign right to adopt any policy on intellectual property rights that suits their fancy - in accordance with the *acquis communautaire*, which would then have little to say on the subject - it is undeniable that in many member states public debate on the content and scope of intellectual property regulation has been short-circuited by referral to a higher power, i.e., the European Union's Directive.

However, the seriousness of the flaws in the Copyright Directive should not be underestimated or treated with flippancy. It is essential for the European Union's credibility in intellectual property legislation, and in general, that these issues be addressed.

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[10] Implementing the EU Copyright Directive; Ian Brown; Foundation for Intellectual Property Research. http://www.fipr.org/copyright/guide/eucd-guide.pdf

[11] *ibid*