I Know You Are, But What am I? A Temporal Approach to Legal Classification*

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Abstract

No real epistemological disagreement exists that legal knowledge can be represented and understood in categorical form. At issue is the extent to which categorical analysis captures the full complexity of legal reasoning. Can legal reasoning be represented as a taxonomy of mutually-exclusive classes, a taxonomy considered necessary if legal certainty and the rule of law are to prevail, or does the complexity of the process defy attempts at exhaustive classification?

The author agrees with those who argue thatmultiple legal concepts must often be applied simultaneously to resolve legal problems. The author also acknowledges that simultaneous application of multiple concepts appears to exclude the possibility of representing legal knowledge as mutually-exclusive classes. The objective of this analysis is to reconcile the ostensible incompatibility between these twopropositions by arguing that concurrency of legal concepts does not preclude determinacy in categorical analysis.

Notwithstanding conventional wisdom to the contrary, the reality of legal reasoning, which involves the application of overlapping concepts, can indeed be reconciled with the fact that the utility of legal classification as a way of representing legal knowledge depends upon the determinacy of legal classes. Briefly stated, reconciling concurrency and determinacy is simply a matter of perspective.

If we are to take seriously the epistemology of legal classification, that is to say, the question of whether classification can provide an account of the origins and nature of legal knowledge, we need to look not just at the product of legal classification but at the process itself. The fixed boundaries of spatial classification do not provide scope for concurrency and determinacy to exist simultaneously within a single class. We can, however, take account of both concurrency and determinacy within a single class by adopting a temporal rather than spatial perspective. From this perspective, we are able to expand our focus from legal classes as products to legal classification as a process. Such a perspective allows us to focus on the dynamic relationship of relativity between legal concepts as they operate in context, rather than the static relationship of demarcation that exists when legal classes are examined in the abstract.

1 INTRODUCTION

Legal classification as a way of knowing law is a difficult concept to communicate to others using its own abstract terms. For this reason, some jurists make use of metaphors to explain the relationship between legal classification and the nature and origins of legal knowledge. For example, common law jurists who see a direct relationship between legal classification and legal reasoning often rely on a mapping metaphor.[1] Advocates of recent "mapping projects" in the common law argue that legal concepts can be classified in a manner thatprovides a complete representation (as opposed to rendering) of the common law, just as a topographical map is a representation of the terrain upon which it is based.

When legal concepts are classified with sufficient definitional rigour, legal reasoning in both common and civil law legal traditions is a matter of locating the helpful 'you are here' signpost in the midst of a given legal problem. The methodology of each legal tradition differs in that one looks to codal provisions while another looks to a body of precedent to locate the relevant legal principles. The methodology of each tradition is the same to the extent that classification of a legal problem precedes resolution. Factual circumstances are matched to a content-based class and resolution of the legal issue proceeds by applying the contents of the classto the problem. Most importantly, and with reference to the metaphor of mapping, just as a border demarcates mutually-exclusive locations (even though the border itself may change), legal concepts must be constructed as mutually-exclusive classes if the rule of law is to prevail.

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[1] Cartography is a popular choice of metaphor, perhaps due to the jurisdictional orientation of most systems of legal education.

Concurrency of legal concepts in two or more classes would lead to indeterminacy of legal classes and inconsistency in legal reasoning.

Jurists who object to mapping metaphors claim that a two-dimensional spatial representation such as a map cannot accurately reflect the process of legal reasoning. Legal reasoning often requires the simultaneous application of multiple concepts that defy classification. 'You are here' on a two-dimensional plane such as a map is limited to a single location. In contrast, the complexity of legal reasoning requires jurists to locate themselves, metaphorically, in two or more places at once. A mapping metaphor cannot account for the manner in which multiple legal concepts must be applied simultaneously to resolve legal problems.

No real epistemological disagreement can exist that legal knowledge can be represented and understood in categorical form. As Smith states, and most jurists (not to mention cognitive scientists) would agree, legal classification is part of the process of acquiring and developing legal knowledge. [2] Although the classification criteria are always open to challenge, legal knowledge is predicated upon content-based classes. The question is whether the complexity of legal reasoning is best understood as the application of mutually exclusive classes or a combination of a relatively stable body of classes along with a number of overlapping concepts that defy classification. Accordingly, disagreement as to the appropriateness of a mapping metaphor is actually disagreement concerning the nature of the relationship between legal

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[2] S. Smith "A Map of the Common Law?" (2004) 40 *Can. Bus. L. J.* 364 at 365.

classification and legal reasoning. Those who reject the mapping metaphor are in effect rejecting the argument that law can be represented fully in the form of mutually-exclusive legal classes.

The author accepts the argument that multiple legal concepts must often be applied simultaneously to resolve legal problems, and that the prospect of overlapping concepts appears to exclude the possibility of representing legal knowledge in the form of mutually-exclusive classes. The author also accepts the argument that legal concepts must be constructed as mutually-exclusive classes if the rule of law is to prevail. Thus the modest objective of this analysis is to reconcile the ostensible incompatibility between the reality of legal reasoning, which involves the application of overlapping concepts, and the fact that the utility of legal classification as a way of representing legal knowledge depends upon the determinacy of legal classes.

Briefly stated, no conflict between these propositions exists; concurrency of legal concepts does not preclude determinacy in legal classification, as the issue is one of perspective. The solution is to perceive of legal classes from a temporal rather than spatial perspective. The advantage of adding a fourth, temporal dimension to the analysis is that the primary focus is no longer on classes as products but classification as a process. We cannot take account of the concurrency of legal concepts within a single class by viewing legal classes in spatial form. The fixed boundaries of spatial classification do not provide scope for concurrency and determinacy to co-exist within a single class. We can, however, identify and analyze concurrency of legal concepts within a single class by adopting a temporal perspective, with the emphasis on relativity rather than demarcation between legal concepts.

This analysis begins in Part II with a brief summary of the basic arguments for and against classification schemes as a way of knowing law. Part III demonstrates the limitations of a purely spatial approach to legal classification with a suitable example drawn from a current taxonomic debate, that of the 'propertization' of intellectual property. The neologism of 'propertization' is a response to the current expansionary trend in intellectual property protection, particularly patent protection for biotechnological innovations. A claim of 'propertization' is based on the assumption thatintellectual property and property *per se* [3] represent mutually-exclusive legal classes; expanding the scope of intellectual property protection results in the unjustified 'propertization' of intellectual property as a legal class. Part IV demonstrates the utility of legal classification as a way of knowing law, even in circumstances of overlapping concepts, by applying a temporal analysis to resolve the presumptive debate concerning the definitional integrity of the legal classes of intellectual property and property *per se*. Part V then reframes the propertization debate with a discussion of two deficiencies of legal reasoning identified by applying a temporal analysis of legal classification to problems in intellectual property law. The first is the manner in which exclusive reliance on spatial analysis in the face of concurrency of legal concepts produces unacknowledged sites of normativity thataffect legal reasoning in unexpected ways. The second is the extent to which a spatial perspective of intellectual property precludes recognition of the proprietary attributes of this legal class and concomitant ethical concerns other than those

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[3] Property *per se* refers to all forms of privately held property in both civil and common law legal traditions. Note that in many civil law systems, intellectual property is classified as a form of property and include the relevant provisions within the section of the Code dealing with patrimonial rights. This classification does not resolve the propertization debate; the terms of the debate simply shift away from an intellectual property/property *per se* distinction to a distinction between two different kinds of property and the appropriate characteristics of each. The necessity of strict boundaries of demarcation remains.

traditionally associated with the balance in intellectual property law between public access and private gain.

2 LEGAL CLASSIFICATION AND METAPHORS FOR LEGAL KNOWLEDGE

Birks has perhaps devoted the most attention to developing a classification scheme for the common law, most notably the law of obligations.[4] Birks is also a strong advocate of the two-dimensional spatial metaphor of mapping. He uses this metaphor not only to describe the knowledge structure of the common law but also to present a normative claim for greater precision in common law taxonomy. For Birks, a legal problem, like a physical person, can only be in one place at a time. Content-based legal classes are mutually-exclusive and classification must proceed accordingly if law is to function properly. A rationalized legal taxonomy provides the necessary definitional rigour without which consistency in law, and therefore the rule of law, could not exist. Thus the definitions used to construct legal classes might be arbitrary to a certain extent, but this deficiency is offset by the resulting gains in stability and consistency. [5] One hopes, however, that through the use of rigorous taxonomic debate arbitrary distinctions can be minimized.[6]

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[4] See, for example, P. Birks, *English Private Law* (Oxford 2000).

[5] Birks, "Definition and Division: A Mediation on *Institutes* 3.13" in P. Birks (ed.), *The Classification of Obligations* (Oxford 1997) 1 at 6.

[6] For Birks, the common law legal tradition has difficulty developing a suitable classification system because common law lawyers have abandoned the taxonomic debate so central to civilian legal traditions. The common law is amenable to the Gaian taxonomy of persons, things and actions, but common law lawyers reject the logic of this classification system. They are content instead to rely instead on the organizing principle of the alphabet. Birks also identifies a second problem proceeding from the common law's lack of concern with taxonomy. To demonstrate his point, Birks temporarily mixes the metaphors of cartography and compatible software (or what we would now call "open systems"). The common law lacks an organizing principle capable of supporting a meaningful system of classification. Thus legal knowledge in the common law exists as a series

In contrast to Birks, Waddams is sceptical of the metaphor of mapping as applied to understand the relationship between legal classes and legal reasoning. His resistance is based primarily on the complexity of legal reasoning. Legal knowledge cannot be mapped because legal reasoning does not proceed with reference to mutually-exclusive legal classes. Legal concepts do not necessarily exist independently of each other, and cases are often decided on the basis of a number of legal concepts operating concurrently.[7] The difficulty with mapping metaphors is that while concurrency is inherent in the process of legal reasoning, mutually-exclusive legal classes derived from mapping projects do not allow for jurists to locate themselves in two or more places at the same time. Given that a legal issue cannot be assigned to any one concept (class) alone, the metaphor of mapping is ill-advised.[8]

Thus Waddams argues against the utility of Birks' mapping project on the basis that two dimensional representations of legal knowledge cannot account for the dynamic and reiterative nature of legal reasoning. Geopolitical territories are often in flux, and physical landscapes do change over time. Cartographers, however, may be reasonably certain that they are accurately

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of isolated legal doctrines. Jurists are capable of working at a sophisticated level within these isolated classes, but to adopt the metaphor of incompatible software, they cannot transfer the data of a legal problem to a different legal class. The classes do not make use of compatible software, and thus lawyers cannot devise solutions to legal problems based on common law doctrines which exist outside of their particular specialty. As Birks writes, "If lawyers cannot move efficiently across the law, the law itself cannot be reliably applied. Individuals must then lose cases they should have won or, more commonly, settle or abandon claims on wrong advice". (Ibid. at 34) In other words, good lawyers need good maps and compatible software, and taxonomic debate within the common law tradition is a worthwhile exercise in cartography and systems design. Lawyers should seek to introduce greater order into the common law legal tradition by constructing well-defined two-dimensional legal classes which, like jurisdictions on a territorial map, are joined by contiguous boundaries which do not intersect.

7 Stephen Waddams, *Dimensions of Private Law: Categories and Concepts in Anglo-American Legal Reasoning* (Cambridge 2002) at 13.

8 Ibid. at 226.

mapping a particular terrain at any given time.[9] More significantly, they can be absolutely certain that the action of mapping alone does not change the underlying physical terrain.[10] The same cannot be said of the relationship between jurists and law. As Waddams notes, unlike the field of cartography, in law one often has difficulty distinguishing the map from the terrain.[11] Sometimes legal classification represents existing legal knowledge, at other times classification is used to create new legal knowledge. As Levi succinctly stated, "the classification changes as the classification is made".[12]

Arguing from a common law legal tradition, Waddams objects not only to the metaphor of mapping but also to similar legal classification schemas in general, at least to the extent that the system of classification requires that each legal issue be resolved with reference to a single conceptual locations.[13] Such exclusivity, according to Waddams, is incompatible with the nature of common law reasoning. Smith concurs with this assessment, noting that if a common law map was indeed faithful to the complex common law terrain, the map would contain thousands, perhaps even millions, of*sui generis* categories.[14] This would defeat the purpose of legal classification which is to represent, rather than render, law as a system of knowledge. Similarly, cross-referencing between classes would not address the problem. As Waddams argues, the

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9 But see: Mark Monmonier, *How to lie with maps* (The University of Chicago Press 1991).

10 This presumes, of course, that constructivist perspectives are for the moment irrelevant.

11 See Waddams, above n 7 at 226.

12 Ibid. at 15.

13 Ibid. at 232.

14 See Smith, above n 2 at 375.

bibliographic form of classification is inapplicable to law.[15] A catalogue entry for a book can have cross-references to multiple classes (subject headings) because a book is not a class but an instance of a class. If we were to characterize each legal instance not already represented by a class as a class in its own right, this would be equivalent to replacing the subject headings in the Library of Congress catalogue with the actual titles of each catalogued entry. Such a knowledge structure lacks an organizing theme and thus provides no insights into the origins and nature of legal knowledge.

To conclude, however, that legal reasoning cannot be mapped onto a two-dimensional plane does not preclude the possibility that legal knowledge can be represented in categorical form. Samuels, for example, suggests that a three-dimensional model could be used to represent the complex process of legal reasoning described by Waddams. To demonstrate such a model, Samuels provides as a useful example a set of litigation facts that could concurrently pose problems in public and private law, and exist simultaneously as a problem in both contract law and property law. Although Samuels acknowledges that Waddams is likely to reject even a three-dimensional schematic model, the model nonetheless demonstrates the possibility of representing the concurrent application of legal concepts without sacrificing the utility of classification as a way of knowing law.[16]

Both Birks' common law mapping project and Samuel's proposed three-dimensional model demonstrate that legal classification as an epistemological account of law is a matter of

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[15] See Waddams, above, n 7 at 230.

[16] G. Samuel, "Can the Common Law Be Mapped?" (2005) 55 U.T.L.J. 271 at 292, 293.

perspective. Both two-dimensional and three-dimensional models address the legal epistemology of classification by focusing on a particular legal class, or combination of classes, in spatial terms. At the simplest level, we can have a one-to-one relationship between a set of factual circumstances, which is an instance of a class, and the class itself, which contains a single legal concept. We can account for this relationship with a two-dimensional view of classification whereby the relevant legal class is represented as a flat square. The rule of law prevails by applying this same class to all relevant sets of factual circumstances, based on the decision rule for inclusion within the class.

At the next level of complexity we have a one-to-many relationship between a set of factual circumstances as an instance of two or more classes, each representing a single legal concept. We can account for this relationship with a three-dimensional view of classification whereby the flat square becomes a cube representing the interaction of up to six legal classes. The rule of law prevails by applying each of these classes concurrently to all relevant sets of factual circumstances, based on the decision rule for inclusion within the class.

Classification becomes a challenge only when we must accomplish that which Waddams asserts is not possible, and that is to locate the reiterative and interdependent relationship between multiple legal concepts within a single class in a manner that retains the definitional integrity of the class. Note that the problem here is not the simultaneous application of multiple classes, such as the classes of contract and tort to a set of factual circumstances, as this is simply the concurrent application of two discrete classes and can be accommodated in a three-dimensional spatial representation such as Samuels' cube described above. Nor can the conceptual difficulty be resolved by having one class for the legal concept of contract, one for

the concept of tort, and one for the concept of contract/tort. Hybridism would merely return us to the unwieldy map of *sui generis* classes referred to by Smith.

The challenge is to conceive of a manner in which a single class applied in the process of legal reasoning can represent a dynamic relationship between concepts, such as the concepts of contract (consent) and tort (wrongs),[17] and yet still retain an organizational structure capable of providing meaning in law. Content-based classification requires decision rules for placing legal concepts within a particular class, and these decision rules cannot be arbitrary if the rule of law is to include both certainty and fairness. The rules must be justified, and it is the justificatory rationales behind the decision rules that account for the mutually-exclusive nature of legal classes. A justificatory rationale justifies nothing if the end result is that a legal concept can be what it is and what it is not at the same time, for this amount to a justification of mutually-exclusive outcomes.

Is it possible then to represent concurrency of legal concepts, which for the sake of argument are predicated upon different justificatory rationales, within a single, non-hybrid legal class? This is what we must do if classification is to represent and not simply render the complexity of law as a system of knowledge. As stated earlier, the issue is one of perspective. The solution is to perceive of legal classes from a temporal rather than spatial perspective. The advantage of adding a fourth, temporal dimension to the analysis is that the primary focus is no longer on classes as products but classification as a process.

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[17] See Smith, above n 2 at 382.

Consider Waddams' statement that "[t]he contents of legal categories…cannot be itemized, sorted or enumerated".[18] Consider also his description of legal concepts as working concurrently, cumulatively and most significantly, in a complementary fashion, in that each concept supplements the meaning of other concepts. We cannot take account of the concurrency of legal concepts within a single class by viewing legal classes in a spatial form, whether two-dimensional or three-dimensional. The fixed boundaries of spatial classification limit the possibilities of concurrency to impermissible overlap in two-dimensional space and simultaneous application of discrete classes when viewed in three-dimensional form.

We can, however, identify and analyze concurrency of legal concepts within a single class by adopting a temporal perspective where the emphasis is on relativity rather than demarcation between legal concepts. If we are to take seriously the epistemology of legal classification, that is to say, the question of whether classification can provide an account of the origins and nature of legal knowledge, we need to look not just at the product of legal classification but at the process itself. If one agrees with Waddams (and Levi) that legal classifications are dynamic and thus always in flux, then at no point in time is the content of a legal class necessarily fixed. A spatial analysis is merely an arbitrary, albeit necessary, stopping point by which we can distinguish legal classes as products from legal classification as a process.

A temporal perspective brings a much-needed focus on the process of legal classification as a more complete way of knowing law in categorical form. The emphasis is on the experience of contact and exchange between content-based legal classes as they operate concurrently in a

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[18] See Waddams, above n 7 at 225.

given context.[19] For legal classifications predicated upon modalities of resource allocation, as will be discussed in the next section, perhaps the most significant context is that of the political economy of the market. Legal meaning from a temporal rather than spatial perspective does not simply result from the taxonomy of the classification system predicated upon justificatory rationales, but is derived as well from what we learn from the mediation between the form and function of legal classes during market transactions. Under these conditions, concurrency of legal concepts is not an obstacle to classification but instead is one method by which classification as a way of knowing law takes place.

3 'PROPERTIZATION' AND THE LIMITS OF SPATIAL ANALYSIS

The limits of spatial analysis as a way of knowing law can be illustrated by examining the nature of the legal classes of intellectual property and property *per se*. Intellectual property as a legal class is typicallycharacterized as a statutory grant of a negative right.[20] This characterization is derived from the prevailing rationale of utilitarianism, which justifies intellectual property rights as time-limited statutory monopolies necessary to address the public goods nature of intangible assets.[21] For example, a patent provides the holder with the right to

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[19] The focus on encounter and exchange is adapted from the work of anthropologist François Laplantine and literary theorist Alexis Nouss in developing an epistemology of métissage. Stated simply (very simply), métissage is a way of knowing which rejects exclusive reliance on categorical thinking, by which is meant the manner in which meaning is ascribed in accordance with a system of either/or binary classification. See François Laplantine and Alexis Nouss, *Le Métissage* (Flammarion 1997).

[20] For example, in Canada see *e.g. Harvard College v. Canada (Commissioner of Patents)*, [2002] 4 S.C.R. 45 at para. 64, Binnie J. ("While s. 44 (now s. 42) of the Patent Act gives the owner, as against the rest of the world, "the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used ..." and in that respect is framed as a positive right, its effect is essentially to prevent others from practising an invention that, but for the patent monopoly, they would be permitted to practise.").

[21] See P. Menell, "Intellectual Property: General Theories" in B. Bouckaert and G. De Geest (eds.), *Encyclopedia of Law and Economics*, at http://encyclo.findlaw.com/index.html (last accessed January 4, 2006).

exclude others from making, using or selling the patented object. A patent does not grant any rights in the subject matter of the patent itself.[22] This negative right to exclude is narrower in scope than the rights granted by property *per se*.

As for property *per se*, in civil law legal traditions the associated rights are generally characterized in accordance with civil law's Romanist origins as the right to use and obtain the benefits of use, the right to the fruits of the property (generally in the form of income, rent or interest) and the right to dispose of the property in either a material or juridical sense (by destroying the property or by transferring ownership).[23] The taxonomy is somewhat less precise in common law legal traditions, but an accepted characterization of the incidents of ownership includes: the right to possess, use and manage; to right to control the income and capital; the right to security; rights or incidents of transfer; the absence of a limited term; prohibition against harmful use; liability for execution to satisfy one's creditors; and the incident of residuarity.[24]

The appropriate classification of intellectual property and property *per se* has not attracted the degree of ontological controversy one sees with other definitional disputes, such as the common law debate concerning the appropriate boundary (or lack thereof) between the concepts of tort and contract.[25] This is subject to change, however, as a potentially destabilizing neologism, 'propertization', has entered the lexicon of intellectual property analysis. The term

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[22] See *e.g.* 35 U.S.C. § 154 (2000) ("Every patent shall contain a…grant to the patentee…of the right to exclude others from making, using, offering for sale, or selling the invention…").

[23] See, for example, John E.C. Brierly & Roderick A. Macdonald, *Quebec Civil Law: An Introduction to Quebec Private Law* (Emond Montgomery 1993) at 272.

[24] A.M. Honore, "Ownership" in A.G. Guest, (ed.), *Oxford Essays in Jurisprudence* (Oxford 1961) 107 at 112-24.

[25] See, for example, Grant Gilmore, *The Death of Contract* (Ohio State University Press 1974).

originates in the current expansionary trend of intellectual property protection, particularly in relation to patents granted for biotechnological innovations.

Those who argue against the expansionist trend in patent protection at both the domestic and international level claim that courts and legislators have 'propertized' patents by expanding the nature and scope of patent protection beyond the limits set in place by one or more justificatory rationales, of which utilitarianism predominates. Patents as a legal class appears to be approaching functional equivalency with the rights of exclusion and control granted in the form of property rights *per se*. Propertization is seen by many as blurring the distinction between, and thus the meaning conveyed by, the legal classifications of intellectual property and property *per se*. On the other hand, those who argue in support of the expansionist trend insist that the increased scope of patent rights, particularly in terms of subject matter, are necessary to deal with the unique features of innovation in the field of biotechnology.[26] They reject any claim that increased protection is inconsistent with the accepted legal classification of a patent as a mere negative right to exclude.

The debate puts one in mind of a strategy familiar to some of us from childhood when involved in intractable disagreements with other children. When faced with a taunt from one's opponent, typically in the form of an unflattering characterization, the appropriate response was to reply in return, 'I know you are, but what am I?' Adopting such a strategy, of course, meant that the argument was never resolved. Disagreement remained focused on the issue of classification, particularly classification in the abstract. The behaviour which led to the initial

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[26] The most significant problem is that the patented invention is capable of self-replication.

taunt remained unaddressed as each child sought, with equal frustration, to force an undesirable label on the other party. The circularity of the disagreement meant that each child tried in vain to have, as we said then and still do now, the 'last word'.

The debate concerning propertization is no more complex than the interaction described in the above scenario. The parties draw descriptive lines in the sand as they characterize patent rights in biotechnological innovation as falling on one side or the other of an is/is not spatial classification thatdefine s and place property and mere negative rights to exclude in mutually-exclusive legal classes. The question posed is what intellectual property is, and not what intellectual property does. This frames the propertization debate in terms that necessarily focus attention on intellectual property and property *per se* in spatial form as products of legal classification based on one or more accepted justificatory rationales. Little or no attention is given to the processes through which legal meaning is also derived from the manner in which methods of exclusion as legal concepts function concurrently in market transactions involving biotechnological innovation.

This distinction between the form and function of protection is subtle but significant. A functional analysis would identify market functions typically associated with the class of property *per se* and assess whether associating these functions with the class of intellectual property removes the distinction between, and thus the meaning derived from, their classification within the taxonomy of law. This is a different issue entirely than the question of whether such functions are consistent with the accepted definitional distinction between the forms of intellectual property and property *per se* as content-based classes based on their justificatory rationales. In the final result, the answer to both questions may be the same, but the analytical distinction exists and must be examined before any such conclusions can be drawn.

The difficulty with the current frame of reference of the propertization debate is that it characterizes intellectual property as a notionally pure legal class in order to give meaning to intellectual property as a legal concept. Notional purity does not imply that a content-based legal class cannot change, but it does imply that the process of change involves a method of classification whereby a single legal concept is assigned to a single legal class in spatial terms. Hence notional purity, and thus legal meaning, is predicated on the assumption that the process of classification involves reference to a single site of normativity, that of one or more accepted justificatory rationales.

If the classification of intellectual property proceeds in accordance with limitations set in place by one or more accepted justificatory rationales, then legitimate expansion of patent protection requires that the scope of protection remain consistent with the expression of intellectual property as a single legal concept assigned to a particular legal class, whether in two- or three-dimensional spatial form. If any inconsistency exists between the characteristics of intellectual property as determined by its classification and the application of intellectual property protection to new forms of biotechnological innovation, then presumably the legal concept of intellectual property no longer exists in a notionally pure legal class. Intellectual property resides instead in what may be thought of as an impure class, polluted by legal concepts of exclusion associated with property *per se* rather than intellectual property. In these circumstances, classification as way of knowing law becomes meaningless. Intellectual property as a class cannot at one and the same time contain concepts of both intellectual property and property *per se* if the taxonomy which distinguishes intellectual property from property *per se* is to provide any understanding of the nature and origins of different rights of exclusion in these two areas of legal knowledge.

One practical difficulty with this line of reasoning, quite apart from questions of methodology in taxonomy, is that inconsistency is difficult to identify. In relation to the legitimacy of intellectual property protection for biotechnological innovation such as patents for DNA sequences, genes and cells comprising these genes, the competing claims concerning propertization represent an irreconcilable descriptive disagreement as to whether the definitional boundaries defining the legal class of intellectual property remain intact. As with the children who shout back and forth, 'I know you are, but what am I?'we can expect that any debate framed in these terms can continue indefinitely, given the difficulty of locating definitive empirical support for either position.

The more significant epistemological difficulty with this line of reasoning is that the focus on the definitional integrity of content-based classes as opposed to the classification process itself means that the terms of the debate are limited to a line-drawing exercise between intellectual property and property *per se*. Strict demarcation, however, is an illusion based on a limited, spatial understanding of the legal concept of intellectual property as a content-based legal class in which the content is derived solely from one or more accepted justificatory rationales used to provide the definitional certainty required by the rule of law. Arguably, however, the process of classification involves not only reference to accepted (albeit contested) justificatory rationales, but also the operation of the legal class of intellectual property in the context of the political economy of the market. Indeed, the same could be said of other legal classes in other contexts. What must be kept in mind is that acknowledgment of an additional site of normativity provides for rather than precludes definitional clarity.

The significance of the specific context of the political economy of the market in relation to the legal classification of intellectual property is that the foundational economic structure of

the market is undergoing rapid change. The percentage of wealth held in the form of intellectual property has been increasing at an exponential rate in developed state economies; the value of intellectual property rights often exceeds that of property *per se* in corporate asset portfolios, particularly in corporations making extensive use of biotechnological innovation. Definitional line-drawing is at best a rough proxy for more compelling process-based questions concerning the manner in which intellectual property functions to generate value in a post-industrial economy.

The similarity of the legal concepts of intellectual property and property *per se* is derived not from any shared methodology but instead from a shared objective; both intellectual property and property *per se* provide holders of these rights with exclusionary value. Exclusive rights of control generate market value by providing the holder with the ability to sell or license these rights or any portion thereof for commercial gain. The exclusionary value of intellectual property, in accordance with its predominant justificatory rationale of utilitarianism, is set to the level necessary to balance incentives to create while still promoting a robust public domain. In contrast, the exclusionary value of property *per se* is determined by the market alone, subject to certain regulatory restrictions in the public interest. Thus the default exclusionary value of property *per se* is full commercial exploitation, not the more limited scope of commercial exploitation deemed necessary to overcome the public goods problem of intellectual property.

The legal infrastructure of the market, however, reflects the presumption that rights to property *per se* continue to predominate market transactions. This is not the case. Given the increased economic significance of intangible assets, market actors now seek to obtain exclusionary value in relation to intellectual property rights in a manner that permits continuity in the distributive effects of market transactions thatpreviously woul d have engaged the full

exclusion value of property *per se*. Quite simply, market actors now seek to use the forms of intellectual property to perform the functions historically associated with property *per se*. They are attempting to obtain full commercial exploitation which exceeds the exclusionary value normally associated with term-limited monopoly rights intended solely to address public goods problems.

The exclusion value considered necessary in order for property *per se* to perform its function as a background legal entitlement in a market economy is not in issue in this analysis, even though current patterns of distribution in many market economies leave much to be desired. Instead, the site of the controversy is that the market function of property *per se* is increasingly performed by intellectual property. While historically *ad hoc* in their development, the predominant justificatory rationale for intellectual property rights, particularly patent rights, is utilitarian. Intellectual property rights are ostensibly limited in function to addressing market failure in relation to public goods. They are not designed as a matter of either law or policy to function as the background legal entitlement, in conjunction with contract, upon which the operation of the market depends.

As with other periods in which significant transitions have taken place in the form in which wealth is held in market economies, legal rules adapt to deal with changing circumstances.[27] By defining the relationship, however, between legal reasoning and legal classification on the basis of a single site of normativity, participants in the propertization debate may be providing the right answers to the wrong questions. The objective of this analysis is to suggest a temporal

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[27] See, for example, Morton Horowitz, *The Transformation of American Law, 1780-1860* (Harvard University Press 1977).

perspective as way of moving beyond this definitional impasse by exploring the meaning of intellectual property as a legal class in other than purely spatial terms.

4 A TEMPORAL ANALYSIS OF 'PROPERTIZATION': CONCURRENT LEGAL CONCEPTS

When adopting a spatial analysis, intellectual property is differentiated from property *per se* on the basis of decision rules derived from justificatory rationales. In these circumstances, the legitimacy of the claim of propertization is a matter of consistency between spatial classifications and their application to factual circumstances. Definitionally, intellectual property is that which property *per se* is not, and when the spatial classification of intellectual property is applied to provide rights of exclusion in a manner more commonly associated with the characteristics of property *per se*, differences and thus presumptively legitimate defining characteristics are erased. As difference between legal concepts decreases, concurrency between legal classes increases, as does the resulting uncertainty in the law.

Assuming without deciding, however, that this is indeed the case when legal classes are viewed in two- or three-dimensional form, the same is not necessarily the case when analysis includes a temporal dimension. Difference is as much a matter of relativity as it is consistency, and relativity is concept of time, not space. Thus we cannot evaluate claims of propertization (or the implications for legal certainty) solely in spatial terms. Instead, the legal classes of intellectual property and property *per se* must be examined relative to each other as they operate in context, particularly in the context of the political economy of the market. This requires a temporal approach to legal classification.

The legal concept of intellectual property is always in flux as it mediates between legal forms and market functions. Thus from a temporal perspective, the claim of propertization as blurring the line between the legal classes of intellectual property and property *per se* reveals nothing of the legitimacy (or illegitimacy) of the process whereby the form of intellectual property, although designed to correct minor market failures in public goods, takes on the function of property *per se* in providing the background legal entitlements necessary for the political economy of the market to operate.

A spatial perspective of intellectual property focuses on deviation from the classification criteria derived from one or more justificatory rationales. A temporal perspective does not focus on deviation, as this is not a particularly helpful concept when dealing with legal classes perpetually in flux. From a temporal perspective, one simply observes any exchange of conceptual characteristics which may take place during market-based encounters between the form of intellectual property and the functions of property *per se*. The legitimacy of this exchange of conceptual characteristics based on functional necessity cannot be evaluated with reference to justificatory rationales used to classify intellectual property in spatial terms; encounter and exchange are processes that exist temporally, not spatially, and must be analyzed as actions rather than results. [28]

Just as the rights and duties associated with the content-based legal classification of property *per se* represent a dynamic response to changes in the nature of the underlying assets, so do the rights and duties associated with the legal classification of intellectual property.

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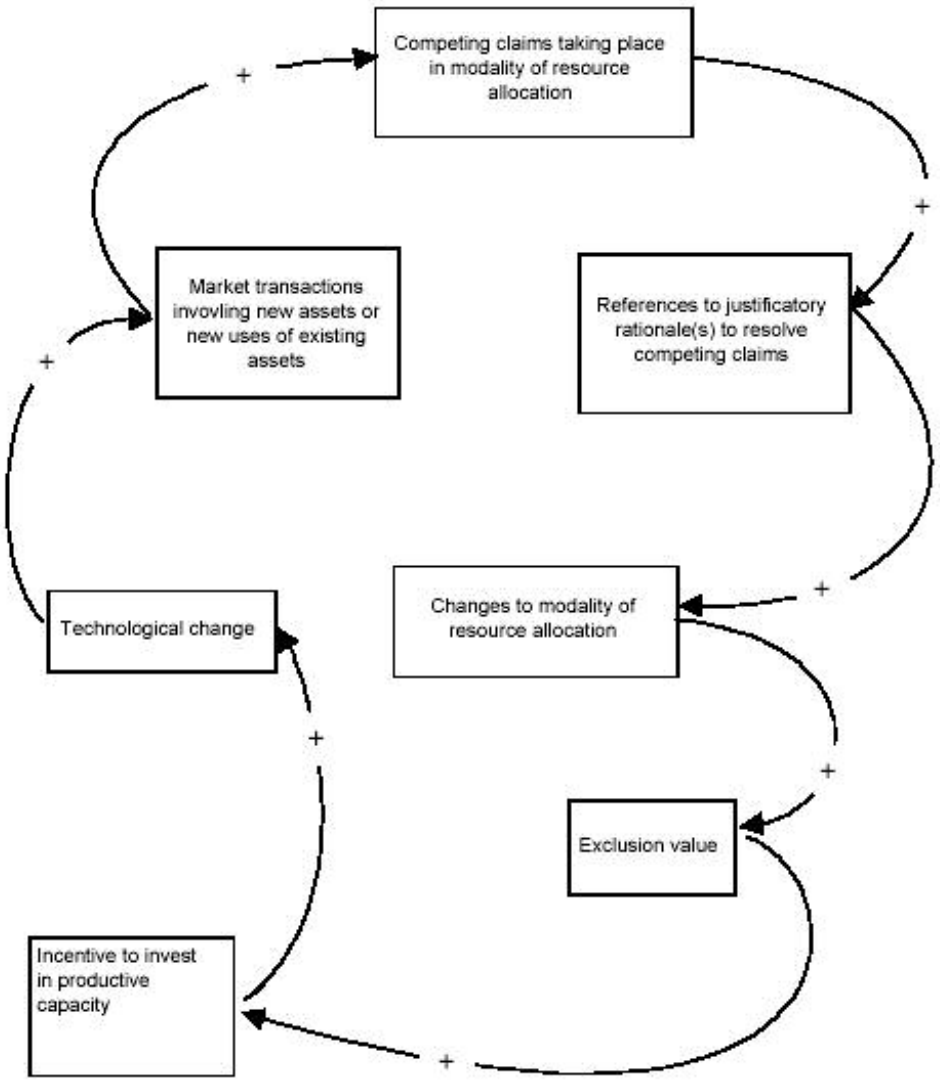
[28] See Laplantine and Nouse, above n 19 at 84.

Typically, however, changes to the definition of intellectual property are attributed to the reiterative process of comparison between the justificatory rationales of intellectual property and its legal classification. Thus the classification of intellectual property cannot transcend beyond a three-dimensional spatial perspective. We return to Waddams' critique of classification that legal meaning cannot exist if multiple legal concepts simultaneously inhabit the same legal class.

Recall, however, that this critique of classification does not take into account a temporal analysis. In terms of temporal process, intellectual property still performs its initial function as a legislative response to market failure, but has now assumed an additional function, typically associated with property *per se*, which is to provide the most significant form of background entitlements upon which the political economy of the market depends. As a site of normativity, the political economy of the market would appear to assess the legitimacy of intellectual property in context on the basis of whether intellectual property adequately performs the function previously carried out by property *per se*, given that the normative legitimacy of the function itself has already been established.

In contrast, any analysis predicated upon spatial forms of mutually-exclusive legal classes will focus the ontological debate concerning propertization on consistency within a particular taxonomy. Focusing on spatial analysis to the exclusion of a temporal perspective risks ignoring the dynamic process whereby intellectual property and property *per se* are continually reconfigured within a larger process of reconfiguration between market norms and justificatory rationales. Consider the typical process of legal reasoning which adopts a spatial explanation of changes in modalities of resource allocation such as patent law in response to changing market conditions. The reiterative nature of the relationship between market functions and justificatory

rationales for private rights of exclusion is at best implicitly acknowledged. Legal reasoning proceeds, as set out in the following diagram, on the mistaken assumption that while the market may initiate change, justificatory rationales are the only relevant site of normativity for the development of a legal taxonomy.



The necessarily arbitrary point of origin in the above diagram is technological change. For example, biotechnological innovation generates new assets of value or new methods of using existing assets, thus leading to market transactions involving these new assets or new uses of existing assets. Given that the novel characteristics of these new assets or methods have not been anticipated within the legal regime governing commercial exploitation in this area, legal uncertainty exists in terms of who has rights to the potential revenue streams.[29] This leads to competing claims framed within the language and discourse of a particular modality of resource allocation such as patent law, although the rationale for designating patent protection as the appropriate modality is more likely that of path dependency than any *ex ante* consideration of modalities of protection, including those outside the scope of traditional intellectual property law.[30]

In resolving these competing claims, courts and legislators ostensibly refer to justificatory rationales on the basis that modalities of resource allocation have been defined with reference to these rationales. For patent law, this means that courts will refer to both the public goods problem of intangible inventions as well as the bargain theory for those inventions which are not susceptible to reverse-engineering. A successful claim for increased protection accords exclusion value to the previously contested asset. Generally, this results in a corresponding

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[29] One particularly compelling example is that of the patenting of higher life forms. The TRIPS Agreement allows Members to exclude higher life forms from patentability. Despite the fact that such patents are granted in Members with the most significant investment in this form of biotechnology, Canada does not yet allow for the patenting of higher life forms.

[30] Note that the competing claims to rights to the exclusionary value within a modality of resource allocation may also include claims that exclusionary value should not exist as opposed to whom exclusionary value should be allocated. For example, the patenting of certain biotechnological innovations such as transgenic animals is a highly controversial practice, and many constituencies not generally associated with patenting concerns raise both deontological and consequentialist arguments in opposition. In addition, competitors faced with an infringement suit will often argue against the patentability of the allegedly infringed invention.

decrease in access value, although the decrease is rarely quantified. Positive spillover effects must also be taken into account. In contrast, an unsuccessful claim will tend to lead to an increase in access value with a concomitant decrease in exclusion value. As indicated in the diagram, exclusion value provides an incentive to invest in productive capacity for the purposes of biotechnological innovation, which in turn leads to further technological change, thus continuing the cycle in perpetuity.[31]

Note that in this spatial account, lack of consistency between justificatory rationales and the scope of protection is not necessarily the result of an intentional decision to depart from these justificatory rationales. To allege that members of the judiciary are disingenuous in their ostensible adherence to justificatory rationales calls into question the repute of the legal process. Certainly a great deal of scholarship exists which both explains and justifies legal reasoning as subject to external pressures and biases, in particular legal realism and critical legal studies. At the risk of sounding naïve, an alternative explanation is that normative acceptance of the presence of attributes of the legal concept of property *per se* within the legal classification of intellectual property has occurred prior to any reference in the legal reasoning process to one or more justificatory rationales. Given that the temporal perspective of legal classification remains

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[31] Note, however, that an increase in exclusion value is not the only relevant incentive for investing in productive capacity. For example, an increase in access value can lower the costs of certain factors of production thus increasing productive capacity, that is to say that all innovation depends to a greater or lesser degree on access to existing knowledge. Thus one of the most significant preoccupations of any justificatory rationale is the appropriate balance between exclusion and access. Operating outside of the traditional framework of market failure, one can also argue that an increase in access value does not result in a disincentive to engage in productive capacity, but instead an incentive to engage in cooperative productive capacity. Open source software distributed through general public license systems is an example of the degree to which an increase in cooperation value can stimulate innovation. Note as well that even in cases where market failure cannot be addressed through the provision of incentives, a decrease in exclusion value could still be countered with a corresponding increase in subsidy value, i.e., public subsidies to accommodate levels of risk in innovative activities which exceed the capacity of the private sector to manage.

unacknowledged, however, judicial reasoning must make reference to justificatory rationales as a recognized site of normativity if cognitive dissonance is not to result.

Thus inconsistency is derived not from intentional transgression but implicit acceptance of an unacknowledged site of norm creation apart from justificatory rationales. In other words, courts accept the normativity of expansion, but mistakenly attribute the source of this normativity to accepted justificatory rationales. What this diagram does not (and cannot) illustrate is that when the political economy of the market undergoes rapid change, a spatial expression of the legal form of intellectual property as dictated by its classification is not necessarily consistent with its temporal function. Thus one of the most relevant aspects of a temporal perspective is the ability to identify sites of normativity which do not originate with justificatory rationales, and which can be identified only be examining the temporal process of classification as opposed to its spatial product.

Recall that the institutional design of intellectual property law is directed towards addressing limited instances of market failure; such a design is not intended to support the very function of the market itself. Thus the relevant issue for determination from a temporal perspective is not whether consistency exists between justificatory rationales and the spatial form of intellectual property as a legal classification, but the legitimacy of a given market function when the function typically performed by property *per se* is now performed by the legal classification of intellectual property as it exists in flux. The market is still predicated upon exclusionary value, but the changing political economy of the market has resulted in a greater percentage of wealth held in the form of exclusionary value in relation to intangible rather than tangible assets. This has led to an exchange of attributes as the form of intellectual property

encounters the function performed by property *per se* within the context of this changing political economy. [32]

Thus the legitimacy of a claim of propertization cannot be assessed from a spatial perspective alone. Exclusive rights are indeed granted in accordance with one or more justificatory rationales, but these justificatory rationales are a response to and thus contingent upon market demands. For example, the market demands that the exclusionary value of the background legal entitlements necessary for the market to function not be decreased simply because the nature of the underlying asset has changed from tangible to intangible form. The result would be an unintentional distribution of wealth which would not receive normative acceptance unless the existing distribution of wealth was found to be normatively deficient and in need of reallocation.

As illustrated in the following diagram, mutual redefinition between market demands and justificatory rationales is expressed in the legal system through intellectual property and property *per se* as modalities of resource allocation. Concurrent with this process of mutual redefinition between market demands and justificatory rationales is a second process of mutual awareness and redefinition taking place between intellectual property and property *per se*. The political economy of the market depends upon the allocation of private rights of exclusion, which in turn require a justificatory rationale, but the justificatory rationales used to assess the legitimacy of market-based transactions in intellectual assets do not exist independently of the political economy of the market itself.

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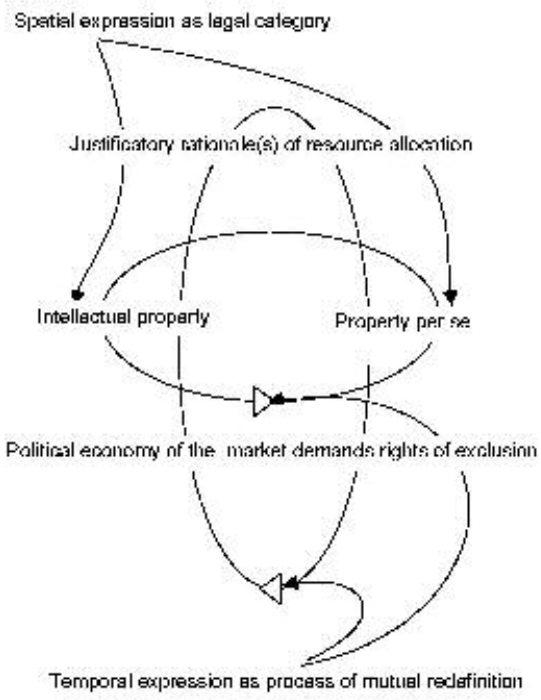
[32] Values and attributes can also move from intellectual property to property *per se*. The implications for property *per se* will be addressed in a subsequent article.



Intellectual property operates in the political economy of the market as a form of resource allocation in contact with other forms of resource allocation such as property *per se*. Spatially, intellectual property possesses a form, but temporally, it performs a function. While intellectual property exhibits a given spatial form as a matter of two- or three-dimensional legal classification, it might be performing quite a different temporal function in a fourth dimension in response to market demands. It is within this disconnect between spatial form and temporal function that one can identify a process of norm creation that does not originate with typical justificatory rationales.

In recognizing that temporal contact and exchange between intellectual property and property *per se* is not conditioned by preconceptions of the mutually-exclusive nature of legal

classifications in spatial form, we are able to acknowledge that contextual processes other than justificatory rationales create norms concerning the purposes and functions of intellectual property, and that these norms are relevant when considering changes to intellectual property law and policy. What might appear to be a product of contradictory spatial classification may, when considered in context, be a temporal process of normative acceptance as the form of intellectual property is called upon to perform the function of property *per se*.

Perhaps the most important thing to note is that the concurrency of legal concepts in a single class in these circumstances takes place not in terms of form but of function. When viewed from the vantage point of a temporal perspective, intellectual property is not simply a legal classification in spatial form. Intellectual property also exists as a process of classification in flux. A strict demarcation between intellectual property and property *per se* exists only at that necessary stopping point when legal reasoning demands that the legal class of intellectual property stabilise in spatial form. Even in this spatial form, however, the legal meaning of the class at any given point in time is derived not only with reference to justificatory rationales, but also from the process of encounter and exchange between property *per se* and intellectual property in the context of market transactions involving biotechnological innovation. Observing this process of encounter and exchange, one can identify that which is said to be epistemologically impossible, which is the co-existence of two legal concepts within a single legal class that nonetheless retains an organizational structure capable of providing meaning in law.

5 REFRAMING THE 'PROPERTIZATION' DEBATE

The advantage of a temporal analysis as a way of knowing law is that it provides an opportunity to understand legal concepts such as intellectual property as constitutive processes involving multiple sites of normativity located in both space and time. Understood spatially, the legal classification of intellectual property is a product of the justificatory rationales used to determine the appropriate allocation of intangible assets. Intellectual property, however, can also be understood as a process of resource allocation increasingly called upon to perform the same function as property *per se* as the proportion of wealth held in the form of intangible assets begins to dominate market transactions.

The result is two-fold. First, in terms of the propertization debate, it would appear that participants from both sides of the property rights/mere negative rights divide advance valid claims. The process of exchange whereby the form of intellectual property performs the functions of property *per se* can receive normative acceptance on the basis of the legitimacy of the market function itself. The result is a degree of concurrency between the legal concepts of intellectual property and property *per se* within one legal class, that of intellectual property. Concurrency itself is not an issue, given that concurrency of legal concepts, as Waddams argues, is the process by which legal reasoning often proceeds. The difficulty is that acceptance on these terms is implicit; no attempt is made to reconcile the characteristics of intellectual property operating in this particular context and the definition of intellectual property as a legal class. That is to say, no attempt is made to reconcile these two sites of normativity in terms of any potential conflicts which might arise when considering currency from a purely spatial perspective.

The second result is surprisingly ignored by those who argue against propertization on the basis of consistency of the legal class of intellectual property with one or more justificatory rationales. Emphasis on normative claims against propertization based on the spatial characterization of intellectual property as mere negative rights tends to obscure proprietary characteristics which have distributive effects other than those typically engaged by the incentives-access or bargain-disclosure paradigms of intellectual property law. Neither adversaries of propertization nor courts consider the full range of ethical implications which arise when the legal class of intellectual property is influenced by the concurrent operation of the legal concepts of intellectual property and property *per se* as applied to protect the economic value of biotechnological innovations.

I. IMPLICIT NORMATIVE TRANSFER IN JUDICIAL REASONING: *MONSANTO V. SCHMEISER*

The significant change brought about by the transition in wealth from tangible to intangible assets arguably calls into question the justificatory rationales of intellectual property laws. These laws have developed in an *ad hoc* and historically contingent manner,[33] but pursuant to the now predominant justificatory rationale of utilitarianism, they are designed to address market failure in public goods. This limited ambition must be contrasted with the much broader purpose of property *per se*, which is to provide the system of resource allocation upon which an entire market, and not merely isolated market failures, can be based. If market actors and courts accept certain market functions as legitimate, such as the ability to generate maximum return on investment through the commercial exploitation of one's assets, and accept as well, even

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[33] For a detailed historical account of intellectual property law, see Brad Sherman & Simon Bently, *The Making of Modern Intellectual Property Law: The British Experience, 1760-1911* (Cambridge 1999).

implicitly, that intangible assets now represent the majority of wealth held for commercial exploitation, an implicit normative transfer may occur.

In certain factual circumstances, such as transactions performed by corporations which have no assets other than exclusive rights in intangibles, the fact that intellectual property carries out proprietary market functions rather than addresses market failures is perceived as legitimate so long as the functions themselves are accepted as legitimate. Normative acceptance occurs not in spatial terms, that is to say by reference to one or more justificatory rationales used to determine the content of particular classes, but temporally as an exchange of values concerning the legitimacy of a given function, whatever might be its modality of expression. Because the exchange of values resulting from this encounter is implicit rather than expressly acknowledged, no attempt is made to determine if such functions remain legitimate when carried out by intellectual property rather than property *per se*. In particular, no attempt is made to reconcile these new functions with the spatial form of intellectual property as defined by one or more justificatory rationales. Thus any potential conflicts between these two sites of normativity will be neither identified nor addressed.

We can see an example of this temporal process of implicit normative transfer in the reasoning of the majority in the recent Supreme Court of Canada's decision in *Monsanto Canada Inc. v. Schmeiser*.[34] Monsanto held a patent which claimed, *inter alia*, a chimeric gene,[35] a method for inserting the chimeric gene into a plant's DNA, the plant cell in which the chimeric

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[34] *Monsanto Canada Inc. v. Schmeiser*, [2004] 1 S.C.R. 902.

[35] A chimeric gene is one which does not exist in a natural state but is instead altered by combining the genetic material of two or more different species.

gene had been inserted, and a method for regenerating a glyphosate-resistant plant from the genetically modified cell.[36] As the founder plant propagates, all of the cells in its progeny will contain the patented chimeric gene, but the patent claims did not extend to the whole plant or seeds produced by the plant. Such a claim would have been inconsistent with Canadian patent law which does not include plants and other higher life forms within the scope of patentable inventions.

Monsanto sells the seeds of genetically altered canola through distributors under the trade name of Roundup Ready Canola. The distributors then resell the seeds to farmers pursuant to the terms of a Technology Use Agreement in which the farmers agree: (a) to purchase Roundup Ready Canola from authorized seed agents; (b) to use only Roundup herbicide, which is manufactured by Monsanto; (c) to sell the crop only to a commercial purchaser authorized by Monsanto; (d) not to sell or give the seed to any third party; and (e) not to save the seed from the crop for replanting. As with many biotechnological innovations protected by patent rights, the necessity of placing such restrictions on use is due to the self-replicating nature of the invention. Typically, the doctrine of exhaustion would permit farmers to save and reuse the seed purchased from the distributor. The first sale of the invention would have exhausted Monsanto's intellectual property rights in the invention, leaving the farmer free to use and resell (but not to make) the invention. Applied in these circumstances, however, the doctrine of exhaustion would transfer not only the single instance of the invention to the farmer, but also the means of production, both of which are embodied in the seeds.

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[36] The genetic modification increases a crop plant's resistance to herbicides containing glyphosate, a chemical compound which inhibits an enzyme necessary for a plant's survival. Only unwanted vegetation will be killed off following spraying with herbicide; the genetically altered crop plant will survive.

Mr. Schmeiser operated a commercial farming operation, and had identified a small number of canola plants grown from Roundup Ready Canola seeds on his land. Mr. Schmeiser harvested these plants, collected their seeds, replanted them and eventually produced over 1,000 acres of Roundup Ready Canola plants. Mr. Schmeiser, however, was not a party to a Technology Use Agreement with any distributor, and Monsanto brought an action against Mr. Schmeiser for patent infringement.

Pursuant to s. 42 of the Canada Patent Act, the inventor has "the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used".[37] At issue was whether Mr. Schmeiser had 'used' the patented invention by harvesting Roundup Ready Canola plants found on his land, replanting these seeds and then selling the Roundup Ready Canola grown from these seeds. Mr. Schmeiser argued that deciding the case in favour of Monsanto would in effect grant Monsanto patent protection not just for the chimeric gene and cells comprising the gene as claimed in its patent, but also over the whole plant. This result would be inconsistent with the Court's prior holding in *Harvard College* that plants and higher life forms are not patentable.

The majority found in favour of Monsanto, basing its decision primarily on principles of statutory construction which require, *inter alia*, that "the inquiry into the meaning of 'use'…must be grounded in an understanding of the reasons for which patent protection is granted".[38] The

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[37] Patent Act, R.S.C. 1985, c. P-4, s. 42.

[38] See *Monsanto*, above n 34 at para. 90.

majority did make reference, however brief, to the standard utilitarian justification for patent protection:

> Huge investments of energy and money have been poured into the quest for better seeds and better plants. One way in which that investment is protected is through the Patent Act giving investors a monopoly when they create a novel and useful invention in the realm of plant science, such as genetically modified genes and cells.[39]

The majority's interpretation of 'use', however, bears little or no relationship with this utilitarian justificatory rationale. This is demonstrated at the very least by the fact that the majority's interpretation radically transformed the established test for determining an infringing use.[40] Traditionally, consideration of infringing use in patent law is a relatively uncomplicated matter. A court must simply decide whether an ostensibly infringing use falls within the scope of the claims.[41] The emphasis is on the textual interpretation of the claims, given the significance of interpretation in defining the scope of the claims.

The majority, however, held that the purpose of the statutory monopoly granted by the Act is to protect the patentee's "business interests". Accordingly, 'use' is defined as any activity by the defendant which furthers its own commercial interests, given that, "[i]f there is a commercial benefit to be derived from the invention, it belongs to the patent holder". Thus what had been a relatively straightforward comparative analysis of equivalency, literal or substantive, between the impugned activity and the scope of the patentee's claims, now includes a more

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[39] Ibid. at para. 32.

[40] Richard Gold, "Monsanto's gain is everyone else's pain", Comment, *The Globe & Mail* (24 May 2004) A17.

[41] Courts in Canada use a doctrine known as "purposive construction" to interpret patent claims. The doctrine assumes that the patent is addressed to a "worker skilled in the art", a technique which protects the patentee from excessive literalism and the public from overly-broad claims interpretation. See *Free World Trust v. Électro-Santé Inc.*, [2000] 2 S.C.R. 1024; *Whirlpool Corp. v. Camco Inc.*, [2000] 2 S.C.R. 1067.

abstract inquiry into the inherent nature of the impugned activity itself. At issue now is whether the activity results in a commercial benefit which can be causally connected to the use of the invention.

The majority's definition of 'use' in s. 42 of the Act demonstrates that its normative acceptance of Monsanto's claims derives not from its reference to the necessity of a statutory monopoly to protect private investment in public goods, but in the functions that patents are expected to perform in the changed political economy of the market. The asset portfolios held by corporations such as Monsanto consist almost entirely of the exclusive rights of use granted in the form of patent rights. Thus corporations such as Monsanto represent the type of market actors who seek to use the form of intellectual property to perform the function typically carried out by property *per se*, which is to fully exploit the commercial potential of corporate assets. Full commercial exploitation requires exclusive rights over the whole of the asset at the discretion of the corporation, and not simply over particular uses which are determined by the state to be an appropriate balance of public and private interests in the creation and dissemination of new technology.

Note the significance of the fact that normative acceptance need not be explicit. As noted by Gold, patentees, while framing their claims with reference to accepted justificatory rationales, are actually arguing for control over the entire commercial potential of intangible assets. These claims exceed the utilitarian rationale of patent rights as a mere statutory corrective designed to grant control over that portion of the commercial potential necessary to address the market failure associated with the public goods nature of intangible assets:

> The argument for greater patent protection should be understood for what is: an attempt to maximize profit, not to maximize levels of innovation. Clearly, a company would

> prefer to have as large a monopoly as possible…But patent law is not about individual profit maximization; it is about maximizing the overall level of innovation in society. The two do not necessarily go together.[42]

For corporations such as Monsanto, the legal distinction between intangible and tangible assets has few if any normative implications. To these companies, assets are property and property is to be commercially exploited to the fullest extent possible. In Canada and the United States, corporate law itself demands that directors and officers place the economic welfare of the firm above any other countervailing interests.[43] Notwithstanding the various possible interpretations of what it might mean to maximize the economic welfare of a firm, acting in the best interests of the firm tends to require profit maximization.[44] Thus the relevance of Gold's argument to this analysis is that while incentives may lead to innovation, innovation leads to profit and the profit motive itself is the primary concern of individual corporations, not the optimal level of innovative activity.

In the political economy of the market, the profit motive has normative acceptance and corporations should not be expected to engage in self-denial or to consider aggregate as opposed to individual welfare maximization when pursuing new claims for patent protection. That is the role of legislators and courts when drafting and interpreting patent legislation. Thus the demands

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[42] E. Richard Gold, "Biomedical Patents and Ethics: A Canadian Solution" (2000) 45 *McGill L.J*. 413 at 423.

[43] See for example, Canada Business Corporations Act, R.S.C. 1985, c. C-44, s. 122(1)(a) ("Every director and officer of a corporation in exercising their powers and discharging their duties shall act honestly and in good faith with a view to the best interests of the corporation."). See also Art. 322 C.C.Q. ("L'administrateur doit agir avec prudence et diligence. Il doit aussi agir avec honnêteté et loyauté dans l'intérêt de la personne morale."). For an interesting debate on whether acting in the best interests of the corporation should mean more than maximizing firm profits and thus shareholder wealth, see Ronald M. Green, "Shareholders as Stakeholders: Changing Metaphors of Corporate Governance" (1993) 50 *Wash. & Lee L. Rev*. 1409 and Stephen M. Bainbridge, "In Defense of the Shareholder Wealth Maximization Norm: A Reply to Professor Green" (1993) 50 *Wash. & Lee L. Rev*. 1423.

[44] The term "profit maximization", however, remains open to interpretation. See *e.g.* Kraakman *et al.*, *The Anatomy of Corporate Law: A Comparative and Functional Approach* (Oxford 2004) at 17-19.

of individual actors in the market, however valid within the political economy of the market itself, must be reconciled with one or more accepted justificatory rationales of patent protection.

The difficulty is that courts appear to be implicitly responding to the normativity of the market in the form of the profit motive even as they refer expressly to traditional justificatory rationales in resolving disputes between the parties. As stated succinctly by the majority in *Monsanto*, "[i]f there is a commercial benefit to be derived from the invention, it belongs to the patent holder", and yet the same majority also reasoned that its decision was based on the utilitarian rationale of patent protection. Reconciliation is not possible in circumstances where the presence of competing sites of normativity remains unacknowledged.

II. ETHICAL IMPLICATIONS: *HARVARD COLLEGE V. COMMISSIONER OF PATENTS (CANADA)*

One of the most significant implications of an implicit normative transfer between the functions of property *per se* and the form of intellectual property is that the existence of proprietary attributes within the legal class of intellectual property in certain market contexts remains unacknowledged. This obscures the extent to which intellectual property increasingly raises ethical considerations other than those derived from the incentives-access or bargain-disclosure paradigms. The reasoning of both the majority and dissenting opinions of the Supreme Court of Canada in *Harvard College v. Canada (Commissioner of Patents*) provide a timely example.[45]

Harvard College had applied for, and had been refused, a patent for a so-called oncomouse. According to Harvard College, it had created a species of oncomouse when it genetically engineered certain mice to be susceptible to cancer in order to increase their utility as

[45] *Harvard College v. Canada (Commissioner of Patents)*, [2002] 4 S.C.R. 45.

laboratory research animals. At issue was whether higher life forms such as the genetically altered oncomouse were included within the scope of patentable subject matter pursuant to Canada's Patent Act. The Patent Examiner allowed the process claims for creating the genetic modifications, but did not allow a product claim over the genetically modified mouse itself. According to the Patent Examiner, this would amount granting a patent over a higher life form, and higher life forms are not within the statutory definition of patentable subject matter. The Commissioner of Patents agreed and Harvard College subsequently sought judicial review.

After proceeding through both the trial and appellate divisions of the Federal Court of Canada, the case was heard by the Supreme Court of Canada. Given that all the rights and obligations of patent law originate in the Patent Act, the case involved statutory interpretation of the definition of an 'invention' in terms of the scope of patentable subject matter. By a narrow majority of 5-4, Bastarche J. in writing for the majority held that the statutory definition of patentable subject matter did not anticipate and thus did not include higher life forms. Note that the majority did not decide that higher life forms cannot be patented, only that they did not amount to 'inventions' pursuant to the current legislation. If higher life forms were to be subject to patent protection, Parliament would need to enact the necessary amendments. Binnie J. in writing for the dissent would have found the definition of 'invention' sufficiently broad to include higher life forms.

One point upon which both the majority and dissent agreed, and which is relevant for this analysis, is the appropriate characterization of patent protection as a mere negative right to exclude. The Commissioner of Patents and several of the intervenors raised ethical objections to the patenting of higher life forms based on concerns for animal welfare and animal rights. Both the majority and dissenting opinions agreed, however, that a patent does not provide the patentee

with an affirmative right of use. Accordingly, patent law is ethically neutral. Ethical concerns arise not as part of the patenting process, but during upstream research and development and downstream commercialization of the patented processes and products. Ethical issues are important and should be addressed, but through targeted legislation external to the patent regime rather than as a condition of patentability.[46]

Neither the majority nor dissenting opinions express any definitional uncertainty as to the nature of the rights granted and functions performed by intellectual property law. Intellectual property grants mere negative rights; a patent grants only the right to exclude others from making, using or selling the claimed invention. Such negative rights are not equivalent, in either form or function, to the affirmative rights granted by property *per se*. Thus the ethical debates typically carried out by judges (particularly common law judges) in determining whether to extend property *per se* to include new assets is entirely absent from the reasoning.[47] As stated by Binnie J. in dissent: "This is not to say that patents are "neutral", or have no link to the ethical

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[46] Whether the patent system is the most appropriate regulatory site for governing associated ethical concerns is a matter of debate. As Binnie J. notes in dissent, regional and international trade agreements such as NAFTA and TRIPS permit states to exclude from patentability inventions which, in their commercial exploitation, would be contrary to ordre public or morality. Many jurisdictions do include an ordre public and morality clause in patent legislation, such as the European Patent Convention. No such clause exists, however, in the Canadian Patent Act. As noted by Bastarache J. for the majority, the Canadian Biotechnology Advisory Committee recommends that the significant ethical issues raised by the patenting of higher life forms be addressed by Parliament (although CBAC also recommends that patents be made available for higher life forms). Parliament has yet to act, however, in response to the decision in Harvard College.

[47] Compare the Court's refusal to engage in ethical debate in *Harvard College* with the extensive debate concerning the ethics of granting a person property rights in cells excised from their body in *Moore v. Regents of the University of California*, 793 P.2d 479 (Cal. Sup. Ct. 1990).

and social issues raised by the intervenors. It is to say that those issues transcend the narrow question of patentability…"[48]

Thus *Harvard College* provides another illustrative example of the limitations of legal classification conducted in purely spatial terms, whether two- or three-dimensional, to exclusion of a temporal analysis. Those arguing against propertization would do well to expand their analysis of distributive effects beyond the typical public/private divide in terms of distribution of resources to consider non-economic implications as well. In spatial terms, patent rights do appear to be mere negative rights, given that the objective of intellectual property legislation is to provide a time-limited monopoly sufficient to address market failure in public goods. Patents are neither intended nor designed to provide inventors with full rights of commercial exploitation. In fact, as is evident from the decision in *Harvard College*, even as rights holders argue for what amounts to proprietary protection, they simultaneously rely on the characterization of patents as mere negative rights in arguing against the inclusion of ethical considerations as a criterion of patentability.

Characterizing intellectual property rights as mere negative rights to exclude obscures the extent to which the exercise of these rights raises ethical concerns apart from achieving the appropriate balancing of private and public interests in accordance with the incentives-access paradigm. Viewed from a temporal perspective, patents exist as a dynamic process of resource allocation in market transactions involving controversial assets created by biotechnological

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[48] See *Harvard*, above n 45 at para 65.

innovation. In this context, patents perform functions and lead to distributive consequences which are similar to those associated with property *per se*.

6 CONCLUSION

We began this analysis with an inquiry as to whether legal classification can adequately represent legal knowledge. In particular, disagreement exists as to whether the complexity of the relationship between legal reasoning and legal knowledge can ever be represented by a taxonomy which exists in two-dimensional spatial form. In other words, is cartography an adequate metaphor for explaining legal knowledge as the relationship between legal reasoning and legal classification?

One difficulty with phrasing the question in these terms, however, is tendency to confuse the explanatory metaphor with that which is to be explained. Assuming that legal knowledge is too complex to be explained with reference to a metaphor of mappingdoes not call into quest ion the adequacy of the legal epistemology of classification, but merely the limitations of spatial representations of legal classifications. The obstacle thought to preclude the use of classification as a way of knowing law is the complexity of legal reasoning. Classification cannot place multiple legal concepts within a single legal class and still retain an organizational structure capable of providing meaning in law.

When viewed in temporal as opposed to purely spatial terms, however, concurrency of legal concepts within a legal class does not threaten the utility of legal classification as a way of understanding the nature and origins of legal knowledge. A temporal perspective takes as its unit of analysis not the legal class itself in spatial form, but the process by which legal classes operate concurrently in a given context. Using the current taxonomic debate over propertization of

intellectual property, the relevant context for the concurrent operation of the legal classes of intellectual property and property *per se* is that of the political economy of the market for biotechnological innovations.

When viewed from a temporal perspective, we can see that the propertization debate cannot be resolved by focusing on the definitional properties of the mutually-exclusive legal classes of intellectual property and property *per se* in spatial form. Instead, attention should be directed to the manner in which the form of intellectual property is increasingly called upon to perform the functions of property *per se* in transactions involving biotechnological innovation. While intellectual property may appear to be a rotationally pure legal class as defined by one or more justificatory rationales, a strict demarcation between intellectual property and property *per se* exists only in spatial form. When classification is presumed to exist only as the product of one or more justificatory rationales, mutually-exclusive classifications must necessarily result as a justificatory rationale cannot provide any sense of justification if it provides a classification by which intellectual property is simultaneously that which it is and that which it is not.

The reality, however, of concurrency of legal concepts within a single legal class as a process of legal reasoning can be addressed by adopting a temporal perspective. From a temporal perspective, the focus is not on a legal class in spatial form, but on the encounter and exchange of values between the legal concepts of intellectual property and property *per se* as these classes operate in the context of the political economy of the market. Given the increasing percentage of wealth represented by intangible as opposed to tangible assets, the spatial form of intellectual property is increasingly called upon to perform the temporal function of property *per se*, which is to provide the background legal entitlements upon which the operation of the market depends. Thus from a temporal perspective, we are able to take account of the concurrent

operation in context between legal classes, that of intellectual property and property *per se*. The legal class of intellectual property, however, maintains its taxonomic integrity because concurrency exists in a temporal as opposed to spatial dimension.

The most significant contribution of a temporal perspective is the insight that the legal class of intellectual property retains its taxonomic integrity because the meaning of the class in a temporal context is derived from a site of normativity other than a reference to one or more traditional justificatory rationales. When we are no longer restricted to a spatial perspective of legal classification, we are able to acknowledge that contextual processes other than justificatory rationales create norms concerning the purposes and functions of intellectual property. We can observe from a temporal perspective the contact and exchange of values between intellectual property and property *per se*. What might appear in spatial form to be a contradiction in terms may, when considered in a temporal context, be viewed as a process of normative acceptance as the form of intellectual property is called upon to perform the function of property *per se*.

From the vantage point of a temporal perspective, we realize that the existence of the legal class of intellectual property is not limited to its spatial form, and thus the requirement of mutually-exclusive definitional properties within spatial classification is overcome. Intellectual property also exists as a process of classification in flux, and a fixed line of demarcation between intellectual property and property *per se* comes into existence only at that point when legal reasoning demands that the legal class of intellectual property stabilise in spatial form. Even in spatial form, however, the class of intellectual property derives meaning not only from reference to justificatory rationales, but also from the process of encounter and exchange between property *per se* and intellectual property in transactions involving biotechnological innovation. The difficulty is that one can observe this process of encounter and exchange only from a temporal

perspective. Thus we requires the addition of a fourth, temporal dimension to the analysis of legal classification in order to identify that which is said to be epistemologically impossible, which is the concurrent existence of two legal concepts within a single legal class which does not preclude the utility of legal classification as a way of understanding the nature and origins of legal knowledge.