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**COPYRIGHT PROTECTION
OF SOFTWARE:
THE EUROPEAN PERSPECTIVE**

Table of contents

| | | |
|-----|---|-----|
| 1 | INTRODUCTION | 81 |
| 2 | COMPUTER PROGRAMS DIRECTIVE 2009/24 | 83 |
| 2.1 | Object and beneficiaries of protection; restricted acts | 84 |
| 2.2 | Freedom to use; maintenance exception | 86 |
| 2.3 | Decompilation; special measures of protection | 89 |
| 3 | THE EXPRESSION OF WORK | 91 |
| 3.1 | Idea/expression dichotomy | 91 |
| 3.2 | Originality | 93 |
| 3.3 | Software as literary work | 96 |
| 4 | DERIVATIVE SOFTWARE | 99 |
| 4.1 | Abstraction–filtration–comparison test | 101 |
| 4.2 | Ibcos test | 104 |
| 5 | APPLICABILITY OF UNION-WIDE TEST | 106 |
| 5.1 | Subsistence of copyright | 107 |
| 5.2 | Infringement assessment | 109 |
| 5.5 | Defences | 111 |
| 6 | CONCLUSIONS | 113 |
| | LIST OF REFERENCES | 115 |
| | TABLE OF CASES | 121 |
| | European Union | 121 |
| | Finland | 122 |
| | United Kingdom | 122 |
| | United States | 123 |
| | Other jurisdictions | 123 |

| | |
|--|-----|
| ABBREVIATIONS | 124 |
| TIETOKONEOHJELMIEN TEKIJÄNOIKEUDELLINEN SUOJA. EUROOPPALAINEN NÄKÖKULMA | 126 |

Copyright protection of software: the European perspective

*... the protection of programs could most easily be assimilated to that of utility models or an invention at the national level. Such protection would be effective against unauthorized use, and would last for a reasonably short period; ... from 5 to 10 years would be a reasonable period for computer programs; a longer period would make no sense. ... It would be necessary to provide for at least a registration of a brief description of the program and for the deposit of a copy in machine-readable language in order to overcome any difficulties relating to the priority and in order to avoid innocent infringement.*¹

1 INTRODUCTION

Software industry as a branch of industry was established in the 1950s.² Software as intellectual property and digital information possesses certain distinctive features that made it difficult to assess which form of legal protection computer programs ought to enjoy – if any.³ IBM was the first undertaking to commercially distribute software to its customers, licensing computer programs under the general law of contract as well as the common law practices relating to trade secrets and confidentiality.⁴ In the late 1960s, as the industry kept growing, it was acknowledged on the international arena that also the *erga omnes* protection of computer programs should be regulated congruently either by means of new arrangements, or

¹ *Advisory Group of Governmental Experts on the Protection of Computer Programs*, Copyright 1971 para 21 (Expert of the Soviet Union).

² *Välimäki* 2005 p 13.

³ See *Committee to Examine the Patent System and Patent Law*, Cmnd 4407, 1970 para 472.

⁴ *Tapper* 1978 pp 1, 21; *Välimäki* 2005 p 23. See also ‘Software Agreement between Western Electric Company Inc and Katholieke Universiteit’ (1974) – <http://cm.bell-labs.com/cm/cs/who/dmr/licenses/6thEdlicence.pdf>, accessed 12 October 2009.

modifying or reinforcing existing ones. Nevertheless, whether the protection should follow the lines of established legal concepts related to intellectual property rights or be a more or less *sui generis* type of system was yet to be decided.⁵

During the 1970s, the International Bureau of World Intellectual Property Organization (WIPO) first prepared model provisions on the protection of computer software, which in essence adopted an approach related to the law of copyright.⁶ However, also a system for the deposit or registration of computer software was considered in the draft, and the rights under the model provisions were in no case to extend beyond 25 years from the time when the software was created.⁷ The model provisions were later followed by a draft treaty for the protection of computer software. In the draft treaty, a further separation from pure copyright was evident, for it would have provided extensive protection combining elements of both copyright, patent and trade secret laws, subject to no exceptions, for 20 years from the time when the software was first used or sold.⁸

The *Zeitgeist* was nonetheless in the state of change, so that the proposed approach was not endorsed.⁹ By the mid-1980s it was recognised that patentability of computer programs *per se* had been ruled out and other possible forms of protection under industrial property law did not grant exclusive rights to the creators of software.¹⁰ Instead, computer programs could be deemed literary works within the meaning of Article 2 of the Berne Convention and, thus, copyright law was applicable thereto.¹¹ That outcome, however, is only a beginning of further questions. Copyright is an expedient form of intellectual property for protecting literary and ar-

⁵ *Advisory Group of Governmental Experts on the Protection of Computer Programs*, Copyright 1971 para 29.

⁶ See *Rahnasto* 2003 p 178.

⁷ *World Intellectual Property Organization*, L & Comp Tech 1978 ss 7(1)(b), 9. See also *Cline*, Cal L Rev 1987 p 649. Cf. Berne Convention for the Protection of Literary and Artistic Works, as amended (adopted 24 July 1971, entered into force 15 December 1972) 1161 UNTS 3 art 7(4) concerning works of applied art.

⁸ Draft Treaty for the Protection of Computer Software (adopted 17 June 1983) [1983] WIPO/LPCS/II/3 arts 4(1), 5.

⁹ *National Commission on New Technological Uses of Copyrighted Works* 1978 p 1; *Committee of Experts on the Legal Protection of Computer Software*, Copyright 1983 paras 12–13, 15, 17–18, 21–22, 29.

¹⁰ See *Sigrid – Julian*, JWIP 2009 pp 5–6, 8–9.

¹¹ *Northern Office Micro Computers (Pty) Ltd v Rosenstein* [1982] FSR 124 (Supreme Court of South Africa); *Sega Enterprises Ltd v Richards* [1983] FSR 73 (Ch); *Babolat Maillot Witt SA v Pachot* [1984] ECC 282 (Cour d'Appel de Paris); *Group of Experts on the Copyright Aspects of the Protection of Computer Software*, Copyright 1985 para 17.

tistic works, software included. Readily available was the Berne Convention, under which copyright needs not be asserted or declared but is automatically in force at creation (Berne Convention art 2(6)). Accordingly, most jurisdictions recognise copyright without any formalities as to registration.¹² In addition, copyright copes relatively well with multiple authors or right holders, or both. However, it still remains effectively undefined, what exactly is the object of expression “work”.¹³ Especially with regard to computer programs, the determination of subject matter is far from clear-cut.¹⁴

The research subject of this article is the operative copyright protection of software: when does copyright subsist in computer programs and, doctrinally, how should infringement claims in relation to software be assessed? The perspective is that of European law but, inasmuch as the great majority of legal praxis and commentary is of US origin, comparisons are made between jurisdictions on the two sides of the Atlantic. The running order is as follows: First, I provide a summary of the European Union (EU) legal framework concerning copyright protection of computer programs. Second, I consider the peculiarities of software in terms of its expression and how that affects the conceptualisation of the matter. Third, I examine the tests proposed for assessing copyright infringements in computer programs. Finally, I show that differences in national copyright systems do not negate the applicability of a harmonised test on pan-European level.

2 COMPUTER PROGRAMS DIRECTIVE 2009/24

The new Computer Programs Directive 2009/24 was issued on 23 April 2009 and entered into force on 25 May 2009. The purpose of the Directive is to codify the substantial amendments made to the original Computer Programs Directive 91/250,¹⁵ and the former supersedes the acts incorpo-

¹² The United States (US) of America did not accede to the Berne Convention until 1 March 1989. Copies of works published before that must bear the notice of copyright or risk loss of protection (*Nimmer – Nimmer* 2009 § 7.02[A]). Registration had not been a condition to the obtaining of a copyright as of 1978, but registration of a claim in the term of copyright is still necessary for works of US origin preparatory to filing a civil infringement suit in court and for statutory damages and attorney’s fees to be available to the right holder in court actions (17 USC §§ 411–412).

¹³ See *Strömholm* 1970 p 231; *Handig*, IIC 2009 pp 672–673.

¹⁴ See also *Moon*, EIPR 2009 pp 402–403.

¹⁵ Council Directive 91/250/EEC on the legal protection of computer programs [1991] OJ L122 p 42.

rated in the latter.¹⁶ The content of the codified legislation, however, was fully preserved.¹⁷ Hence, the legislative history of Computer Programs Directive 91/250 as well as the case law and legal literature related thereto apply as such to the new Directive; references to the repealed Directive are to be construed as references to the new one.¹⁸ On paper, the Computer Programs Directive 2009/24 is a relatively comprehensive but straightforward legal instrument.

2.1 Object and beneficiaries of protection; restricted acts

In accordance with Article 1 of the Directive, member states are under an obligation to protect computer programs, which term includes also the preparatory design material, by copyright as literary works.¹⁹ Arguably also the design material ought to be functional in order to be protected as software; documents lacking such qualities would be separate literary – or artistic – works.²⁰ Software protection applies to the expression of a program in any form but, for the avoidance of doubt, it has been made clear that ideas and principles underlying the elements of a program are not protected by copyright. A program is protected if it is the author's own intellectual creation. No other criteria are to be applied to determine its eligibility for protection (Computer Programs Directive 2009/24 art 1(3)).

Pursuant to Article 3 of the Directive, protection is granted to all natural or legal persons eligible under national copyright legislation as applied to literary works. Article 2(3) explicitly provides that, where a computer program is created by an employee in the execution of her duties or following the instructions given by her employer, the employer exclusively is entitled to exercise all economic rights in the program so created, unless otherwise provided by contract.

In accordance with Article 6^{bis}(1) of the Berne Convention, an author retains the unalienable rights of attribution and integrity. Moral rights are

¹⁶ Council Directive 93/98/EEC harmonizing the term of protection of copyright and certain related rights [1993] OJ L290/9 art 11(1).

¹⁷ *Commission (EU)*, COM (2008) 23 final p 2.

¹⁸ Directive 2009/24/EC of the European Parliament and of the Council on the legal protection of computer programs [2009] OJ L111/16 art 10.

¹⁹ See *Commission (EU)*, COM (88) 172 final p 170; Computer Programs Directive 2009/24 recital 7.

²⁰ See *Bing*, NIR 1999 p 284. Cf. *LA Gear Inc v Hi-Tec Sports plc* [1992] FSR 121 (CA) p 126.

not harmonised at all in the European Union, let alone in relation to software. Due to the functional nature of the subject matter, the question whether authors of computer programs in actuality enjoy moral rights in relation to their works is open to various interpretations.²¹ Under Article 9(1) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), contracting parties have no rights or obligations conferred by Article 6^{bis} of the Berne Convention. Further, the Copyright, Designs and Patents Act 1988 (UK) expressly provides that the rights to be identified as author and to object to derogatory treatment of work do not apply in relation to a computer program (ss 79(2)(a), 81(2)). In this paper, moral rights are not under scrutiny.

What, then, are the right holder's economic rights in copyright software? Pursuant to Article 4(1) of the Computer Programs Directive 2009/24, they include the right to do or to authorise (a) the permanent or temporary reproduction of a computer program by any means and in any form, in part or in whole; (b) the translation, adaptation, arrangement and any other alteration of a computer program and the reproduction of the results thereof; and (c) any form of distribution to the public, including the rental, of the original computer program or of copies thereof. Insofar as loading, displaying, running, transmission or storage of a program necessitates reproduction thereof, such acts are also subject to authorisation by the right holder.

With the exception of the right to control further rental of the program or a copy thereof, the first sale in the Union of a copy of a program by the right holder or with her consent exhausts under Article 4(2) the distribution right within the Union of that copy. The restricted acts of reproduction and alteration are also subject to certain exceptions.²² First, in accordance with Article 5(2) of the Directive, the making of a back-up copy by a person having a right to use the program may not be prevented by contract insofar as it is necessary for that use. Second, pursuant to Article 5(3), the person having a right to use a copy of a program is entitled to observe, study or test its functioning if she does so while performing acts that she is otherwise authorised by the right holder to do.

²¹ See *Eagles – Longdin*, IJLIT 2004 p 222 ff; *Sundara Rajan*, IJLIT 2004 p 45 ff.

²² Cf. *Grosheide*, EIPR 2001 pp 322–323; *Riis – Schovsbo*, EIPR 2007 pp 2–3.

2.2 Freedom to use; maintenance exception

The mandatory nature of the third category of acts that do not constitute an infringement is somewhat unclear. Article 5(1) of the Directive provides that, *in the absence of specific contractual provisions*, the acts referred to in points (a) and (b) of Article 4(1) do not require authorisation by the right holder where they are necessary for the use of the computer program by the lawful acquirer in accordance with its intended purpose, including for error correction. However, the thirteenth recital to the Directive provides as follows:

The exclusive rights of the author to prevent the unauthorised reproduction of his work should be subject to a limited exception in the case of a computer program to allow the reproduction technically necessary for the use of that program by the lawful acquirer. This means that the acts of loading and running necessary for the use of a copy of a program which has been lawfully acquired, and the act of correction of its errors, *may not be prohibited by contract*. (emphasis added)

This conflict is of derivation from the old Directive and was not, for some reason, rectified in connection with the consolidation process.²³ In its first proposal for the old Directive, the Commission appreciated that the balance of power between producers and users of computer programs may not, due to the market strength of the software supplier, permit the licensees to negotiate equitable contract conditions, whereupon it is necessary to provide for basic principles of protection that apply regardless of specific contractual provisions.²⁴ Consequently, Article 5(1) of the proposal provided that, where a computer program has been sold or made available to the public by means other than a written license agreement signed by both parties, reproduction and alteration for the purposes of the use of the program do not require authorisation of the right holder.

The Economic and Social Committee, however, made several comments on the proposal and suggested that the present paragraph needed more precise drafting. The Committee further proposed that the exception be confined merely to apply to “reproduction by loading, displaying, running, transmission or storage”.²⁵ The European Parliament, for its part, approved

²³ See Computer Programs Directive 91/250 recital 18, art 5(1).

²⁴ *Commission (EU)*, COM (88) 816 final pp 7, 11–12.

²⁵ *Economic and Social Committee*, [1989] OJ C329 p 7.

the text proposed by the Commission but discarded the specific separation of selling and licensing by amending the formulation to its current form, “in the absence of specific contractual provisions”. In contrast, the right to make back-up copies, first introduced by the Economic and Social Committee as a discretionary entitlement, was made non-discretionary in the Opinion of the Parliament.²⁶

The Commission eventually submitted an amended proposal for the Directive, which included a great majority of the Parliament’s amendments. The recitals thereto now acknowledged that the exclusive rights of the author to prevent the unauthorised reproduction of a computer program had to be subject to a limited exception to allow the reproduction technically necessary for the use of that program by its lawful acquirer.²⁷ Accordingly, Article 5(2) provided that the license *must not* prevent either the loading and running of a copy of a computer program *or* error correction necessary for the use by the licensee in accordance with the intended purpose. In the final text adopted by the Council, this peremptory rule was confirmed in the eighteenth recital (at present the thirteenth), but the very Article 5(1) of the Directive was altered non-mandatory without deleting the reference to error correction.²⁸

How should the ability to use and correct errors in a copy of a program be interpreted? Many commentators have argued that the thirteenth recital expresses the intention of the European legislature to balance appropriately minimum rights for lawful users against the legitimate interests of the right holder, whereupon it should be granted a binding effect over the wording of Article 5(1).²⁹ That standpoint is shared also by the Commission, which is of the opinion that although it is by contract possible to “control” the restricted acts that may be carried out by the lawful user, they cannot be prevented altogether.³⁰ As regards national implementations, however, it would appear that member states have mostly opted for the non-mandatory approach, thereby ignoring the relevance of the thirteenth recital on purely legalistic grounds.³¹

²⁶ *European Parliament*, [1990] OJ C231 p 80.

²⁷ *Commission (EU)*, COM (90) 509 final p 24.

²⁸ *Dreier*, EIPR 1991 p 319.

²⁹ *Vinje*, ECLR 1992 p 169; *Ottolia*, IIC 2004 p 499 fn 43; *Välimäki* 2006 p 52; *Westkamp*, IPQ 2008 p 55.

³⁰ *Commission (EU)*, COM (2000) 199 final p 12.

³¹ See Act on Copyright in Literary and Artistic Works 1960 (Sweden) s 26g(6); Copyright Act 1961 (Finland) s 25j(5); Act on Copyright and Related Rights 1965 (Germany) s 69d(1); Copyright, Designs and Patents Act 1988 (UK) s 50A(1).

As of today, the Court of Justice of the European Union has yet to deliver a judgement on the issue, but the significance of the thirteenth recital has been recognised by an Advocate General in *Infopaq International*.³² The Union has exclusive competence in the establishing of the competition rules necessary for the functioning of the internal market (TFEU art 3(1) (b)). Prohibition of error correction, for instance, restricts consumer choice and deprives competitors of outlets. Taking into consideration the objectives of EU law, an authoritative comment on the Computer Programs Directive 2009/24 might well, therefore, result in Article 5(1) being modified by interpretation.³³ The Court of Justice has expressly confirmed that the “purpose and general structure” of an instrument may proffer useful guidance for legal reasoning.³⁴ In any case, contractual provisions attempting to exclude the acts necessary for the use of a program would appear to fall outside the specific subject matter of software copyright.³⁵ Such practice is thus capable of analysis under Articles 101 and 102 of the Treaty on the Functioning of the European Union (TFEU) and may, accordingly, be found to disrupt free competition or abuse a dominant position to the detriment of consumer welfare within the internal market.³⁶

Moritz holds the view that the present conflict is only ostensible. He argues that the thirteenth recital ought to be interpreted to refer merely to further distribution of the copy of the program by the first acquirer, who must have received the copy by means of a sale in the Union, for a licensing contract would not constitute a “lawful acquisition”.³⁷ Such an interpretation cannot be concurred with. The notion of “lawful acquirer” was introduced to Article 5 in the Opinion of the European Parliament, where it was used to refer to the party to whom a computer program was either sold or made otherwise available. The amended proposal for the Directive spoke of a lawful acquirer in Article 5(1) and of a licensee in Article 5(2), but the paragraphs were later merged into one. For that reason, there are no legal

³² Opinion of AG Trstenjak in Case C-5/08 *Infopaq International A/S v Danske Dagblades Forening* delivered 12 February 2009 para 49 fn 16.

³³ See also *Committee on Intellectual Property Rights and the Emerging Information Structure* 2000 pp 205–206.

³⁴ Joined Cases C-68/94 & 30/95 *France and Others v Commission* [1998] ECR I-1375 para 168.

³⁵ *Forrester*, ECLR 1992 p 14. See also *Rajala*, LM 1995 p 848.

³⁶ Joined Cases 56 & 58/64 *Établissements Consten SARL and Grundig-Verkaufs-GmbH v Commission* [1966] ECR 299. See also *Akman*, OJLS 2009 p 278 ff.

³⁷ *Moritz*, IIC 1996 p 375. See Case C-456/06 *Peek & Cloppenburg KG v Cassina SpA* [2008] ECR I-2731 para 41.

grounds for construing the term formally *sensu stricto*, and the thirteenth recital should be read to encompass licensees as well, as implied by the last sentence thereof.³⁸

In summary, I am inclined towards the view that the acts of loading and running necessary for the use of a copy of a program which has been lawfully acquired may under no circumstances be prohibited by contract.³⁹ Similarly, the errors of the program may always be corrected. Albeit the difference between error correction and alteration is subtle – even non-existent, perhaps – the latter may be prohibited in the license agreement. It is a matter for the courts to judge, case by case, in which point an act of maintenance becomes an act of alteration.⁴⁰

2.3 Decompilation; special measures of protection

The process of translating an executable program into source code is known as decompilation. It is used to discover the technological principles of a program through analysis of its structure, function and operation.⁴¹ In accordance with Article 6(1) of the Computer Programs Directive 2009/24, decompilation that is indispensable to obtain the information necessary to achieve interoperability of independently created software with other programs does not require the authorisation of the right holder, provided that (a) decompilation is performed by a person having a right to use the program; (b) the information necessary to achieve interoperability has not previously been readily available; and (c) the process is confined to the parts of the original program that are necessary in terms of interoperability.⁴²

Freedom to decompile, however, does under Article 6(2) not permit the information obtained through its application to be (a) used for goals other than to achieve interoperability; (b) given to others, except when necessary for the interoperability of the independently created program; or (c) used for any act that infringes copyright, such as developing a computer program substantially similar in its expression. Moreover, Article 6(3) con-

³⁸ See also *Soma*, IIC 1996 p 814; *Commission (EU)*, COM (2000) 199 final p 12.

³⁹ *Raubenheimer*, IIC 1996 p 628.

⁴⁰ *Cf. United Wire Ltd v Screen Repair Services (Scotland) Ltd* [2000] UKHL 42, [2001] RPC 24 para 71.

⁴¹ *Chikofsky – Cross*, IEEE Software 1990 p 15. See also *Yang – Ward* 2003 pp 29–31.

⁴² See *Klemens* 2006 p 108 ff.

tains an explicit reference to the Berne “three-step test”.⁴³ Interestingly, though, in the Directive the second and third steps have been made disjunct by using conjunction “or”, whereas in the international treaties the steps are conjoined. Whether or not this generates any material divergences in the application of the provision is still up in the air.⁴⁴

The remaining articles of the Directive contain provisions that supplement the substantive rules described above. Pursuant to Article 7, member states must provide appropriate remedies against putting into circulation an infringing copy of a computer program and, for commercial purposes, possessing the same. Similarly, right holders are to be protected against means intended to facilitate the unauthorised circumvention of technical devices that are applied to protect a computer program (Computer Programs Directive 2009/24 art 7(1)(c)). It has been confirmed in Article 8 that the provisions of the Directive are without prejudice to any other legal provisions concerning, for example, intellectual property law or the law of contract.⁴⁵

A summary of the positions of authors and lawful users in terms of rights and entitlements under the Directive has been set forth in Table 1 below. They have been further mapped onto the provisions of international copyright treaties in order to facilitate comparisons between various systems.

Table 1. Exclusive rights and non-discretionary exceptions thereto.

| Restricted acts | Directive | Berne | TRIPS | WCT |
|---|-----------------|--------------|------------|---------------|
| Alteration | Article 4(1)(b) | Article 12 | | |
| Any form of distribution* | Article 4(1)(c) | | | Article 6 |
| Rental and further rental | Article 4(1)(c) | | Article 11 | Article 7 |
| Reproduction | Article 4(1)(a) | Article 9(1) | | |
| Exceptions | Directive | Berne | TRIPS | WCT |
| Decompilation for interoperability | Article 6 | Article 9(2) | Article 13 | Article 10(1) |
| Error correction | Article 5(1) | ” | ” | ” |
| Making of a back-up copy | Article 5(2) | ” | ” | ” |
| Observing, studying and testing | Article 5(3) | ” | ” | ” |
| Use of the computer program | Article 5(1) | ” | ” | ” |

* Cf. Directive 2001/29/EC of the European Parliament and of the Council on the harmonisation of certain aspects of copyright and related rights in the information society [2001] OJ L167/10 art 3. See also *Commission (EU)*, SEC (2004) 995 p 8.

⁴³ Cf. Berne Convention art 9(2); Agreement on Trade-Related Aspects of Intellectual Property Rights (15 April 1994) LT/UR/A-1C/IP/1 – <http://docsonline.wto.org/> art 13; WIPO Copyright Treaty (adopted 20 December 1996, entered into force 6 March 2002) (1997) 36 ILM 65 art 10(1). See also *Cohen Jehoram*, EIPR 2009 p 409 and pt 5.3, below.

⁴⁴ This author is not aware of any case law or commentary on this specific subject.

⁴⁵ *Guibault* 2002 p 197 ff.

3 THE EXPRESSION OF WORK

In Nordic legal research, the mid-20th century denoted a passing of an epoch. Theretofore, the prevailing dogmatic method was focussed on formalistically interpreting logico-conceptual and systemic legal conceptions, a tradition appropriated from such German jurists as Puchta and, ultimately, von Savigny.⁴⁶ This constructive method was biphasic. First, conceptions were inductively framed on the grounds of the legal rules embodied in the positive law. Then, from the conceptions thus framed, new legal rules could be deductively derived.⁴⁷ The antithesis for this trend was born when the exponents of so-called analytical civil law realised that the emperor had no clothes: the factual problem-solving efficacy of such substance conceptions as “ownership” is rather petty.⁴⁸

Zitting, for instance, influenced by Ross and Kelsen, started from the assumption that ownership is just a common name used to describe a certain complex and contentually varying legal position, not an infrangible entity. Thus, instead of considering ownership as such, the focus of the dissection ought to be on the position of the owner. In the latter, various elements can analytically be separated out, such as proprietary possession (as distinct from that of a lessee or a pledgee), different forms of competence (legitimation to dispose of the property *in rem*) and the degree of dynamic protection (validity of *causae* for competing claims in different relations).⁴⁹

Similarly, copyright relates to certain cultural phenomena, which in difficult cases of interpretation must be tried to dismantle. This dismantlement, analysis, is inextricably bound to its linguistic and cultural context. Therefore, the essential elements of the idea about work related to the law of copyright are to be discussed.

3.1 Idea/expression dichotomy

In the domain of copyright law, it is a cardinal aphorism that copyright protection extends to expressions and not to ideas, procedures, methods of

⁴⁶ Kumm, IJCL 2009 p 409.

⁴⁷ Tuori, LM 2002 p 1298.

⁴⁸ See Pap 1972 p 305.

⁴⁹ Zitting 1951 pp 77–79. See also Honoré 1961 pp 112–124; Edmundson 2004 p 87 ff.

operation or mathematical concepts as such.⁵⁰ This doctrine, a divide between the expression of an idea and the idea itself, was explained in depth by the Supreme Court of the US first in *Baker v Selden*. The claimant claimed copyright to an original system of bookkeeping, but the action was dismissed. The Court held that exclusive rights to an invention described in a literary work are only available by means of patent, whereas copyright protects merely the description itself.⁵¹

In principle, the basic idea is clear. Copyright protection in respect of a musical work does not change, whether the work finds fixation in sheet music, tape recording or an MP3 file; similarly a computer program in which copyright subsists is protected in source and object code forms alike. An expression – but not necessarily fixation (see Berne Convention art 2(2))⁵² – is *condicio sine qua non* for a protectable work, but copyright is not exclusively confined to the specific form in which the work was first embodied. Then, again, the contents of a work *per se*, or the technique, style or mannerism used therein, are not subject to the right to prohibit by the author. The very subject matter of copyright is something in between; the “pattern of the work”, if you will.⁵³ In the Continent of Europe, analysis has tended to operate with the doctrine of inner form as distinct from content and outer form.⁵⁴

However, drawing *ex ante* the line between idea and its expression proves to be troublesome. In the US, Judge Learned Hand noted that “nobody has ever been able to fix that boundary, and nobody ever can” and “no principle can be stated as to when an imitator has gone beyond copying the ‘idea,’ and has borrowed its ‘expression’,” whereupon “decisions must ... inevitably be *ad hoc*”.⁵⁵ On the other side of the Atlantic, Lord Hailsham

⁵⁰ Computer Programs Directive 2009/24 art 1(2); TRIPS art 9(2); WCT art 2; 17 United States Code (USC) § 102(b).

⁵¹ *Baker v Selden* 101 US 99 (1879) pp 102–103. A whole range of US sources have been utilised throughout this paper. Naturally, American constructions are not directly applicable in Europe but, as analysed by Derclaye, the EU and the US are rather convergent in their statutory treatment of copyright protection of software. On that account, principles adopted in the judicial custom of the latter are capable, by and large, of serving as interpretative *guidelines* in the former (Derclaye, EIPR 2000 p 67).

⁵² Latreille, 2009 pp 139–140; Ricketson, WIPO Journal 2009 p 54. Cf. Copyright, Designs and Patents Act 1988 (UK) s 3(2); Copyright and Related Rights Act 2000 (Ireland) s 18(1).

⁵³ Chafee, Colum L Rev 1945 p 513.

⁵⁴ Auktorrättskommittén, SOU 1956:25 pp 136–137; Schricker 1999 p 1075; Ensthaler 2009 pp 19–20. Cf. Frow, Screen 1988 p 5. See also pt 4, below.

⁵⁵ *Nichols v Universal Pictures Corp* 45 F2d 119 (2d Cir 1930) p 121; *Peter Pan Fabrics Inc v Martin Weiner Corp* 274 F2d 487 (2d Cir 1960) p 489.

has stated the position as follows: "... it is trite law that there is no copyright on ideas ... But, of course, as the late Professor Joad used to observe, it all depends on what you mean by 'ideas'."⁵⁶

In the real world, an idea and the expression thereof may often be differentiated between only arbitrarily, or not at all. Therefore, the theoretical idea/expression dichotomy elucidates the divide on strategic level, but lacks the sort of substance that would enable one to develop general, operative interpretations thereon. Some authors have suggested that, for this reason, the present concept ought to be considered predominantly mnemonic, since it is rather irrelevant in relation to actual judgement-making.⁵⁷ In case of dispute concerning non-slavish copying, instead of studying the claimant's work as an infrangible whole, the conception thereof may be dissected into smaller elements, as suggested in the beginning of this section. By means of analytical deconstruction, such elements may thereafter be pulled apart in order to assess, whether they are dictated by external factors, taken from the public domain or in fact substantial in the sense related to the law of copyright.⁵⁸

3.2 Originality

In accordance with Article 1(3) of the Computer Programs Directive 2009/24, computer programs are protected by copyright only if they are their author's own intellectual creations, to wit original. The eight recital further provides that, in respect of the criteria to be applied in determining whether or not a computer program is an original work, no tests as to the qualitative or aesthetic merits of the program should be applied.⁵⁹ Initially, the Commission suggested that, under the Directive, the only criterion, which should be applied to determine the eligibility for protection, would be that *the work has not been copied*.⁶⁰ Applying such a very low standard would effectively have rendered computer programs entrepreneurial works,

⁵⁶ *LB (Plastics) Ltd v Swish Products Ltd* [1979] FSR 145 (HL) p 160.

⁵⁷ See *Laddie – Prescott – Vitoria* 1995 pp 837–838; *Kemppinen* 2006 p 115.

⁵⁸ *Computer Associates International Inc v Altai Inc* 982 F2d 693 (2d Cir 1992) pp 707–710; *John Richardson Computers Ltd v Flanders* [1993] FSR 497 (Ch) pp 526–527; *Computer Associates International Inc v Faster SARL* (Tribunal de commerce de Bobigny 20 January 1995). See pt 4.1, below.

⁵⁹ Cf. Directive 96/9/EC of the European Parliament and of the Council on the legal protection of databases [1996] OJ L77/20 recitals 16, 39.

⁶⁰ *Commission (EU)*, COM (88) 816 final p 9.

which traditionally enjoy thin protection being only protected in the form in which they are fixed.⁶¹

The central multilateral international copyright treaties do not contain a definition of originality. Nonetheless, pursuant to Article 2(8) of the Berne Convention, copyright protection does not apply to news of the day or to miscellaneous facts having the character of mere items of press information. According to a commentary of WIPO, the administrator of the Convention, the present article confirms the general principle that, for a work to be protected, it must contain a *sufficient* element of intellectual creation.⁶² The Court of Justice has discussed the meaning of intellectual creation under EU law for the first time in *Infopaq International*.⁶³ As regards newspaper articles, intellectual creation is evidenced “from the form, the manner in which the subject is presented and the linguistic expression”. Thus, authors of literary works may express their creativity in an original manner through the choice, sequence and combination of words.⁶⁴ Achieving a computer program that is an intellectual creation should arguably *mutatis mutandis* follow the same criteria (*arg. Computer Programs Directive 2009/24 art 1(1)*).

Prior to the enactment of the Computer Programs Directive 91/250, in European civil law jurisdictions originality was assessed on subjective grounds. Kivimäki, for instance, argued that a work is original if, compared to other works, it may be considered fundamentally novel or inventive, attesting to individual creativity.⁶⁵ Accordingly, in the 1985 German *cause célèbre* concerning the legal protection of computer programs, individual *geistige Schöpfung* was required.⁶⁶ In England and Wales, the conception of originality has traditionally meant that the author must have exercised the requisite labour and/or skill in producing the work, but the originality threshold has been set at a lower level.⁶⁷ Subsequent to harmonisation measures within the EU, however, the German Federal Supreme

⁶¹ See *Bently – Sherman* 2009 pp 111–112.

⁶² *Masouyé – Wallace* 1978 p 23.

⁶³ Case C-5/08 *Infopaq International A/S v Danske Dagblades Forening* [2009] ECDR 16.

⁶⁴ *Ibid.* paras 44–45.

⁶⁵ *Kivimäki* 1948 p 75. See also *Mylly*, LM 2005 p 753 regarding the requirement of subjective novelty.

⁶⁶ *Inkasso-Programm* [1985] I ZR 52/83, [1986] ECC 498 (BGH) para 35.

⁶⁷ *University of London Press Ltd v University Tutorial Press Ltd* [1916] 2 Ch 601 p 609; *Ladbroke (Football) Ltd v William Hill (Football) Ltd* [1964] 1 All ER 465 (HL) p 469; *Interlego AG v Tyco Industries Inc* [1988] RPC 343 (PC Hong Kong) p 371.

Court concluded in 2005 that “*nur eine gänzlich banale Programmierleistung*” would not give rise to an original work.⁶⁸

In summary, the threshold requirement under EU law is rather low, but completely trivial programs or elements thereof are not eligible for protection. In this regard, the civil and common law systems have closed on one another, as the traditional continental standard has been reduced in qualitative terms so as to accentuate the objective aspects of originality.⁶⁹ It is worth noting, however, that nothing is created completely from scratch, but creation is mostly composed of acts of imitation.⁷⁰ This aspect is particularly salient in the domain of software.⁷¹ Each workable computer program is founded on extensive skills in software design which, in practice, stands for previous works; most elements are developed in a cumulative and incremental fashion.

Copyright protection does not apply to generalised algorithms or well-known programming routines and sequences (Computer Programs Directive 2009/24 recital 11).⁷² But in accordance with Article 2(5) of the Berne Convention, even if each module of a computer program was unoriginal as such, the program as a whole may be protected, should the systems architecture thereof constitute an intellectual creation.⁷³ In order to analyse a computer program in terms of legal protection, one should conceptually be able to break the program down into unoriginal and original parts as well as into unoriginal and original construction so as to perceive the extent of protection, *viz.* the literary and non-literary elements having relevance in a potential infringement assessment.⁷⁴

⁶⁸ *Fash 2000* [2005] I ZR 111/02, [2006] ECC 28 (BGH) para 10.

⁶⁹ See *Rosén* 1995 p 17; *Haarmann* 2005 p 58; *Waisman*, EIPR 2009 p 373.

⁷⁰ *Emerson v Davies* 8 F Cas 615 (Cir Mass 1845) p 619.

⁷¹ *Samuelson and others*, Colum L Rev 1994 pp 2330–2332; *Nakayama* 1998.

⁷² See also *Fromm – Nordemann* 1998 pp 205–206.

⁷³ *Nordell*, NIR 2001 p 82 notes that originality distinguishes “creations” from pure information.

⁷⁴ *Ibcos Computers Ltd v Barclays Mercantile Highland Finance Ltd* [1994] FSR 275 (Ch) pp 289–291, 296–297; *Cantor Fitzgerald International v Tradition (UK) Ltd* [2000] RPC 95 (Ch) paras 76–77. See also *Apple Computer Inc v Microsoft Corp* 35 F3d 1435 (9th Cir 1994) p 1443; *Lotus Development Corp v Borland International Inc* 49 F3d 807 (1st Cir 1995) p 818 and pt 4.2, below.

3.3 Software as literary work

Initially, “literary works” meant just that, namely works of literature such as books, pamphlets and other writings.⁷⁵ In the course of time, the meaning of literary work has by statutory means been expanded far off the core content. To take an example of such legislative expansion, the present category includes nowadays, because enacted so, in the Nordic countries maps and other descriptive drawings as well as graphically or three-dimensionally executed works;⁷⁶ in the United Kingdom (UK) tables, compilations and databases;⁷⁷ and in the whole Union computer programs including their preparatory design material.⁷⁸

The words “computer program” are not defined for the purposes of the Computer Programs Directive 2009/24. The Commission took originally an attitude that any definition in an act of what constitutes a program would of necessity before long lag the pace of technological development.⁷⁹ WIPO’s model provisions did contain a definition, according to which computer program means a set of instructions capable, when transformed into a machine-readable form, of causing a computer to achieve a particular result.⁸⁰ It is in the public domain that, as a consequence of human factors in the programming task, software almost inevitably contains some mistakes, so-called “bugs”.⁸¹ Software bugs that produce an incorrect or unexpected result in the execution of a program do not render it non-protectable, but completely unworkable software arguably does not fit the description.

According to Samuelson and others, there are in addition four other characteristics that make computer programs dissimilar to all other literary works. First, the value of a computer program is predominantly concen-

⁷⁵ See Copyright Act 1709 (8 Anne c 19) – <http://www.copyrighthistory.org/>, accessed 8 January 2010; Convention Concerning the Creation of an International Union for the Protection of Literary and Artistic Works (adopted 9 September 1886, entered into force 5 December 1887) – <http://oup.com/uk/booksites/content/9780198259466/15550015>, accessed 23 October 2009.

⁷⁶ Act on Copyright in Literary and Artistic Works 1960 (Sweden) s 1(2); Copyright Act 1961 (Finland) s 1(2).

⁷⁷ Copyright, Designs and Patents Act 1988 (UK) s 3(1).

⁷⁸ *E.g.* Act on Copyright and Related Rights 1965 (Germany) ss 2(1)(1), 69a(1).

⁷⁹ *Commission (EU)*, COM (88) 816 final p 9.

⁸⁰ *World Intellectual Property Organization*, L & Comp Tech 1978 s 1(i).

⁸¹ See *Menabrea – King* 1842; *Kidwell*, IEEE Annals of the History of Computing 1998 p 6.

trated in the *behaviour*, not text, thereof.⁸² Second, the code and behaviour of a computer program are *independent* from one another, for the same functionality can normally be achieved in several ways. Third, computer programs are actually *machines* that have been constructed in the medium of text. Fourth, owing to the need for interoperability,⁸³ backwards-compatibility included, strong *reliance on prior art* and technical standards is archetypical of software engineering.⁸⁴ In summary, computer programs have a dual nature as both textual code and a useful device bringing out a specific set of behaviours.⁸⁵

Due to this dual nature, software is not purely and simply sequences of words according to which a computer works. Granted, source code is being compiled to object code that may be executed so as to achieve a particular result. Source code is nevertheless merely *a* manifestation of a computer program. It is too broad a generalisation to say that exactly the source code would be protected as an expression of the work.⁸⁶ In accordance with Computer Programs Directive 2009/24, computer programs are protected in any manner and form from preparatory design work to source code to compiled, executable software, provided that the nature of work is such that a workable computer program may result from it at a later stage. Talk about dual nature does not mean that behaviour would enjoy separate protection, but copyright is vested in modes that through intermediate phases *aim for* certain behaviour.⁸⁷

The literary portion of a computer program, *i.e.* the source code, can be a valuable asset,⁸⁸ but commentators have argued that the most important property of programs is the set of results brought about when the instructions therein are executed.⁸⁹ This is central, inasmuch as few other descrip-

⁸² Cf. *Brigid Foley Ltd v Elliott* [1982] RPC 433 (Ch) p 434; *Computer Edge Pty Ltd v Apple Computer Inc* [1986] FSR 537 (High Court of Australia) pp 549, 566–567.

⁸³ See pt 2.3, above.

⁸⁴ *Samuelson and others*, Colum L Rev 1994 pp 2315–2316.

⁸⁵ *Committee on Intellectual Property Rights and the Emerging Information Structure* 2000 p 192.

⁸⁶ See Computer Programs Directive 2009/24 recital 7. Cf. *Miller*, EIPR 1990 pp 348–349; *ESX v Tech Com* [1995] Expertises 161 (Tribunal de Commerce de Créteil); *Tauchert*, IIC 2000 p 819.

⁸⁷ *Kemppinen* 2006 p 236. See also *John Richardson Computers Ltd v Flanders* (n 58) p 527; *Ibcos* (n 73) p 302.

⁸⁸ *Suenson-Taylor*, Accountancy 2001 p 117; *Coffee*, eWeek 2004 p 54; *Cha and others* 2008 p 95.

⁸⁹ *Samuelson and others*, Colum L Rev 1994 p 2316. Cf. *Spinellis*, IEEE Software 2006 p 100.

tions of work under copyright law are to be determined functionally, assessing from the final result.⁹⁰ In addition to computer programs, for example musical compositions and maps are created so as to achieve a particular result, not for the sake of coding, scoring or drawing. Elements of pitch, rhythm, dynamics, timbre and texture inextricably contribute to how one experiences a musical work.⁹¹ Maps, for their part, are visual representations of an area highlighting relationships between elements thereof using symbolic depiction. What distinguishes computer programs from the foregoing categories is that with the first-mentioned, the writing and result are independent from one another in respect that the same code may beget different behaviour, depending on the hardware and software environment.⁹²

Computer programs are abstractions at best. In contrast to architectural works, for instance, whose structure is a static attribute, the structure of a computer program exists only in terms of dynamics and the operational environment. Therefore, at each stage of examination, the structure of a program may be manifested differently.⁹³ Programs are, functionally speaking, machines whose behaviour may become evident through their user interface, but which themselves cannot unambiguously be described, since it is possible to delineate a program in many true ways. The interconnection between various descriptions is often unclear or uncertain and hard to situate in a hierarchy.⁹⁴ However, inasmuch as the right holder has an exclusive right to do or to authorise the translation, adaptation, arrangement and any other alteration of a computer program, some criterion is needed, according to which an infringing copy may be recognised. Such tests are discussed in the following section.

⁹⁰ Cf. *Green v Broadcasting Corp of New Zealand* [1989] RPC 700 (PC New Zealand) p 702.

⁹¹ See *Rahmatian*, IPQ 2005 p 267 ff.

⁹² *Kemppinen* 2006 p 235. Certainly, the same musical work may sound widely different in different occasions by reason of, *inter alia*, the abilities of the performers, but the interdependence of the work and its effect is ordinarily more extensive than with software; cf. *Ross* 1959 p 6. See also *National Commission on New Technological Uses of Copyrighted Works* 1978 p 32.

⁹³ See *Apple Computer Inc v Franklin Computer Corp* 545 F Supp 812 (ED Pa 1982) p 820; *Computer Associates International Inc v Altai Inc* 775 F Supp 544 (EDNY 1991) pp 559–560. As regards the applicability and relevance of such *dicta*, see n 51, above.

⁹⁴ *Brooks*, Computer 1987 pp 11–12.

4 DERIVATIVE SOFTWARE

In order for a work to be protected by copyright, it is necessary to show that the work satisfies the particular requirements that are imposed on it (Berne Convention art 2).⁹⁵ Should a work lie outside these boundaries, it does not qualify for protection at all. That being so, a computer program that is not an intellectual creation of its author but a platitudinous executable cobbled together from pre-existing snippets of code is not original and therefore not protected.⁹⁶ Similarly, the protection of Berne Convention does not apply to utilitarian items of press information, which are presupposed to lack intellectual creation (Berne Convention art 2(8)).

Furthermore, as regards protected works, merely acts that fall within the restricted category of the right holder's exclusive rights may constitute a copyright infringement. The assessment of both protectability and infringement is categorical, not quantitative, and imitation is *e contrario* permissible as long as it is directed towards unprotected elements or resorts to no prohibited methods, or both.⁹⁷ In the area of intellectual property law, property rights are created in a range of subject matters but, allegedly for the sake of freedom of competition, there is a limited list of recognised phenomena.⁹⁸ Therefore, if a form of mental or creative labour is not encompassed by this *numerus clausus*, the holder of the property lacks the right to exclude others therefrom, save where the set of provisions concerning unfair competition provides to the contrary.⁹⁹

However, as noted above, when a computer program is translated, adapted, arranged or altered in any other way, the program proper remains the same for copyright purposes.¹⁰⁰ Such alterations are merely expressions of the original work. The person who alters a program is granted copyright in the alteration, but her right to dispose of it is derivative on the core copyright (Computer Programs Directive 2009/24 art 4(1)(b)).¹⁰¹ Some Conti-

⁹⁵ Cf. Convention on the Grant of European Patents, as amended (adopted 5 October 1973, entered into force 7 October 1977) [2003] 4 OJ EPO Spec Ed 55 arts 52–57.

⁹⁶ See text to n 68, above.

⁹⁷ See *American Safety Table Co v Schreiber* 269 F2d 255 (2d Cir 1959) p 272; *Spence*, LQR 1996 pp 482–483. See also *Geiger*, IIC 2004 p 272.

⁹⁸ *Consten and Grundig v Commission* (n 36) p 342; Case C-38/98 *Régie nationale des usines Renault SA v Maxicar SpA and Orazio Formento* [2000] ECR I-2973 para 31.

⁹⁹ Paris Convention for the Protection of Industrial Property, as amended (adopted 14 July 1967, entered into force 26 April 1970) 828 UNTS 305 art 1(2). See also *Kamperman Sanders* 2009 p 573.

¹⁰⁰ See pt 3.1, above.

¹⁰¹ See also *Raz* 1988 pp 168–170.

mental copyright statutes include a concept of “free connection with another work”. Thereby, if a person has drawn freely on a work to create a new and independent work, her copyright is not subject to the right in the original work.¹⁰² The provision pertains to situations where the inspiration for creating an original work comes from a pre-existing work, but where the latter is not being utilised in an infringing manner. As regards alterations, the form of the underlying work is preserved so that the final result is likely to arouse an experience of similitude between the works. Under free connection, however, the new work cannot be identified with the pre-existing one,¹⁰³ or the connection is insomuch loose that it is deemed to have no relevance to the matter in terms of copyright.¹⁰⁴

A new and independent work, drawn in free connection with another work, was held to be at hand in case KKO 1979 II 64. The defendant had painted a picture drawing on a published photograph made by the claimant. The defendant had exhibited the picture in public and offered it for sale. The Supreme Court of Finland held, however, that the picture was not a copy of the photograph, but a new and independent work that had been created “on the basis” of the latter. Taking into consideration the principle of free connection with another work, finding expression in section 4(2) of the Copyright Act 1961 (Finland), the charge and claim for damages with which the defendant was proceeded against were dismissed.¹⁰⁵

Conceptual sorting of this sort, nonetheless, is in practice reiterating the classical dichotomy between an idea and the method of implementation. Provisions regarding free connection are dispensable in the sense that the outcome was the same even without that section of law.¹⁰⁶ They may elucidate the legal state but provide no help for the very task of assessing similarity. After all, infringement disputes may be reduced to a question whether two or more works are similar to the extent that, in legal terms, they are to be considered one and the same.¹⁰⁷

¹⁰² See Act on Copyright and Related Rights 1965 (Germany) s 24(1); Act on Copyright in Literary and Artistic Works 1960 (Sweden) s 4(2); Copyright Act 1961 (Finland) s 4(2).

¹⁰³ *Auktorrättskommittén*, SOU 1956:25 p 136; *Harenko – Niiranen – Tarkela* 2006 p 59.

¹⁰⁴ KKO 1971 II 44; NJA 2005 s 905. See also *Hietanen*, DL 2009 p 154 concerning parody as a limitation on copyright.

¹⁰⁵ KKO 1979 II 64. *Cf.* KKO 1964 II 59, where the Court held that the defendant’s work was not an adaptation of the claimant’s work, but congruences between those two works were a consequence of the fact that both parties had in the preparation of their books, respectively, leant on foreign texts on the same field.

¹⁰⁶ *Haarmann* 2005 pp 64–66; *Kemppinen* 2006 p 146.

¹⁰⁷ *Cf. Zhao – Zhao*, CIT 2009 p 159.

The problem is the area residing in the continuum between two original works. In social terms, originality is an continuous magnitude, for in the real world it is possible to separate out, for example, an extremely original, a remarkably original, a somewhat original, a slightly original and a minimally original work from a direct plagiarist. But a judge must use discrete values: a work or an element thereof is either original or not.¹⁰⁸ Should the answer be in the negative, any possible rights in such a derivative work are *prima facie* subject to authorisation by the right holder of the pre-existing work upon which it is based.

4.1 Abstraction–filtration–comparison test

The analytic dissection of software in order to isolate protectable expression has been elaborated furthest in the US. There, the test for assessing copyright infringement claims with regard to computer programs is founded on the statutory notion of a “derivative work”, which is in 17 USC § 101 defined to mean

... a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications, which, as a whole, represent an original work of authorship, is a “derivative work”.

17 USC § 103(b) further provides that the copyright in a derivative work extends only to the material contributed by the author of such work, as distinguished from the pre-existing material employed in the work, and does not imply any exclusive right in the pre-existing material. The provisions concerning derivative works accentuate copyright’s nature as a negative right.¹⁰⁹ A translator of a novel has the right to prohibit other persons from acting in certain ways in respect of her translation, irrespective of the fact that her right is derived and therefore dependent upon the copyright in the novel.

¹⁰⁸ See also *Dworkin* 1977 p 59.

¹⁰⁹ See *Alfred Bell & Co v Catalda Fine Arts* 191 F2d 99 (2d Cir 1951) p 103 fn 16; *CIR v Ferrer* 304 F2d 125 (2d Cir 1962) p 133.

As for substantive aspects, in any suit for direct copyright infringement, the claimant must establish that it is the holder of a valid copyright or has the right of action as the proper party in respect of such copyright, and that the defendant has copied the copyright work.¹¹⁰ It is settled case law that the defendant's copying, in the US, may be established either by direct evidence or by showing that it has had access to the copyright work, and the work in dispute is substantially similar to pre-existing material.¹¹¹ The requirement of substantiality means that copying as such does not forge legal consequences unless it has occurred to a certain extent.¹¹² Substantial similarity is a legal proposition, the question of which arises once probative evidence of plagiarism has been observed.¹¹³

Not surprisingly, Americans have found it extremely difficult to extrapolate the measure of similarity that in fact constitutes a substantial similarity. It appears that there is no commensurable rule but the outcome of the analysis varies according to the amount of creative effort put in the work. Depending on the latter, in some circumstances substantial similarity may be found on a relatively low level, whereas in some cases the threshold is considerably high.¹¹⁴ In any event, the assessment of substantiality should be made in relation to the claimant's work. If the copied fragments are either in quantitative or qualitative terms substantial parts of the original work, the trier of fact may properly find infringing similarity, irrespective of their significance in defendant's work.¹¹⁵ At the end of the day, a decision on substantial similarity is a subjective value statement.¹¹⁶

It stands to reason that the literal elements of a computer program, namely the source and object code thereof, are subject of copyright protection (17 USC § 101).¹¹⁷ In addition, copyright protection generally extends beyond the strictly textual form of a literary work to its non-literal components in a way that, for the purposes of copyright infringement, two works do not have to be literally identical to be found to be substantially simi-

¹¹⁰ *Feist Publications Inc v Rural Telephone Service Co Inc* 499 US 340 (1991) p 361. On the standing to sue, see *Nimmer – Nimmer* 2009 § 12.02. Cf. *Sorvari* 2007 p 399.

¹¹¹ *Novelty Textile Mills Inc v Joan Fabrics Corp* 558 F2d 1090 (2d Cir 1977) p 1092; *Robert R Jones Associates Inc v Nino Homes* 858 F2d 274 (6th Cir 1988) pp 276–277; *Laureyssens v Idea Group Inc* 964 F2d 131 (2d Cir 1992) p 140.

¹¹² *Newton v Diamond* 388 F3d 1189 (9th Cir 2004) p 1193.

¹¹³ See *Latman*, Colum L Rev 1990 p 1189.

¹¹⁴ *Nimmer – Nimmer* 2009 § 13.03[A].

¹¹⁵ *Ibid.* § 13.03[A][2]. Cf. *Bridgeport Music Inc v Dimension Films* 410 F3d 792 (6th Cir 2005) p 801.

¹¹⁶ See *Folsom v Marsh* 9 F Cas 342 (Cir Mass 1841).

¹¹⁷ *Report from the Committee on the Judiciary*, HR (1976) 94-1476 p 54.

lar.¹¹⁸ Due to the nature of such similarity, the finding that the fundamental pattern of one work is duplicated in another necessitates a certain level of abstraction.¹¹⁹ The legal praxis of US courts contains, roughly speaking, two competing proposals for the appropriate test for substantial similarity in the non-literal elements of computer programs.

The first test was formulated by the US Court of Appeals for the Third Circuit in *Whelan*.¹²⁰ According to the court, computer programs are utilitarian works whose idea is the purpose or function thereof. As a consequence, everything that is not necessary for that function is expression. Hence, where there are various means of achieving a desired purpose, a particular means enjoys copyright protection.¹²¹ The “structure” of a program, for example, is such a means.¹²² For determining substantial similarity in software cases, the Third Circuit shared the view that, as a result of the complex materials involved in such cases, expert testimony is essential to the analysis, for no lay person is able to tell, which parts of a computer program repeat trivial matters and which are results of creative selection.¹²³ In conclusion, however, the *Whelan* test assumes that only one idea, such as “the efficient management of a dental laboratory”, underlies any computer program and that substantial similarity may be established by comparing parts that handle most important tasks of programs.¹²⁴ Such static abstraction process leads to expansive interpretation of expression and would, in practice, signify very strong copyright protection for software architecture.

An antithesis was to follow. The Second Circuit faced in *Altai* perceptibly the same problem as was present in *Whelan* but, apart from the stand on the relevance of expert testimony, declined to follow its *ratio decidendi* on the grounds that each software component has its own purpose, whereupon a monolithic description is ineluctably inadequate.¹²⁵ Instead, the court suggested that, when determining whether non-literal elements of software are substantially similar, (a) the allegedly infringed program must

¹¹⁸ *Nichols v Universal Pictures Corp* (n 55) p 121; *Horgan v Macmillan Inc* 789 F2d 157 (2d Cir 1986) p 162; *Stewart v Abend* 495 US 207 (1990) p 238.

¹¹⁹ *Nimmer – Nimmer* 2009 § 13.03[A][1].

¹²⁰ *Whelan Associates Inc v Jaslow Dental Laboratory Inc* 797 F2d 1222 (3d Cir 1986).

¹²¹ *Ibid.* pp 1236–1237.

¹²² *Cf.* pt 3.3, above.

¹²³ See *EF Johnson Co v Uniden Corp of America* 623 F Supp 1485 (D Minn 1985) p 1493. See also Federal Rules of Evidence r 706(a).

¹²⁴ *Whelan* (n 120) pp 1236 fn 28, 1246. See also *Karjala*, EIPR 1994 p 59.

¹²⁵ *Altai* (n 58) pp 697–698.

be abstracted into its constituent structural parts, (b) protectable expression therein must be filtered from non-protectable material and (c) the results must be compared against the material structure of the allegedly infringing program.¹²⁶

Consequently, the nature and thereby level of abstraction in the *Altai* test is quite different. Under this approach, the manifestations of a computer program are weighted in the similarity assessment on the grounds of their “ontology”. Main weight is placed on the code itself and the importance credited with similarity is gradually reduced as the examination passes from less concrete to completely abstract elements.¹²⁷ By implication, it is primarily for the patent law to offer protection for software architecture, inasmuch as copyright protection is concentrated predominantly on the most concrete, textual elements.¹²⁸

4.2 Ibcos test

The abstraction–filtration–comparison method has been widely adopted in the US case law. According to Lemley and others, since *Altai*, in each tried case where the court has had to determine substantial similarity in the non-literal aspects of computer programs, the present method has been chosen over that of *Whelan*.¹²⁹ In the UK, however, the test of abstraction and filtration of the “core of protectable expression” was disapproved in the landmark case of *Ibcos*, on the grounds that examining the structural components at each level of abstraction to determine whether their particular inclusion at that level is “idea” merely complicates the matter and does not represent the English law.¹³⁰

Instead, the Chancery Division held that, for any claim in copyright, it suffices to adopt a statutory four-stage test. In accordance with the provisions of the Copyright, Designs and Patents Act 1988 (UK), the questions to be asked are as follows:¹³¹

¹²⁶ *Ibid.* p 706.

¹²⁷ *Rinck*, EIPR 1992 p 352.

¹²⁸ See *Gottschalk v Benson* 409 US 63 (1972) p 71; *Diamond v Diehr* 450 US 175 (1981); *Gable – Leahey*, RCTLJ 1991 p 137; *Barton* 1993 p 265. See also *Re Bilski* 545 F3d 943 (Fed Cir 2008) p 1010.

¹²⁹ *Lemley and others* 2006 p 54.

¹³⁰ *Ibcos* (n 73) p 302. Cf. *Total Information Processing Systems Ltd v Daman Ltd* [1992] FSR 171 (Ch) pp 180–181.

¹³¹ *Ibcos* (n 73) p 289.

- (a) What are the work or works in which the claimant claims copyright?
- (b) Is each such work original?
- (c) Was there copying from that work?
- (d) If there was copying, has a substantial part of that work been reproduced?

Under the *Ibcos* test, computer programs are seen as compilations of inter-related software modules. Each individual module may be subject to copyright protection, provided that it outruns the threshold of originality.¹³² In addition, the computer program *per se* may enjoy copyright protection as a compilation, including for the structure and design features thereof.¹³³ Inasmuch as the copyright subsisting in the whole program pertains to the particular manner of combining various modules, such compilation protection for software architecture is somewhat thin and easy to circumvent. If in a trial it has been established that there has been copying from a computer program to another, it is a value judgement of the court to assess whether such appropriation is greater than or equal to the abstraction of “substantial part”.¹³⁴

The last-mentioned was discussed in further detail in *Cantor Fitzgerald*. Programming languages differ from human languages in the fact that their specification is far stricter and more vulnerable to errors. Whereas literary works addressed to humans may well *work* in spite of solecisms, literary works whose only purpose is to make a machine operate must follow the defined syntactic and semantic rules, which inevitably affects the available forms of expression. This might lead to a conclusion that, for the purposes of copyright law, each part of a computer program would be substantial. It is, however, on the contrary: modules whose expression does not demonstrate relevant skill and labour expended by the author do not meet the prerequisite for the subsistence of copyright and are therefore filtered out from the test of substantiality as non-protected.¹³⁵

It should be noted that whilst both the *Altai* and *Ibcos* tests have been formulated to proceed in a certain strict order, the structures thereof are not commensurable. Under the latter, the first three questions act merely as a starting point for the analytical deconstruction. These preliminary phases pertain to the work as a whole and must, by reason of the subject matter, be

¹³² See also *Infopaq International* (n 63) para 39.

¹³³ *Ibcos* (n 73) pp 292–293; *Cantor Fitzgerald* (n 73) para 77.

¹³⁴ Cf. text to n 116, above.

¹³⁵ *Cantor Fitzgerald* (n 73) paras 73–76.

conducted successively. The fourth question, *i.e.* the substantiality assessment in relation to various elements of the work, is a similar enquiry to that of the *Altai* test but without the sequential straightjacket of the abstraction–filtration–comparison methodology.

The substantiality of appropriated parts must be judged against the collection of modules viewed *en bloc*. In so doing, the importance of what has been taken in relation to the defendant’s software is of no relevance, for the impression is exclusively dependent upon the role that the incorporated features play in the original work.¹³⁶ The application of the *Ibcos* test is strongly connected with the doctrine of substantial part.¹³⁷ However, most civil law copyright acts contain no corresponding statutory notion. Would the present test, nevertheless, be applicable in whole the Union? In order to answer that question, the issue of substantiality, together with other potential material divergences between the common law systems and Continental jurisdictions in their treatment of copyright, must still be examined.

5 APPLICABILITY OF UNION-WIDE TEST

It is an often-repeated utterance that the common law copyright model is primarily directed towards the protection granted in the marketplace, whereas the civil law *droit d’auteur* more clearly protects the personality of an author.¹³⁸ Such variations in the foci stem from different premises having been used to justify the creation of a monopoly with regard to certain creations of human intelligence.¹³⁹ Whereas the founding fathers of the US enacted that authors ought for a limited time to enjoy exclusive rights to their works “to promote the Progress of Science and useful Arts” (Constitution (US) art I, § 8, cl 8), the Romanicists and Germanists derived the legitimacy of copyright from the *Persönlichkeitsrecht* of the author.¹⁴⁰

Emphasising the promotion of public interest is typical for the Anglo-American doctrine, but that does not mean that it would be free from orientations as to authors; already the Copyright Act 1709 (8 Anne c 19)

¹³⁶ *Warwick Film Productions Ltd v Eisinger* [1969] 1 Ch 508 p 533; *Designers Guild Ltd v Russell Williams (Textiles) Ltd* [2000] 1 WLR 2416 (HL) p 2426.

¹³⁷ See *Deazley* 2004 pp 79–85.

¹³⁸ *Stewart* 1983 pp 6–8; *Rahmatian*, Ent L R 2000 p 97; *Guibault* 2002 pp 7–8; *von Lewinski* 2008 p 33.

¹³⁹ See *Plant*, *Economica* 1934 pp 169–170.

¹⁴⁰ See *Gierke* 1895 pp 764–768; *Kohler* 1907 pp 15–16.

speaks of protecting them from “their very great detriment”. Comparably, the reports of the French revolutionary parliaments contain also society-centred views.¹⁴¹ Protecting the economic value of one’s work¹⁴² or protecting the creative personality that has been embodied in a work¹⁴³ – in the end, it is a matter of justifications given to a particular legal institution which, irrespective of philosophical roots, both financially rewards authors and enables dissemination of their creations to the public.¹⁴⁴

Starting from a given premise tends to lead to certain propositions. To that end, for example, a UK copyright is transmissible by assignment (Copyright, Designs and Patents Act 1988 (UK) s 90(1)), whereas in those authors’ right states that have adopted a monistic theory thereof an author may, at most, grant an exclusive license to use the work in particular manners.¹⁴⁵ Where economic and moral rights are seen as separate elements of author’s legal position, copyright may with binding effect be assigned in full or in part, subject to the provision that moral rights may be waived only in relation to uses that are limited as to their character and scope.¹⁴⁶ What is more relevant in this context, however, is the fact that the commercial results, *i.e.* conclusions, appear not to be that dissimilar.¹⁴⁷ Therefore, the following examination is focussed on the three issues that, possibly, have the ability to influence the substantial outcome of this study, namely the criteria, scope and exceptions of protection.

5.1 Subsistence of copyright

The concept of originality with regard to computer programs has already been discussed.¹⁴⁸ EU secondary legislation contains a statutory definition of the concept, according to which originality is parallel to being “the author’s own intellectual creation” (Computer Programs Directive 2009/24

¹⁴¹ *Le Chapelier – Baetens* 1791.

¹⁴² *Locke* 1698 para 42.

¹⁴³ *Neustetel* 1824 p 30.

¹⁴⁴ See *Lilla Montagnani – Borghi*, IJCLP 2008 pp 248–249.

¹⁴⁵ Act on Copyright in Literary and Artistic Works and Related Rights 1936 (Austria) s 24(1); Act on Copyright and Related Rights 1965 (Germany) s 31(1). See *Rahmatian*, Ent L R 2000 p 101.

¹⁴⁶ Act on Copyright in Literary and Artistic Works 1960 (Sweden) ss 3(3), 27(1); Copyright Act 1961 (Finland) ss 3(3), 27(1).

¹⁴⁷ See *Goldstein* 2001 p 4; *Kemppinen* 2006 p 92; *Dutfield – Suthersanen* 2008 p 78 ff. See also *Ginsburg*, Tul L Rev 1990 p 1023.

¹⁴⁸ See pt 3.2, above.

art 1(3)), a notion acquired from Article 2(5) of the Berne Convention.¹⁴⁹ The meaning of intellectual creation was further elaborated by the Court of Justice in *Infopaq International*. On the grounds of the considerations expressed therein, it appears that originality in software modules is to be found relatively easily so as to give copyright protection a broad interpretation.¹⁵⁰ Considered in isolation, generalised algorithms are not intellectual creations as such, but through choice, sequence and combination of algorithms, an intellectual creation may result.¹⁵¹

The criteria for determining whether or not a computer program is an original work, set forth in the Computer Programs Directive 2009/24, has been incorporated as such into section 69a(3) of the Act on Copyright and Related Rights 1965 (Germany). In the UK, a reference to “intellectual creation” is used in the act only in respect of databases (Copyright, Designs and Patents Act 1988 (UK) s 3A(2)). Otherwise courts are still operating under the terminology of author’s skill and labour, which copyright is said to protect;¹⁵² both *Ibcos* and *Cantor Fitzgerald* refer to such qualities as the test of originality.¹⁵³ Nordic copyright acts do not expressly mention originality at all, but the requirement has been considered an implicit attribute of the verb “create”, as distinct from “produce”.¹⁵⁴ However, the Supreme Court of Finland affirmed in case KKO 2008:45 the court of appeal’s judgement in which the originality of computer programs was assessed by virtue of the Computer Programs Directive 91/250.¹⁵⁵

The effect of *Infopaq International* on the legal praxis in member states remains yet to be seen. In any event, the Court of Justice has recurrently stressed that the need for uniform application of EU law and the principle of equality require that provisions that make no express reference to the law of member states for the purpose of determining their meaning and scope must be given an autonomous and homogenous interpretation

¹⁴⁹ See also Databases Directive 96/9 art 3(1); Directive 2006/116/EC of the European Parliament and of the Council on the term of protection of copyright and certain related rights [2006] OJ L372/12 art 6.

¹⁵⁰ *Arg. Infopaq International* (n 63) paras 36, 40–43.

¹⁵¹ *Ibid.* para 45. See also *Koktvedgaard* 1999 p 64.

¹⁵² See *Laddie – Prescott – Vitoria* 1995 p 47 ff.

¹⁵³ *Ibcos* (n 73) p 303; *Cantor Fitzgerald* (n 73) para 76.

¹⁵⁴ Act on Copyright in Literary and Artistic Works 1960 (Sweden) s 1(1); Copyright Act 1961 (Finland) s 1(1). See *Tekijänoikeuskomitea*, KM 1953:5 p 44; *Kivimäki* 1966 p 48.

¹⁵⁵ KKO 2008:45 para 4. Cf. *Karnell*, Sc St L 2002 p 78.

throughout the Union.¹⁵⁶ Arguably, therefore, variations in the national nomenclature should have no material effect on the subsistence of copyright in computer programs and hence the second stage of the *Ibcos* test.

5.2 Infringement assessment

Pursuant to section 16(3)(a) of the Copyright, Designs and Patents Act 1988 (UK), an act restricted by the copyright in a work may be done in relation to the work as a whole or any substantial part of it. Accordingly, the fourth stage of the *Ibcos* test speaks about reproducing a substantial part of a computer program. In the European legislation, the concept of substantiality can be found in Chapter III of the Databases Directive 96/9 concerning the *sui generis* right. Taking the nature and preconditions of such right into consideration, however, it is doubtful whether the provisions therein and the case law regarding their interpretation could be of use in respect of copyright proper (*arg.* Databases Directive 96/9 arts 1(2), 1(3), 7). The phrase “substantial part” has no statutory definition, so that it has been for the judiciary to endeavour to phrase the more precise meaning and scope thereof.¹⁵⁷

As noted above, the substantiality of the part of the work copied is not a statutory prerequisite for infringement in most parts of the Union. Rather, it is a common legislative solution that the copyright act contains an express or implied prohibition of infringement and, in accordance with the Enforcement Directive 2004/48, the list of remedies applying thereto without further elucidating what exactly constitutes an infringement.¹⁵⁸ In practice, the dividing line between permitted and prohibited copying and alteration is determined by comparison of similarity between two works (*cf.* Computer Programs Directive 2009/24 art 6(2)(c)). Presentation of evidence by expert witnesses is heard in the trial regarding to what extent the pre-existing work and the allegedly infringing copy thereof are similar in

¹⁵⁶ Case C-245/00 *Stichting ter Exploitatie van Naburige Rechten v Nederlandse Omroep Stichting* [2003] ECR I-1251 para 23; Case C-306/05 *Sociedad General de Autores y Editores de España v Rafael Hoteles SA* [2006] ECR I-11519 para 31.

¹⁵⁷ See *Sillitoe v McGraw-Hill Book Co (UK) Ltd* [1983] FSR 545 (Ch) p 549; *Ibcos* (n 73) p 302; *Cantor Fitzgerald* (n 73) para 79.

¹⁵⁸ Directive 2004/48/EC of the European Parliament and of the Council on the enforcement of intellectual property rights [2004] OJ L157/45 c II. See Act on Copyright in Literary and Artistic Works 1960 (Sweden) c 7; Copyright Act 1961 (Finland) c 7; Act on Copyright and Related Rights 1965 (Germany) pt 4.

the sense related to the law of copyright. The court, for its part, assesses what legal relevance the perceived similarity should have to the matter.¹⁵⁹ In similarity assessment, attention is paid to the degree of similitude between two works, the general impression as well as the relevance of differences in such impression.¹⁶⁰

It appears that in the Anglo-Saxon legal order, at least in theory, a clear separation of the prerequisite for the subsistence of copyright and the prerequisite for infringement is made,¹⁶¹ whereas in Continental jurisdictions, due to the lack of such division in the statute, the interrelationship of infringement assessment with the originality of both the works in question is more intimate.¹⁶² As regards the civil law system, consideration is directed towards the original parts of the works and brushes aside the unoriginal elements. If no substantial similarity can be found then, *argumentum e contrario*, works are to be deemed independent creations, so that infringement is out of the question. In view of the required level of originality with regard to computer programs and cases such as *Fash 2000*, a conclusion that a work has been created in “free connection” with another work should arguably be especially feasible in the domain of software.¹⁶³

In Finland, for example, the Copyright Council has held that unoriginal elements are to be shifted out from the assessment of similarity in software and the infringement enquiry should focus on whether the defendant has copied any aspect of the protected expression.¹⁶⁴ Under the common law approach, even where copying has demonstrably taken place, there is infringement only if the copying comprises a substantial part of the work.¹⁶⁵ A court might determine that only insubstantial parts of a pre-existing program have been included in an alteration, so that the claim would fail. Faced with similar circumstances, a civil law court might conclude that the defendant’s program has been created in an original manner without using the protected elements of the claimant’s program, whereupon both pro-

¹⁵⁹ *Helin*, LM 1978 pp 652–653. See also *Gimeno Olcina*, IIC 1998 p 909.

¹⁶⁰ *Oesch*, LM 2005 p 363.

¹⁶¹ See *Ibcos* (n 73) pp 291–292. Cf. pt 4, above.

¹⁶² *Gimeno Olcina* 2002 pp 341–343.

¹⁶³ Cf. *Drexler* 1994 p 52.

¹⁶⁴ *Copyright in computer programs* Opinion 1998:16 (Tekijänoikeusneuvosto) p 10; *Protection of a computer program* Opinion 2006:5 (Tekijänoikeusneuvosto) p 11.

¹⁶⁵ *Cornish*, EIPR 1989 p 392.

grams enjoy protection independently.¹⁶⁶ There is an underlying common logic in these approaches.

The House of Lords has held that quality ought to be more determinative in assessing substantiality than quantity, which should have the effect of bringing the different systems nearer.¹⁶⁷ Furthermore, the UK holding that only original parts of a computer program are capable of constituting a substantial part thereof is another unifying factor.¹⁶⁸ However, the result of such cases is not necessarily the same in each jurisdiction. Whereas the fourth stage of the original *Ibcos* test is concerned with substantiality exclusively in relation to the pre-existing work, the Continental similarity comparison must pay attention to the protectable expression of both works. Even then, such disparity does not, in my opinion, render the test unworkable as such. By adapting its formulation to accommodate to jurisdictional traits, an amended version of the *Ibcos* test may be used to try software claims under the European copyright law.

5.5 Defences

Certain acts that might otherwise constitute an infringement of copyright do not incur liability. In the UK, the most extensive of the various permitted acts are the fair-dealing defences, according to which no measures that may be considered “fair” will constitute infringement of the copyright in a work, provided that they are carried out for one of the permitted purposes (Copyright, Designs and Patents Act 1988 (UK) ss 29, 30).¹⁶⁹ Continental legislators have mainly chosen to proceed with a catalogue of exceptions to copyright which, by contrast, tend to exclude private copying rather categorically from the scope of exclusive rights under copyright, apart from

¹⁶⁶ See *Copyright of the author of a computer program* Opinion 1996:3 (Tekijänoikeusneuvosto) para 1; *Level of originality and protection of a computer program* Opinion 2006:12 (Tekijänoikeusneuvosto) p 9; *Copyright in a music application* Opinion 2008:13 (Tekijänoikeusneuvosto) p 16.

¹⁶⁷ *Ladbroke (Football) Ltd v William Hill (Football) Ltd* (n 67) pp 276–277; *Designers Guild Ltd v Russell Williams (Textiles) Ltd* (n 136) p 2341; *Newspaper Licensing Agency Ltd v Marks & Spencer plc* [2001] UKHL 38, [2003] 1 AC 551 para 19.

¹⁶⁸ *Cantor Fitzgerald* (n 73) para 76.

¹⁶⁹ See *Hubbard v Vosper* [1972] 2 QB 84 (CA) p 94; *Nora Beloff v Pressdram Ltd* [1973] FSR 33 (Ch) p 61; *Time Warner Entertainments Co LP v Channel Four Television Corp plc* [1994] EMLR 1 (CA) p 14.

computer programs and databases accessible by electronic means.¹⁷⁰ On the “modified Ricketson” spectrum for breach of confidence and copyright,¹⁷¹ the exception of reproductions made for private use lays in the category of right to remuneration, for the right holders are deemed to receive fair compensation, as required in Article 5(2)(b) of the Information Society Directive 2001/29, under a system of charging or levying in respect of certain devices and media.¹⁷²

As regards fair dealing, the categorisation of computer programs as literary works means that the possibility of such a defence cannot be gainsaid *ex ante*. However, fair dealing does not infringe any copyright in a work only insofar it occurs for the purposes of research for a *non-commercial purpose* or private study. Research on programming that eventually leads to commercial exploitation of a substantial part of the subject matter cannot therefore count as fair dealing.¹⁷³ Thus, for all practical purposes, no other exceptions to the restricted acts are available in the commercial field within the EU than those set forth in Articles 5 and 6 of the Computer Programs Directive 2009/24.¹⁷⁴ The elements of defence against the exclusive rights of the right holder of software have been listed in Table 1, above.¹⁷⁵

The European concentration upon specific lists of exceptions may be contrasted with the general fair use defence of the US. Presumptively, commercial use of copyright material is an unfair exploitation of the exclusive rights of the right holder, but it does not negate the applicability of the doctrine *ipso facto*.¹⁷⁶ Thus, even if access and substantial similarity be-

¹⁷⁰ See Act on Copyright in Literary and Artistic Works 1960 (Sweden) ss 12(1), 12(2); Copyright Act 1961 (Finland) ss 12(1), 12(4); Act on Copyright and Related Rights 1965 (Germany) ss 53, 69d, 87c.

¹⁷¹ Firth 2008 pp 425–426.

¹⁷² E.g. the Government Decree on the Charges Pertaining to the Manufacture and Importation of Unrecorded Audio and Video Tapes and Other Storage Devices in 2010 (Finland) 1043/2009 provides that the charges vary from 0.50€ to 0.76€ in respect of analog media (s 1), from €0.20 to €1.80 in respect of digital media (s 2) and from €4.00 to €21.00 in respect of digital recording devices (s 3(1)). Pursuant to s 3(2), charge is not imposed on mobile phones or computers. Cf. Reference for a preliminary ruling in Case C-467/08 *Sociedad General de Autores y Editores de España v Padawan SL* [2009] OJ C19 p 12.

¹⁷³ Copyright and Related Rights Regulations 2003 (UK) SI 2003/2498 pt 2. See also *Wall*, EIPR 1990 p 311; *Lai*, EIPR 1997 p 527.

¹⁷⁴ Information Society Directive 2001/29 recital 50; *Commission (EU)*, SEC (2004) 995 p 7.

¹⁷⁵ See p 90.

¹⁷⁶ *Sony Corp of America v Universal City Studios Inc* 464 US 417 (1984) p 451; *Harper & Row Publishers Inc v Nation Enterprises* 471 US 539 (1985) p 562. Cf. *Campbell v Acuff-Rose Music Inc* 510 US 569 (1994) p 585.

tween the protectable elements of a pre-existing work and a commercially distributed, alleged plagiarist were proved, a court could under cogent circumstances end up dismissing the action on the grounds of the fairness of the usage.¹⁷⁷ Some commentators have suggested that the direct effect of the three-step test contained in the international copyright treaties could act as a European fair use defence.¹⁷⁸ However, the wording of the very test appears to contradict open-ended exceptions and various national courts and the WTO Panel, if anything, seem to have used it for *restricting* pre-existing defences.¹⁷⁹

6 CONCLUSIONS

The concept of “work” is abstract. A work may find expression in many forms but, for the purposes of copyright law, yet be the one and same. It is only where a new and original work has been created that the copyright therein is not invariably subject to the rights vested in a pre-existing work. However, assessing the degree of alteration and similarity with regard to computer programs is all but simple. What if a *prima facie* infringer admits to have “leaned on” another program but argues to have improved it independently to a substantial extent? Copying parts lying beyond the bounds of protection seems to be permissible, as well as incorporating elements that are commonplace or trite (*cf.* European Patent Convention art 56). Whereas patent law is concerned about an inventive step, copyright protection of software looks for objective originality in the sense of a creation involving human intellect.

In providing that the expression “literary and artistic works” includes every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression, Article 2(1) of the Berne Convention does not stipulate that such a work would necessarily need to be the production in whole. In the same way as the “following” rules in equity may safeguard property provided that the original asset remains identifia-

¹⁷⁷ 17 USC § 107 includes the factors to be considered in determining whether the use made of a work in any particular case is a fair use, but no single factor is determinative.

¹⁷⁸ *Geiger – Griffiths – Hilty*, EIPR 2008 p 495; *Geiger*, IIC 2008 pp 192–193; *He*, IIC 2009 pp 294–296. See also *Guibault and others* 2007 p 57.

¹⁷⁹ *United States – Section 110(5) of US Copyright Act* [1999] WT/DS160/R (WTO Panel); *Perquin v Universal Pictures Vidéo France* [2006] IIC 760 (Cour de cassation). See *Le* 2004 p 267; *Geiger*, EIPR 2007 p 487 fn 13. *Cf.* *Kopienversanddienst* [1999] I ZR 118/96, [2000] ECC 237 (BGH); *ProLitteris v Aargauer Zeitung AG* [2007] BGE 133 III 473 (BGer).

ble throughout the process,¹⁸⁰ an act in respect of a part of a copyright work may be such as to come within the exclusive rights of the right holder, if the element in question can be considered an expression of the intellectual creation of its author.¹⁸¹ However, should a copyright work or parts thereof be used in another work in a transformative way, so that the appropriated elements cannot be identified any longer, a finding of infringement is ruled out.¹⁸²

On the grounds of the perceptions put forward in this article, it is possible to formulate a general test that can be used for assessing software claims under European copyright law. The stages of the test are as follows:

- (a) What are the work or works in which the claimant claims copyright?
- (b) Is each such work original?
- (c) Was there copying from that work?
- (d) If there was copying, was it such as to constitute a *prima facie* infringement?
- (e) Is there nonetheless an exception to liability that covers the case?

The enquiry consists in the amended version of the English *Ibcos* test and rests on the doctrinal premises of European copyright law. Its formulation is suited to each description of work, but the idiosyncrasies of software can be catered for in the application thereof. Consequently, the work or works in which the claimant claims copyright may in the context of computer programs be the implementation of constituting software components, systems architecture, preparatory design material as well as various interfaces.¹⁸³ At this stage, it suffices to specify the separate forms of expression, for it is originality related to the law of copyright that determines their eligibility for protection. As regards the threshold of originality, the criteria to be applied has been laid down in the Computer Programs Directive 2009/24 and elaborated recently by the Court of Justice in *Infopaq International*. Any such work is original and thereby protectable if it is an expression of the intellectual creation of its author.

Due to the special characteristics of the subject matter, presentation of evidence by expert witnesses is, to all intents and purposes, essential in order to assess whether there has been copying of protectable expression.

¹⁸⁰ See *Worthington* 2008 p 90.

¹⁸¹ See pt 3.3, above.

¹⁸² Cf. *Neval*, Harv L Rev 1990 p 1111.

¹⁸³ See, to that effect, Reference for a preliminary ruling in Case C-393/09 *Bezpečnostní softwarová asociace v Ministerstvo kultury ČR* [2010] OJ C11 p 14.

But even if it is testified that there indeed was probative copying, it is not necessarily such as to constitute a *prima facie* infringement. For example, the use of the copyright work may have been so insignificant as to be *de minimis*, or the defendant may have drawn on the claimant's work inso-much freely that the former has eventually created a new and independent work, in which case the copyright therein is not subject to any rights in the pre-existing work. If, however, a substantial part of that work's protectable expression has been reproduced, as the case may be, or the protectable expressions of the two works are substantially similar, it is an arguable matter of copyright infringement. Yet, there might be an exception to liability that covers the case. Reproduction or alteration may have been necessary for the use of the computer program by the lawful acquirer in accordance with its intended purpose, or it may have been a matter of permitted copying, observing, studying or testing. Furthermore, in respect of decompilation, exploitation of the program may have met the necessary conditions obviating the requirement of authorisation. Introducing a uniform, structured test for claims in software copyright would standardise the judicial assessment of the legal framework harmonised at EU level.

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ABBREVIATIONS

| | |
|-------------|---|
| AG | Advocate General |
| All ER | All England Law Reports |
| BGE | Entscheidungen des Schweizerischen Bundesgerichts |
| BGH | Bundesgerichtshof |
| Cal L Rev | California Law Review |
| Ch | Chancery Division |
| CIT | Journal of Computing and Information Technology |
| Cmnd | Command paper |
| Colum L Rev | Columbia Law Review |
| COM | Commission document for other institutions |
| DL | Defensor Legis |
| ECC | European Commercial Cases |
| ECDR | European Copyright and Design Reports |
| ECLR | European Competition Law Review |
| ECR | European Court Reports |
| EIPR | European Intellectual Property Review |
| Ent L R | Entertainment Law Review |
| EPO | European Patent Office |
| EPOR | European Patent Office Reports |
| EU | European Union |
| Expertises | Expertises des systèmes d'information |
| F | Federal Reporter |
| FSR | Fleet Street Reports |
| F Cas | Federal Cases |
| F Supp | Federal Supplement |
| Harv L Rev | Harvard Law Review |
| HL | House of Lords |
| HR | House of Representatives |
| IBM | International Business Machines Corporation |
| IEEE | Institute of Electrical and Electronics Engineers |
| IIC | International Review of Intellectual Property and Competition Law |

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|---------------|--|
| IJCL | International Journal of Constitutional Law |
| IJCLP | International Journal of Communications Law and Policy |
| ILM | International Legal Materials |
| IJLIT | International Journal of Law and Information Technology |
| ILQ | International & Comparative Law Quarterly |
| IPQ | Intellectual Property Quarterly |
| JWIP | Journal of World Intellectual Property |
| KKO | Korkein oikeus |
| KM | Komiteanmietintö |
| L & Comp Tech | Law and Computer Technology |
| LM | Lakimies |
| LQR | Law Quarterly Review |
| MP3 | MPEG-1 Audio Layer 3 |
| MPEG | Moving Picture Experts Group |
| NIR | Nordiskt Immateriellt Rättsskydd |
| NJA | Nytt juridiskt arkiv |
| OJ | Official Journal of the European Union |
| OJLS | Oxford Journal of Legal Studies |
| PC | Privy Council |
| QB | Queen's Bench |
| RCTLJ | Rutgers Computer and Technology Law Journal |
| RPC | Reports of Patent Cases |
| Sc St L | Scandinavian Studies in Law |
| SEC | Commission document that cannot be classified in the other series |
| SOU | Statens offentliga utredningar |
| TFEU | Treaty on the Functioning of the European Union |
| TRIPS | Agreement on Trade-Related Aspects of Intellectual Property Rights |
| Tul L Rev | Tulane Law Review |
| UK | United Kingdom of Great Britain and Northern Ireland |
| UNTS | United Nations Treaty Series |
| US | United States Reports |
| USC | United States Code |
| WCT | WIPO Copyright Treaty |
| WIPO | World Intellectual Property Organization |
| WLR | Weekly Law Reports |
| WTO | World Trade Organization |

TIETOKONEOHJELMIEN TEKIJÄNOIKEUDELLINEN SUOJA. EUROOPPALAINEN NÄKÖKULMA

Tietokoneohjelmille annetaan Euroopan unionissa tekijänoikeudellista suojaa kirjallisina teoksina, joita tarkoitetaan kirjallisten ja taiteellisten teosten suojaamisesta tehdyn Bernin yleissopimuksen 2 artiklassa. Suoja koskee kaikkia tietokoneohjelman eri ilmaisumuotoja. Tietokoneohjelmien ilmaisutapa ja muoto eroavat kuitenkin huomattavasti muista kirjallisista teoksista. Tämän vuoksi, kun tekijänoikeudellisen suojan edellytyksiä ja sisältöä on arvioitu suhteessa tietokoneohjelmiin ja niiden erityispiirteisiin, tekijänoikeuden tulkinnallisia sitoumuksia on jouduttu venyttämään äärimmilleen.

Artikkelissa tarkastellaan tietokoneohjelmien tekijänoikeudellista suojaa Euroopan unionin alueella. Siinä käsitellään tekijänoikeudellisen työn, omaperäisyyden ja jäljittelyn käsitteitä, kun kyse on tietokoneohjelmasta, sekä yksinoikeuksia ja niitä koskevia poikkeuksia, kun teos on tietokoneohjelma. Artikkelissä esitetään ehdotuksen viisivaiheisesta testistä oikeudenloukkausten arvioimiseksi tietokoneohjelmien osalta. Testi nojaa ajatuksen tietokoneohjelmien analyttisestä jäsentelystä tekijänoikeudella suojatun muodon erottelemiseksi.

Euroopan unionin jäsenvaltioiden lait tietokoneohjelmien oikeudellisesta suojasta on yhdenmukaistettu Euroopan parlamentin ja neuvoston kodiifoidulla direktiivillä 2009/24/EY. Romaanis-germaanisten ja *common law*-järjestelmien välillä suoritettu oikeusvertaileva analyysi koskien sitä, miten tietokoneohjelmia käsitellään kansallisen lainsäädännön ja oikeuskäytännön tasolla eri oikeusjärjestyksissä, puoltaa johtopäätöstä, että on perusteltua omaksua myös yhdenmukaistettu testi oikeudenloukkausten arvioimiseksi. Myös Euroopan unionin tuomioistuin on tuoreessa praksiksessaan korostanut, että EU-oikeuden säännöksiä tekijän- ja lähioikeuksista on sovellettava yhtenäisesti koko unionissa.

Ehdotettu testi oikeudenloukkausten arvioimiseksi perustuu tekijänoikeuden yleisiin periaatteisiin. Asian aineellinen arviointi alkaa sen selvittämisellä, mitä teosta tai teoksia kanne koskee, ja täytyykö henkisen luomisen vaatimus siltä osin. Tämän jälkeen tulee selvittää, onko vastaaja suorittanut tai sallinut toimen, joka kuuluu oikeudenhaltijan yksinoikeuksien piiriin, ja mikäli näin on, onko kyse todennäköisestä oikeudenloukkauksesta. Ennen asian lopullista ratkaisemista on vielä arvioitava, soveltuuko tapaukseen jokin yksinoikeuksia koskeva poikkeus. Artikkelissä selvitetään tarkemmin, miten näitä yleisiä periaatteita tulisi soveltaa nimenomaan tietokoneohjelmiin.