

i-call working paper

No. 2014/01

Intellectual Property: Law in Context

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JANUARY 2014

ABSTRACT

Intellectual property (IP) law is often viewed as static, when it is actually chameleon-like, constantly changing to reflect technological and social developments. This chapter discusses how IP as we know it today – in the classical fields of copyright, patent, trade marks, and in their interaction and beyond – has developed alongside changes in technology, globalisation and society, taking into account their interrelated nature and how they spur propertisation and affect the balancing of interests (both economic and non-economic). It specifically looks at challenges relating to software and the internet, biotechnology and overlaps in IP, before taking a brief look at what the future may bring.

KEY WORDS

Intellectual property, copyright, patent law, trade marks, technology, techno-social, propertisation, globalisation, territoriality, constitutionalisation, software, internet, biotechnology.

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SUGGESTED CITATION: Christoph B. Graber and Jessica C. Lai, 'Intellectual Property: Law in Context', *University of Lucerne, Switzerland*, i-call Working Paper No. 01 (2014) (forthcoming in *International Encyclopedia of the Social & Behavioral Sciences*, 2nd edn).

Published by:
i-call, The Research Centre for International Communications and Art Law at the
University of Lucerne
Frohburgstrasse 3
P.O. Box 4466
6002 Lucerne
Switzerland

ISSN 1664-0144
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INTELLECTUAL PROPERTY: LAW IN CONTEXT

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1. INTRODUCTION: IP LAW AS CONTINGENT ON THE TECHNO-SOCIAL

Analysing intellectual property (IP) law in context invites one to view IP as a protean concept. IP is thus perceived as a set of rules that societies have been developing to regulate access to cultural and intellectual knowledge that is contingent on social and technological development. We should bear in mind that IP rights are an invention of modern society; traditional and particularly indigenous societies have developed different instruments of regulation that are often more concerned with the restriction, rather than the transfer, of rights in cultural heritage assets. Indigenous societies do not conceive of their cultural heritage in terms of exclusive rights but rather in terms of shared responsibilities, as assets to look after for future generations. Generally, they find the commodification of secret and sacred ritual objects and practices to be deeply offensive.¹

The techno-social contingency is obvious in the history of copyright law. There was no need for copyright law or the recognition of “authors” before technologies were available that made the mechanical reproduction of creative artefacts possible at relatively low cost.² It was only the development of tangible commercial value in the form of a book that generated the need to identify its source.³ The *Statute of Anne* (1709) was the first copyright statute to provide for an individual right to print. Before that the English Crown regulated access to printed information by bestowing selective royal grants of privileges on those craft guilds that respected the Crown’s censorship standards.⁴

The development of modern patent law is inextricably entwined with the paradigm of industrial manufacture.⁵ Though statutory patents have been around since the 15th century, the patent rocket only started to take off at the end of the 18th century as a response to the industrial revolution,⁶ and to soar in the 20th and 21st century with the advent of mass chemical and pharmaceutical production, followed by information technology and biotechnology.

Similarly, the evolution of trade mark (TM) law is a response to the development of marketing strategies, communication technologies and mass media, which created the need to regulate the commercial use of signs (in a very broad sense, nowadays also including colours, sounds, gestures, shapes and even smells) through a set of specific access rules. As with patents, the demand for protection of marks increased during the industrial revolution and the rise in factory production and greater transport of products. This demand increased again in the 20th century with the growth of the popular press as a medium for advertising and with the increased ability to transport goods, intensifying competition. More recently, TM protection

¹ Christoph B. Graber, ‘Aboriginal Self-determination vs the Propertisation of Traditional Culture: The Case of Sacred Wanjina Sites’ (2009) *Australian Indigenous Law Review*, 13 (2), pp. 18-34.

² William Cornish, ‘Conserving Culture and Copyright: A Partial History’ (2009) *Edinburgh Law Review*, 13 (1) pp. 8-26.

³ Jane E. Anderson, *Law, Knowledge, Culture. The Production of Indigenous Knowledge in Intellectual Property Law*, Cheltenham, UK: Edward Elgar, 2009, at pp. 69-72.

⁴ Peter Drahos, *A Philosophy of Intellectual Property*, Aldershot: Ashgate, 1996, at pp. 22-23.

⁵ Alain Pottage and Brad Sherman, *Figures of Invention: A History of Modern Patent Law*, Oxford: Oxford University Press, 2010, at pp. 19-43

⁶ *Ibid.*, at p. 5; and Christine MacLeod, *Inventing the Industrial Revolution: The English Patent System, 1660-1800*, Cambridge: Cambridge University Press, 1988.

has swelled with the advent of globalisation and technological developments enhancing large-scale marketing efforts.⁷

2. THEORETICAL APPROACHES TO IP LAW

IP rights are rights in abstract objects;⁸ they are rights in *corpora mystica* rather than rights in *corpora mechanica* (material objects). The question that modern society had to answer is why the law of the state should vest exclusive rights in abstract objects. Most influential has been the answer derived from a “productive misunderstanding” of John Locke’s natural law theory of property. At the end of the 17th century Locke argued that “every Man has a Property in his own Person”.⁹ Therefore, according to Locke, it follows that every man also has property in his labour. Consequently, everything that the individual mixes his labour with is removed from the state of nature and becomes the individual’s property.¹⁰ Although Locke was writing about material objects and deliberately did not extend his theory to support a perpetual right of authors, through adaptation by William Blackstone in the 18th century, this chain of reasoning became the philosophical justification also for property in abstract objects.¹¹

Although Adam Smith had written about the effects of regulation on the economy as early as the 18th century, it was only in the 1960s that, predominantly in the United States, law and economics set out to establish itself as a new sub-discipline of legal theory.¹² Under the growing influence of economic rationality in most areas of law and policy making, a market-oriented foundation of IP rights gained ground as an alternative to an individualistic (natural rights based) IP theory. From the perspective of political economy, IP rights are monopolies vested by the law of the state in right holders to exclusively exploit the right for a certain (in the case of TMs unlimited) time period. According to a utilitarian rationality, such monopolies are justified because they are deemed necessary incentives for creative people to invest time and money in their creations and share them with other people. Law and economics theories today strongly dominate discourse about IP law, especially as a theoretical foundation of the intersection of competition law and policy. Although some of this scholarship is very sophisticated and well aware that IP law tends to favour private over public interests, it is not able to integrate societal values – like culture, health, privacy, and so on – that compete with economic values and interests. Hence, an economic approach is capable of warding off critique that a given IP system fails to maximise utility for society, but only so long as the critique stays within the internal standpoint of classical economic rationality. Approaching

⁷ William Cornish et al., *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights*, 7th edn, London: Sweet & Maxwell, 2010, at paras 16–04 and 16–10.

⁸ Drahos, *supra* note 4, at p. 4.

⁹ John Locke, *Two Treatises of Government* [1689], Cambridge: Cambridge University Press, 1994, at p. 27.

¹⁰ *Ibid.*

¹¹ Ronan Deazley, *On the Origin of the Right to Copy: Charting the Movement of Copyright Law in Eighteenth-Century Britain (1695-1775)*, Oxford, UK and Portland, OR: Hart, 2004, at p. 42.

¹² Peter Menell, ‘Intellectual Property: General Theories’, in Boudewijn Bouckaert and Gerrit de Geest (eds), *Encyclopedia of Law and Economics: Volume I. The History of Methodology of Law and Economics*, Cheltenham, UK: Edward Elgar, 2000, pp. 129–188, at p. 133.

utilitarianism from a moral or ethical perspective may have promise;¹³ however this has yet to filter into general IP theory.

Although there is a need for theoretical approaches to IP that are able to embrace non-economic societal rationales, scholarship is scarce (particularly in the Anglo-American academic world) that is not confined to economic thinking or to an individualistic natural rights theory. Influenced by legal applications of sociological system theory, however, new scholarship is emerging that views economic values of IP in a quasi-constitutional relationship with other fundamental values of society (see below, section 5.2)

3. PROPERTISATION

Societies that justify IP rights with a (pseudo) Lockean theory of labour and natural right tend to overly propertise intellectual and cultural assets to the detriment of the commons.¹⁴ In recent years we have faced a paradigm shift from a presumption that “government-granted IP rights are an exception from the general rule of free competition” to a new presumption, that every new technological or cultural creation should be legally protected.¹⁵ This shift is evidenced by the increasing number of international agreements pertaining to IP, by the higher standards of protection advanced within the World Intellectual Property Organization (WIPO) and, most pertinently, by the Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO).¹⁶ With its broad membership, and by virtue of being binding and strongly enforceable through the WTO dispute-resolution system, TRIPS has resulted in the propertisation of intellectual assets in states that previously did not have similar IP systems and has allowed established IP states to extend the reach of their property arms into these states.

More specifically with regard to copyright, what constitutes a “work” has extended beyond traditional literary and artistic works to include, for example, software, fictional characters and television formats. Rights are broader, encompassing more than the rights to reproduction, communication to the public, translation and adaptation, expanding to distribution and rental rights. Finally, though international law only requires that works be protected for the life of the author plus 50 years, many jurisdictions (such as the USA, the EU and Australia) have extended this posthumous protection to 70 years. Whether permitted uses of third parties (such as for teaching purposes or academic research) have concurrently been widening is contentious, raising issues of the ultimate balance between promoting creativity and allowing for future expression.

Since the early patent laws, the term of patent protection has risen from 14 to 20 years and the scope of the patentable “invention” has grown to controversial

¹³ Peter Singer, *Practical Ethics*, 3rd edn, New York: Cambridge University Press, 2011; and Thomas Pogge ‘The Health Impact Fund: Better Pharmaceutical Innovations at Much Lower Prices’, in Thomas Pogge et al. (eds), *Incentives for Global Public Health: Patent Law and Access to Essential Medicines*, Cambridge: Cambridge University Press, 2010, pp. 135-154.

¹⁴ Drahos, *supra* note 4, at p. 50.

¹⁵ Robert P. Merges, ‘The Economic Impact of Intellectual Property Rights: An Overview and Guide’ (1995) *J Cult Econ*, 19 (2), pp. 103–117, at p. 110.

¹⁶ WTO, Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 UNTS 299; 33 ILM 1197 (adopted on 15 April 1994, entered into force 1 January 1995).

proportions. For example, before the mid-twentieth century, it was not possible to patent chemical products per se in many states. These days, one does not blink an eye at the prospect. The development of new technologies, such as software and biotechnology, are the locus of contemporary controversies in patent law. The seeking of patents by universities and publicly funded research institutes has also become common since the Second World War, whereas it had previously been viewed as contrary to the academic environment of such institutions.

Propertisation in TM law is reflected in a conceptual shift from preventing fraud or consumer deception to protecting the property in signs used in trade.¹⁷ TMs originated from the courts within tort law as an unfair competition tool to prevent a trader from selling goods represented as those of another trader.¹⁸ The solidification of TMs as “property” occurred in the mid-late 19th century.¹⁹ Though TMs continue to serve to minimise consumer confusion and search costs, and implicitly to indicate certain qualities of the goods on which they are used, these days, the expanding tendencies of TM protection means that, in some cases, reputation and goodwill of marks are protected even when there is no consumer confusion,²⁰ controversially creating property more akin to copyright and patents.²¹ For example, the Paris Convention (Article 6bis)²² and TRIPS Agreement (Article 16.2-3) together require the protection of “well-known” marks for goods and services, essentially protecting reputation/goodwill against “dilution”, or the blurring or tarnishing of the repute of a well-known mark. This reasoning steps away from market concerns, towards protecting TMs as a thing capable of being damaged.

New drivers of propertisation are complex things (more fundamental or informational) that could be perceived as being “technologically normative”, thus adding a layer to the law’s normativity. For example, patents can be obtained for genetic code, proteins (complex chemical compounds), or self-terminating seeds, which themselves produce “technologically normative” effects irrespective of legal regulation. Genes define what chemical/biological structures a specimen can make. Proteins are catalysts that control the reactions of other simpler chemical compounds, determining the end product of a reaction. Finally, crops from self-terminating seeds can only be harvested once, the new seeds being sterile. Copyright protects internet/software code, which inherently directs the flow of information and what can be done with content on the internet and with hardware.²³ Furthermore, many copyright laws penalise the circumvention of technical measures protecting copyrighted works that themselves decide how a work can be used irrespective of existing fair use rights. TM law broadening to protect three-dimensional shapes,

¹⁷ Lionel Bently, ‘From Communication to Thing: Historical Aspects of the Conceptualisation of Trade Marks as Property’, in Graeme B. Dinwoodie, Mark D. Janis (eds) *Trademark Law and Theory: A Handbook of Contemporary Research*, Cheltenham, UK: Edward Elgar, 2008, pp. 3-41; Glynn S. Lunney ‘Trademark Monopolies’ (1999) *Emory Law Journal*, 48, pp. 367-487; and Mark Lemley, ‘The Modern Lanham Act and the Death of Common Sense’ (1999) *Yale Law Journal*, 108, pp. 1687-1715.

¹⁸ William M. Landes and Richard A. Posner, *The Economic Structure of Intellectual Property Law*, Cambridge, MA: Harvard University Press, at p. 166; and Bently, *supra* note 17, at p. 7.

¹⁹ Bently, *supra* note 17, at pp. 28-30.

²⁰ Landes and Posner, *supra* note 18, at pp. 166-168 and 206-209.

²¹ Michael Pulos, ‘A Semiotic Solution to the Propertization Problem of Trademark’ (2005-2006) *UCLA Law Review*, 53, pp. 833-869.

²² WIPO, Paris Convention for the Protection of Industrial Property, 828 UNTS 303 (adopted on 20 March 1883, entered into force 16 April 1970), as revised at Stockholm (14 July 1967).

²³ Christoph B. Graber, ‘Internet Creativity, Communicative Freedom and a Constitutional Rights Theory Response to “Code is Law”’, in Sean A. Pager and Adam Candeub (eds), *Transnational Culture in the Internet Age*, Cheltenham, UK: Edward Elgar, pp. 135-164.

possibly the shape of goods per se, has created problems when the shape is functional.²⁴ These examples have attracted controversy because owners can be seen as being endowed with a combination of legal and technological normativity.

4. BALANCE

Balancing exclusive interests of individual right holders against inclusive interests of the general public has always been an important aim of IP law. In theory, a balance within IP law secures that the public benefits overall. In practice, however, the protection of IP rights has the effect of maximising returns of private right holders at the expense of interests of the public at large. Technological development of the recent past as well as propertisation has led to a considerable inflation of the private benefits that can be gained from IP monopolies to the detriment of public interests.

One of the core underlying principles of copyright law is that it protects expressions and not ideas. The ideas/expression dichotomy is pivotal to the balance between stimulating expression and allowing for users to build off existing works, as ideas are considered to be part of the raw resources of the public usable for further creativity. This is in part why copyright law is generally considered to be compliant with the constitutional right to freedom of expression and information, because the dichotomy acts as an internal check for the freedom (the “internalisation theory”) through only limiting use of exact expression and not of ideas held within works.²⁵ The idea/expression dichotomy is often painted as black and white, but is actually not as well-delineated as inferred by the internalisation theory²⁶ and is not on its own capable of protecting freedom of expression.²⁷ As an illustration, the dichotomy may have little relevance in a networked environment. Take, for example, mash-ups. Users are free to use the ideas behind media works, but actually it is the snippets of expressions that they need to use in order to enjoy their freedom of expression. In fact, the ideas in the original work may be completely irrelevant to their purposes. Thus, though the internalisation theory is generally questionable, it is clearly incorrect when it comes to copyright protection on the internet.

As patent law is based on the premise that it incentivises invention/innovation, it must be designed so as not to impinge too greatly on future invention. The incentive must be great enough to stimulate invention/innovation, but not so great as to prevent other inventors from creating based on existing inventions. As part of this balance, inventions must be novel, non-obvious (with an inventive step) and have utility (industrial application). It has also long been established that laws of nature, natural phenomena, abstract ideas and mere discoveries are not “inventions”,

²⁴ See e.g. *Fredco Trading Ltd v Miller* (2004) 65 IPR 653.

²⁵ Paul L.C. Torremans, ‘Copyright as a Human Right’, in Paul L.C. Torremans (ed.), *Copyright and Human Rights. Freedom of Expression – Intellectual Property – Privacy*, The Hague: Kluwer Law International, 2004, pp. 1-20, at pp. 2-3 and 11; Eric Barendt, ‘Copyright and Free Speech Theory’, in Jonathon Griffiths and Uma Suthersanen (eds), *Copyright and Free Speech. Comparative and International Analyses*, New York: Oxford University Press, 2005, pp. 11-33, at paras 2.06-2.07.

²⁶ See e.g. Julie E. Cohen, *Configuring the Networked Self: Law, Code and the Play of Everyday Practice*, New Haven, MA: Yale University Press, 2012, at pp. 74-79.

²⁷ Jo Oliver, ‘Copyright, Fair Dealing, and Freedom of Expression’ (2000) *New Zealand Universities Law Review*, 19, pp. 89-131; Patrick Masiyakurima, ‘Fair Dealing and Freedom of Expression’, in Paul L.C. Torremans (ed.), *Copyright and Human Rights. Freedom of Expression – Intellectual Property – Privacy*, The Hague: Kluwer Law International, 2004, pp. 87-108, at p. 92; and Barendt, supra note 25, at para. 2.06.

because they make up the basic tools of scientific and technological work that should be available for all to build upon, such that to grant patents over them would impede invention rather than promote it.²⁸ The development of new technologies such as software, internet business methods, gene- and life-related technologies, has challenged the notion of the discovery/invention dichotomy, because they are closer to (if not actually) natural phenomena or abstract ideas compared to classical inventions, such as purely mechanical machines or methods of producing chemicals or admixtures.

TMs protect balance through only protecting marks capable of distinguishing a trader's goods/services from another's, or marks that have gained such distinctiveness in the market, thus theoretically leaving the generic free in the commons. TM laws further seek balance through only protecting owners from third-party "use in the course of trade", which usually means that the mark is used in a TM sense to distinguish goods/services. In theory, these limitations function to respect freedom of expression and the requirement of "use in the course of trade" particularly to restrict TM owner's rights to those required to prevent unfair competition.²⁹ For example, in a book criticising McDonald's, the TM golden arches should be allowed to be shown on the cover, as not being "use in the course of trade". As with patent and copyright laws, TM law also faces challenges with the development of information technology. TMs may be needed to perform internet searches, for example. Arguably marks that may be distinctive in the real world may have more of a generic (or at least different) function when only used within code, not even visible to users. The nature of the technology makes it difficult to say what exactly "use in the course of trade" means within the online environment.

5. GLOBALISATION

5.1 THE PROBLEM OF TERRITORIALITY

Despite the increasing number of international and regional agreements, IP law is inherently territorial. The question then is how state-centred legal orders of IP are able to cope with the challenges of economic globalisation. Copyright law is particularly challenged by the digital revolution and the internet, and a territory-based legal structure is difficult to reconcile with consumers expecting easy access to digital content at all times, anywhere and through a multitude of devices. However, ambitions to get rid of copyright territoriality for the sake of creating larger content markets may easily clash with cultural policy objectives. The European Commission's efforts to create a single market for copyright protected products is a case in point uncovering collisions between economic interests of the Union and cultural interests of Member States. The Commission's conviction that Collective Management Organisations should compete in a EU-wide market for the administration of copyrights has been criticised as being one-sidedly economy-oriented and ignoring important aspects of cultural diversity.³⁰

²⁸ e.g. *Neilson v Harford* (1841) Web. Pat. Cases 295, at p. 371; and *Le Roy v Tatham* (1852) 14 How. 156, at p. 175.

²⁹ Laurence R. Helfer and Graeme W. Austin, *Human Rights and Intellectual Property. Mapping the Global Interface*, New York: Cambridge University Press, 2011, at p. 284.

³⁰ Christoph B. Graber, 'Collective Rights Management, Competition, Policy and Cultural Diversity: EU Lawmaking at a Crossroads' (2012) *The WIPO Journal*, 4 (1), pp. 35-43.

Territorial thinking in patent law is a legacy of a time when it was difficult and sometimes even dangerous to bring an invention into a country. The trials undertaken to import an invention meant that the initial focus was on the societal benefits of the invention itself (i.e. the physical entity). With globalisation and the ease with which we now move the physical, the focus has shifted to the contribution of the information behind the invention,³¹ and patent systems encourage inventors to publish the information behind their inventions that they might otherwise keep as trade secrets.³² That several states continue to have territorial novelty standards (as opposed to absolute standards) reflects a continuance of territorial thinking despite globalisation and the shifted focus, and also despite technological developments in communication.

TM law is arguably the most territorial form of IP. This is because whether a mark is distinctive is completely dependent on the national market. New technologies of transport and communication and globalised business strategies challenge territoriality in TM law. What may be distinctive in one state may be generic in another in juxtaposition to the international nature of modern business. Territoriality is also highlighted by the protection of geographical indications (GIs) (for example, Champagne) through TM-like regimes. Tension has arisen between “old world” Europe (along with some other countries, such as India, Thailand and Turkey) wishing to protect “traditional” names and associated values even when there is no consumer confusion, and “new world” Americas and other settler states (such as Australia and New Zealand), which view GIs as protectionism, since they tend to be made up of multiple cultures wherein many names/symbols have become generic and are used in a descriptive manner.

There are examples of a movement away from territoriality, such as the development of the European Patent Convention and Community Patent and WIPO’s global design registry.

5.2 CONSTITUTIONALISATION OF THE GLOBAL IP REGIME

Recent scholarship has shown that the fragmentation of international law³³ spurred the establishment of a global IP regime.³⁴ This regime is partly formally institutionalised within WIPO, the WTO/TRIPS Agreement and a plethora of free trade agreements (with IP chapters) and partly institutionalised outside a formal legal setting and without the involvement of states or intergovernmental organisations. Indeed, important drivers of the global IP regime are big transnational corporations (TNCs) of the entertainment and pharmaceutical industries in particular, whose activities may have regulatory effects and produce transnational regime law. Under the disproportionate influence of these powerful private actors, the global IP regime is developing regulatory mechanisms that are, to a certain extent, competing with the public interests of states. Within a theoretical framework that has become

³¹ Donald S. Chisum, et al., *Principles of Patent Law*, 2nd edn, New York: Foundation Press, 2001, at p. 15.

³² Landes and Posner, *supra* note 18, at pp. 294 and 326-332.

³³ Report of the Study Group of the International Law Commission (chaired by Martti Koskenniemi), ‘Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law’, (UN Doc. A/CN.4/L.682, 2006).

³⁴ Christoph B. Graber, ‘Is there Potential for Collective Rights Management at the Global Level?’, in: Susy Frankel and Daniel Gervais (eds), *The Evolution and Equilibrium of Copyright in the Digital Age*, Cambridge: Cambridge University Press (forthcoming).

known as “societal constitutionalism”,³⁵ Gunther Teubner and others have pointed out that world society is shifting from territorial differentiation to functional societal differentiation. Accordingly, the close structural coupling between state politics and the law that determines national constitutionalism does not exist at the transnational and global level, and regimes autonomously develop constitutive and limitative constitutional functions. With regard to the global IP regime, an analysis of societal constitutionalism shows that so far mainly constitutive functions have been developed and limitative elements are almost entirely missing.³⁶ Public discontent with a “neo-liberal” spin on IP law and policy that is held responsible for this one-sided constitutionalisation has recently become stronger and activism in social networks has been successful in mobilising masses against projects of legislation destined to make IP enforcement more effective at the national and global level.

6. SPECIFIC CHALLENGES

6.1 SOFTWARE AND THE INTERNET

The question about the adequate legal protection of computer software arose only after IBM had taken the momentous decision in 1969 to unbundle software from hardware and to trade it as a separately priced asset.³⁷ When the United States extended copyright protection to computer software in the 1980 amendment to the 1976 Copyright Act, this had a signalling effect on many other states to follow suit. Since the 1990s, TRIPS and the WCT have required contracting states to protect computer programs as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works.³⁸ Scholars have criticised the copyright approach to software as mismatched and the analogy between programming language and literary language as farfetched. Whereas literary language may become the medium of a literary work due to its malleability, programming language’s “semantic” is structured as a linear relationship between orders and actions that leave no room for choice or creativity. Similarly, friction arises when distinguishing the (protected) expression in a computer program from the (unprotected) ideas and principles underlying them. Although courts in the EU and the US converge in the view that functional behaviour of computer programs, programming language and data formats affecting interoperability are treated as unprotected ideas and principles,³⁹ the question whether application programming interfaces should be covered by copyright is currently a much disputed issue with far-reaching consequences for innovation in software.

Many states do not allow patents for software per se, as they are considered to be mere “printed sheets”, instructions or mathematical algorithms. However, software can usually be part of an invention. The exact nature of the interaction between software and hardware, and whether the end result need be a “technical effect” or

³⁵ Gunther Teubner, *Constitutional Fragments: Societal Constitutionalism and Globalization*, Oxford: Oxford University Press, 2012.

³⁶ Graber, ‘Is there Potential for Collective Rights Management at the Global Level?’, supra note 34.

³⁷ Jon Bing, ‘Copyright Protection of Computer Programs’, in Estelle Derclaye (ed.), *Research Handbook on the Future of EU Copyright*, Cheltenham, UK: Edward Elgar, 2009, pp. 401–426, at p. 401.

³⁸ WIPO, Berne Convention for the Protection of Literary and Artistic Works (1886) (adopted on 9 September 1886), as revised at Paris (24 July 1971) and as amended on 28 September 1979.

³⁹ Pamela Samuelson, ‘The Past, Present and Future of Software Copyright Interoperability Rules in the EU and US’ (2012) *European Intellectual Property Review*, pp. 229–236.

can be merely informational is unclear and from the uncertainty one could say impossible to define. The United States Patent and Trademark Office (USPTO) has taken a very broad approach to what qualifies as an “invention”, allowing patents that only claim steps for executing software on any computer platform and create informational results, but the courts have been inconsistent in upholding the validity of such patents. What will be accepted by the European Patent Office (EPO) is also nebulous, though it generally requires that a program directly affects the operation of hardware and results in a technical effect.⁴⁰

In the late 1990s, “cybersquatting” TM cases started to appear in the courts, regarding the practice of registering a well-known company domain name and trying to sell it back to the company. Courts were faced with the difficulty of finding “use in the course of trade”, as the squatters did not actually use the webpages. The term was stretched to fit the new behaviour. Concerns have also arisen with “keyword advertising”, which is online advertising that appears as a result of keywords being entered into an internet platform.⁴¹ Advertisers buy keywords, often TMs, from the platforms so that their advertisements appear when those keywords are keyed in. For example, a computer retailer, service-provider or tech reviewer may wish to purchase the keywords “Apple”. Indeed, Apple would also wish to purchase “Apple”, as would perhaps its competitors. Complicated questions arise of whether there is “use in the course of trade” (as per registered TM law), misrepresentation and associated loss or damage (for passing off), or consumer confusion (usually required to rely on consumer protection law), and the appropriateness of these terms in the internet context.

6.2 BIOTECHNOLOGY

Biotech patents draw debate for several reasons. Firstly, on moral or ethical grounds, because many do not agree with patenting life forms and gene-related technologies. Secondly, because such patents more directly affect the way that doctors treat their patients. In comparison to pharmaceuticals, which practitioners do not generally have the means to produce, many laboratories, hospitals and academic medical centres are capable of making or using patented biotech inventions themselves.⁴²

Thirdly, they are often challenged as to whether they are “inventions”, given their relative closeness to nature. What exactly constitutes a natural product or mere discovery, as opposed to an “invention” is an open and difficult question, as all inventions in some way use and reflect natural phenomena or abstract ideas. In some situations, such as with new minerals, elements or species found in nature, it is clear that there are only mere discoveries. The status of something found in nature, but extracted from its natural environment, is more difficult. For example, a chemical molecule extracted from a plant, wherein it is normally in a mixture with other molecules, or a genetic sequence extracted from a chromosome. Notably, both the

⁴⁰ Cornish et al., *supra* note 7, at paras. 20–26–20–34.

⁴¹ Wiebke Baars et al., ‘Keyword-Advertising: Legal Implications in Germany, France and the UK’ (2007) *Computer Law Review International*, 5, pp. 137-141; and Philip Greene, ‘Keyword Advertising, and other Invisible Uses of Third-Party Trade Marks in Online Advertising’ (2009) *Victoria University of Wellington Law Review*, 2, pp. 1-106.

⁴² Rebecca S. Eisenberg, ‘Why the Gene Patenting Controversy Persists’ (2002) *Academic Medicine*, 77 (12), pp. 1381-1387, at p. 1382.

EPO⁴³ and the US Supreme Court⁴⁴ hold that simply isolated genes or genetic sequences are mere discoveries or natural products.

Finally, biotech patents are seen as too greatly hindering future invention, as they are often informational and fundamental in character. The shift in focus to the information behind an invention (as opposed to the physical invention itself) is problematic as it means that public access to the invention is not guaranteed. Historically, patents could often be struck from the register for non-use; however this is no longer the case in many jurisdictions. Patent owners are thus able to seek rent from their patents, though they themselves do not work them. This is particularly the case for more informational/fundamental inventions, which raises particular concerns because patents have in part been justified based on the costs of bringing a product to market.

Relatedly, there are serious questions about whether the incentive theory applies to all research in the biotech field, given its often fundamental nature. Yet, not all biotech inventions are fundamental and some may be costly to bring to market. Patent law need only incentivise that which would not take place free of its existence. Ultimately, we must ask at what point we should propertise in order to maximise invention/innovation, taking into account the realities of research and development.

There is a growing sentiment that patents have changed the biotech (and pharmaceutical) research arena, removing its collegial spirit. It is only in recent years that patents have been used to seek rent from public-research institutes and universities. Formerly, such use was considered to fall under an informal exemption by both industry and publicly-funded researchers, but the position of industry is changing. Currently, when universities and public-research institutes hold patents, they usually only seek licences or royalties from industry.⁴⁵ Empirical observation indicates that the longstanding social norm that academic researchers share their information and tools is slowly fading under the influence of IP.⁴⁶ This change may be having a negative impact on the incentive to discover. Arguably, no state has a robust experimental-use exception that reflects the longstanding social norm that existed among academic researchers, although this would make more sense than depending on non-compliance and non-enforcement.

6.3 IP OVERLAPS

A nexus of protection exists between all three main fields of IP. The copyright-patent overlap is apparent from the discussion above relating to the protection of software by both patent and copyright law. The overlap is even greater in states that allow for online business-method patents, such as the US. For example, a method whereby the consumer receives a copyrighted product in exchange for viewing an advertisement was allowed patent protection, meaning that claims for software with the terms “over the internet” or at “an internet website” are sufficient to transform an

⁴³ Guidelines for Examination in the European Patent Office’ (June 2012), at Part G, Chpt. II-3.1 and III-4.

⁴⁴ *Association for Molecular Pathology v Myriad Genetics, Inc.* (2013) 569 US ___ (SC).

⁴⁵ Philip W. Grubb and Peter R. Thomsen, *Patents for Chemicals, Pharmaceuticals and Biotechnology: Fundamentals of Global Law, Practice and Strategy*, 5th edn, Oxford: Oxford University Press, 2010, at pp. 434-437.

⁴⁶ Rebecca Eisenberg, ‘Noncompliance, Nonenforcement, Nonproblem? Rethinking the Anticommons in Biomedical Research’ (2009) *Houston Law Review*, 45 (4), pp. 1059-1099, at pp. 1093-1097.

unpatentable abstract idea into a patentable process.⁴⁷ Most states consider such patents to be the mere performance of mental processes and not “inventions”.⁴⁸

Copyright and TM protection can also overlap. Certain signs may be copyright protected if they are “works” and “original”.⁴⁹ A short phrase (such as Exxon)⁵⁰ is unlikely to be considered a literary work, but a longer slogan could be, or a design may be an artistic work. Copyright exists without registration, such that it is possible for TM owners to spontaneously bring copyright infringement claims, creating an overlap between the two forms of IP. There are benefits because copyright protects any reproduction, not limited to use in the course of trade, or use as a TM. At the same time, there are advantages in using TMs over copyright, because TMs offer potentially perpetual protection. For example, Disney has both copyright and TMs over many of its characters. Jane Ginsburg has argued that, in some cases, an author’s name can function like a TM, identifying source and indicating quality, and a sign can identify the copyright owner, such that we should be open to allowing overlap.⁵¹

The widening of TM protection to include three-dimensional shapes (the most famous probably being the Coca Cola bottle) has resulted in controversy because of the overlap with patent law. Shape marks are also examples of when all three areas of IP may be implicated. For example, the “Toilet Duck” (or “WC Ente” in German) bottle shape (for a toilet bowl cleanser) was designed and patented in the mid-1980s by Walter Düring. Any designs or models for the bottle could also have design rights (if registered) or copyright. Düring also has a registered TM for the words “Toilet Duck” and figurative marks. The patent has since lapsed. Had Düring sought a 3D TM for the bottle shape, a monopoly on the shape of the bottle would still exist. Thus, TMs that cover shapes with functionality potentially give perpetual patent-like protection.

7. A LOOK TO THE FUTURE

Thinking about IP as encompassing only the classical fields of copyright, patents and TMs is, of course, narrow. New forms of IP or neighbouring- or related-rights continue to emerge. For example, TRIPS requires TM-like protection of GIs for wines and spirits even when there would be no misled public or unfair competition, even if the true origin is indicated, and if the GI is used with expressions such as “kind”, “style”, “imitation” or “like”.⁵² Furthermore, TRIPS requires patent-like protection of plant varieties and protection of industrial designs and integrated circuits, databases enjoy *sui generis* protection in certain jurisdictions,⁵³ WIPO has treaties for the protection of performers, producers of phonograms (the fixation of sounds other

⁴⁷ *Ultramercial, LLC v Hulu, LLC* (2013) No. 10-1544 (Fed. Cir.), appealed to the Supreme Court, Docket No. 13-255.

⁴⁸ Cornish et al., *supra* note 7, at paras 20–26–20–34

⁴⁹ Helfer and Austin, *supra* note 29, at pp. 284-285.

⁵⁰ *Exxon Corp v Exxon Insurance Consultants Int'l Ltd* [1982] RPC 69.

⁵¹ Jane C. Ginsburg, ‘Of Mutant Copyrights, Mangled Trademarks, and Barbie’s Beneficence: the Influence of Copyright on Trademark Law’, in Graeme B. Dinwoodie and Mark D. Janis, *Trademark Law and Theory: A Handbook of Contemporary Research*, Cheltenham, UK: Edward Elgar, 2008, pp. 481-497.

⁵² TRIPS, Article 23.

⁵³ TRIPS, Article 27.3(b).

than in cinematographic or other audiovisual work),⁵⁴ broadcasters, and pharmaceutical companies are pushing for data exclusivity protection. These reflect the move towards protecting investment and the global inertia of assigning property to anything with commercial value.

At the same time, propertisation of IP is being countered by the Development Agendas of WIPO and the United Nations, and by pro-development non-governmental organisations, civil liberties groups, consumer advocates, and “Pirate Parties” fighting copyright, for example. A trend towards the interdisciplinarity of IP with the fields of human rights, public health and competition law is also starting to push against the reach of IP.

Finally, recent years have shown an increasing demand by indigenous peoples for protection of their traditional knowledge, traditional cultural expressions and genetic resources. Closely connected to this are concerns about the relationship between climate change and patent law innovation policies, and the impact of climate change on indigenous peoples’ interests.

The outcome of these movements will reveal itself overtime, but it is clear that IP is indeed protean.

⁵⁴ WIPO, Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations, (adopted on 26 October 1961); and WIPO, Performances and Phonograms Treaty (WPPT), (adopted on 20 December 1996, entered into force 20 May 2002).