

Of Industrious Authors and Artful Inventors: Industrial Works and Software at the Frontier of Copyright and Patent Law

*Jean-Philippe Mikus**

The frontier of copyright and patent law has long been the theatre of heated debate. This article examines in its first part the protection granted by copyright law for functional works typically found in an industrial environment. The second part of the article explores the challenges of copyright protection for non-literal aspects of computer software as well as numerous barriers that inventors have met when seeking to obtain patent protection in relation to software. We conclude by pointing to the uneasy situation of computer software in respect of which, on one hand, copyright protection is being attacked and, on the other hand, traditional patent law principles have shown limited openness to intangible products of industry

La frontière du droit d'auteur et du droit des brevets a longtemps été le théâtre de débats enflammés. Cet article examine dans une première partie la protection accordée par le droit d'auteur pour les oeuvres de nature fonctionnelle que l'on trouve généralement dans un environnement industriel. La seconde partie de cet article explore la protection des aspects non littéraires des logiciels de même que les nombreux obstacles auxquels les inventeurs ont dû faire face lorsqu'ils ont tenté d'obtenir la protection d'inventions liées à des logiciels. Nous concluons en présentant la difficile situation dans laquelle se trouvent les logiciels alors que la protection accordée par le droit d'auteur est attaquée et que les principes traditionnels de droit des brevets ont démontré une ouverture limitée aux produits industriels intangibles.

1. INTRODUCTION

The observer unschooled in the fine art of divining intellectual property law will undoubtedly wonder what relation could possibly exist between copyrights and patents. Copyright law has a soulful twang, everything to do with nourishing and entertaining the mind through novels, films, music, sculpture and nothing in common with machines

* LL.B., LL.M. (cantab); Partner, Fasken Martineau DuMoulin LLP, Montréal. The author would like to thank Mr. Marek Nitoslowski of Fasken Martineau DuMoulin LLP for his insightful comments on an earlier draft of this article.

rumbling on the shop floor. A cursory flip through the case law will forever cleanse such observer's mind of this naive preconception. A substantial quantity of material found in industrial settings is or may be described as literary or artistic works, as these are defined in the *Copyright Act*.¹ The industry that was the brightest star of the firmament at the close of the 20th century, the computer hardware and software industry, is one rambling mass of flow charts, circuit diagrams and textual constructs, but even on the decidedly low-tech end of the scale basic industrial parts are born in engineering drawings and product specifications. Witness the suggestion that genetic sequences may receive useful protection from copyright law and that chemical formulae have been the subject of heated copyright litigation. Patent applications themselves are works that undoubtedly attract copyright protection.

The definition of "originality", one of the cornerstones of copyright law, arguably gives little guidance on the demarcation between the realm of patents and that of copyright. Even the search for the mystic "creative spark" as a prerequisite for copyright protection that burns brightly in the United States since the mid 1980s² fails to draw a clear distinction. This is not in the least surprising because the inventiveness required in patent law can be said to be a close cousin to creative thinking.³ The Canadian test stated recently by the Supreme Court of Canada in *CCH Canadian Ltd. v. Law Society of Upper Canada*⁴ is that originality is present in a work independently created by the author using at least a minimal degree of skill and judgment. This test is in fact well suited to extending copyright protection to works typically found in an industrial environment.

1 R.S.C. 1985, c. C-42 [hereinafter the "*Copyright Act*"].

2 *Feist Publications Inc. v. Rural Telephone Service Co.*, 499 U.S. 539 (1985).

3 D.S. Karjala, "The Relative Roles of Patent and Copyright in the Protection of Computer Programs" (1998) 17 John Marshall J. of Comp. & Inf. Law 41, 44.

4 2004 SCC 13, 2004 CarswellNat 446, 2004 CarswellNat 447, 236 D.L.R. (4th) 395, 317 N.R. 107, 30 C.P.R. (4th) 1, [2004] S.C.J. No. 12 (S.C.C.) [hereinafter *CCH*], para. 16: "What is required to attract copyright protection in the expression of an idea is an exercise of skill and judgment. By skill, I mean the use of one's knowledge, developed aptitude or practised ability in producing the work. By judgment, I mean the use of one's capacity for discernment or ability to form an opinion or evaluation by comparing different possible options in producing the work. This exercise of skill and judgment will necessarily involve intellectual effort. The exercise of skill and judgment required to produce the work must not be so trivial that it could be characterized as a purely mechanical exercise."

We will therefore examine in this article how Courts and the legislator have struggled to unearth the proper boundaries between patent law and copyright law by focusing essentially on the extent of copyright protection for industrial works and software as they inevitably straddle this boundary. We will first shed light on the foundations of each of these two branches of intellectual property law to try to grasp the subject matter of each regime inasmuch as it is useful to determine boundaries. We will then survey how the Courts have enforced or not copyright in technical drawings and other works typically found in an industrial setting. We will take the opportunity to carefully explore if there are any fundamental obstacles to extend copyright protection to an industrial setting, for example, because “industrial” works do not fall within the categories of protected works established by the *Copyright Act* or because manufacturing three dimensional objects is not covered by the rights granted to the copyright owner. We will see that the legislator felt the need to intervene to limit the scope of copyright protection in areas close to patent law. We will then move on to the controversies surrounding one specific aspect of computer software, the protection of their non-literal structure, sequence and organization, or in other words their functional aspects. We will review various doctrines that limit copyright protection to determine to what extent they truly restrict the rights of the copyright owner, to find ultimately that there may exist an absence of protection of functional aspects, in which are concentrated much of software’s commercial value. Our review of restrictions on subject matter in patent law will reveal considerable reluctance to protect software *per se*, and consequently that there may exist a no man’s land in which software can benefit from no protection at all, a situation that would be cause for surprise given the ever growing economic importance of the software industry. We will adopt a Canadian perspective throughout our commentary, although, as has become inevitable in the field, we will be making frequent references to foreign law for purposes of discussion and illustration.

2. FOUNDATIONS OF COPYRIGHT AND PATENT LAW

(a) Nature of Copyright

The nature of copyright is at the heart of the disputes that surround its application to industrial settings. Arguably, the common thread running through all facets of copyright law is the protection of human expression, yet this does little to resolve the scope of copyright protection in relation to industrial works. The real question is whether expression

in functional or technical fields is entitled to the full extent of copyright protection. Although there is a wealth of writings discussing the foundations of copyright law, this aspect as we will see has been given only limited attention.

The main focus has been to determine whether copyright exists to reward the authors or to promote the advancement of learning, or both. A first attempt by the Supreme Court of Canada, in the *Bishop v. Stephens*⁵ case, cites with approval the reasons of a British case holding that the British copyright legislation of 1911 was adopted for the sole benefit of authors of all sorts, without, for our purposes, making distinctions between functional works and aesthetic works.⁶ A few years earlier, Reed, J., of the trial division of the Federal Court, had held a different view, namely that copyright “has two purposes: to encourage disclosure of works for the “advancement of learning”, and to protect and reward the intellectual effort of the author (for a limited period of time) in the work”.⁷ In the 1990s, the Federal Court of Appeal followed the *Bishop* case by affirming twice that copyright law exists for the benefit of authors (without making any distinctions amongst them) but without clearly stating that it exists solely for their benefit.⁸ The Supreme

5 [1990] 2 S.C.R. 467, 1990 CarswellNat 738, 1990 CarswellNat 1028, 72 D.L.R. (4th) 97, 31 C.P.R. (3d) 394, 111 N.R. 376 (S.C.C.) at 478-479 [S.C.R.].

6 In a recent decision of the Québec Superior Court, it was also recognized that (our translation) “protecting and rewarding the intellectual efforts of authors for a certain time” is one of the aims of the law: *Setym International inc. c. Belout*, 2001 CarswellQue 2657, [2001] R.R.A. 1051, [2001] J.Q. No. 3819 (Que. S.C.) at para. 103.

7 *Apple Computer Inc. v. Mackintosh Computers Ltd.* (1986), 10 C.P.R. (3d) 1, 1986 CarswellNat 606, 1986 CarswellNat 705, 8 C.I.P.R. 153, 3 F.T.R. 118, 28 D.L.R. (4th) 178, [1987] 1 F.C. 173 (Fed. T.D.) at 35 [C.P.R.], additional reasons at (1987), 1987 CarswellNat 675, 12 F.T.R. 287, 14 C.I.P.R. 315, 43 D.L.R. (4th) 184 (Fed. T.D.), varied (1987), 18 C.P.R. (3d) 129, 1987 CarswellNat 720, 1987 CarswellNat 887, 16 C.I.P.R. 15, [1988] 1 F.C. 673, 44 D.L.R. (4th) 74, 81 N.R. 3 (Fed. C.A.), affirmed 30 C.P.R. (3d) 257, 1990 CarswellNat 736, 1990 CarswellNat 1027, 110 N.R. 66, [1990] 2 S.C.R. 209, 71 D.L.R. (4th) 95, 36 F.T.R. 159 (note) (S.C.C.) [hereinafter *Mackintosh*]; Similar comments were made a few years later notwithstanding that the Supreme Court of Canada had taken a different view in the *Bishop* case: *Prism Hospital Software Inc. v. Hospital Medical Records Institute*, 57 C.P.R. (3d) 129, 1994 CarswellBC 451, 97 B.C.L.R. (2d) 201, [1994] 10 W.W.R. 305, 18 B.L.R. (2d) 1 (B.C. S.C.) [hereinafter *Prism*].

8 *Canadian Assn. of Broadcasters v. Society of Composers, Authors & Music Publishers of Canada* (1994), 58 C.P.R. (3d) 190, 1994 CarswellNat 1846, 175 N.R. 341 (Fed. C.A.) at 196 [C.P.R.]; *Tele-Direct (Publications) Inc. v.*

Court of Canada however recently retreated from the view held in the *Bishop* case. In *Galerie d'art du Petit Champlain inc. c. Théberge*,⁹ it took a position more consistent with the words of Reed, J. by holding that copyright law must achieve a balance between promoting the public interest in the encouragement and dissemination of works of the arts and of the intellect (*i.e.*, what is often called the “advancement of learning”) and obtaining a just reward for the creator (or, more accurately, to prevent someone other than the creator or his or her assignee from appropriating whatever benefits may be generated).¹⁰ The Court used this notion of balance to justify limiting the breadth of the reproduction right granted by s. 3 of the *Copyright Act*. This balancing appears to be favourably perceived by commentators.¹¹

In both of these cases, the Supreme Court of Canada had before it works that were removed from the technical sphere. In the *Théberge* case, paintings formed the backdrop to the dispute and in the later *CCH* case, where the principle was reaffirmed, the works claimed to have made a library liable for infringement were headnotes and other forms of legal writing. The introduction of this notion of balancing could perhaps have an impact on copyright protection for more technical works. The advancement of learning may have greater weight for industrial or scientific works which might justify certain distinctions between types of works. As this case law is fairly recent, the Courts have not had occasion to carry out balancing acts in relation to technical works. Perhaps this balancing could lay the foundation for a broad exclusion of functional aspects from the scope of copyright protection, although it should be said that this has historically been strongly resisted.

American Business Information Inc. (1997), 1997 CarswellNat 2111, [1997] F.C.J. No. 1430, 1997 CarswellNat 2752, 221 N.R. 113, 154 D.L.R. (4th) 328, 76 C.P.R. (3d) 296, 134 F.T.R. 80 (note), [1998] 2 F.C. 22, 37 B.L.R. (2d) 101 (Fed. C.A.) at 308 [C.P.R.], leave to appeal refused (1998), 1998 CarswellNat 3212, [1997] S.C.C.A. No. 660, 228 N.R. 200 (note), 78 C.P.R. (3d) v (note), 157 D.L.R. (2d) vii (note) (S.C.C.).

9 2002 SCC 34, 2002 CarswellQue 306, 2002 CarswellQue 307, 17 C.P.R. (4th) 161, 210 D.L.R. (4th) 385, 23 B.L.R. (3d) 1, 285 N.R. 267, [2002] 2 S.C.R. 336, [2002] S.C.J. No. 32 (S.C.C.) [hereinafter *Théberge*], paras. 30 and ff.

10 This dual foundation of copyright law was reaffirmed by the Supreme Court of Canada more recently in: *CCH*, *supra* note 4 at paras. 10, 23.

11 See: J.S. McKeown, *Fox on Canadian Law of Copyright and Industrial Designs*, 3d ed. (Toronto: Carswell, 2000) at 3; D. Vaver, *Copyright Law* (Toronto: Irwin Law, 2000) at 12-14; Although others criticize this approach as somewhat oversimplifying matters: S. Handa, *Copyright Law in Canada* (Markham: Butterworths, 2002) at 114-118.

Establishing a bright line rule is especially difficult, as we will see, when the legislator has mandated protection for largely functional works such as software.

From a cross-border perspective, some legal systems have leaned more heavily than others on philosophical or economic justifications, giving birth to the traditional rift between the so called “droit d’auteur” countries, which are in greater communion with philosophical foundations of natural rights, and which keep to a close orbit around the creator of works,¹² and countries of the “copyright” conviction, more closely following utilitarian economic precepts, and which pay greater attention to marketplace dynamics.¹³ The archetypical illustration of this dichotomy is a comparison of the laws of common law countries, more particularly American law, with continental European laws.¹⁴ In many ways, this mirrors on an international scale the two opposite poles between which Canadian Courts have now indicated that a balance must be achieved, the American approach exemplifying the need to look to the interests of society through the advancement of learning, and the Continental European approach by its focus on the author’s interests exemplifying the need for a just reward for the author. This so called rift has however become somewhat tainted with the passage of time, to the point where one of the issues currently being researched is whether the two approaches have in fact converged.¹⁵

What we have explored essentially shows a dual set of founding principles to copyright protection, one of them being perhaps less receptive to the extension of the protection to functional features. The

12 Philosophical approaches are multi-faceted, since philosophers, including Locke and Hegel, often have markedly distinct influences, see: J. Hughes, “The Philosophy of Intellectual Property” (1988) 77 *Georgetown L. J.* 287.

13 To observe an application of this approach, see for example: W.M. Landes, R. Posner, “An Economic Analysis of Copyright Law” (1989) *J. Legal Studies* 325.

14 On this topic, See: A. Strowel, *Droit d’auteur et copyright: Divergences et convergences: Étude de droit comparé* (Paris: Librairie générale de droit et de jurisprudence, 1993).

15 See, for example: P. Goldstein, *International Copyright: Principles, Law and Practice* (Oxford: Oxford University Press, 2001) at 3-8; T. Dreier, “Balancing Proprietary and Public Domain Interests: Inside or Outside of Proprietary Rights?” in R. Dreyfuss, D. Leenheer Zimmerman & H. First, *Expanding the Boundaries of Intellectual Property: Information Policy for the Knowledge Society* (Oxford, Oxford University Press, 2001) 295 at 298-303; P. Samuelson, “Economic and Constitutional Influences on Copyright Law in the United States” [2001] *E.I.P.R.* 409.

reality is that there are more than two possible founding principles,¹⁶ and it cannot be excluded that one or more of them will gain visibility on the judicial scene in the future, which ultimately could either contribute to the acceptance of functionality as an inherent part of some copyrighted works or result in an intensification of the movement to exclude it, exemplified by s. 64.1 of the *Copyright Act*, which we will have the leisure of explaining at length during the course of this article.

(b) Nature of Patents

The fundamental purpose for the grant of patents has been described as the encouragement of sciences and technical knowledge by, on the one hand, granting a monopoly for useful and novel inventions to entice inventors to file patent applications instead of holding their inventions in secret¹⁷ and, on the other hand, limiting the monopoly in time and conditioning the grant of the patent on a sufficient disclosure of the invention to enable the public to practice it at the expiration of the monopoly.¹⁸ The courts often refer to a “bargain” between the inventor and the public to describe the essence of the patent grant.¹⁹ The

16 See, for example: J.A.L. Sterling, *World Copyright Law* (London: Sweet & Maxwell, 1998) at 55-62; See also: S. Handa, *supra* note 11 at 89-135; J.-P. Mikus, *Droit de l'édition et du commerce du livre* (Montréal: Thémis, 1996) at 251-256.

17 This was one of the key mischiefs that the *Patent Act* attempts to resolve according to the minority of the Supreme Court of Canada in *Harvard College v. Canada (Commissioner of Patents)*, 21 C.P.R. (4th) 417, 2002 CarswellNat 3434, 2002 CarswellNat 3435, [2002] 4 S.C.R. 45, 2002 SCC 76, 219 D.L.R. (4th) 577, 296 N.R. 1, 235 F.T.R. 214 (note), [2002] S.C.J. No. 77 (S.C.C.) at 460 [C.P.R.] [hereinafter *Harvard*].

18 *Pope Appliance Corp. v. Spanish River Pulp & Paper Mills Ltd.* (1928), 46 R.P.C. 23, [1929] A.C. 269, [1929] 1 D.L.R. 209 (Canada P.C.); *Pioneer Hi-Bred Ltd. v. Canada (Commissioner of Patents)*, 60 D.L.R. (4th) 223, 1989 CarswellNat 533, 1989 CarswellNat 696, 25 C.P.R. (3d) 257, 25 C.I.P.R. 1, 97 N.R. 185, [1989] 1 S.C.R. 1623 (S.C.C.) at 232-233 [D.L.R.]; *Canadian Gypsum Co. v. Gypsum, Lime & Alabastine, Canada Ltd.*, [1931] Ex. C.R. 180, 1931 CarswellNat 36 (Can. Ex. Ct.) at 187 [Ex. C.R.]; See also: I. Goldsmith, “Patentable Subject-matter: Traditional Subject-matters”, in G.F. Henderson, *Patent Law of Canada* (Toronto: Carswell, 1994) 15 at 16.

19 See: *Free World Trust c. Électro Santé Inc.*, [2000] 2 S.C.R. 1024, 9 C.P.R. (4th) 168, 2000 CarswellQue 2728, 2000 CarswellQue 2731, 2000 SCC 66, 194 D.L.R. (4th) 232, 263 N.R. 150, [2000] S.C.J. No. 67 (S.C.C.) at para. 13; *Whirlpool Corp. v. Camco Inc.*, [2000] 2 S.C.R. 1067, 2000 CarswellNat 2846, 2000 CarswellNat 2861, 2000 SCC 67, 194 D.L.R. (4th) 193, 263 N.R. 88, 186 F.T.R. 268 (note), 9 C.P.R. (4th) 129, [2000] S.C.J. No. 68 (S.C.C.) at

public accumulation of useful information resulting from the publication of patent specifications is desirable to avoid the necessity for the wheel to be constantly reinvented and to ensure that research and development focuses on improving or finding more efficient alternate solutions to the known art. It is however illusory to believe that these objectives are attained, since more often than not the description set out in the patent will be riddled with lacunae concerning the practise of the invention on a commercial scale.²⁰

It is also said that one of the objects of patent law is to encourage members of society to increase the scope of technical knowledge not merely at a theoretical level but rather in a form that lends itself to practical applications in an industry. The specific object of a patent concerns technical developments related to the functioning of a product or service, as patents are granted to novel, non-obvious and useful developments in applied arts, and are not intended to permit the monopolize scientific discoveries *per se*. Aesthetic expression is clearly not within the sphere of patent protection, yet the advent of software has tested the scope of patent law because the source code of software is akin to literary expression, as we will later explore in this article.

Patent law has a very tangible knowledge dissemination function, unlike in copyright law where it is incorporated as one of the founding principles. This issue is often litigated because one of the grounds on which a patent may be invalidated is that the specification has not adequately disclosed the invention. Section 27(3) of the *Patent Act*²¹ as it has been applied by the Courts, provides that the inventor must describe his or her invention in an exact and complete manner, and also state the way in which the invention is applied or exploited so as to enable the person versed in the relevant field, or the one closest if the patent is groundbreaking, to put into practise the invention. In all of the reported disputes, one party was using the provisions of para. 27(3) as a shield in an infringement action initiated by a patentee. We have yet to see an action brought by a member of the public skilled in the relevant art wishing to practise the invention who complains that the specification

para. 37, reconsideration refused (2001), 2001 CarswellNat 283, 2001 CarswellNat 284 (S.C.C.).

20 W.R. Cornish, D. Llewelyn, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights*, 5th ed. (London: Sweet & Maxwell, 2003) at 136-137; See also: D. Vaver, "Intellectual Property Today: Of Myths and Paradoxes" (1990) 69 Can. Bar Rev. 98 at 123-124.

21 R.S.C. 1985, c. P-4 [hereinafter the "*Patent Act*"].

forming part of the patent application was insufficient for the purpose of practising the invention.

3. APPLICATION OF COPYRIGHT LAW TO INDUSTRIAL PRODUCTS

In this section, we will explore how copyright has applied to the traditional industrial setting in which parts, chemical products, machinery, even computer hardware are manufactured, as opposed to the more modern context of computer software and information technology, where intangibles are “manufactured” through mental skill and efforts. Various hurdles must be successfully cleared to apply copyright in an industrial setting, and we will successively explore them. The basic assumption has however been that there is no fundamental incompatibility between protection by copyright law and the industrial nature of a work, which of itself is not sufficient to disentitle the work to copyright protection.²²

The first hurdle is quite significant—it is the limitation of copyright protection for works that more properly fall under the scope of the *Industrial Design Act*.²³ This Act is intended to protect the aesthetic features of articles of manufacture for a more limited time, a period of 10 years,²⁴ much shorter than the protection for the life of the author plus 50 years provided by the *Copyright Act*. We will see that this essentially relegates copyright protection to a supporting role prior to the mass-production phase of the marketing of a manufactured article. We will next move on to a series of hurdles that are quickly and neatly jumped, where we will see that much of the subject-matter found in an industrial setting will qualify under one or more categories of original protected works, and moreover that the way works are typically used in industry will likely make such use in principle subject to the control of

22 See to this effect: *Cuisenaire v. South West Imports Ltd.* (1967), 54 C.P.R. 1, 1967 CarswellNat 75, [1968] 1 Ex. C.R. 493, 37 Fox Pat. C. 93 (Can. Ex. Ct.) at 13 [C.P.R.], affirmed (1968), 1968 CarswellNat 56, [1969] S.C.R. 208, 40 Fox Pat. C. 81, 57 C.P.R. 76, 2 D.L.R. (3d) 430 (S.C.C.) [hereinafter *Cuisenaire (1967)*]; The words of Mahoney, J., in *Fly by Nite Music Co. v. Record Warehouse Ltd.*, 20 C.P.R. (2d) 263, 1975 CarswellNat 39, 1975 CarswellNat 39F, [1975] F.C. 386 (Fed. T.D.) at 269 [C.P.R.] are also significant: “I find that the word “work” as used in the *Copyright Act* includes each and every thing in which the Act says copyright shall subsist, be that thing a product of the arts or a product of manufacture and technology.”

23 R.S.C. 1985, c. I-9 [hereinafter the “*Industrial Design Act*”].

24 *Id.*, s. 10.

the copyright owner. The last hurdle is more significant as we will see that the copyright owner may not, in circumstances mainly involving a process of reverse engineering, be able to prevent the appropriation of purely functional aspects. We will finally comment on three approaches that have been used to try to limit the scope of copyright protection in industrial works. We will first discuss how the idea/expression "dichotomy" has arguably been misused to accomplish this prior to the introduction of s. 64.1 of the *Copyright Act*. We will next see how Courts have attempted to hold that a copyright owner who files a patent application for the same subject matter is taken to have abdicated his copyright. Lastly, we will examine another variant, being that copyright in the specifications and drawings are automatically vested in the Crown when a patent application is filed or published.

As of 1988, clear rules have been in place to restrict the application of copyright in relation to useful articles, as these are defined in s. 64 of the *Copyright Act*, in order to avoid overlap with the protection granted by the *Industrial Design Act*. These rules tie the ability to restrict the manufacture of useful articles to securing an industrial design registration. The *Industrial Design Act*, which is more restrictive than the *Copyright Act*, bars registration once the articles have been on the market for more than one year, requires an element of novelty and clearly limits protection to aesthetic features only. If the copyright owner fails to secure an industrial design registration this will not result in forfeiture of copyright by the same token, yet the copyright owner will not be able to exercise his or her right in industrial contexts involving useful articles.

The 1988 rules, therefore, exclude copyright protection for mass-produced articles that have a utilitarian function, other than merely being a substrate or carrier for copyrighted works (*i.e.*, a tape, CD, diskette, *etc.*, containing a song or movie for example). The minimum standard for there to be mass-production is the production by or under the authority of the copyright owner of 50 articles, or 50 sets of articles when the articles are sold in sets.²⁵ This means that once manufacturing has begun, copyright law will only have significant value for very expensive

25 See: W.L. Hayhurst, "Copyright Subject-Matter", in G.F. Henderson ed., *Copyright and Confidential Information Law of Canada* (Toronto: Carswell, 1993) 29 at 88-97; McKeown, *supra* note 11 at 205-215; We should also note that for a structure to constitute an "article" it must be preformed, portable and delivered as a finished article, save for simple operations such as bolting: *Design Application 05-12-75-4, Re* (1978), 56 C.P.R. (2d) 271 (Can. Pat. App. Bd.) at 279.

articles that take years to reach the set level of mass-production. We can think of the plans and designs of complex machines used in industrial settings, as an example. We can also envisage copyright infringement for plans, specifications and technical drawings generally inasmuch as they are reproduced in two-dimensional form or in three-dimensional form when there has not yet been any mass production as this is defined in the *Copyright Act*.²⁶ From this perspective, copyright law is a useful complement to trade secret law, more so since it can extend to the very early stages of marketing where the article's design has been publicized and is no longer secret. It is important to note that the limitation of the copyright owner's rights to avoid overlap with the *Industrial Design Act* only applies to three-dimensional infringement by the production of finished articles, therefore if the plan or design is reproduced in two-dimensional form then the owner can sue for copyright infringement.

The next series of hurdles are to determine whether works typical of industrial environments qualify under the categories of protected works are original, and whether reproducing a two-dimensional work in three dimensions constitutes infringement. A work that does not qualify under one of the categories defined in the *Copyright Act* or that is not original receives no protection and likewise failure of the right to reproduce a work to cover three-dimensional versions of works created in two dimensions would remove much of the value of copyright protection in an industrial environment.

Some of the categories of works set out in the *Copyright Act*, including notably dramatic and musical works, are not inherently relevant to industrial contexts other than for the manufacture of actual recordings of works. The relevance of literary works is clearly not limited to non-industrial subject matter as the word "literary" is not a reference to literature in its classic sense (novels, plays, poetry, essays, *etc.*) since the definition of "literary works" in s. 2 of the *Copyright Act* includes such obviously non-artistic creatures as tables and computer programs. It is true that the omnibus definition in s. 2 of the *Copyright Act* of refers to the "literary domain", yet it also refers to the "scientific domain"²⁷

26 See, for an example of a successful seizure of industrial plans and drawings from former employees: *Man Roland Canada Inc. v. R.D.P. Marathon Inc.* (1990), 39 C.P.R. (3d) 543, 1990 CarswellQue 1095 (Que. S.C.).

27 In this respect, the Federal Court of Appeal has held that the word "science" should be read in its archaic sense of the pursuit of knowledge rather than the modern sense restricted to scientific disciplines: *CTV Television Network Ltd. v. Canada (Copyright Board)*, 46 C.P.R. (3d) 343, 1993 CarswellNat 206, 1993 CarswellNat 206F, 149 N.R. 363, [1993] 2 F.C. 115, 99 D.L.R. (4th)

and moreover, the definition is explicitly not made exhaustive.²⁸ The Courts have reaffirmed on numerous occasion that literary works are simply those that appear in print or in writing so as to distinguish them from other classes of works,²⁹ which means that technical writings do qualify as literary works.

The situation appears trickier at first glance for “artistic works”, since the word “artistic” clearly evokes works of fine art such as paintings, sculptures, artistic sketches and drawings, *etc.* One would therefore be tempted to exclude the application of copyright to technical drawings, plans, machines and industrial products on this basis but, yet again, s. 2 of the Act thwarts such construction by explicitly including maps, charts and plans amongst the category of “artistic works.” The generally held view in Canada of the meaning of the word “artistic” is that it is merely a generic reference to the nature of the category of works (*i.e.*, works of visual expression) rather than a reference to the artistic merit or aesthetic value of the work.³⁰ This proposition was examined more closely by Noël, J. in *Cuisenaire v. South West Imports Ltd.*,³¹ where he stated that although the Courts are not to inquire into the merits or qualities of a

216, 59 F.T.R. 320 (note) (Fed. C.A.) at 353 [C.P.R.], leave to appeal refused (1993), 107 D.L.R. (4th) vii, 51 C.P.R. (3d) v, 166 N.R. 237 (note) (S.C.C.).

28 One case went even further by stating that it is not necessary that the text impart ideas, information or knowledge for a work to qualify as a “literary work”: *Bulman Group Ltd. v. “One Write” Accounting Systems Ltd.*, 62 C.P.R. (2d) 149, 1982 CarswellNat 4, 1982 CarswellNat 412, 16 B.L.R. 16, 132 D.L.R. (3d) 104, [1982] 2 F.C. 327 (Fed. T.D.) at 153 [C.P.R.] [hereinafter *Bulman*]: “For copyright to subsist, there must be, in a compilation of the commercial type here, a literary sense of functionally assisting, guiding, or pointing the way to some end.”

29 *Apple Computer Inc. v. Mackintosh Computers Ltd.* (1987), 18 C.P.R. (3d) 129, 1987 CarswellNat 720, 1987 CarswellNat 887, 16 C.I.P.R. 15, [1988] 1 F.C. 673, 44 D.L.R. (4th) 74, 81 N.R. 3 (Fed. C.A.) at 144 [C.P.R.], affirmed 30 C.P.R. (3d) 257, 1990 CarswellNat 736, 1990 CarswellNat 1027, 110 N.R. 66, [1990] 2 S.C.R. 209, 71 D.L.R. (4th) 95, 36 F.T.R. 159 (note) (S.C.C.): “The sole distinguishing characteristic of a literary work is not its quality as literature or art but simply that it be in print or writing.”

30 *DRG Inc. v. Datafile Ltd.* (1987), 18 C.P.R. (3d) 538, 1987 CarswellNat 765, 1987 CarswellNat 896, 15 F.T.R. 174, 17 C.I.P.R. 136, [1988] 2 F.C. 243 (Fed. T.D.) at 550 [C.P.R.], affirmed (1991), C.P.R. (3d) 243, 1991 CarswellNat 1123, 117 N.R. 308, 35 43 F.T.R. 239 (note) (Fed. C.A.) [hereinafter *DRG*]; See also: *King Features Syndicate Inc. v. O. & M. Kleemann Ltd.*, [1941] 2 All E.R. 403, [1941] A.C. 417 (U.K. H.L.) at 417 [All E.R.] [hereinafter *King Features*].

31 *Supra* note 22 at 21-22.

work to determine whether or not it falls into the category of “artistic works”, the work must to some degree be a work that is intended to have an appeal to the aesthetic senses, not just an incidental appeal, “but as an important or one of the important objects for which the work was brought into being.” In the case at hand, he found that the coloured rods before him did not qualify as they were intended as a tool for the purpose of applying a method of teaching arithmetic. This test appears overly stringent, especially since after this decision the definition of artistic works was amended to include maps, charts and plans which are tools in and of themselves. We can also point to a number of cases where the fact that a work was a business document did not exclude it from the field of “artistic works”.³² There is one specific category of artistic work that may require evidence of artistic merit for there to exist protection, these are “works of artistic craftsmanship.” It seems nonetheless dubious to require artistic merit for such a sub-category since if a work does not qualify for the sub-category it may otherwise be an artistic work, because the definition of “artistic work” is not limited to the explicit sub-categories listed in s. 2 of the *Copyright Act*.³³ The only way to justify the existence of a different requirement of true artistic character for “works of artistic craftsmanship” would be to hold that “works of craftsmanship” are subject to more stringent requirements than all other artistic works. In any event, this would not affect the application of copyright law to industrial works since hardly any items found in an industrial setting could be said to be produced through “craftsmanship.” Recall that Noël, J. held in *Cuisenaire (1967)*³⁴ that the coloured rods in question, made by a manufacturing process, did not result from “craftsmanship”, which would arguably entail perhaps a smaller scale of production or more detailed attention given to each item.

32 *Church v. Linton* (1894), 2 Can. Com. R. 176, 25 O.R. 131 (Ont. H.C.); *Toronto Carton Co. v. Manchester McGregor Ltd.*, [1935] O.R. 144, 1935 CarswellOnt 8, [1935] 2 D.L.R. 94 (Ont. H.C.); *Grace v. Newman* (1875), L.R. 19 Eq. 623; *Maple v. Junior Army & Navy Stores* (1882), 52 L.J. Ch. 67; *Waters v. Huygen & Co.* (1924), Macg. Cop. Cas 17; *Van Dusen v. Krutz*, [1936] 2 K.B. 176 (Eng. K.B.); *Tavener Rutledge Ltd. v. Specters Ltd.*, [1959] R.P.C. 83; *Klar-mann (h.) Ltd. v. Henshaw Linen Supplies*, [1960] R.P.C. 150; *Charles Walker & Co. v. The British Picker Co.*, [1961] R.P.C. 57 (Eng. Ch. Div.).

33 In this respect, Noël, J. pointed to the fact that the definition of “every original literary, dramatic, musical and artistic work” found in s. 2 of the *Copyright Act* specifically provides that works are protected whatever may be the “mode or form” of their expression thus supporting the non-limitative nature of the definition: *Cuisenaire (1967)*, *supra* note 22 at 18.

34 *Supra* note 22 at 22.

We now have established that the scope of at least two categories of works protected by the *Copyright Act*, literary and artistic works, is broad enough to entertain the application of copyright to an industrial environment. In many instances, the use to which literary and artistic works will be put will involve creating a three-dimensional object based on the drawing or description. If this use does not constitute an act of infringement under the *Copyright Act* our discussion will come to an abrupt end, save of course for the copying of the plans or designs themselves in two-dimensional form. It is important to point to a significant difference between infringement in copyright law and in patent law. The patentee has a right to restrain the “making, constructing and using the invention and selling it to others to be used”³⁵ which clearly extends to taking a plan or design (the specification of the patent itself being a prime example) and building a three-dimensional object. The rights granted to the owner of copyright in contrast merely extend to the production or reproduction of the work³⁶ and no explicit reference is made to “constructing” a work or other words that entail a three dimensional representation of something that is initially developed in plans or designs. The Courts have taken nonetheless a generous view of the notion of “producing” or “reproducing” a work³⁷ to encompass three-dimensional reproduction. This is not the least surprising considering the pervasive nature of merchandising in relation to books, movies, albums, *etc.*, where dolls, statuettes, jewellery or other three-dimensional novelty items take the shape of two-dimensional characters or scenes of the work. Depriving the owner of copyright of the right to restrain a three-dimensional adaptation of a two-dimensional drawing would disentitle him or her from an equitable share of this manna. The classic statement of the law in relation to artistic works is the decision of the House of Lords in *King Features Syndicate Inc. v. O. & M. Kleemann Ltd.*³⁸ that concludes that three-dimensional dolls embodying the characters of the Popeye comic strip are infringing copies.³⁹ A very recent

35 *Patent Act*, *supra* note 21, s. 42 and 55.

36 *Copyright Act*, *supra* note 1 at par. 3(1).

37 Save that the Supreme Court of Canada recently held that production or reproduction requires that there be a multiplication of copies, a mere transfer of a work from one substrate to another would thus not be infringing: *Théberge*, *supra* note 9 at 179-182.

38 *Supra* note 30.

39 The reasons show that whether copyright law can restrain the reproduction of a two-dimensional item in three-dimensional form was no longer contested before the House of Lords: *King Features*, *supra* note 30 at 423-424.

example involving a literary work is the decision of an Ontario Court holding that a doll bearing the characteristic features and traits of the protagonist of the famous *Anne of Green Gables* novel, Anne Shirley, was a three-dimensional reproduction of a substantial part of the literary work.⁴⁰ In doing so, the judge had to address the Supreme Court of Canada's decision in *Cuisenaire v. South West Imports Ltd.*⁴¹ case discussed earlier in which the Court stated that putting into practice a method described in a book does not infringe the rights of the author of the book. The judge distinguished the facts before him in that the novel actually contained the substantive expression of the three-dimensional objects, whereas the method in *Cuisenaire* merely described the three-dimensional rods in an abstract fashion.⁴² This reasoning would be equally applicable in an industrial setting where if the text of the technical specification expresses the actual physical features of an object there could be three-dimensional infringement, whereas if the description merely describes in abstract terms the function or object of the item, only reproduction of the two-dimensional document would be an infringement, to the exclusion of making an article using the descriptive document. In one case it was held that manufacturing a copy of a three-dimensional article is an infringement of copyright in the engineering drawings.⁴³

Another potential hurdle to the application of copyright on the shop floor is the requirement of "originality." The *Copyright Act* protects only original works, as is alluded to in s. 5 of this Act, and therefore if the notion of "originality" is somehow an oblique reference to the artistic character of the work then copyright law will be cleanly swept off the shop floor. Those familiar with copyright law will recall that the *Copy-*

40 *Anne of Green Gables Licensing Authority Inc. v. Avonlea Traditions Inc.* (2000), 4 C.P.R. (4th) 289, 2000 CarswellOnt 731, [2000] O.J. No. 740 (Ont. S.C.J.) [hereinafter *Anne of Green Gables*]; See also: *Bayliner Marine Corp. v. Doral Boats Ltd.* (1985), 1985 CarswellNat 556, 1985 CarswellNat 661, 5 C.I.P.R. 268, [1986] 3 F.C. 346, 5 C.P.R. (3d) 289 (Fed. T.D.) at 306-308 [C.P.R.], reversed 10 C.P.R. (3d) 289, 1986 CarswellNat 693, 1986 CarswellNat 642, 67 N.R. 139, 9 C.I.P.R. 311, [1986] 3 F.C. 421, [1987] F.S.R. 497 (Fed. C.A.), leave to appeal refused (1986), 14 C.P.R. (3d) 446n, 9 C.I.P.R. 311n, 75 N.R. 158n (S.C.C.).

41 (1968), 57 C.P.R. 76, 1968 CarswellNat 56, [1969] S.C.R. 208, 40 Fox Pat. C. 81, 2 D.L.R. (3d) 430 (S.C.C.) [hereinafter *Cuisenaire* (1968)].

42 *Anne of Green Gables*, *supra* note 40 at 318-319.

43 See *Spiro-Flex Industries Ltd. v. Progressive Sealing Inc.* (1986), 13 C.P.R. (3d) 311, 1986 CarswellBC 321, 7 B.C.L.R. (2d) 189, 32 D.L.R. (4th) 201, 10 C.I.P.R. 5 (B.C. S.C.).

right Act does not define originality or give any other form of direction. The Courts have therefore long grappled with this notion. The most recent iteration of the Canadian definition of originality, after a brief flirtation with a requirement of creative spark derived from U.S. case law, is that a work is original if it is independently created by the author and displays at least a minimal degree of skill and judgment.⁴⁴ Independent creation is inherently neutral. One possible meaning of the word creation is “an original work of art”,⁴⁵ but it should not apply in this case as the criteria of “independent creation” has more often than not been worded as “not copied” and therefore “creation” should simply mean bringing into existence. A review of the case law shows that the requirement of “skill and judgment” is just as neutral. Neutrality, for our purposes, means that originality is not confined to cases where there is artistic character or the exercise of aesthetic skill or judgment in the creation of the work, which, of course, would spell the end of copyright protection for most technical works.

The closest Canadian Courts have come to impart to the concept of originality a requirement of artistic character has been to require the use of “taste” in one sentence of a decision by Judge McLachlin, now of the Supreme Court of Canada⁴⁶ where the court had to decide whether a compilation of pictures in the brochure of a manufacturer of adjustable beds was original. In the next sentence however, the court stated that in the case of compilations, mere “skill, judgment and labour” is sufficient. It would be surprising if a separate standard of originality applied to compilations, as the concept of originality has traditionally not been defined as a set of multiple standards applying in different ways according to the type of work.⁴⁷ We can only therefore understand that the kind

44 *CCH*, *supra* note 4 at para. 16.

45 As found in *Merriam Webster's Collegiate Dictionary*.

46 *Slumber-Magic Adjustable Bed Co. v. Sleep-King Adjustable Bed Co.* (1984), 3 C.P.R. (3d) 81, 1984 CarswellBC 765, [1985] 1 W.W.R. 112 (B.C. S.C.) at 84 [C.P.R.]; The reference made to “taste” by McLachlin, J. undoubtedly originates from statements in British case law on originality such as that made by Lord Atkinson in *MacMillan & Co. v. Cooper* (1923), 40 T.L.R. 186, 51 Ind. App. 109 (India P.C.) at 190 [T.L.R.]: “What is the precise amount of the knowledge, labour, judgment or literary skill or taste which the author of any book or other compilation must bestow upon its composition in order to acquire copyright in it within the meaning of the *Copyright Act* of 1911 cannot be defined in precise terms. In every case it must depend largely on the special facts of that case, and must in each case be very much a question of degree.”

47 In the brief period when the Canadian Courts were aligning the standard of originality seemed to be aligning with the U.S. creative spark requirement,

of “taste” required by copyright law is that resulting from the application of “judgment”, again an inherently neutral concept. In the most recent pronouncement of the Supreme Court of Canada, Chief Justice McLachlin narrowed her views on the criteria for originality and the exercise of “taste” did not make the shortlist.⁴⁸

In France, the notion that originality does not depend on the artistic character of works has long been subsumed by the notion of the unity of art (“l’unité de l’art”) proposed by the French author Pouillet. This theory is said to stem from the admission that determining the artistic character of a work is an impossible task.⁴⁹ Other countries, including the United Kingdom, follow the same path.

Although the artistic quality of a work clearly has no impact on the existence of copyright, the novel character of a work may sometimes help the work qualify for protection. In one case where the defendant had acknowledged that the specific arrangement of binary numbers on fish tags would justify the issuance of a patent, the Court deduced that the implied admission of novelty according to the standards of patent law would suggest that by the same token that the arrangement has a sufficient degree of originality for purposes of claiming protection under the *Copyright Act*.⁵⁰ Likewise in another case, the representative of the defendant admitted in his testimony that the selection or arrangement made by the Plaintiff was “innovative”, which inevitably led the Court to the conclusion that it was original and gave rise to copyright protection as a compilation.⁵¹ It remains that the “originality” standard in copyright

some judges appeared ready to accept that there may be a separate, more stringent standard of originality for compilations only: *Hager v. ECW Press Ltd.* (1998), 85 C.P.R. (3d) 289, 1998 CarswellNat 2568, 1998 CarswellNat 3031, 158 F.T.R. 44, [1999] 2 F.C. 287, [1998] F.C.J. No. 1830 (Fed. T.D.) at 311 [C.P.R.].

48 *CCH*, *supra* note 4 at para. 16. This would appear to be consistent with the approach of U.K. Courts.

49 See: H. Cohen Jehoram, “Hybrids on the Borderline between Copyright and Industrial Property Law” (1992) 153 RIDA 74 at 83-85; One French author notes that in their application of the unity of art the French Courts have nonetheless not been broadly extending copyright protection to industrial works: X. Desjeux, “Peut-on copier une forme utile? Plaidoyer pour la protection de l’esthétique industrielle” (1990) 3:1 C.P.I. 97.

50 *Northwest Marine Technology Inc. v. Crosby* (1996), 75 C.P.R. (3d) 491, 1996 CarswellBC 2425 (B.C. S.C.) at 518 [C.P.R.] [hereinafter *Northwest*].

51 *Édutile Inc. v. Automobile Protection Assn. (APA)*, 26 C.P.R. (4th) 211, 000 CarswellNat 744, 2000 CarswellNat 1258, 188 D.L.R. (4th) 132, 255 N.R. 147, [2000] 4 F.C. 195, 181 F.T.R. 160 (Fed. C.A.) at 219 [C.P.R.], leave to

law is less stringent and can be met even if the idea underlying the work is not new or inventive because the Courts are directed to examine the expression of the idea.⁵² The realm of novels, plays, movies is replete with examples of works that have the same hard worn underlying idea yet are incontestably original works.

Further, to illustrate how far copyright law has made an appearance on the shop floor, it is useful to recount briefly the U.K. experience on copyright protection for spare parts. This will also introduce and provide background for our discussion of the last hurdle found in s. 64.1 of the *Copyright Act*, which restricts the scope of protection in relation to functional aspects of protected works. In the U.K., the successive *Copyright Acts* of 1956 and 1968, were construed as excluding the application of copyright law only to designs of manufactured articles “capable” of being registered under the existing statute on industrial designs. As is typical of legislation providing protection for industrial designs, its protection does not extend to functional features but merely to the ornamental designs. Therefore, a purely functional design would not be capable of being protected as a registered design. This led plaintiffs to allege that functional features are protected by copyright law since they either cannot be registered as a whole or cannot be effectively protected by registering component parts as a combination.⁵³ Given the accommodating nature of the classic approach to defining originality in the United Kingdom, it is not completely surprising that the Courts responded favourably to such demands. In *L.B. (Plastics) Ltd. v. Swish Products Ltd.*,⁵⁴ the House of Lords confirmed that the manufacture of knock-down drawers (*i.e.*, furniture assembled by the customer accord-

appeal refused (2001), 2001 CarswellNat 29, 2001 CarswellNat 30, [2000] C.S.C.R. No. 302, 267 N.R. 197 (note) (S.C.C.).

52 *Great Canadian Oil Change Ltd. v. Dynamic Ventures Corp.*, 21 C.P.R. (4th) 318, 2002 CarswellBC 2048, 2002 BCSC 1295, [2002] B.C.J. No. 2015 (B.C. S.C.) at 331 [C.P.R.]; See also: *CCH*, *supra* note 4 at para. 16; *Kilvington Brothers Ltd. v. Goldberg* (1957), 28 C.P.R. 13, 1957 CarswellOnt 26, 16 Fox Pat. C. 164, 8 D.L.R. (2d) 768 (Ont. H.C.) at 14-15 [C.P.R.]; *Fletcher v. Polka Dot Fabrics Ltd.* (1993), 51 C.P.R. (3d) 241, 1993 CarswellOnt 3882 (Ont. Small Cl. Ct.) at 246-247 [C.P.R.].

53 The latter proposition comes from one of the first significant U.K cases dealing with this issue: *Dorling v. Honnor Marine Ltd.* (1963), [1964] R.P.C. 160, [1965] Ch. 1, [1964] 1 All E.R. 241, [1963] 2 Lloyd's Rep. 455 (Eng. C.A.).

54 [1979] R.P.C. 551 (U.K. H.L.) [hereinafter *Swish*]; Lower courts had previously held the same position in two cases: *British Northrop Ltd. v. Texteam Blackburn Ltd.*, [1974] R.P.C. 57; *Solar Thomson Engineering Co. v. Barton*, [1977] R.P.C. 537 (Eng. C.A.).

ing to a plan) substantially reproducing the designs of a competitor was copyright infringement since the design was purely functional, thus escaping the clutches of industrial design legislation. Lord Hailsham of St. Marylebone pointed out in passing that the defendant could have avoided liability by taking the general functional idea embodied in the plaintiff's design and independently developing its own design. In his mind, detailed functional ideas are quite within the scope of protection by copyright law, and this is precisely what the defendant appropriated.

This proved to be a considerable challenge for manufacturers of spare parts for various machines, including most notably cars. These spare parts must be almost by necessity a slavish copy of the part made by the original equipment manufacturer so that they may fit the original machine. The end result of full copyright protection is to grant to the original equipment manufacturer considerable control over this derivative market. This very issue was brought before the House of Lords six years later in *British Leyland Motor Corp. v. Armstrong Patents Co.*⁵⁵ The Law Lords refused to revisit the soundness of the rule drawn in the earlier *Swish* case. Instead, they ruled that the manufacture of spare parts in particular is allowable based on the "right" of a purchaser of a car to keep the car in good repair and working order and for that purpose to have access to a free market in spare parts. In essence, the House of Lords based its novel position on the established real property law principle that a grantor will not be allowed to derogate from his grant by using property retained by him in such a way as to render property granted by him unfit or materially unfit for the purpose for which the grant was made.⁵⁶ One Law Lord commented that "the exploitation of

55 [1986] 1 All E.R. 850, 67 N.R. 178, [1986] F.S.R. 221, [1986] A.C. 577 (U.K. H.L.) [hereinafter *British Leyland*].

56 This reasoning was criticized by the Judicial Committee of the Privy Council hearing an appeal from a Hong Kong case concerning replacement cartridges. In the end, it was held that the true foundation of the exception carved out in the *British Leyland* case was simply overriding public policy in not permitting the owner of copyright in a functional design to control the aftermarket in spare parts: *Canon Kabushiki Kaisha v. Green Cartridge Co. (Hong Kong) Ltd.*, [1997] F.S.R. 817 at 824; Moreover, in another case Ferris, J. pointed out that the scope of the so-called "spare parts" exception is fraught with uncertainty in *Wyko Group PLC v. Cooper Roller Bearings Co. Ltd.*, [1996] F.S.R. 126 (Eng. Ch. Div.) at 130: "Moreover there is difficulty in knowing what is made by 'replacement' outside a field closely akin to that of motor vehicle parts. In particular it is uncertain to what extent a complete assembly of some magnitude which is sold separately from any larger item of equipment and is capable of being used as part of a variety of larger pieces of machinery falls to be treated

copyright law for purposes which were not intended has gone far enough".⁵⁷ The House of Lords was however not prepared to rule, as the Defendant's counsel had suggested, that indirect copying (*i.e.*, reverse engineering from a purchased sample) is not a reproduction for purposes of copyright law when the item is purely functional.

Largely with an eye on these U.K. developments, Canada enacted provisions limiting the application of copyright in the functional sphere. These provisions are the last hurdles we will examine in this section.⁵⁸ They are found in what is today s. 64.1 of the *Copyright Act*. This section provides a series of exceptions to the rights of a copyright owner. The first act that escapes the copyright owner's control is to apply to a useful article features set out in a work protected by copyright that are "dictated solely by a utilitarian function" of the article. The second act is the process of "reverse engineering" a purchased article, namely to make a drawing or other reproduction in any material form of any features of the article that, again, "are dictated solely by a utilitarian function of the article." The exception extends the scope of the two first situations by limiting the exercise of all rights granted by the *Copyright Act* to the owner when all of the features of the article are purely functional. The last aspect is that copyright protection does not extend to a "method or principle of manufacture or construction."

The notion of "utilitarian function" is a concept that is fairly novel in Canadian copyright legislation. Prior to June 8, 1988, there was no provision equivalent to the current s. 64.1 of the *Copyright Act* and s. 46 of the *Copyright Act* as it then read defined the boundary of industrial design law and copyright law without making any reference to the function of articles. It simply excluded the application of copyright law for designs capable of being registered under the *Industrial Design Act*, save those not used or intended to be used as models or patterns to be multiplied by an industrial process. It is therefore no surprise that para. 64(1) of the *Copyright Act* defines a "utilitarian function." The definition clarifies only one aspect when it provides that a "utilitarian function" is "a function other than merely serving as a substrate or carrier for artistic

as a 'replacement' for the purposes of the right. In the *Flogates* case Jacob, J. also discussed, but did not decide, whether 'consumables' (that is to say items such as staples for a staple gun, or possibly, as was argued before him, parts requiring to be replaced frequently) come within the right."

57 *British Leyland*, *supra* note 55 at 875.

58 See: H.P. Knopf, "Limits on the Nature and Scope of Copyright" in Henderson, *supra* note 25, 229 at 250-252.

or literary matter.” We can safely extrapolate from this definition that an aesthetic or artistic purpose is not a “function” for purposes of applying s. 64.1 of the *Copyright Act* and that the type of function contemplated by the definition is a function that relates directly to an industrial setting. Functions existing in the realm of engineering would be likely candidates for inclusion within the scope of the definition of “utilitarian function.”

With these clarifications in mind we will attempt to define the practical application of the hurdle created by s. 64.1 of the *Copyright Act*. A first important point is that s. 64.1 does not automatically deny copyright protection to a utilitarian object such as a car muffler or a drawing thereof because each of these objects performs a function in the technical sense. The only aspects for which copyright protection is unavailable are the features “dictated solely” by the utilitarian function of the article. An article may therefore be copied in its entirety without infringing copyright only if all of the features of the article are dictated solely by the utilitarian function of the article, which may not be often the case notably because of the growing involvement of industrial designers in product development.⁵⁹ It is therefore hazardous to assume that any useful article can be copied in its entirety without further analysis. The difficult question to resolve will be whether when a large number of technical features or combinations of technical features may be interchangeably used in an article, it is still possible to hold that one specific set of features is “dictated solely” by the utilitarian function article.

The concept of “functionality” in trade-marks law, codified in s. 13 of the *Trade-marks Act*, has a much longer history in Canada and many issues that were raised in this context are likely to be transposed to copyright law. One such issue is whether the fact that the feature sought to be protected by copyright is described or shown in a patent application or an issued patent should be determinative of the analysis under s. 64.1 of the *Copyright Act*. In *Thomas & Betts Ltd. v. Panduit*

59 McKeown, *supra* note 11 at 214; Moreover it has been consistently held even after s. 64.1 of the *Copyright Act* was enacted that the presence of some functionality in a work is not sufficient to defeat a copyright infringement claim: *Northwest, supra* note 50; See however another case where the judge seems to rely on the fact that a crane is functional as a whole to dismiss a copyright infringement claim: *Harnischfeger Corp. of Canada v. Kranco Inc.* (1991), 39 C.P.R. (3d) 81, 1991 CarswellBC 1185 (B.C. S.C.) at 84 [C.P.R.].

Corp.,⁶⁰ the Federal Court of Appeal stated that the presence of a feature in a patent is a fact that must be considered by the trial judge to determine whether the feature is functional and that in some cases this presence may be conclusive evidence of functionality.⁶¹ Another issue is whether representations by the owner of copyright in the article as to the functional benefits of a feature bind this owner when, at a later time, the issue of functionality is litigated before the courts. Canadian courts have not had the opportunity to consider this type of factual context,⁶² but a number of U.S. decisions have taken into account representations made in marketing material when considering functionality.⁶³ The issue is whether in fact the feature is truly functional or not and what amounts to mere puffery in a brochure should not be determinative. Nonetheless, in cases where the scientific evidence of functionality before the court is muddled, representations made by the copyright owner may be a welcome beacon for a harried judge.

The introduction of s. 64.1 of the *Copyright Act* specifically tailored to the boundary between patent law and copyright law may avoid that Courts rely excessively on the idea/expression dichotomy to this end. One classic statement in Canadian law of the idea/expression di-

60 4 C.P.R. (4th) 498, 2000 CarswellNat 22, 2000 CarswellNat 1750, 252 N.R. 371, 185 D.L.R. (4th) 150, [2000] 3 F.C. 3, 178 F.T.R. 160 (note) (Fed. C.A.), leave to appeal refused (2000), 2000 CarswellNat 2568, 2000 CarswellNat 2569, 264 N.R. 191 (note) (S.C.C.) [hereinafter *Thomas & Betts*].

61 *Id.*, 507. Earlier the Supreme Court of Canada had held that the fact that the disclosure of a coloured band separating the two halves of a capsule containing a pharmaceutical preparation in a United States patent was some evidence of the fact that the inventor considered at the time of the application that the band would be a functional feature of a product: *Parke, Davis & Co. v. Empire Laboratories Ltd.*, [1964] S.C.R. 351, 43 C.P.R. 1, 1964 CarswellNat 382, 27 Fox Pat. C. 67, 45 D.L.R. (2d) 97 (S.C.C.). The Supreme Court of the United States recently ruled that the fact that a feature is claimed in a utility patent is strong evidence of functionality and that the person seeking to prove that the feature is non functional bears a heavy burden: *TraFFix Devices, Inc. v. Marketing Displays, Inc.*, 532 U.S. 23 (2001) at 29-30.

62 Although, in one case, the content of a request for proposal of Public Works Canada was put before the Court in support of the functionality of a feature of a trash container: *WCC Containers Sales Ltd. v. Haul-All Equipment Ltd.*, 2003 FC 962, 28 C.P.R. (4th) 175, 2003 CarswellNat 2668, 238 F.T.R. 45 (F.C.).

63 See for example: *Disc Golf Association, Inc. v. Champion Discs, Inc.*, 158 F.3d 1002 (9th Cir., 1998); *Epic Metals Corp. v. Souliere*, 99 F.3d 1034 (11th Cir., 1996).

chotomy is the *Moreau v. St. Vincent*⁶⁴ case where it was held that copyright does not protect a system for promoting subscriptions to a printed publication by organizing a quiz relating to sports whereby subscribers could win a cash prize. Mr. Justice Thorson stated in his reasons that “it is [. . .] an elementary principle of copyright law that an author has no copyright in ideas but only in the expression of them”.⁶⁵ Another application of the idea/expression dichotomy is found in the later *Cuisenaire v. South West Imports Ltd.*⁶⁶ Supreme Court of Canada decision to which we referred above. The copyrighted textbook contained the directions to make coloured rods, but the Supreme Court nevertheless refused to see copyright infringement by the act of manufacturing the rods because these directions were mere ideas, approving by the same token the statement of the law made by Mr. Justice Thorson in the *Moreau* case. The argument that appears to have swayed the Court was the wide-ranging consequences of accepting the plaintiff’s copyright infringement claim, *i.e.*, that literary copyright in instruction sheets or directions to make machines would grant a right to control the finished article.

The broad statement that ideas are not protected by copyright may be misleading. In purely artistic works, some protection is undeniably given to ideas, for example when one considers the right to control translations or the adaptation of a novel into a feature film. Once the expression of the work is altered completely when a work is translated or adapted, what remains is a set of detailed interrelated ideas.⁶⁷ If it were the rule that all ideas are not protected, only their “expression” in a restrictive sense, then an author would not be able to control the translation of his or her novel. This is obviously not the case. Faced with the drastic consequences of the idea/expression dichotomy, one author suggests that the broad exclusion of ideas should only apply to “practical” copyrighted works because their inherent value is related to the information they convey or their function.⁶⁸ This is precisely the type of

64 [1950] Ex. C.R. 198, 12 C.P.R. 32, 1950 CarswellNat 4, 10 Fox Pat. C. 194, [1950] 3 D.L.R. 713 (Can. Ex. Ct.) [hereinafter *Moreau*].

65 *Ibid.* at 203; The Ontario Court of Appeal had stated more or less the same rule a few decades earlier in *Deeks v. Wells*, [1931] 4 D.L.R. 533, [1931] O.R. 818 at 831 (Ont. C.A.), affirmed (1932), [1933] 1 D.L.R. 353 (Ontario P.C.).

66 *Supra* note 41.

67 For a discussion of copyright issues related to the plot of a work, see: I. Bureau, “L’intrigue: le passage de l’idée à son expression” (1994) 7:1 C.P.I. 51.

68 J.A. Levental, “Derivative Works and Copyright Infringement: A Case for Copyrighting Ideas” (1985) I.P.J. 271 at 279-280.

distinction that was drawn by the United States Supreme Court in the seminal decision *Baker v. Selden*,⁶⁹ which firmly established the application of the idea/expression dichotomy for utilitarian works in reasons denying copyright protection to blank bookkeeping forms. This is not supported by the wording of the *Copyright Act* which never draws a distinction between works having a practical utility on the one hand and purely aesthetic works on the other hand. The classification of a work in its proper category may even lead to endless litigation before the Courts. Moreover, we fail to see why some form of restriction on the protection of ideas is somehow not useful in the context of purely artistic works. If it were otherwise, an author could claim a monopoly on the theme or general subject matter of the book: John Grisham could claim a royalty for any later book on the misadventures of a young lawyer hired by a large big-city firm involved in shady dealings!

The enactment of s. 64.1 of the *Copyright Act* has not resolved all issues on the front lines. The *Tri-Tex Co. c. Gideon*⁷⁰ case is a prime example of an industrial application of copyright that may yet slip by the net cast by s. 64.1. The issue before the Québec Court of Appeal was whether a chemical formula was a work protected by copyright and whether chemicals made according to the formula were infringing copies that could be seized by the copyright owner. Citing the *Moreau* case,⁷¹ the Court found that the description of the formula is a mere unprotected idea notwithstanding that it has been reduced to writing.⁷² The Court added, that for the sake of argument if the series of instructions forming the formula were held to be a literary work protected by copyright there would be no infringement based on the *Cuisenaire* decision of the Supreme Court of Canada. Following the instructions that make up the formulae is not copying the literary work but simply using the ideas

69 101 U.S. 99, 25 L.Ed. 841, 11 Otto 99 (1896) [hereinafter *Baker*].

70 (1999), (sub nom. *Tri-Tex Co. v. Ghaly*) 1 C.P.R. (4th) 160, 1999 CarswellQue 2988, [1999] R.J.Q. 2324 (Que. C.A.), leave to appeal refused (2000), 2000 CarswellQue 1691, 2000 CarswellQue 1692, 260 N.R. 397 (note) (S.C.C.) [hereinafter *Tri-Tex*].

71 And we should add, adopting an approach that is disquietingly similar to that the highly criticized position taken by the U.S. Supreme Court in *Baker*, *supra* note 69.

72 *Tri-Tex*, *supra* note 70; Yet see a discussion on the issue of the protection of genetic sequences and molecules as literary works where the authors conclude that copyright protection exists: H. Laddie, P. Prescott & M. Vitoria, *The Modern Law of Copyright & Designs*, 3d ed. (London: Butterworths, 2000) at 1739-1761 [hereinafter "Laddie, Prescott & Vitoria"].

embodied in that work to create a product. Section 64.1 of the *Copyright Act*, apparently, was not pleaded by the Defendant, but even if it had been pleaded it is possible that the argument would have failed. Paragraphs (a) to (c) of s. 64.1 of the *Copyright Act* are all tied to the presence of a “useful article.” An “article” is defined in s. 64 of the *Copyright Act* as “any thing that is made by hand, tool, or machine” and a chemical compound may not literally be “made” in such a manner. Paragraph (d) of s. 64.1 of the *Copyright Act* does not turn on the existence of an article. Its wording appears very much geared to actual objects rather than compounds as it provides that copyright may not restrain the use of “any method or principle of manufacture or construction.” Arguably a chemical formulae may be a method of manufacturing a chemical compound if the word “manufactured” is taken in its broadest sense. The narrower meaning of “manufacture” relates to making a product by hand or machine, which may hold limited promise for including chemical compounds. Nonetheless, the rules set out in s. 64.1 of the *Copyright Act* will very likely replace the application of the idea/expression such as was made in *Petel v. Imperial Tobacco of Canada*,⁷³ where the Québec Superior Court refused to extend copyright protection to a new concept for the manufacture of cigarettes on the basis that copyright did not apply to ideas and that patent protection was the more appropriate form of protection.⁷⁴ We will expand on the idea/expression dichotomy in the next section of this article as it is a central theme in the protection of computer software by copyright.

Before concluding this section, we will turn to two arguments that have been used with mixed success by litigants to limit the scope of copyright protection for traditional industrial works specifically in situations where the work in question has been the subject of a patent application or has otherwise been included in the patent application.

The first argument we will examine is whether filing a patent application or obtaining the issuance of a patent pre-empts copyright protection both during the life of the patent and afterwards. The second somewhat related argument concerns ownership of copyright in the material included in a patent application, is the owner the applicant or the Crown? The issue here is no longer what should be the proper scope

73 [1975] C.S. 97 (Q.C.).

74 See another illustration in an industrial context, in relation to windows: *Stevens v. Robert Simpson Co.* (1964), 28 Fox Pat. C. 58, 41 C.P.R. 204, 1964 CarswellOnt 32 (Ont. S.C.).

of copyright protection, but rather whether somehow the copyright that exists in a work is forfeited when patent protection is sought.

The first argument was put before the U.K. Courts early on in *Werner Motors Ltd. v. A.W. Gamage Ltd.*⁷⁵ where it was alleged that an industrial design application was invalidated because a patent had been granted on an aspect of the machine depicted in the design. The Court of Appeal aptly pointed out that registered design law and patent law had different aims and as such they could coexist in the same article.⁷⁶ Inasmuch as there was conflict, it could be resolved by holding that a patented feature disclosed in a design application could serve to anticipate the claimed invention. In the end, the court found that there was no good reason to hold that an election had to be made between patent protection and another form of intellectual property protection.

The issue resurfaced many decades later in the reasons of Whitford, J. in *Catnic Components Ltd. v. Hill & Smith Ltd.*,⁷⁷ a case that was appealed on other grounds and gained considerable fame in the field of patent claims construction. In addition to claiming patent infringement in relation to the innovative shape of steel lintels, the plaintiff also claimed copyright infringement in the drawing of the lintel. As the plaintiff was apparently claiming rights in exactly the same subject matter on both fronts, it was quite tempting to compel the plaintiff to choose one sword and throw away the other. Whitford, J. succumbed to temptation and held that the plaintiff had made a choice years ago at the time it had applied for patent protection, making the election that in return for a potential monopoly upon publication of the patent the material disclosed is dedicated to the public's use, save for the rights in the patent itself.⁷⁸ It is worth noting that plaintiff's counsel did little to try to convince the judge of alternate ways of perceiving the legal conun-

75 21 R.P.C. 621, [1904] 2 Ch. 580 (Eng. C.A.) [hereinafter *Werner*]; Although it should be noted that a judge had previously weighed in on the coexistence of copyright and patents a few years earlier when he had disallowed copyright protection for the lettering on the face of a barometer: *Davis v. Comitti* (1885), 52 L.J. (N.S.) 539; There also exists a slightly later case dealing with the protection of trade-marks disclosed in a patent application, in which the House of Lords was favourable to the survival of trade-mark protection: *William Edge & Sons Ltd. v. William Niccolls & Sons Ltd.*, [1911] 28 R.P.C. 582, [1911] A.C. 693 (U.K. H.L.).

76 *Ibid.* at 629.

77 [1979] F.S.R. 405 (Eng. C.A.), reversed [1981] F.S.R. 60, [1982] R.P.C. 183 (U.K. H.L.), affirmed (1982), [1983] F.S.R. 512 (U.K. H.L.) [hereinafter *Catnic*].

78 *Ibid.* at 427.

drum before him and in fact agreed with concept of an election between copyright and patents.

It took only a few years before Whitford, J.'s words found their way in Canadian case law. In the oft cited *Rucker Co. v. Gavel's Vulcanizing Ltd.*⁷⁹ case, Walsh, J. was faced with an allegation of copyright infringement in mechanical drawings which were substantially similar to the drawings of rubber packing elements shown in an application for a patent claiming their use to prevent uncontrollable gushing in oil and gas exploration. In addition to patent infringement, the plaintiff alleged copyright infringement in its mechanical drawings. Walsh, J. perceived that copyright protection would in fact lead to the extension of the patent monopoly by enabling the copyright owner to control the very same physical objects covered by the patent. Without explicitly wording the rule as an election made by the patentee, he held that Parliament's intention is that the *Copyright Act* and the *Patent Act* should not be interpreted so as to give overlapping protection.⁸⁰ The election is however implicit in Walsh, J.'s reasons since the key to denying copyright protection was the existence of the patent. Support for this position has been expressed by authors, but most avoid tying their position specifically to disclosure in a patent but extend the concept generally to utilitarian articles or the overlap between the various regimes of intellectual property rights.⁸¹

Australia and New Zealand quickly became hostile climes for the *Catnic* approach. In the 1981 *Wham-O Manufacturing Co. v. Lincoln Industries Ltd.*⁸² case, the High Court of New Zealand considered a claim of copyright infringement of Frisbee™ flying discs in the course of which the defendant sought to rely on a U.S. patent to show that the

79 (1985), 7 C.P.R. (3d) 294, 1985 CarswellNat 571, 6 C.I.P.R. 137 (Fed. T.D.), varied (1987), 14 C.P.R. (3d) 439, 1987 CarswellNat 1256 (Fed. T.D.) [hereinafter *Rucker*]; Although it must be said that the *Catnic* case had already been cited by Walsh, J. with approval one year previous on an interlocutory motion: *Burnaby Machine & Mill Equipment Ltd. v. Berglund Industrial Supply Co.* (1984), 81 C.P.R. (2d) 251, 1984 CarswellNat 827 (Fed. T.D.); See the comments of Addy, J. who sought to restrict the scope of the *Catnic* rule in an interlocutory decision: *Haliburton Co. v. Northstar Drillstem Testers Ltd.* (1982), 63 C.P.R. (2d) 187, 1982 CarswellNat 705 (Fed. T.D.) at 188 [C.P.R.].

80 *Ibid.* at 312.

81 See T.J. Sinnott, "Copyright in Operating System Software on Computer Chips: A Tale of Two Apples" (1987) I.P.J. 1 at 28-32; David Vaver, *Intellectual Property Law: Copyright, Patents and Trade-Marks* (Concord: Irwin Law, 1997) at 14-15, 128.

82 [1982] R.P.C. 281 (New Zealand H.C.) at 297.

plaintiff had abandoned its copyright when it filed the patent application. The Defendant contended with the fact that drawings in the patent application were merely an adaptation of the original technical drawings by arguing that the alleged abandonment applied to all “equivalent” drawings, a test bound to stir up considerable controversy. Moller, J. accepted that the *Catnic* “rule” was clearly obiter since it had not been demonstrated that in *Catnic* the defendants had actually copied the drawings, followed the older *Werner* case and stated that this defence was unavailable at law.⁸³ Next in line was the Australian case of *Ogden Industries Proprietary v. Australia KIS Proprietary*⁸⁴ where copyright was asserted in key blanks that were depicted in an expired patent. The argument made on behalf of the defendant in this case added a new twist to the *Catnic* “rule”: it was argued that when the plaintiff had applied for the patent it had granted an implied licence for the public to use the drawings at the expiry of the patent.⁸⁵ In view of the comments of learned authors disapproving Whitford, J.’s new rule and the fact that the earlier *Werner* judgment of the Court of Appeal had not been brought to Whitford, J.’s attention, Kearney, J. declined to follow the Defendant’s argument.⁸⁶

Canadian cases after the early 1980s did not rely at all on the *Catnic* “rule”, nor on the reasons in the *Rucker* case, to exclude copyright protection.⁸⁷ The *Rucker* case was actually cited twice and not applied in both cases.⁸⁸ In one of these cases, the Court appears to have implicitly

83 *Ibid.* at 298-299.

84 [1983] F.S.R. 619, 45 A.L.R. 126 (New South Wales S.C.).

85 *Ibid.* at 634.

86 *Ibid.* at 635-636: “On this basis I would have concluded that something more than the existence of the patent would be required to deprive a patentee of his concurrent copyright rights. Moreover, to extend the patentee’s abandonment of copyright to subsequent detailed drawings not incorporated in the patent specification seems to run counter to accepted notions of copyright entitlement.”

87 See: G.J. Zimmerman, “Extending the Monopoly? The Risks and Benefits of Multiple Forms of Intellectual Property Protection” (2000) 17 C.I.P.R. 345 at 352-355; See also for references to foreign cases having considered the *Catnic* “rule” the authorities cited at note 235 in: W.L. Hayhurst, “Copyright Subject-Matter” in Henderson, *supra* note 25, 29 at 88; Some authors now treat the *Catnic* ruling as a non-issue: K. Garnett, J.R. James & G. Davies, *Copinger and Skone James on Copyright*, 14th ed., vol. 1 (London, Sweet & Maxwell, 1999) at 388.

88 *Teckserve Ltd. v. J & K Die Casting Ltd.* (1986), 10 C.P.R. (3d) 408, 1986 CarswellNat 1036 (Fed. T.D.) at 412-413 [C.P.R.]; *Energy Absorption Systems*

decided that s. 64.1 of the *Copyright Act* is the proper instrument for delineating what should properly be excluded from copyright protection rather than the more blunt approach chosen in the *Catnic* case.⁸⁹ The notion that the patent applicant makes an election is intimately related to the information disclosure and enabling functions of patents. In other words, the public has a “right” to practise the invention as it is described in the patent application. This issue was canvassed in *Thomas & Betts Ltd. v. Panduit Corp.*,⁹⁰ albeit in relation to the interaction between patents and trade-mark rights, where it had been argued that on the expiry of patent for a new type of mechanism for a cable tie, the Plaintiff could no longer assert any trade-mark rights in the shape of the head of the cable tie because it had been depicted in drawings attached to the patent specification. The Federal Court of Appeal refused to accept this argument mainly on the basis that it would be unjust to deprive the Plaintiff of trade-mark rights in an element on which it had a monopoly during the life of the patent.⁹¹ It did not, however, take the occasion to clarify the scope that should be given to the evocative words of Dickson, J. in the *Consolboard Inc. v. MacMillan Bloedel (Sask.) Ltd.*⁹² case to the effect that “when the period of monopoly has expired the public will be able, having only the specification, to make the same successful use of the invention as the inventor could at the time of his application.” Arguably, the inventor’s words relate only to the functional aspects disclosed, inasmuch as they were part of the monopoly, and do not extend to other elements incidentally disclosed in the specification.

We will see that copyright may extend to some functional aspects of works, especially in relation to computer software as we will explore in the next section, and whether the expiry of the patent will result in the grant a right to the public that pre-empts the assertion of copyright remains to be seen. If such a rule exists, then it would complement and perhaps expand on the provisions of s. 64.1 of the *Copyright Act*, although it can equally be said that the mere existence of s. 64.1 is reason enough not to create any additional rule based on a “right” of the public related to the expiration of a patent.

Inc. v. Y. Boissonneault & fils Inc. (1990), 30 C.P.R. (3d) 420, 1990 CarswellNat 780, 33 F.T.R. 96 (Fed. T.D.) [hereinafter *Energy Absorption*].

89 *Energy Absorption*, *supra* note 88 at 466-468.

90 *Supra* note 60.

91 *Ibid.* at 505.

92 [1981] 1 S.C.R. 504, 56 C.P.R. (2d) 145, 1981 CarswellNat 582F, 1981 CarswellNat 582, 35 N.R. 390, 122 D.L.R. (3d) 203 (S.C.C.).

The other argument that has met with mixed success is that copyright in drawings or other portions of the specification is conveyed to the Crown by the mere fact of preparing a patent application or the publication of the application or patent. The question arises because s. 12 of the *Copyright Act* provides that, absent any agreement to the contrary, copyright in any work that is prepared or published by or under the direction or control of a government department will belong to the Crown. The Canadian Intellectual Property Office (CIPO) being an agency of the Ministry of Industry Canada, a government department is arguably involved in the process that ultimately leads to the issuance of a patent.⁹³ As permitted by s. 12 of the *Patent Act*, the Federal government has set out rules and regulations on the form and content of an application for a patent to complement the rules set out in s. 27 of the *Patent Act*, although it should be noted that these provisions are not extremely detailed.⁹⁴ The more explicit rules are found in the Manual of Patent Office Practice (MOPOP), which sets standards that are applied by Patent Examiners. The objections raised by the Examiner may result in amendments being made to the patent application or to the drawings. The mere fact that a patent application must conform to certain standards can hardly result in the application being prepared under the direction or control of the Canadian Intellectual Property Office since these standards are abstract in nature and are applied without any government official having cognizance of the existence of the patent application.⁹⁵ The examiner will sometimes suggest more appropriate wording for the claim but these interventions are typically limited in nature and made by way of objections and may amount to very limited forms of direction or control.⁹⁶ As one author points out, however, the provision has been

93 Section 3 of the *Patent Act* states that the Patent Office, a constituent part of the Canadian Intellectual Property Office, is "attached" to Industry Canada.

94 *Patent Rules*, SOR/96-423.

95 One author construes the meaning of the words "under the direction or under the control" as entailing some kind of commissioning by the government, which would not be the case in the circumstances described: G. Snow, "Who Owns Copyright in Law Reports?", (1981) 64 C.P.R. (2d) 49 at 69; *Contra*: E.P. Skone James, *Copinger and Skone James on Copyright* (London: Sweet & Maxwell, 1971) at 353; Some authors state that mere commissioning is insufficient by itself to meet the requirement of "direction and control": Laddie, Prescott & Vitoria, *supra* note 72 at 1700-1701.

96 Although limited forms of control have occasionally resulted in a work being deemed to be owned by the Crown. See, for example: *Hawley v. Canada* (1990), 30 C.P.R. (3d) 534, 1990 CarswellNat 1059, 71 D.L.R. (4th) 632

construed narrowly so that merely having the possibility of requesting changes or refusing the work is not sufficient to amount to direction or control.⁹⁷

That being said all laid open patent applications are arguably published under the direction and control of the Crown as public servants make all the necessary arrangements, which then means that the copyright in all published patent applications would, in principle, rest in the Crown. There is little room in the patent prosecution process to conclude an “agreement to the contrary” with the Patent Office so this would appear to effectively pre-empt copyright protection. Nonetheless three arguments can be put forward to avoid the harshness of this possible outcome. The first argument is that the patent application is often an adaptation of pre-existing material and only copyright in the adaptation would be conveyed to the Crown, not copyright in the original material that could still be asserted against third parties.⁹⁸ The second argument is that s. 7 of the *Patent Act* may entail an implicit legislative “agreement to the contrary.” This section provides *inter alia* that no officer or employee may acquire any interest in a patent or a right to a patent and that any such assignment, acquisition or transfer is void. The underlying general intention is to ensure that all rights are retained by the applicant, although the specific intention is likely to prevent any officer or employee from abusing his or her position of authority. The third argument is that “publication” should be understood in the sense of a first publication and therefore U.K. case law has held that if the copyright owner has marketed articles in accordance with the patent drawings prior to publication of the patent then there is no grant of copyright to the Crown.⁹⁹

This type of argument was made in relation to pharmaceutical packaging and labelling as well as pharmaceutical product monographs, where government agencies must approve the wording of the works, and Canadian courts seem to have been receptive to the argument at an interlocutory stage. In one case the Federal Court of Appeal ruled that it was not plain and obvious that a claim that copyright in a product monograph is owned by the Crown because the content of the monograph is subject to regulatory requirements and of the existence of s. 12 of the

(Fed. T.D.).

97 Vaver, *supra* note 11 at 92.

98 This was accepted by Whitford, J. in: *Catnic*, *supra* note 77 at 427.

99 Laddie, Prescott & Vitoria, *supra* note 72 at 1702.

Copyright Act would fail as a matter of law.¹⁰⁰ On this note we will turn to the intricacies of copyright and patent protection for software in the following section.

4. COMPUTER PROGRAMS : THE NO MAN'S LAND BETWEEN COPYRIGHT LAW AND PATENT LAW

Prior to the advent of modern computers, industrial tools and instruments were made for a specific purpose and fit nicely within the scheme of patent law, subject to the issue of copyright in technical drawings. Ironically, early computers were conceived as simply glorified calculators whereas, as some authors rightly point out, today's computers perform much more than mere computation of numbers and thus the word "computer" may have progressively become a misnomer.¹⁰¹ The computer has become the ideal multipurpose tool that can, if duly fitted with the right software or hardware appendages, perform a vast range of useful tasks. This capability derives from the computers' ability to manipulate information to functional ends. The computer therefore gave birth to "information technology" in relation to software, so named because it exhibits a very structured approach typical of industrial processes, machines and methods, yet is expressed in a kind of vocabulary closely tied to literary expression. A mutant was born, and as is likely the case for most mutants, it was ostracized by both its parents' kin. Patent law saw information technology as lacking industrial materiality, being merely scientific principles or abstract theorems. Copyright law viewed computer programs merely as another iteration of machine parts to which protection should not be extended because it would create excessively lengthy monopolies that would paralyze innovation and, after all, should copyright not be reserved to content which conveys knowledge and brings aesthetic enjoyment?¹⁰² After many decades of

100 *Glaxo Canada Inc. v. Apotex Inc.* (1995), 64 C.P.R. (3d) 191, 1995 CarswellNat 2788 (Fed. C.A.) at 192 [C.P.R.]; Two other cases are to the same effect, but the issue has not yet been decided on the merits: *Pfizer Canada Inc. v. Canada (Attorney General)* (1986), 10 C.P.R. (3d) 269, 1986 CarswellNat 616, 9 C.I.P.R. 18, 4 F.T.R. 295 (Fed. T.D.) at 275-276 [C.P.R.]; *Procter & Gamble Pharmaceuticals Canada Inc. v. Novopharm Ltd.* (1996), 68 C.P.R. (3d) 461, 1996 CarswellNat 947, 116 F.T.R. 99 (Fed. T.D.) at 473-474 [C.P.R.].

101 Laddie, Prescott & Vitoria, *supra* note 72 at 34.7.

102 Y. Gendreau, "Le logiciel et le droit d'auteur: Réflexions comparatives" (1987) 32 McGill L.J. 864 at 876; It is also telling that in the early days of information technology it was posited that software could not be protected

existence this unloved child has both gained and lost ground in patent and copyright law. In the sphere of patent law, particularly in the United States, information technology has made significant inroads, breaking down many of the roadblocks that had been thrown in its way. Copyright protection for computer programs experienced somewhat of a rocky start in some countries such as Australia where the courts initially refused to accept that it should receive protection as literary works when reproduced in object code form.¹⁰³ Then, information technology gained ground as was confirmed in most countries by legislative enactments expressly extending copyright protection to computer programs. Unfortunately, the courts progressively whittled away the teeth of copyright protection in circumstances of non-literal infringement to the point where in the United States in particular one may wonder whether copyright bites only in cases of blatant literal copying. It may be that there exists a fairly important contingent of information technology innovations that stand in a no man's land between copyright and patent law.

We will first look at the labyrinth copyright law has become in Canada for information technology law where a large number of concepts and theories converge to limit protection. Once we have identified some of the holes that may exist in the net cast by copyright law, we will see how patent law may mend some of them, but perhaps not all.

Although earlier case law had confirmed copyright protection for information technology, s. 2 of the *Copyright Act* was adorned in 1988 with a definition of "computer program" to expressly specify that such works belong in the category of literary works. The statute defined a computer program as "a set of instructions or statements, expressed, fixed, embodied or stored in any manner, that is to be used directly or indirectly in a computer in order to bring about a specific result." This definition may be significant to the scope of copyright protection for computer software as an acknowledgement by Parliament that the functional characteristics of computer programs are not obstacles to copyright protection and that these characteristics should be protected. It may even be that copyright protection for computer software is governed by different rules than other copyrighted works having an industrial appli-

by copyright: R.H. Barrigar, "Legal Protection of Software from Unauthorized Use: Proprietary and Contractual Rights" (1976) 30 C.P.R. (2d) 159 at 168.

103 *Apple Computer Inc. v. Computer Edge Proprietary Ltd.* (1983), 50 A.L.R. 581 (Australia), reversed (1984), 2 I.P.R. 1, 53 A.L.R. 225, 1 F.C.R. 549 (Australia Fed. Ct.); (1986), 161 C.L.R. 171 (Australia H.C.).

cation. The first such acknowledgment may be that computer programs typically define a certain number of steps to arrive at a specific result and that although every computer program can arguably be simply a method, system or scheme to operate a computer, this does not prevent copyright to attach.¹⁰⁴ One of the grounds on which copyright protection is sought to be limited is the traditional lack of protection for methods, systems or schemes. Parliament likely did not intend that the exclusion of methods, systems and schemes be applied with full force and effect in relation to computer programs by introducing such a definition. A second point of interest in the definition of computer program is acknowledgement that it is essentially a functional creature, again because it is merely a set of instructions or statements used to bring about a certain result – in a very broad sense all of the instructions could be said to be dictated by the result in every computer program.¹⁰⁵ When applying s. 64.1 of the *Copyright Act* or when considering whether copyright protection extends to functional features, it arguably should be taken into account that the inherently functional nature of computer programs is properly made the object of copyright protection.

On numerous occasions, the fact that a work serves a functional purpose has been no basis in and of itself to deny copyright protection. It is true that the early case of *Hollinrake v. Truswell*¹⁰⁶ appeared on its face quite hostile to copyright protection for functional works. In that case, the English Court of Appeal, finding inspiration in the U.S. *Baker* case, ruled that a sleeve chart to be used as a pattern for cutting out sleeves for the various sizes of dresses, was a mere measuring tool attracting no copyright protection, being more akin to a mere ruler. The *Hollinrake* case was construed on more than one occasion as merely

104 P. Samuelson, R. Davis, M.D. Kapor, J.H. Reichman, "A Manifesto Concerning the Legal Protection of Computer Programs" (1994) 94 *Colum. L. Rev.* 2308 at 2316: "While conceiving of programs as texts is not incorrect, it is seriously incomplete. A crucially important characteristic of programs is that they behave; programs exist to make computers perform tasks. Program behaviour consists of all the actions that a computer by executing program instructions."

105 B.B. Sookman, *Computer, Internet an Electronic Commerce Law: Acquiring and Protecting Intellectual Property* (Toronto: Carswell, 1989-) at 3-155 – 3-156; Vaver, *supra* note 13 at 35: "Programmers may enjoy being called 'binary bards' and the codes they produce may look like telegraph code books (long considered literary works). But the purpose of the program is to embody the code in electronic circuitry, where it functions like, and often replaces, machine parts"; Karjala, *supra* note 3 at 43.

106 [1894] 3 Ch. 420 (Eng. C.A.) [hereinafter *Hollinrake*].

ruling that there was insufficient substance to what was claimed to be a literary work, not as a bar to the protection of functional works at large, and generally courts will not be swayed in favour of the defendant on proof of function.¹⁰⁷

This is to be contrasted with the full force of the United States Supreme Court decision in *Baker v. Selden*¹⁰⁸ in respect of copyrighted works of utility that gave broad meaning to the notion of unprotected ideas precisely to carve out copyright protection for many functional works. The court was asked to rule on the protection by copyright of a novel accounting system and its related forms. The defendant had used the essence of the plaintiff's accounting system to produce a new set of accounting forms that were substantially different from those published by the Plaintiff. The Plaintiff sought therefore to protect the ideas forming its novel accounting system. As one author points out, the case could simply have been resolved by ruling that no protected expression had been copied, only unprotected ideas.¹⁰⁹ The court stated instead the wide reaching rule where by when a work must be copied for purposes of practicing an art (as opposed to merely explaining the art), the art being in this case the novel accounting system, such copying will not constitute copyright infringement. This was thought out to avoid the mischief of monopolization of an art by the innovator who formulates it. Although it was later stated by the U.S. Supreme Court in *Mazer v. Stein*¹¹⁰ that the mere fact that an article is used or intended to be used in industry is not a bar to copyright protection, this case has cast a long shadow that extends even to computer programs. In essence, the *Baker* ruling leads U.S. courts to deny copyright protection for functional works even if there are numerous alternative ways of achieving the same practical result. If as is postulated earlier, computer programs are indeed purely

107 *Netupsky v. Dominion Bridge Co.* (1969), 58 C.P.R. 7, 1969 CarswellBC 76, 68 W.W.R. 529, 41 Fox Pat. C. 154, 5 D.L.R. (3d) 195 (B.C. C.A.) at 30-31 [C.P.R.], reversed (1971), 3 C.P.R. (2d) 1, 1971 CarswellBC 281, 1971 CarswellBC 313, [1972] S.C.R. 368, [1972] 1 W.W.R. 420, 24 D.L.R. (3d) 484 (S.C.C.); *Bulman, supra* note 28; *IBM Corp. v. Ordinateurs Spirales Inc./Spirales Computers Inc.* (1984), 80 C.P.R. (2d) 187, 1984 CarswellNat 15, 2 C.I.P.R. 56, 27 B.L.R. 190, (sub nom. *International Business Machines Corp. v. Ordinateurs Spirales Inc./Spirales Computers Inc.*) 12 D.L.R. (4th) 351 (Fed. T.D.) at 195 [C.P.R.]; *DRG, supra* note 30 at 548; *Northwest, supra* note 50 at 517.

108 *Supra* note 69.

109 See: M.B. Nimmer & D. Nimmer, *Nimmer on Copyright* (New York: Matthew Bender & Co, 1963-) at 2-202.

110 347 U.S. 201 (1954).

functional works this ruling would arguably foreclose copyright protection completely for such works,¹¹¹ but even if not extending so far it certainly colours the U.S. courts' approach to non-literal copying. Ultimately, the rule that should perhaps have been drawn from *Baker* is that courts should not allow patent protection under the guise of copyright.¹¹² But even this rule may not be easy to apply in relation to computer programs. This type of exclusionary rule is especially devastating in relation to computer programs as their most important source of value is their behaviour as opposed to the aesthetic characteristics of their source code.¹¹³

In recent years, one American case has stood out in the common law world like beacon in the area of non-literal copying of computer programs, with judges either steering into the path shown or on the contrary making a conscious effort to follow other avenues. It is the *Computer Associates International Inc. v. Altai Inc.*¹¹⁴ case where the U.S. Second Circuit Court of Appeal described a three-step "abstraction-filtration-comparison" test designed to determine whether copyright in a computer program has been infringed while in doing so filtering out the unprotectable components. This decision has been considered in numerous Canadian,¹¹⁵ British¹¹⁶ and Australian¹¹⁷ cases where non-

111 Indeed, this was argued early on by the Defendant in *Apple Computer Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 219 U.S.P.Q. 113, 70 A.L.R. Fed. 153 (1985), cert. denied 464 U.S. 1033 (1984) where it stated that an operating system program was not protected by copyright because it was the functional expression of a process, system or method. This concept was rejected by the Court.

112 See: Nimmer & Nimmer, *supra* note 109 at 2-204.10.

113 Samuelson, Davis, Kapor & Reichman, *supra* note 104 at 2318-2320.

114 23 U.S.P.Q.2d 1241, 61 U.S.L.W. 2003 (U.S. 2nd Cir. N.Y., 1992) [hereinafter *Altai*].

115 See for example: *Delrina Corp. v. Triolet Systems Inc.* (2002), 17 C.P.R. (4th) 289, 2002 CarswellOnt 633, 156 O.A.C. 166, 58 O.R. (3d) 339, 23 B.L.R. (3d) 231, [2002] O.J. No. 676 (Ont. C.A.), additional reasons at (2002), 22 C.P.R. (4th) 332, 2002 CarswellOnt 3220, 165 O.A.C. 160, [2002] O.J. No. 3729 (Ont. C.A.), leave to appeal refused (2002), 2002 CarswellOnt 4080, 2002 CarswellOnt 4081, 305 N.R. 398 (note), 178 O.A.C. 200 (note) (S.C.C.) [hereinafter *Delrina* (2002)]; *Prism*, *supra* note 7; *Matrox Electronic Systems Ltd. c. Gaudreau*, [1993] R.J.Q. 2449, [1993] Q.J. No. 1228 (Que. S.C.) [hereinafter *Matrox*]; *Conexsys Systems inc. c. Aime Star Marketing inc.*, 2003 CarswellQue 2003, [2003] R.J.Q. 2875 (Que. S.C.) [hereinafter *Conexsys*].

116 *IBCOS Computers Ltd. v. Barclays Mercantile Highland Finance Ltd.*, [1994] F.S.R. 275 (Eng. Ch. Div.) [hereinafter *Ibcos*]; *John Richardson Computers*

literal copying was alleged and, in the United States, the test it proposes has truly become the standard in computer software copyright infringement cases, although some authors point out that the subsequent application of the test suffers from a notable lack of consistency. Such inconsistency is not surprising since its strict application, including that of the *Baker* rule, may inevitably lead to the conclusion that no protection exists for non-literal copying of a computer program.¹¹⁸ In some instances, this may seem inequitable to the Court and motivate it to favour a more liberal construction of the various steps that comprise the “abstraction-filtration-comparison” test.

The first step of the test, the “abstraction” step, can be best understood as a reaction to the highly criticized *Whelan Associates Inc. v. Jaslow Dental Laboratory Inc.*¹¹⁹ case that applied the idea/expression dichotomy only at the most abstract level by stating that “the purpose or function of a utilitarian work would be the work’s idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea”.¹²⁰ The court applied this principle in the context of software used to manage a dentist’s office, holding that the sole purpose of the program was to manage a dentist’s office. Applying this dichotomy and the *Baker* rule at such a high level contained their application and permitted a larger scope of protection of the non-literal aspects of a computer program such as the structure, sequence and organization. For example, the court would apply the *Baker* rule to any given module, having in mind only that the function of the program is to manage a dentist’s office rather than the specific function of the modules. The first step is therefore to examine the computer program alleged to have been copied to isolate each level of abstraction. The purpose of this step is therefore to remind the judge that he or she must not stay on a very

Ltd. v. Flanders, [1993] F.S.R. 171 (Eng. Ch. Div.) [hereinafter *John Richardson*].

117 *Coogi Australia Pty Ltd. v. Hysport International Pty. Ltd.*, [1998] F.C.A. 1059 (Australia Fed. Ct.); *Data Access Corp. v. Powerflex Services Pty Ltd.* (1999). 45 I.P.R. 353 (Australia Fed. Ct.); *Admar Computers Pty Ltd. v. Ezy Systems Pty Ltd. & Ors*, [1997] 853 F.C.A. (Australia Fed. Ct.).

118 It is ironic that the court in *Altai* expressly confirmed previous case law that had held that there exists protection for non-literal copying while at the same time holding that the computer program when it ultimately approved the trial judge’s holding that there were no non-literal elements worthy of copyright protection.

119 797 F.2d 1222 (U.S. 3rd Cir. Pa., 1986) [hereinafter *Whelan*].

120 *Ibid.* at 1255.

abstract level (*i.e.*, the function of the program as a whole) to apply the various doctrines that limit copyright protection and, quite the contrary, must explore all of the various structural components of the computer program and identify the function of each component. The baseline (or in other words the lowest level of abstraction) is the integral text of the source or object code which is obviously protected.

The second step of the test is the filtration of unprotectable matter using the various limiting doctrines. This first such limiting doctrine is the *Baker* rule, restated as the Merger doctrine providing that if there is only one or a limited number of ways to express an idea then the expression has merged with the idea and may be freely used by third parties. The application of the Merger doctrine is recast in the context of computer programs as eliminating copyright protection for any set of modules that are necessary to efficiently implement that part of the program's process. This analysis must be applied to every structural level of the computer program as outlined in the "abstraction" step of the test. If a program is properly designed, every instruction, module or group of modules must be necessary efficiently to implement the program's functional processes. If they are not, it is likely the result of poor programming skills. This excludes of course comments found in the source code or arbitrary data structures, but those may not be said to be computer programs as defined by law but mere accessory literary works or compilations. In sum, poorly written and inefficient programs are more likely to attract protection in this regard than efficiently designed and coded computer programs. In addition to the Merger doctrine, and as more exhaustively outlined by the 10th Circuit Court in *Gates Rubber v. Bando Chemical Industries*,¹²¹ the court will also exclude ideas, processes or methods incorporated into the computer program, facts, material in the public domain and expression dictated by external constraints thus being a necessary part of an idea or process (the so-called "scènes-à-faire" doctrine).

The third and final step in the test is to compare whatever is left of the allegedly infringed work with the defendant's software to determine whether it has been substantially taken by the defendant. The *Altai* court aptly describes what is left as the "golden nugget" because it will be highly unusual for the court's pan to contain gold once it has sifted through in the strict manner proposed the unprotectable sand of the computer program. The court readily states that it expects that the effect of the application of the abstraction-filtration-comparison test will be a

121 9 F.3d 823 (10th Cir., 1993).

narrow ambit of copyright protection for computer programs. Even though Congress has clearly instructed that computer programs be protected, the *Altai* court decided that the presence of this alien in the copyright field will not compromise the application of the fundamental doctrines of copyright law that are hostile to functional works and even more so to purely functional works.

Although the steps described above are important, the fundamental question that must be addressed is not really how many steps should exist in a test to determine to what portions copyright applies or even what is the most appropriate formulation of each step. It is true however that the way the abstraction portion of the *Altai* test functions results in an exceedingly thorough filtering.¹²² The main reason is that the *Altai* test lacks a step where the compilation of the various elements is considered.¹²³ Much turns nonetheless on the substance of the doctrines limiting copyright protection (merger, exclusion of systems, methods, *etc.*) and whether computer programs should have a special status in the application of these doctrines, either by totally excluding their application or by simply softening their application. The U.S. courts have clearly indicated that no special concessions will be made to accommodate computer programs within the copyright family. The mere fact that the Ontario Court of Appeal in *Delrina Corp. v. Triolet Systems Inc.*¹²⁴ refused to overturn the lower court's decision on the basis that the trial judge allegedly dissected the various parts of the Plaintiff's program into its components in a manner similar to that proposed by the *Altai* court and proceeded to weed out elements not protected by copyright has only limited importance. What is truly significant is the court's apparent willingness to apply with full force of the idea/expression dichotomy, the functionality test of s. 64.1 of the *Copyright Act*, the Merger doctrine and the denial of protection for methods and processes. It is therefore these issues that we will now address to determine what concessions are made in Canadian law, if any, to accommodate computer programs within the copyright family or alternatively whether these doctrines leave enough breathing space for non-literal copying to survive.

122 Karjala, *supra* note 3 at 54.

123 S. Lai, *The Copyright Protection of Computer Software in the United Kingdom* (Portland, Hart Publishing, 2000) at 30-31; Although it should be pointed out that some of the case law applying the *Altai* test added this step to the process, see: *Softel v. Dragon Medical & Scientific Communication Inc.*, 118 F.3d 569 (4th Cir., 1994).

124 *Supra* note 115.

The first limiting doctrine considered is the notorious idea/expression dichotomy and the related Merger doctrine developed in the United States. Some authors have pointed out that the true nature of this doctrine is misunderstood and overextended.¹²⁵ Again, the basic idea/expression dichotomy was stated in *Moreau*¹²⁶ whereby an author can claim no protection for the idea but only in the expression of these ideas. This should inevitably force us to determine what is the “idea” referred to in this dichotomy because arguably, any form of coherent discourse is built on layers of ideas, and the combination of these ideas is an integral part of the expression of the author. This proposition was restated with approval by the Chief Justice of the Supreme Court of Canada in *CCH*,¹²⁷ although it must be pointed out that the idea/expression dichotomy was not an issue put before the Court but merely recited as a backdrop to the discussion on originality. The bare assertion that no ideas may attract copyright protection whether alone or in combination is difficult to sustain. What is surprising is that this bare assertion has spontaneously attracted the favour of a number of legal commentators and judges for its apparent equanimity.¹²⁸ The truth of the matter is that the formula is notoriously difficult to apply to any given factual situation. This may ultimately lead the judiciary to qualify as “ideas” what their sense of equity or of the public policy underlying the system of intellectual property tells them the plaintiff should be able to control, sometimes without explaining this reasoning.¹²⁹ There is always a risk that certain

125 See: Laddie, Prescott & Vitoria, *supra* note 72 at 97-102.

126 *Supra* note 64; See also: *Petel*, *supra* note 73.

127 *Supra* note 4 at para. 8; It had also previously been approved by the Ontario Court of Appeal in the context of an alleged infringement of copyright in a computer program. In doing so, the Court emphasized that the idea/expression dichotomy is a fundamental principle of copyright law in the United States, Canada and the United Kingdom: *Delrina*, *supra* note 115 at 302, 307; See also the following Québec decision also concerning copyright in computer software which expounds on the idea/expression dichotomy: *Conexsys*, *supra* note 115 at paras. 231-236.

128 Although some acknowledge that in Anglo-Canadian copyright law this principle has not been applied with the same fervour as in the United States This is attributed to the presence of a statement of the purpose of Copyright Law in the United States Constitution: M.F. Morgan, “Canadian Copyright and Computer Software: Back to the Future?” (1995) 12 C.I.P.R. 161 at 173-175; See also: Handa, *supra* note 11 at 144-145; H.P. Knopf, “Limits on the Nature and Scope of Copyright” in Henderson, *supra* note 25, 229 at 248.

129 In one Québec Superior Court decision the idea/expression dichotomy was resolved in a way resolutely favourable to the Plaintiff. The Court held that

aspects of copyrighted works may be unduly denied protection given the overbroad meaning that can be easily attached to the word “ideas.” This is why the better view is arguably that only general ideas are *per se* excluded from copyright protection on the basis of the so-called idea/expression dichotomy and that other more appropriate vehicles should be found to restrict copyright protection based on public policy, if need be.¹³⁰ In fact, this may be the only way of reconciling the idea/expression dichotomy with a decision of the Supreme Court of Canada that extended protection to the “ideas and overall scheme” of architectural plans.¹³¹ As pointed out by one author the art is in determining where the basic concept ends and the exercise of expressing the concept begins, as an idea can always be defined in more specific terms and still be called an idea.¹³² If this approach is not taken, for example because of concerns related to the interface between copyright and patents in relation to functional works, then copyright protection for works that are traditionally the hallmark of copyright protection such as novels, plays and film

the creation of a functionally exact reproduction of a program without taking a single line of source code is an appropriation of expression, not ideas, and thus copyright infringement. In refusing to apply the idea/expression dichotomy at all possible levels of abstraction, the judge opined that doing so would be condoning bad faith, dishonesty and deceit: *Conexsys*, *supra* note 115, para. 333.

- 130 Sookman appears to adopt this approach: Sookman, *supra* note 105 at 3-152 – 3-152.1; This is also the approach suggested by some leading U.K. commentators: Laddie, Prescott & Vitoria, *supra* note 72 at 97-114, and more specifically at p. 100 the authors state that “[g]iven that there exists a good copyright in a work, the law does not protect a general idea or concept which underlies the work, nor any one fact or piece of information contained therein. However, a more detailed collection of ideas, or patterns of incidents, or compilation of information may amount to such a substantial part of the work that to take it would be an infringement of the copyright, although expressed in different language or other form, it being a matter of fact and degree whether the dividing line has been impermissibly crossed”; Other leading U.K. authors use idea/expression terminology but also appear to give credence to the theory that detailed ideas are not excluded from protection. See: Garnett, James & Davies, *supra* note 87 at 30-31.
- 131 *Webb & Knapp (Can.) Ltd. v. Edmonton (City)*, 44 Fox Pat. C. 141, 1970 CarswellAlta 67, 1970 CarswellAlta 141, [1970] S.C.R. 588, 72 W.W.R. 500, 11 D.L.R. (3d) 544, 63 C.P.R. 21 (S.C.C.) at 150-151 [Fox Pat. C.].
- 132 Sookman, *supra* note 105 at 3-152 – 3-152.1; Other authors have hold less hope of distinguishing idea from expression in relation to computer programs: J. Lahore, W.A. Rothnie, *Copyright and Designs*, Vol. 1, (Australia: Butterworths, 2003) at 6031: “The distinction here between idea and expression becomes tenuous, if not meaningless.”

scripts could be considerably undermined. One author views the inherent malleability of the idea/expression dichotomy as a tool enabling the judiciary to strike an appropriate balance between rewarding and encouraging creative contribution and the interests of the public in using this contribution.¹³³

The idea/expression dichotomy was one of the themes explored in Guthrie, J.'s decision in *Matrox*¹³⁴ but no detailed analysis of whether only general ideas are excluded or whether other ideas may be similarly unprotected. The *Matrox* case was a copyright infringement and trade secrets misappropriation action taken against former employees who started a competing graphics acceleration card manufacturing business after leaving their employment. The absence of a detailed analysis is explained by the fact that the plaintiff failed to put adequate evidence concerning the structure, sequence and organizations of its computer program. The judge felt that the plaintiff should have shown the various alternatives that were open to bring about the specific results, or in other words whether or not the particular sequence, structure or organization was essential to attain the specific result.¹³⁵ The better view of these comments is that the trial judge wished to understand if the elements of sequence, structure and organization alleged to have been taken were of such a general nature that a third party seeking to make a work providing the same overall functionality will have little alternative but to employ them. Another view may be that the trial judge wanted to know whether the elements of sequence, structure and organization alleged to be original were merely stock programming techniques uniformly applied in the field by programmers for the sake of efficiency and expediency, and that no meaningful alternative patterns were available. This would be acceptable only in the sense that insufficient skill and judgment was expended in its creation, otherwise this would be akin to introducing a requirement of novelty or imagination into the criteria of originality, something which has been very recently rejected by the Supreme Court of Canada.¹³⁶ Guthrie, J., however, agreed that it was inappropriate to consider only the overall idea of a computer program for purposes of applying the test and that regard should be had to the ideas in the component parts.¹³⁷ Beyond this, it is difficult to know how the court

133 Lai, *supra* note 123 at 21.

134 *Supra* note 115.

135 *Ibid.* at 2458-2459.

136 *CCH*, *supra* note 4 at paras. 14-25.

137 *Matrox*, *supra* note 105, 2457.

would have applied the idea/expression dichotomy in the context had appropriate evidence been submitted by the Plaintiff. What is clear however is the public policy the judge apparently intended to apply in the dispute: patent law is used to protect the sequence of functional steps in a computer program and it is not desirable, nor the intention of Parliament, to give overlapping protection on these functional aspects through copyright law.¹³⁸ We should point out that these comments arise amidst a discussion by the judge of the idea/expression dichotomy, including specifically of the *Altai* and *Whelan* cases.

Although both the *Altai* and *Whelan* cases are cited in the *Prism*¹³⁹ case, Parrett, J. did not feel compelled to plumb the depths of the idea/expression dichotomy because the evidence before him was that what the defendant accomplished was simply a translation of the plaintiff's program into another computer language.¹⁴⁰ It is however enlightening to read an excerpt of the plaintiff's expert's testimony on whether there has been substantial copying where he struggles with the notion of expression that he almost tied to the fact that the infringing program performs the same functions in the same manner.¹⁴¹ The testimony of this expert was relied upon by the court to decide on infringement. In Parrett, J.'s conclusions on the originality of the plaintiff's computer program, it is striking that he relies on the fact that it embodies a solution that is "conceptionally and functionally unique".¹⁴² He may thus be acknowledging, just as does the definition of "computer program" of the *Copyright Act*, the essentially functional nature of computer programs and that the "expression" found in these types of works will never venture out of the realm of functionality. Those portions that do may simply be other types of protected works incidentally included in a computer program.

138 *Ibid.* at 2457.

139 *Supra* note 7.

140 The judge does make one reference to ideas when commenting on whether the plaintiff's program is protected by copyright law, which statement appears quite close to the statement made in the *Whelan* case, but we should emphasize that is not pronounced in the determination of whether there exists actionable non-literal copying: *Ibid.* at 278: "[t]hose unique aspects of Prism's solution to the idea of a medical record abstracting system that met HMRI's data requirements represent a form of expression entitled to copyright protection."

141 *Ibid.* at 275-276.

142 *Ibid.* at 278.

An interplay between ideas and function was put forth in *Delrina*¹⁴³ where the Ontario Court of Appeal justified the fundamental nature of the idea/expression dichotomy and accepted that the American Merger doctrine finds application in Canada such that if there is only one or a few ways of expressing an idea, then copyright protection in the expression is forfeited for the common good of preventing the monopolization of ideas or functions.¹⁴⁴ The Merger doctrine's scope is entirely dependent on how broadly the concept of an "idea" is defined by the judiciary. If the concept of an "idea" includes detailed ideas, then the Merger doctrine will have a very wide application indeed and even risk phagocytizing the work on which it is unleashed. If the "idea" is limited to the realm of general ideas, then the Merger doctrine will be left to do the necessary housekeeping of inflated copyright claims. We agree with the Ontario Court of Appeal that there may be some weeding out to be done to properly assess whether copyright in a work has been infringed,¹⁴⁵ but the real issue is the choice of an appropriate garden implement to accomplish this task. The factual context of the case¹⁴⁶ shows that the idea/expression dichotomy and the Merger doctrine were indeed applied to general ideas, such as for example the idea of regrouping all routines dealing with terminal input/output in one section of the code and the idea of determining the CPU time spent for each process for which only one standardized process was known.¹⁴⁷ The factual

143 *Supra* note 115 at 307.

144 *Ibid.* at 306-307; See on the concept of the merger of idea and expression: H.P. Knopf, "Limits on the Nature and Scope of Copyright" in Henderson, *supra* note 25 at 243-244.

145 The appellant criticized the trial judgment in which the abstraction-filtration-comparison described in the *Altai* case was a strong source of inspiration and in response the Court of Appeal confirmed that unprotected elements must somehow be weeded out in the context of determining if there is substantial taking although it did not specifically endorse the approach outline in the *Altai* case: *Ibid.* at 305.

146 This context is of course outlined in greater detail in the reasons of the trial judge: *Delrina Corp. v. Triolet Systems Inc.* (1993), 47 C.P.R. (3d) 1, 1993 CarswellOnt 174, 9 B.L.R. (2d) 140 (Ont. Gen. Div.), affirmed (2002), 17 C.P.R. (4th) 289, 2002 CarswellOnt 633156 O.A.C. 166, 58 O.R. (3d) 339, 23 B.L.R. (3d) 231, [2002] O.J. No. 676 (Ont. C.A.), additional reasons at (2002), 22 C.P.R. (4th) 332, 2002 CarswellOnt 3220, 165 O.A.C. 160, [2002] O.J. No. 3729 (Ont. C.A.), leave to appeal refused (2002), 2002 CarswellOnt 4080, 2002 CarswellOnt 4081, 305 N.R. 398 (note), 178 O.A.C. 200 (note) (S.C.C.).

147 *Delrina* (2002), *supra* note 115 at 42.

context of the case is such that it was not very fertile ground for disputes on the idea/expression front. The Plaintiff's program was a system performance monitoring tool for an operating system owned by Hewlett Packard, an unrelated third party, and its initial iteration had been based on the functions and ideas of less elaborate tools made by Hewlett Packard as well as other tools developed by an unrelated individual and made available free of charge to all. It could be said that the Plaintiff's merit was in packaging the detailed ideas of third parties in a more commercially attractive fashion.¹⁴⁸

A completely different set of facts was put before the Québec Superior Court in *Conexsys*¹⁴⁹ where copyright infringement was alleged to have occurred in relation to event planning software. The evidence was clear that not a single line of source code had been copied by the defendants, although most data formats, categories of data and data used by the software in its operation had been copied. The issue of the appropriation of the structure, sequence and organization of the program (that the judge labels the "programming methodology") was squarely before the court: the expert evidence, ultimately accepted by the court, concluded that the Defendants had created a functionally identical program at all levels of detail.¹⁵⁰ Although a plethora of references to the idea/expression dichotomy is cited with approval by the trial judge, ultimately Trahan, J. ruled that the structure, sequence and organization of the software was clearly in the category of expression and not a mere idea.¹⁵¹ In doing so, the judge drew inspiration from the selection and arrangement aspect of compilations to rule that copyright protection exists in the overall arrangement of the functions of the software.¹⁵² Breaking down the software into its component parts would unduly detract from the integrity of the system and the way it is offered and sold to customers as a turnkey solution.¹⁵³

148 *Ibid.* at 7; We do not discuss in this article this issue of copyright protection for computer software interfaces, which in *Delrina* did appear to originate more significantly from the Plaintiff.

149 *Supra* note 115.

150 *Ibid.* at para. 324.

151 *Ibid.* at para. 328.

152 The concept of an original composition or arrangement of ideas can be discerned in an earlier decision dealing with an advertising concept: *Lambert c. Wardair Canada Inc.* (1990), [1990] R.J.Q. 877, 38 C.P.R. (3d) 131, 1990 CarswellQue 1096 (C.Q.) at 879 [R.J.Q.].

153 *Conexsys*, *supra* note 115 at para. 333.

The U. K. case law provides a range of views on the idea/expression dichotomy in three reported cases dealing with non-literal copying of software, which once the dust settles all appear to be in fundamental agreement on its application. In *John Richardson Computers Ltd. v. Flanders*,¹⁵⁴ the Court accepted that a process along the lines of that set out in the *Altai* case was appropriate but, at the same time, that the core aspect of the test is the application of the idea/expression dichotomy.¹⁵⁵ Some critics state that the judge in this decision failed to properly transpose the *Altai* test, most notably by not fully applying the “abstractions” stage of the analysis.¹⁵⁶

The *Flanders* case concerned a software package used to manage the inventory of a pharmacy, track the prescriptions and purchases and print out labels for the bottles and other containers. As the source code had not been copied in its purely literal aspects, Ferris, J. proceeded to deal individually with each of the 17 features that were alleged to have been copied and, in the end, those features, save one, that related to actual facets of a computer program (as opposed to data structures or other non-functional elements more akin to classic literary works) were all deemed unprotectable on the basis that they were ideas or the expression of only a limited number of ways to express an idea, which an author states to be a judicial recognition of the Merger doctrine in U.K. law.¹⁵⁷ The only feature appropriated found not to be excluded from copyright protection was a line editor, because the defendant had appropriated more than just the general concept of a line editor and related amendment routines to enter and modify the data to appear on drug labels but had taken some of the idiosyncratic detailed features of the plaintiff's line editor and some of the accompanying means of displaying these features. The judge then assessed whether the combination features taken by the defendant, each of them having been dismissed individually as not being protected by copyright earlier in the decision, would constitute a form of compilation protected by copyright, and found that it did not. Ferris, J. commented that it was difficult to adopt this kind of approach in respect of a computer program because the skill of the programmer relates to the development of the component parts.¹⁵⁸ This goes to show that the application of the idea/expression dichotomy, with

154 *Supra* note 116.

155 *Ibid.* at 527.

156 Lai, *supra* note 123 at 33.

157 *Ibid.* at 49.

158 *John Richardson*, *supra* note 116 at 559.

all of its contradictions, at a low level of abstraction may be conclusive of the outcome of the case by deterring judges from taking a step back to assess the full extent of the similarities taken as a whole. The presiding judge was not so deterred however and looked at the plaintiff's work from all angles when comparing it to the defendant's software.

A year later, Jacob, J. was faced with another case of non-literal copying of a computer program in the *Ibcos* case¹⁵⁹ in which he chose to address in greater detail the idea/expression dichotomy and the related Merger doctrine. He supported the position that detailed ideas may be subject to copyright protection, as opposed to general ideas, and underlined that the bald statement that "ideas" are unprotected is exceedingly vague and confusing.¹⁶⁰ He also rejected in no uncertain terms the application of the Merger doctrine, apparently being of the view that withholding protection to general ideas was sufficient to balance competing interests in the context of the analysis of whether a substantial part was taken without having to bar copyright protection outright.¹⁶¹ Needless to say that the idea/expression dichotomy was again at the heart of the matter. Applying his views on the notion of excluded "ideas" to the matter at hand, he held that the program structure as a collection of the various routines as well as the structure of each routine was protected.¹⁶² It appeared from the facts that the copying carried out by the defendant was quite close to being literal copying based on the presence of common quirks in both source codes, so the real issue was whether the portions copied formed a substantial part of the program. He also rejected the notion that one should search for a "core of protectable expression" as mandated by the *Altai* test, given that in doing so the judge may overlook the protection afforded to the program structure and design features.¹⁶³ He was however prepared to reject the claim that the appropriation of a set of high-level features was substantial taking, on the basis that they were mere general ideas.¹⁶⁴ Given the quasi-literal copying of a number of routines, the judge did not have much other occasion to assess the protection of detailed ideas forming the structure of the routines. This case is notorious for its statement that the concept of "overborrowing of skill, labour and judgment" is an appro-

159 *Supra* note 116.

160 *Ibid.* at 290-292.

161 *Ibid.* at 290-291.

162 *Ibid.* at 292.

163 *Ibid.* at 302.

164 *Ibid.* at 305.

appropriate guide to assess whether a substantial part has been appropriated,¹⁶⁵ which in the end may just be a reformulation of the concept of assessing the substantiality of taking both in quantity and quality albeit in a context of works having a functional purpose.

The latest U. K. case, *Cantor Fitzgerald International v. Tradition (UK) Ltd.*,¹⁶⁶ is also one where the facts turned largely on quasi-literal copying of portions of various software modules. Pumfrey, J. acknowledged however that the program structure is protected by drawing parallels between the algorithms or sequences of operations defined by the programmer to the plot of a film.¹⁶⁷ Other than to this extent, the judge did not feel compelled to discuss at any length the issues underlying the idea/expression dichotomy, the Merger doctrine or the *Altai* test. Pumfrey, J.'s acceptance that there may be copyright in algorithms or sequences of operations does place him in the category of proponents of the distinction between detailed ideas and general ideas for purposes of putting into practice the idea/expression dichotomy.

The weight of these authorities appears to point in Canadian and U.K. law, and perhaps more so in U.K. law, to a limited exclusion of protection for ideas and related application of the Merger doctrine and, therefore, that the idea/expression dichotomy is only a partial obstacle to the protection of the non-literal elements of computer programs.

A concept closely related to the idea/expression dichotomy is what is called the *scènes-à-faire* doctrine which discounts from an analysis of substantial infringement stock elements or necessary incidents. This is said to be relevant to the computer field in that some aspects of computer programs are merely routine developments present in a large number of programs and therefore should not be used to found a finding of substantial infringement, especially when a programmer is merely applying a recognized standard in the industry.¹⁶⁸ We caution however that the *scènes-à-faire* doctrine should be applied sparingly so as not to introduce a requirement of novelty for copyright protection, as much that is created is to some extent derived or inspired by existing works.

Another principle of copyright law used to bar protection for computer programs is that copyright does not protect systems, procedures,

165 *Ibid.* at 302; This approach has been criticized for its lack of precision and resulting over-protection of software: Lai, *supra* note 123 at 25.

166 [2000] R.P.C. 95 (Eng. Ch. Div.) [hereinafter *Cantor*].

167 *Ibid.* at para. 77.

168 See: T.J. Sinnott, "Patent Versus Copyright Protection for Computer Software" (1992) C.C.L.R. 33 at 40-41; Lai, *supra* note 123 at 57-59.

schemes or methods of operation. Unlike U.S. copyright legislation, the Canadian *Copyright Act* does not provide any explicit statement to that effect. This rule has been established over the years by case law relating to more traditional kinds of works. The issue now is whether it is appropriate to apply this rule with full force to computer programs. It also happens to be the subject of art. 9(2) of the *Agreement on Trade-Related Aspects of Intellectual Property Rights*¹⁶⁹ (“TRIPS”), which agreement was approved by the Canadian Parliament in s. 8 of the *World Trade Organization Agreement Implementation Act*.¹⁷⁰ The courts have been quick to put to good use the provisions of TRIPS. Witness the Ontario Court of Appeal using art. 9(2) as an authoritative statement of the scope of protectable expression in copyright law.¹⁷¹

The authority from which Canadian law derived the proposition that schemes, systems and methods are not proper subject matter for copyright protection is the 1894 English *Hollinrake v. Trustwell* case.¹⁷² This case was cited with approval in 1950 by President Thorson in the *Moreau* case¹⁷³ with the comment that there has never been any departure from the principle. As noted earlier in this article, President Thorson’s

169 Which states that: “Copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such.”

170 S.C. 1994, c. 47.

171 *Delrina*, *supra* note 115 at 303; One author views the inclusion of this principle in international agreements as a spearhead for the development of the U.S. merger doctrine and *scènes à faire* in U.K. law: Lai, *supra* note 123 at 23.

172 *Supra* note 106 at 427; It should be noted that various cases at around the same time extended protection to various codes forming systems to communicate by telegraph or by shorthand, noting in one case the enormous utility of the work, see: *D.P. Anderson & Co. v. Lieber Code Co.*, [1917] 2 K.B. 469 (Eng. K.B.); *Pitman v. Hine* (1884), 1 T.L.R. 39 (Eng. K.B.).

173 *Supra* note 72 at 205; Early on the case was cited with approval: *Cardwell c. Leduc* (1962), 41 C.P.R. 167, 1962 CarswellNat 21, [1963] Ex. C.R. 207, 23 Fox Pat. C. 99 (Can. Ex. Ct.) at 177 [C.P.R.]; It was applied to exclude protection to alternate “formats” for the game of bowling: *Goldner v. Canadian Broadcasting Corp.* (1972), 7 C.P.R. (2d) 158 (Fed. T.D.), leave to appeal refused (1974), 13 C.P.R. (2d) 230, 1974 CarswellNat 380, 1 N.R. 420 (Fed. C.A.); It was also cited in a tax case to support the view that there cannot be a property right in “know-how, techniques, skills and experience”: *Rapistan Canada Ltd. v. Minister of National Revenue*, 18 C.P.R. (2d) 78, 1974 CarswellNat 191, 1974 CarswellNat 356, [1974] 1 F.C. 739, 4 N.R. 409, 48 D.L.R. (3d) 613, [1974] C.T.C. 495, 74 D.T.C. 6426 (Fed. C.A.) at 89 [C.P.R.], affirmed 26 C.P.R. (2d) 288n, 1976 CarswellNat 197, 76 D.T.C. 6177, [1976] C.T.C. 296, 9 N.R. 42, 65 D.L.R. (3d) 383 (S.C.C.).

reasons concerning the lack of protection conferred on ideas by copyright law were approved by the Supreme Court of Canada in *Cuisenaire v. South West Imports Ltd.*¹⁷⁴ but the Supreme Court did not comment on the portion of President Thorson's reasons that dealt with schemes, systems and methods. The issue before the *Cuisenaire* court was whether making devices used in the context of a method for teaching arithmetic described in a book constitutes an infringement. The court's reasoning is that inasmuch as the rods were described in the plaintiff's book they were merely an uncopyrightable idea. One author complains that a number of cases dealing with accounting forms and filing or classification systems starting in the 1980s have effectively extended protection to schemes, systems or methods largely because the defendant did not raise the issue of their lack of protection.¹⁷⁵ In addition to the cases cited by this author, there are a number of Québec Superior Court cases where the argument of the lack of protection for schemes, systems and methods was raised by the defendants, where the court acknowledged that a system, scheme or method was at the heart of the work, but then found that expressive content fleshed out the system, scheme or method (in the nature of forms or other documents used to put them into practice) such that the ensemble was a copyrighted work.¹⁷⁶ The courts therefore take the position that the mere fact that a system, scheme or method is embodied in a copyrighted work is not a bar to copyright protection for

174 *Supra* note 41 at 79; They were approved again very recently in: *CCH*, *supra* note 4 at para. 8.

175 Morgan, *supra* note 128, 188-191; In one Québec case however we find a broad statement which appears to extend copyright protection to methods: *Éditions Lagons Ltée c. Chiasson* (1998), 1998 CarswellQue 482, 1998 CarswellQue 2516 (Que. S.C.) at para. 3: "[...] It is the presentation, the grouping of information, the working methods that influence the result in the presentation which can establish originality" (our translation).

176 *Éditions Hurtubise H M H Ltée c. Cégep André-Laurendeau* (1989), [1989] R.J.Q. 1003, 1989 CarswellQue 89, 24 C.I.P.R. 248 (Que. S.C.) at 1010 [R.J.Q.]: "Concepts are part of the public domain, their expression is a matter of private property" (our translation); *840182 Ontario Inc. c. Dion* (1993), [1993] R.J.Q. 2132 (Que. S.C.) at 2140: "In sum, it is not so much the idea of the constitution of a student painter franchise that the law protects than the consecration of this idea by mechanisms presenting diverse characteristics found in the documents compiled by the Plaintiff. It is the treatment of the information gathered that is protected by law." (our translation). In other cases, the Court apparently extended protection to "concepts" without discussing the lack of protection for schemes, systems or methods: *2426-7536 Quebec Inc. v. Proviso Distribution Inc.* (1992), 50 C.P.R. (3d) 53, 1992 CarswellQue 1051 (Que. S.C.) at 543 [C.P.R.].

the work as a whole. In *Bilodeau c. 2821061 Canada inc.*,¹⁷⁷ both parties admitted that the general concept of using scratch cards to determine the amount of charity donations was not protected by copyright, but the plaintiff maintained that the combination of using a table, the range of amounts set out in the table, the number of squares in the table as well as various textual notations on the card (total amount of donations on the card, the consecutive numbering of the cards, *etc.*) were protected. Wery, J. only applied the exclusion of systems, schemes and methods at the most abstract level and excluded protection to the various component parts for various other reasons. One of the reasons was that some of the elements, the arrangement in the form of a table, had been historically used in scratch cards by one school and were therefore part of the public domain, a questionable exclusion given that novelty is not a condition for copyright protection.¹⁷⁸ Another one was that the range of amounts was said to be commonplace in the industry and thus also in the public domain, adding that upholding its protection would unduly hinder competition because only a limited number of ranges of amounts are available.¹⁷⁹

The Ontario Court of Appeal in *Delrina*,¹⁸⁰ emboldened by art. 9.2 of *TRIPS*, stated unequivocally that there is no copyright in “any arrangement, system, scheme or method for doing a particular thing or process.” In doing so, the court glossed over some of the case law referred to earlier that appear to grant some protection to the expression of arrangements, systems, schemes or methods by narrowing the scope of the exclusion to the more abstract aspects of systems, schemes or methods. Moreover, the case law cited by the Ontario Court of Appeal does not exclude protection for “arrangements”, selection and arrangement having been traditionally the protectable subject matter of compilations. In the end, the issue ultimately boils down to how broadly the words “system”, “scheme” and “method” will be construed by the courts, much as is the case for the exclusion of “ideas.” In the case of computer programs, special considerations may weigh against a broad construction of the exclusion of systems, schemes and methods. In a very broad sense, the code of every computer program is merely a system or a scheme used to make a computer function in a specific manner. When Parliament sought to grant explicit protection to computer programs as literary

177 (1998), 1998 CarswellQue 2134, 1998 CarswellQue 3326 (Que. S.C.).

178 *Ibid.* at paras. 29-30.

179 *Ibid.* at para. 31.

180 *Delrina*, *supra* note 115 at 303.

works under the *Copyright Act*, it arguably acknowledged in the definition of “computer program” in s. 2 their fundamental character as systems or schemes and that they will benefit from copyright protection notwithstanding this character.¹⁸¹ The definition of “computer program” in s. 2 of the *Copyright Act* makes reference to instructions or statements used in a computer to bring about a specific result, which to paraphrase the Ontario Court of Appeal is precisely an arrangement, system or scheme for doing a particular thing or process. Relying on *TRIPS* is not especially helpful to resolve the issue because the agreement is wrought with a similar internal tension because its art. 10.1 specifically directs parties to protect computer programs.¹⁸² It is true that the words “computer programs” used in the text of art. 10.1 are not defined at all in the agreement, so it may yet be open to claim that the mandated protection is against literal or quasi-literal copying, and that all other aspects are in the public domain by the operation of art. 9.2. It was envisioned that the new definition of “computer programs” might give rise to broader protection as the transitional provisions make a distinction between computer programs created prior to May 27, 1987 and those created later.¹⁸³ Moreover, the background to art. 9(2) of *TRIPS* shows that it is intended to clarify pre-existing exceptions in member countries but not to create new exceptions.¹⁸⁴ Lastly, the Federal Court has ruled that the provisions of *TRIPS* have no direct effect in Canadian law unless they are incorporated by a specific legislative amendment.¹⁸⁵

181 *Contra*: Sookman, *supra* note 105 at 3-69.

182 The text of Article 10.1 reads as follows: “Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971)”.

183 R.S.C. 1985 (4th Supp.), c. 10, s. 24: “Subsection 1(2), the definition of “computer program” in subsection 1(3) and section 5 apply in respect of a computer program that was made prior to the day on which those provisions come into force but where, by virtue only of subsections 1(2) and (3) and this section, copyright subsists in a computer program that was made prior to May 27, 1987, nothing done in respect of the computer program before May 27, 1987 shall be construed to constitute an infringement of copyright.”

184 See: D. Gervais, *The TRIPS Agreement: Drafting History and Analysis* (London: Sweet & Maxwell, 1998) at 78.

185 *Pfizer Inc. v. R.*, (sub nom. *Pfizer Inc. v. Canada*) 2 C.P.R. (4th) 298, 1999 CarswellNat 1362, 1999 CarswellNat 2851, (sub nom. *Pfizer Inc. v. Canada*) [1999] 4 F.C. 441, (sub nom. *Pfizer Inc. v. Canada (Minister of National Health & Welfare)*) 171 F.T.R. 211 (Fed. T.D.), affirmed (1999), (sub nom. *Pfizer Inc. v. Canada (Minister of National Health & Welfare)*) 172 F.T.R. 160 (note), 1999 CarswellNat 2125, (sub nom. *Pfizer Inc. v. Canada (Minister of National Health & Welfare)*) 250 N.R. 66 (Fed. C.A.).

The cynical view of the matter is that the extent to which copyright protection will be restricted by the application of the exclusion of systems, schemes and methods will be a function of the presiding judge's sense of equity in view of the degree to which the skill, labour and judgment is being appropriated and the potential negative effects on competition in the computer industry, bearing in mind that independently created programs will not infringe. The level at which the system, scheme or method has been appropriated will also be a factor (*i.e.*, is it the general idea of the system that is taken or its detailed workings?), given that Parliament appears to envision that at least minimal protection must be given to the detailed aspects of the system or scheme that forms the framework of the computer program.

The last limiting doctrine and once again possibly the most significant we will examine is the functionality doctrine introduced by s 64.1 of the *Copyright Act*. We examined the provisions of s. 64.1 in relation to machines and articles of manufacture in our previous section, and we will now examine whether it should also apply to computer software. The effect of this provision is to prevent the copyright owner in certain defined circumstances from enforcing its rights in relation to the features of a "useful article" dictated by one of its utilitarian functions. The first circumstance is the application to another "useful article" those features *dictated solely* by the utilitarian function of the article. The wording appears to prevent third parties from copying a part without first determining if some aspects of the part are ancillary to the utilitarian function and to adjust their own design to avoid copying these aspects. If this restriction applies to computer programs then additional questions arise, namely whether the relevant function is only the function of the article as a whole or of each component part. Parliament's intent is more likely to cover the function of each component part, as just like computer programs industrial machines are made up of components each having a specific function. The second circumstance is making a drawing or other reproduction in material form of features dictated solely by a utilitarian function "by reference solely to a useful article".¹⁸⁶ The French version of the paragraph clarifies that this reproduction may not be made from actual plans or designs, but from an actual three-dimensional useful article, what is typically called a reverse engineering process.¹⁸⁷ If s.

186 Paragraph 64.1(1)(b), *Copyright Act*.

187 *Energy Absorption*, *supra* note 89 at 467-468: "Now, the drawings at issue in the Safety Impact Road manual were not at all made "by reference solely" to the plaintiff's crash cushion, but were rather copied from the plaintiff's G-

64.1 applies to the computer industry, this second circumstance will certainly need clarification as the distinctions between the “useful article” put on the market and the design or plan used to manufacture the article are much less clear cut as in the case of machinery. Perhaps a distinction could be made between the object code and the source code. The useful features could therefore only be reproduced as a result of a process of reverse engineering carried out on the object code, not on the source code to which the party may have had access. This may effectively restrict the scope of s. 64.1 of the *Copyright Act* because certain features dictated solely by the utilitarian function of the software may not be discovered through reverse engineering of the object code, contrary to actual machinery where ultimately all component parts may be examined in the process. Having obtained a useful article or a design in one of the two circumstances above then the third party is insulated from infringement claims by the copyright owner in relation to such useful article or design.¹⁸⁸

Most authors appear to be inclined to hold that s. 64.1 of the *Copyright Act* applies to computer programs.¹⁸⁹ What determines whether this specific section applies to computer programs or not is the definition of “useful article” found in para. 64(1) of the *Copyright Act*. To paraphrase the definitions of “article”, “useful article” and “article” found in this paragraph, the definition of a useful article for purposes of applying s. 64.1 of the *Copyright Act* is anything that is made by hand, tool or machine that has a utilitarian function, other than merely serving as a substrate or carrier for artistic or literary matter. Computer programs clearly have a utilitarian function so the issue is really whether a computer program is something made by “hand, tool or machine” as contemplated in s. 64(1) of the *Copyright Act*, or in other words whether an article of manufacture is restricted to tangible three dimensional objects. A related but important consideration pertaining to the nature of computer programs must also be taken into account. As defined in s. 2 of the *Copyright Act*, a computer program is strictly instructions or statements used in a computer in order to bring about a specific result. The

R-E-A-T System design and installation manuals, which is clearly prohibited copyright infringement.”

188 Paragraph 64.1(1)(c), *Copyright Act*.

189 See: Morgan, *supra* note 128 at 185-186; Vaver, *supra* note 11 at 126; M. Racicot, “Jusqu’où va la protection des programmes d’ordinateurs par le droit d’auteur au Canada – doit-on bannir l’expression “look and feel” de notre langage?” (1992) 9 C.I.P.R. 78, 98; Sookman, *supra* note 105 at 3-181 – 3-182.1.

relationship between the instructions or statements and the specific result defined by the *Copyright Act* appears strikingly close to being a relationship dictated solely by utilitarian function.¹⁹⁰ This is likely also true in practice because there is no benefit in adding code that is not strictly necessary to accomplish the desired functions of a computer program as this will ultimately make it less efficient, slower and more likely to be plagued by bugs. Moreover, end users will generally not have access to the source code but only a an object code version of the program and therefore will not be in a position to appreciate the aesthetics of any additional elements not strictly necessary to accomplish the set functions. This is not the case for three-dimensional objects as consumers will be able to perceive the elements not strictly necessary to accomplish the functions of the article. There may likely be a direct conflict between the provisions of the *Copyright Act* granting protection to computer software and those restricting protection to functional elements. One author attempts to resolve the conflict by stating that some features of computer programs are merely functional while other features are dictated by the utilitarian function.¹⁹¹ This may turn out to be an arbitrary distinction leading ultimately the judiciary once again to rule according to its sense of equity in view of the specific facts at hand. The other approach would be to hold that the definition of “useful article” only encompasses tangible three-dimensional articles because this is implied in the reference to their being made by hand, tool or machine in para. 64(1) of the *Copyright Act*. This has the disadvantage of giving the Courts no legislative principle on the basis of which they can exclude protection for some of the functional aspects and opens up discussions of legislative policy on the extent to which functional aspects should be protected by copyright law. So far, the statements made by the judiciary on this point have not sought to define a balance between protected and unprotected functional aspects, but to state that functional aspects are the preserve of patent legislation.¹⁹² It would appear that some protection

190 This is also suggested by case law relating to computer software: *Cantor*, *supra* note 166 at para. 74.

191 Sookman, *supra* note 105 at 3-181 – 3-182.

192 *Matrox*, *supra* note 115 at 2457; *Contra: Apple Computer Inc. v. Mackintosh Computers Ltd.*, *supra* note 7 at 213-214 [D.L.R.], additional reasons at (1987), 1987 CarswellNat 675, 12 F.T.R. 287, 14 C.I.P.R. 315, 43 D.L.R. (4th) 184 (Fed. T.D.), varied (1987), 18 C.P.R. (3d) 129, 1987 CarswellNat 720, 1987 CarswellNat 887, 16 C.I.P.R. 15, [1988] 1 F.C. 673, 44 D.L.R. (4th) 74, 81 N.R. 3 (Fed. C.A.), affirmed 30 C.P.R. (3d) 257, 1990 CarswellNat 736, 1990 CarswellNat 1027, 110 N.R. 66, [1990] 2 S.C.R. 209,

by copyright law for functionality is mandated by Parliament and the issue may turn on whether the copyright protection sought would permit the monopolization of a market. Monopolization is only possible when other avenues available to third parties to enter the market are cut off by copyright, which in turn depends on the level of abstraction of the function claimed to be owned exclusively. In the end, evidence of copying is necessary for there to be copyright infringement, a copyright owner will always need to go beyond the existence of a substantial similarity in function. Especially where works have utilitarian aims it is quite possible that two works be very similar, yet that there is no copyright infringement.

All hurdles having been considered, the protection of non-literal aspects of computer programs appears to turn significantly on the construction to be given of s. 64.1 of the *Copyright Act*. Should it be held to apply to computer programs this provision will leave the courts struggling to determine what are the unprotected purely functional aspects of computer programs from the merely functional which would be protected by copyright law. A difficult task indeed.

On this note, we will turn to the scope of patent protection for software or parts thereof. It should be noted at the outset that much of the legal analysis in relation to the patentability of computer software has turned on the preliminary issue of whether computer programs *per se* or in combination with other means come within the statutory subject matter of patent law. This means that, notwithstanding that the claimed invention meets the requirements of utility, novelty and non-obviousness, the Court holds that the subject matter of the claims, because of its nature, is not eligible for patent protection. One area where rejection on the basis of subject matter has historically occurred lies precisely at the intersection of copyright and patent law. In fact, Fox acknowledges the existence of a no man's land between the spheres of protection of copyright law and patent law,¹⁹³ in part due to the subject matter limitations. As we will see, computer software has been at times projected squarely in that no man's land. The ever-growing economic importance and technological advancements of the computer software industry has made such an unfavourable positioning is increasingly difficult to justify.

Before even beginning to address the case law dealing specifically with computer software, it is essential to understand the forces that

71 D.L.R. (4th) 95, 36 F.T.R. 159 (note) (S.C.C.).

193 H.G. Fox, *The Canadian Law and Practice relating to Letters Patent for Inventions*, 4th ed. (Toronto: Carswell, 1969) at 23.

initially converged to repel computer software from the scope of patent protection. We will see that some of the theories used to exclude protection were specifically created to police the boundary between copyright and patent law. The most explicit basis raised to refuse patent protection for computer software is an exclusion that ultimately does not properly serve that purpose. Paragraph 27(8) of the *Patent Act* sets out that no patent is to be granted for mere scientific principles or abstract theorems.¹⁹⁴ Based on this principle the courts went on to say that mathematical algorithms could not be the subject matter of patent protection. Since many computer programs involve the application of mathematical formulae to arrive at a specific result, it was thought that such computer programs were excluded from protection. The U.S. Supreme Court had to wrestle with this notion in three decisions before coming to the conclusion that a computer program is not excluded from patent protection simply because it uses mathematical formulae.¹⁹⁵ The proper test in the eyes of the U.S. Supreme Court as articulated in 1981 is to determine whether the invention seeks to pre-empt the use of an abstract mathematical formula or whether as considered as a whole the invention accomplishes some function which is otherwise patentable.¹⁹⁶ Substantially, the same approach was adopted contemporaneously in Canada by the Federal Court of Appeal in *Schlumberger Ltd. v. Canada (Patent Commissioner)*,¹⁹⁷ which incidentally has the dubious merit of being the only decision of the Federal Court on the subject of the patentability of computer software to this day. Computer programs routinely rely on mathematical representations of reality and make calculations on these representations to carry out their functions so the exclusion of protection for anything that smacks of mathematics is a real concern for the computer industry. Arguably, what para. 27(8) of the *Patent Act* seeks to

194 This exclusion is clearly a close cousin to the idea/expression dichotomy in copyright law: I. Goldsmith, "Patentable Subject-Matter: Traditional Subject-Matters" in Henderson, *supra* note 18, 15 at 18: "The basis for excluding scientific principles and abstract theorems from patentability is the underlying principle that the patent system is designed to protect not ideas as such, but only the practical application of ideas that will result in some new and useful production. Frequently the line between the two is a difficult one to draw. [. . .]"

195 *Gottschalk v. Benson*, 409 U.S. 63 (1972); *Parker v. Flook*, 437 U.S. 584 (1978); *Diamond v. Diehr*, 450 U.S. 175 (1981) [hereinafter *Diamond*].

196 *Diamond*, *ibid.* at 191.

197 (1981), 56 C.P.R. (2d) 204, 1981 CarswellNat 138, 1981 CarswellNat 138F, 38 N.R. 299, [1982] 1 F.C. 845 (Fed. C.A.), leave to appeal refused (1981), 63 C.P.R. (2d) 261n, 40 N.R. 90n (S.C.C.) [hereinafter *Schlumberger*].

leave in the public domain are only the abstract scientific principles or theorems, including those in the field of mathematics, but not the concrete applications of those principles whether or not this application takes the shape of detailed steps carried out using mathematical representations.¹⁹⁸ It was recognized in a more recent U.S. decision that the concerns which the U.S. provision equivalent to s. 27(8) of the *Patent Act* seeks to address are avoiding the appropriation of abstract principles and that mathematical algorithms applied in a useful way to produce a useful, concrete and tangible result are proper subject-matter for a patent.¹⁹⁹ Unfortunately, the *Schlumberger* case did not go that far and preferred to tie the finding of appropriate subject matter for a patent on the presence of additional elements within the invention that relate to fields other than computer technology and that are themselves appropriate subject-matter. We will therefore address other grounds on which an invention may be held not to have sufficient subject-matter for a patent and how they may further impede patent protection for software.

These grounds developed as a result of judicial consideration of the definition of “invention” set out in s. 2 of the *Patent Act*. An invention is defined as “any new and useful art, process, machine, manufacture or composition of matter (..)” and what is claimed in the patent must fall within one of these general categories of invention. At first glance the terms used in the definition are broad and quite open to useful, novel and non-obvious technological developments. Faced with a patent application claiming the invention of a higher life form, the majority of the Supreme Court of Canada in *Harvard*²⁰⁰ acknowledged that while the words used in the definition of “invention” are broad, by using a closed list of terms in the definition, Parliament showed a clear intention not to allow the patenting of anything under the sun made by man, such listed terms to be construed in accordance with the objects and purpose

198 In a U.S. decision it was held that the mere use of mathematical relationships to describe the structure and operation of an apparatus does not transform the program into a mere mathematical formula: *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F.2d 1053 (C.A.F.C.) at 1060.

199 *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 47 U.S.P.Q.2d 1596 (U.S. Fed. Cir., 1998) at 1373 [F.3d] [hereinafter *State Street*]; Although commentators state that the requirement of useful, concrete and tangible output may also be problematic in the context of software: V. Chiappetta, “Patentability of Computer Software Instruction as An ‘Article of Manufacture’: Software as Such as the Right Stuff” (1998) 17 *John Marshall J. Comp. & Inf. Law* 89 at 113.

200 *Supra* note 17.

of the *Patent Act*.²⁰¹ In the end, the majority held that *Harvard's* oncomouse could not be deemed a composition of matter or a manufacture because patenting higher life forms raises a significant number of highly contentious and complex issues that the *Patent Act* is ill-equipped to address.²⁰² Software can obviously not rival higher life forms in terms of contentious or complex issues and it is unlikely therefore that it would be excluded on the basis that the *Patent Act* could not adequately address all issues. We can therefore safely rely on the majority's statement in *Harvard* that "because the Act was designed in part to promote innovation, it is only reasonable to expect the definition of invention to be broad enough to encompass unforeseen and unanticipated technology".²⁰³ But this certainly does not end the analysis and, in fact, many statements made in the majority's reasons cast an unfavourable light on the patentability of software *per se*.

Software patents can potentially be couched as claims for an "art", a "process", a "machine" or a "manufacture" as software is used in conjunction with other equipment, the most obvious example being a computer and its associated devices. One author points out that for practical purposes claims for an "art" or "process" are less attractive since they can only be directly enforced against the actual users of the software, save by alleging inducement on the part of the manufacturer or distributor, thereby multiplying the cost of enforcement and, of course, antagonizing the potential customer base if the patentee is a competitor.²⁰⁴ The same can be said for patenting a computer programmed in a certain way as no recourse, other than inducement, can be had against the person selling the software alone.²⁰⁵ One may wonder whether software *per se* could be considered an article of manufacture and therefore avoid these difficulties.

All categories however appear to be traditionally afflicted with the same limitation, namely that some physical embodiment or effect is a prerequisite to qualify as an "invention." The judiciary has generally heretofore taken the presence of a physical end product or at least a physical alteration of matter as reassurance that a patent will issue only

201 *Ibid.* at 478; In the words of Binnie, J. for the minority however, the appropriate means of limiting the overextension of patent application is through the application of the criteria of utility, novelty and non-obviousness: *Ibid.* at 40.

202 *Ibid.* at 477.

203 *Ibid.* at 478.

204 Chiappetta, *supra* note 199 at 110-111.

205 R.H. Wilkes, "Patenting Software in Canada" (1992) 9 C.C.L.R. 25 at 28.

in relation to a practical industrial application of an idea and will not monopolize the idea itself, even if it is in some cases a token physical embodiment of the invention. Moreover, there is a very tangible concern of separating the literary and artistic domain by excluding protection for the mere “exercise of brain power carried out by ordinary manual means”.²⁰⁶ As technology evolved into areas where visible mechanical or chemical processes were no longer the norm, the courts were forced to introduce more flexibility to accommodate inventions of less tangible character which could still be fairly deemed to have an industrial character, one case in point being the transmission and reading of electrical signals that was said to be lacking in material content yet still patentable.²⁰⁷ The whole notion of tangible character is rife with what appear to be on the surface purely arbitrary distinctions that have turned on the potentially “vendible” character of what is claimed to be patented.²⁰⁸ Mere “intellectual information” was held not to be a vendible product at a time when computers were not much more than upscale calculators and trade in information existed in a much more limited fashion.²⁰⁹

206 Fox, *supra* note 193 at 24.

207 See: *Ranzen's Application* (1947), 64 R.P.C. 63 at 65-66: “As I have stated, it seems at least clear in the light of present knowledge that electricity or an electric oscillation is an entity which, however lacking in material content, can without any violence of language be said to be generated and its characteristics controlled (and so generated and controlled by an industrial plant or installation) and further to be transmitted and received. Not when regard is had to everyday usage and terminology, can it be said that the notion of electricity as a product which is paid for is, however metaphorical, wholly inappropriate.”

208 See: Fox, *supra* note 193 at 33- 36; Although authors points to the fact that in the reference to a “vendible product” more emphasis should be put on the word “product”, which requires some kind of physical manifestation but not necessarily the existence of an actual “thing”: W. Aldous, D. Young, A. Watson & S. Thorley, *Terrell on the Law of Patents* (London: Sweet & Maxwell, 1982) at 16.

209 *Stahl & Larsson's Application*, [1965] R.P.C. 596 at 598: “There is no doubt that the applicants’ method is useful in practical affairs. The product of it, the end produced, is intellectual information. This is quite different from any notion of ‘product’ appearing from the Australian judgment. This judgment referred to ‘any physical phenomenon in which the effect (of the process) may be observed’”; *Slee & Harris's Application*, [1966] R.P.C. 194 at 197: “The data produced might well be of purely academic interest only, and have no practical application. For this reason, it seems to me that the product of the method cannot be regarded as ‘vendible’ within the meaning given to that term in the Australian Court.”

Courts should be taking a hard look at the current industrial environment in assessing whether subject matter is an invention for purposes of the *Patent Act* and should feel less bound by judicial pronouncements still profoundly marked by the nature of inventions that characterized the industrial revolution.²¹⁰

The tangible bias of the judiciary shows up in all categories of invention defined by the *Patent Act*. An “art” has been historically thought to require some change in the character or condition of material objects,²¹¹ likewise it has also held that a process cannot be a disembodied idea, it must be tied to specific material to which it is applied to produce a useful result.²¹² These terms were considered by the Supreme Court of Canada in *Shell Oil Co. v. Canada (Patent Commissioner)*²¹³ where the issue was whether a new use for a known substance was patentable. In defining the word “art”, the court acknowledged that it was a word of very wide connotation that could extend to the practical application of “new and innovative methods of applying skill or knowledge provided they produced effects or results commercially useful to the public.” In a sense, this definition is more favourable to patent protection for software as it avoids the direct reference to effecting material change, yet it does leave open the question of whether the effects or results must be of a physical nature.²¹⁴ Precisely on the issue of “practical application” however, the court stated that the requirement was met by the fact that the known compound was mixed with a carrier in order to apply it to plants and that it mattered not that this type of combination was known

210 One author points out that there are other situations where initial opposition to extending patent protection to certain technologies has gradually given way over time: Cornish & Llewelyn, *supra* note 20 at 137.

211 Fox, *supra* note 193 at 16-17; I. Goldsmith, “Patentable Subject-Matter: Traditional Subject-Matters” in Henderson, *supra* note 18 at 15, 18.

212 Fox, *supra* note 193 at 17; I. Goldsmith, “Patentable Subject-Matter: Traditional Subject-Matters” in Henderson, *supra* note 18, 15 at 19.

213 [1982] 2 S.C.R. 536, 67 C.P.R. (2d) 1, 1982 CarswellNat 487, 1982 CarswellNat 487F, 142 D.L.R. (3d) 117, 44 N.R. 541 (S.C.C.) at 554 [S.C.R.] [hereinafter *Shell*].

214 In an earlier decision by the Patent Appeal Board it had been held that a method for speech therapy was not proper subject matter because it failed to produce a functional effect on a mechanical device, insisting on the fact that it must be a mechanical device because otherwise any literary work could be protected by a patent because it has an effect on the human voice when read aloud: *Dixon Application No. 203, Re* (1978), 60 C.P.R. (2d) 105 (Can. Pat. App. Bd. & Pat. Commr.) [hereinafter *Dixon*].

in the prior art.²¹⁵ This revised definition was brought before the Courts to test a method of playing poker in a casino environment in *Progressive Games Inc. v. Canada (Commissioner of Patents)*²¹⁶ where it was assumed that the practical application criteria was met by the physical manipulation of cards.²¹⁷ That the practical application must necessarily be demonstrated by a physical alteration was not an issue in both cases but they nonetheless appear to suggest that a physical change is still a required element for the existence of statutory subject matter. Ultimately, in the *Progressive* case, the specific poker playing method did not qualify as statutory subject matter because it did not add to the learning or knowledge in the field of games.²¹⁸

Less surprisingly a machine is said to be a mechanical device performing a function and producing a new result.²¹⁹ As software functions hand in hand with the computer itself, some claims designed to protect software are drafted as machines programmed in a specified manner. U.S. Courts have embraced this approach on at least two occasions.²²⁰ The term “manufacture” appears initially more malleable when defined as whatever is made by the art or industry of man,²²¹ but the courts, in the U.K. particularly, but also in Canada, quickly restricted its scope by requiring the manufacture to be a vendible product resulting from a change in the character or condition of material objects, which for example was not met in a new method to subdivide land.²²² In that context, it was further held that simply marking out material objects to reflect plans is not a sufficient change.²²³ In the recent *Harvard*²²⁴ deci-

215 *Shell, supra* note 212 at 554.

216 (1999), 3 C.P.R. (4th) 517, 177 F.T.R. 241, 1999 CarswellNat 2186 (Fed. T.D.), affirmed (2000), 9 C.P.R. (4th) 479, 2000 CarswellNat 2647, 265 N.R. 392, 192 F.T.R. 160 (note), [2000] F.C.J. No. 1829 (Fed. C.A.) [hereinafter *Progressive*].

217 *Ibid.* at 523.

218 *Ibid.* at 524; Although it should be pointed out that the Federal Court of Appeal in rejecting the appeal specifically mentioned that it did not want to be taken as deciding that more substantial changes in the existing game would have changed the result: *Progressive, supra* note 216 at 480.

219 Fox, *supra* note 193 at 17; I. Goldsmith, “Patentable Subject-Matter: Traditional Subject-Matters” in Henderson, *supra* note 18, 15 at 19.

220 *In re Alappat*, 33 F.3d 1526 (Fed Cir., 1994); *State Street, supra* note 199.

221 Fox, *supra* note 193 at 17.

222 *Lawson v. Canada (Commissioner of Patents)* (1970), 62 C.P.R. 101 (Can. Ex. Ct.) at 111 [hereinafter *Lawson*].

223 *Ibid.* at 115.

224 *Supra* note 17.

sion, the majority of the Supreme Court of Canada set out to define the word “manufacture” in a limitative way as being “a non-living mechanistic product or process” which again appears to invite a requirement for some physical characteristic.²²⁵ Not all hope is lost since a few paragraphs later the majority also appears to consider favourably a definition of manufacture taken from the ancient U.K. case *Hornblower v. Boulton*²²⁶ that states that it is “something made by the hands of man”, which does not include the reference to “mechanical” aspects. In any event, it should be noted that the “physical” effects or nature of the invention were not the subject matter of the debate before the court. One author points out that it may be undesirable to put too precise an interpretation on the word “manufacture” so as to leave it broad enough for exercising judicial ingenuity in applying the definition to new evolving technologies,²²⁷ which would aptly apply to information technology.

The U.K. courts have been quick to exclude schemes, methods, plans and business systems from the category of articles of manufacture even if they incorporate a physical element such as a sheet, a ticket, or other item.²²⁸ The mere printed arrangement of words that forms a literary composition was said to more properly relate to copyright protection and not be proper subject matter for a patent.²²⁹ The distinction was the subject of some controversy as some printed matter was held to be nonetheless patentable. For example, a distinction was made between a printed photographic scale, that served to operate a photographic lens, which was considered patentable subject matter, and a system for visually presenting musical notations which was assimilated to a mere lit-

225 *Ibid.* at 478.

226 (1799), 8 T.R. 95 (Eng. K.B.).

227 I. Goldsmith, “Patentable Subject-Matter: Traditional Subject-Matters” in Henderson, *supra* note 18, 15 at 19.

228 The position of the U.S. Courts has traditionally been slightly more favourable to these types of claims, See: P.D. Rosenberg, *Patent Law Fundamentals* (New York: Clark Boardman, 2001-) at 6-109 – 6-112.

229 In each case the Court ascertained the true nature of the invention and in some cases although printed matter was the product patent protection was nonetheless granted when it was observed that the invention truly related to a mechanical feature: *In the Matter of Cooper’s Application for a Patent*, (1901), 19 R.P.C. 53 at 54; *In the Matter of Johnson’s Application for A Patent* (1902), 19 R.P.C. 56; The same rule developed in the United States: *In re Russel*, 48 F.2d 668 (C.C.P.A., 1931); *In re Dixon*, 44 F.2d 381 (C.C.P.A., 1930); See: Note, “The Patentability of Printed Matter: Critique and Proposal” (1950) 18 *Geo. Wash. L. Rev.* 475.

erary composition.²³⁰ In a number of Canadian cases, decision makers have interestingly enough looked to the extent of copyright protection in order to set the proper limits of patent protection.²³¹ A more contemporary reading of U.K. law on the exclusion of schemes, methods, plans and business systems leads us to conclude that this exclusion is based on the premise that patent law is directed at technical advances in the industrial sphere.²³² This way of defining the scope of the exclusion is more technologically neutral and has less of a bias against intangible industries.

Considering that computer software appears at first glance to be a literary composition which can be presented in printed form, we can better understand how software destabilizes a certain system designed to police copyright and patent protection. This system avoids granting monopolies on general ideas that may have an excessively wide scope and thus disrupts the balance that should exist between the rights of the patentee and those of the public.²³³ Nonetheless, in an era when intangibles have become an integral part of technological development the requirement of tangible character comes as an unwelcome surprise. It is all the more surprising because computer programs are really virtual machine whose parts are made up of words.²³⁴ But that is not the end of what may hinder patent protection for software. The case law has also drawn a distinction between the so-called manual arts and professional skills, where in the latter case no patent protection should issue in the field of law, investment consulting, architecture, *etc.*²³⁵ Again, the fact

230 *In the Matter of an Application for a Patent by C* (1919), 37 R.P.C. 247 at 248.

231 *Dixon, supra* note 214 at 118; *Tennessee Eastman Co. v. Canada (Commissioner of Patents)* (1972), 8 C.P.R. (2d) 202, 1972 CarswellNat 423, 1972 CarswellNat 423F, [1974] S.C.R. 111, 33 D.L.R. (3d) 459 (S.C.C.) at 205 [C.P.R.].

232 Cornish & Llewelyn, *supra* note 20 at 210-211.

233 S.B. Garland, J. E. Want, "The Canadian Patent System: An Appropriate Balance Between the Rights of the Public and the Patentee" (1999) 16 C.I.P.R. 43, 44: "The key to any successful patent system is striking the correct balance between the extent of the exclusive rights to be granted to a patentee and the interests of the public in having an open, competitive marketplace."

234 Samuelson, Davis, Kapor & Reichman, *supra* note 104 at 2320-2324: "To say that software is a machine is not to make an abstract metaphorical statement. Computer programs and physical machines have more in common than might be suggested by the legal description of programs as text. [. . .]"

235 *Lawson, supra* note 222; *Application No. 880,719, Re* (1973), 18 C.P.R. (2d) 114 (Can. Pat. App. Bd.) at 118-119.

that in some cases computer software may extend into fields that have traditionally been viewed as “professional services” can be an obstacle to attracting patent protection.²³⁶

This heritage resulted in the first guidelines published by the Commissioner of Patents on the issue of software having the merit of steering completely clear of debates on whether software is patentable and, if so, in what circumstances, by quite explicitly excluding patent protection for all computer programs, algorithms or sets of instructions to operate a computer.²³⁷ The protection available to the computer industry was limited to hardware inventions relating to built-in structural features of computers. This is to be contrasted with the more recent and much more succinct guidelines of the Commissioner of Patents which apply the teachings of the *Schlumberger* decision by merely stating that the presence of a computer program does not add or subtract patentability of an apparatus or process. In the end, however, it is clear that the guidelines are meant to exclude patent protection for computer programs *per se* and permit only patents for an art, process, machine or manufacture that meets the historical requirement of exerting physical change or exhibiting physical characteristics.

236 As it was when an applicant sought to protect a computerized financial investment system: *Patent Application No. 564,175, Re* (1999), 6 C.P.R. (4th) 385 at 391: “Fund allocation decisions are made by the system computer on the same basis as a financial advisor in a traditional, non computerized investment situation. The analysis leads the Board to the conclusion that the Applicant’s system is one which performs calculations based on mathematical formula, which in turn have been developed using the professional skills of financial experts.”

237 Notice to the Profession, Office Notice, Non-Statutory Subject Matter, Section 2(d) of the Patent Act, article 4(h) (1972) 4 C.P.R. (2d) 24: “It must not be for a computer programme, an algorithm, or a set of instructions to operate a computer. Similarly it may not be for a known or general purpose computer programmed in a particular way to produce a particular result. Under this criteria software such as punched cards or tapes carrying programmes and some hardware would be excluded. It is considered that the development of computer programmes falls within the expected skill of competent programmers, and as such lacks the requirement of non-obviousness. Furthermore, programmes in whatever form they may be presented, are essentially mathematical information developed from an algorithm and set forth in the form of a set of instructions. As such they are not allowable under Section 2(d). As has been indicated, a known computer programmed or modified in an obvious manner so as to accept a programme is not allowable. However a new computer involving novel and unobvious permanently built-in structural features would be allowable, as would unobvious structural components.”

As mentioned earlier, computer programs always function in cooperation with computer hardware or are contained in computer hardware. Applicants seeking patent protection for software have therefore been forced to integrate in their claims actual physical embodiments or changes brought upon physical objects, being almost invariably commonplace aspects, so as to ensure that it qualifies under the traditional subject matter tests. In this manner, computer programs claimed as a manner of operating a computer that truly do no more than process and display information have been held to be patentable subject matter.²³⁸ The U.S. courts have pushed the requirement of physical embodiment to the extreme going so far as to state that a data structure or computer program stored in computer memory, magnetic or optical disk is statutory subject matter as an article of manufacture since a physical alteration is produced in the computer memory or storage media either by magnetic means or by burning in the bits on an optical disc and that it matters not that this is a commonplace method of storing computer programs.²³⁹ In doing so, the “printed matter” exclusion from patentability had to be somehow distinguished because arguably the physical alteration occasioned by writing software to disc or to memory was similar to impregnating paper with ink. A distinction was drawn by U.S. courts on the basis that the data structures defined in the patent application were not destined to be processed by the human mind but by a machine and imparted a physical organization on information stored in memory.²⁴⁰ The distinction is tenuous at best and more likely reflects an appreciation of the true industrial character of the claimed invention, as opposed to a distinction drawn from the absence of literary character.

One commentator argues that the courts should do away entirely with the need for a physical embodiment as it has become an artificial distinction that results in excessive protection by hindering the complete assessment of novelty and obviousness by Patent examiners, who then permit the issuance of patents the true subject matter of which may not be novel or may be obvious and finally by tying infringement to the

238 See for example: *Application for Patent of Seiscom Delta Inc. (Patent No. 1,196,082)*, *Re* (1985), 7 C.P.R. (3d) 506 (Can. Pat. App. Bd. & Pat. Commr.); See also for more examples: Sookman, *supra* note 105 at 6-26 – 6-33.

239 *Lowry, Re*, 33 F.3d 1579 (Fed. Cir., 1994) [hereinafter *Lowry*]; *Beauregard, Re*, 53 F.3d 1583 (Fed. Cir., 1995).

240 *Lowry, supra* note 239 at 1583-1584.

production of a material carrier in an age where software can be sold on the Internet without physical shipping.²⁴¹

Canadian patent practice should be altered to embrace the true industrial nature of information technology without resorting to an artificial requirement of physical embodiment. Only those ideas whose level of abstraction would result in inappropriately broad patent protection that would hinder the future development of a competitive marketplace should be excluded from patent protection. Canada has in fact obliged itself to provide a technologically neutral system of patent protection and this should be acted upon by the judiciary. Section 27(1) of *TRIPS* quite clearly makes the point that patents must be available for inventions in all fields of technology, save for matters relating to public order or morality (which can hardly be said to have any application in the field of information technology). The truth of the matter is that there is no explicit wording in the *Patent Act* that excludes patent protection for novel, non-obvious and useful technical developments in the field of information technology.²⁴² The exclusion of such developments is essentially the result of construction of the statute by the courts and requires no amendment to the *Patent Act*. The intent of the *TRIPS* is to set uniform worldwide standards and it is inappropriate in that light to rely on national idiosyncrasies whether in legislation or case law to avoid granting patent protection for computer software.²⁴³ It is hard not to qualify software as a form of technology even though it is fundamentally intangible and therefore the requirement of physical change or of a physical embodiment would appear to be an inappropriate restriction on this form of technology.²⁴⁴ The courts should therefore consider exercising their judicial ingenuity to remove the discriminatory aspects of patentable subject matter analysis that discriminate against information technology.²⁴⁵

241 Chiappetta, *supra* note 199 at 146-154; See also: Karjala, *supra* note 3 at 67-68.

242 R. Trudeau, "Software Patents" (1992) 9 C.I.P.R. 233, 236-237; J. Labrèche, "Nouvelle directive de la Direction des brevets sur la brevetabilité des logiciels: ou 'You've come a long way Baby but there's still a way to go!'" (1995) 8 C.P.I. 335 at 345-346.

243 See: D. Schiuma, "TRIPS and Exclusion of Software 'As Such' from Patentability" (2000) 31 I.I.C. 36.

244 P. Caldwell, "La protection des logiciels et programmes informatiques en brevets: Étude contrastive des développements récents au Canada et aux États-Unis", (2000) 17 C.I.P.R. 246 at 260.

245 Other authors reach the same conclusion based on Article 1709 of the *North American Free Trade Agreement* that is to the same effect as art. 27(1) of the

It is interesting to draw parallels between the debates on statutory subject matter in patent law and the issue of whether the provisions denying protection to features dictated solely by a utilitarian function in s. 64.1 of the *Copyright Act* apply to computer programs and wonder if holding that computer software is an article of manufacture would have the effect of shifting the burden of protecting non-literal elements to the *Patent Act* while leaving only literal copying to the *Copyright Act*.²⁴⁶ The situation that should be avoided would be to simultaneously apply the full force of s. 64.1 of the *Copyright Act* and take a very restrictive subject matter approach under the *Patent Act* leaving an important industrial sector grasping for effective protection in the fabled no man's land. Some argue that in any event copyright protection for computer programs should be limited in scope because otherwise patent like rights may be granted for a very long period.²⁴⁷ One author's perspective is that functionality is an appropriate standard to differentiate the protection granted by patent legislation to that granted by copyright legislation.²⁴⁸ This may as well be one reading of the *Hollinrake*²⁴⁹ case where words and figures inscribed on a sleeve chart were held to be necessary parts of an apparatus of tool.²⁵⁰ There are those however who persist in arguing that protection for computer software should more properly be addressed by a *sui generis* statute, while acknowledging at the same

Agreement on Trade-Related Aspects of Intellectual Property Rights, see: J.D. Morrow, "Patentable Subject-Matter: Emerging Technologies", in Henderson, *supra* note 18, 23 at 38; Caldwell, *supra* note 244 at 261.

- 246 The limitation of copyright protection to literal copying is argued by one author: L. Wienreb, "Copyright for Functional Expression" (1998) 111 *Harv. L. Rev.* 1149 at 1249-1250.
- 247 Lai, *supra* note 123 at 7; Sinnott, *supra* note 81 at 30: "Indiscriminately granting copyright protection to non-works such as utilitarian articles would seem to be against the public interest because it undermines the Patent and Industrial Design Acts, it unduly inhibits competition in view of the overly long term of protection and lack of inventiveness or novelty requirement, and it does not allow for a register or other means by which imitators can carry out infringement searches prior to introducing a new product."
- 248 Karjala, *supra* note 3 at 45-48.
- 249 *Supra* note 106.
- 250 Apparently the very same reading made by Guthrie, J. in: *Matrox*, *supra* note 115 at 2457: "Copyright law protects the form of expression of computer programs, but not the ideas embodied therein. Patent law, on the other hand, protects the ideas embodied in structural or operational aspects of functional steps embodied in a computer program. It is not the intention of Parliament (nor is it desirable) to interpret the *Patent Act* and the *Copyright Act* to give overlapping protection."

time that the international consensus has not favoured this type of approach.²⁵¹

5. CONCLUSION

We set out to find the boundary between patent law and copyright law and the task proved to be Herculean, particularly in relation to computer software. One of the reasons is that the courts have been reluctant to draw a hard and fast line on the basis of functionality by systematically excluding any functional aspects from copyright protection. Historically this may have been motivated in British law by a desire to retain some power to sanction unfair appropriation of the labours of others, whether it takes the shape of an appropriation of some functional advantage or not. As copyright law does not protect against independent creation, this left arguably enough scope for maintaining an adequate level of competition. Because copyright does not need to be registered it is often readily available for good use in the hands of justice, whereas patenting features is a much more costly adventure. This approach unfortunately results in a blurring of boundaries, which, although permitting the intervention of equity, makes assessing the outcome of future cases a daunting task at times.

Doing away with functionality entirely in copyright law may remove this uncertainty yet patent law may leave certain zones where useful and creative contributions receive no protection, especially when innovations are in the realm of the intangible. The brutal landing of computer programs directly in this zone sent policy makers scurrying to find an adequate kind of protection for these creatures and it is no coincidence that copyright was quickly asked to step up to the task. Yet copyright has taken in something that is fundamentally tied to functional considerations forcing considerable debate on its true nature and scope. Is it now time to redefine the scope of the protection granted to computer programs by creating a *sui generis* middle ground? A utopian thought perhaps, but it would spell relief for judges tormented by the intricacies of legal tests that twist and turn to avoid tackling fundamental policy decisions head on.

251 Samuelson, Davis, Kapor & Reichman, *supra* note 104; See also the articles cited by these authors at note 6.