This article proposes an approach to justifying patentable subject matter that uses Locke as its starting point, and utilitarianism as its end. The patent eligibility of any given subject matter must be a mixture of labour and certain utilitarian incentives. If these elements are present—and if the subject matter in question can be made to fit within the definition of invention (even if slightly uncomfortably)—then courts and tribunals should aim to accommodate it.
THE UTILITARIAN FRUITS APPROACH TO JUSTIFYING PATENTABLE SUBJECT MATTER

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The Utilitarian Fruits Approach to Justifying Patentable Subject Matter

Emir Aly Crowne

I. Introduction

In my writings on subject matter eligibility, I have consistently argued that exclusions from subject matter eligibility ought to be approached narrowly and strictly. I argue that the “unholy triumvirate”—natural/physical phenomena, laws of nature (including scientific principles and abstract theorems) and abstract ideas (including mental steps)—is the only rational baseline from which courts should exclude patentable subject matter. The triumvirate, without something “more,” merely provides information (or ways of thinking) about the world. The triumvirate is a collection of unapplied subject matter. Against this baseline, “difficult” areas like biotechnology and nanotechnology can be better rationalized.

If the “invention” is for the pure discovery, or a law of nature, then it cannot be protectable subject matter, because it is unapplied “information.” If on the other hand these “inventions” go beyond mere discovery, and result in isolated substances that would not otherwise naturally occur—which possess some quality, property, form or characteristic that distinguishes it, in a non-trivial way, from its natural state—then this is precisely the type of advance that the patent system was designed to protect. So too, software, business methods, and professional skill which do not amount to a monopolization of...
mathematical truths, mental steps, or abstract ideas are all the proper subject matter of a patent, if they are applied to some useful, non-obvious and inventive end. Beyond the “ unholy triumvirate,” other judicially crafted exceptions to patentable subject matter—which are not grounded in statute—are difficult to justify in systems of law that pride themselves on legislative intent and supremacy.

Indeed, an examination of the cases on patentable subject matter across Canada, the United States, and the United Kingdom all share the common utilitarian concern of protecting innovation and promoting disclosure. 3 As such, my approach to patentable subject matter (discussed infra) uses Locke as its starting point, and utilitarianism as its end. 4 The patent eligibility of any given subject matter must be a mixture of labour and certain utilitarian incentives. If these elements are present—and, as noted earlier, if the subject matter in question can be made to fit within the definition of invention (even if slightly uncomfortably)—then courts and tribunals should aim to accommodate it.

Even though I have proposed a philosophical theory to ground my views on patentable subject matter, I realize that judicial decision making is rarely (if ever) grounded purely in theory. To this end, the radical pragmatist agenda is appealing because it frames judicial decision making in the appropriate context. Adam Moore puts it well:

According to the radical pragmatist, judges and legislators, upon recognizing that their perceptions of reality arbitrarily color the decision making process, should reject theory and do their best to be fair and just. . . .

3 Interestingly, Adam Goodman notes that the United States Supreme Court in Diamond v. Chakrabarty and the Canadian Supreme Court in Harvard College v. Canada (Commissioner of Patents), [2002] 4 S.C.R. 45 (Can.), actually employed the same utilitarian approach to arrive at diametrically opposite conclusions regarding the patentability of life forms:

In juxtaposing these two cases, one should see the divergence possible within the Anglo-American tradition. However, one should be careful to note that while the conclusions are diametrically opposed, the route taken to get there is exactly the same—utilitarianism. Both courts claim to rule as they do in the name of the public interest. Neither differ on where they are going, i.e., the highest level of public utility, only on how to get there.


Moreover, radical pragmatists argue experience has demonstrated that following grand theories either fails to yield answers to tough legal questions or leads to absurd results. In the place of theory the pragmatist urges judges and legislators to adopt practical reason as a method for understanding the historical, cultural, contingent, and radically subjective views of those participating in a legal system.\(^5\)

One troubling aspect of the radical pragmatist agenda is the denial of the existence of objective facts or knowledge.\(^6\) Therefore the validity of that statement itself should be denied by the radical pragmatist. This circularity makes radical pragmatism an unacceptable foundation for any theory.

II. JUSTIFYING INTELLECTUAL PROPERTY

The justification(s) for the existence and emergence of intellectual property rights in general, and patent rights in particular, have traditionally been framed in terms of labour desert theory and/or personality theory.\(^7\) Labour desert theory is usually credited to the work of John Locke, and his Second Treatise of Government where he wrote that “every man has a property in his own person; this nobody has any right to but himself. The labor of his body and the work of his own hands, we may say, are properly his.”\(^8\) Thus, whoever mixes their labour with resources that are either “free” or held in common with others, are entitled to a “natural right” over the fruits of that labour.\(^9\) Personality theory has its roots in the writings of Hegel\(^10\) and Kant,\(^11\) and stems from the view that ideas are an embodiment of its creator and

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\(^6\) Id. at 194.

\(^7\) For a review of these theories see Palmer, supra note 4, and Justin Hughes, The Philosophy of Intellectual Property, 77 GEO. L.J. 287 (1988).

\(^8\) JOHN LOCKE, SECOND TREATISE OF GOVERNMENT 17 (Thomas P. Peardon ed., Liberal Arts Press 1952) (1690).

\(^9\) See Edward C. Hettinger, Justifying Intellectual Property, 18 PHIL. & PUB. AFF. 31, 36 (1989). We can justify propertizing ideas under Locke’s approach with three propositions: first, that the production of ideas requires a person’s labor; second, that those ideas are appropriated from a “common” which is not significantly devalued by the idea’s removal; and third, that ideas can be made property without breaching the non-waste condition. Many people implicitly accept these propositions. Indeed, the Lockean explanation of intellectual property has immediate, intuitive appeal: it seems as though people do work to produce ideas and that the value of these ideas—especially since there is no physical component—depends solely upon the individual’s mental “work.”


their will and the best way to protect and control one’s personhood is through property rights. In his seminal work on the philosophy of intellectual property, Justin Hughes writes that: “[p]erhaps elaborated, the labor and personality theories together exhaust the set of morally acceptable justifications of intellectual property. In short, intellectual property is either labor or personality, or it is theft.”

To Hughes then, intellectual property rights must either be justified as a result of labour or personality. Not both. However, the Lockean labour desert theory appears largely inapplicable to the “first-to-file” method of determining eligibility for patent rights; and personality theory cannot fully account for patents on subject matter like genes and life forms (surely no aspect of the inventor’s “personality” can seriously be said to be found in these inventions?). As trite as these criticisms may be, it is useful to note that many of these theories of “intellectual property” have been written or framed with copyright in mind. Patents are usually thrown in for good measure. This perhaps explains why theorists have turned to utilitarianism for the justification of technological inventions in particular. Indeed, if theorists had not turned to utilitarianism, and had adopted Hughes, then patents for technological inventions would have to be considered a form of theft.

III. THE “UTILITARIAN FRUITS” APPROACH TO SUBJECT MATTER ELIGIBILITY

The theory that I propose for justifying the patentability of any given subject matter is grounded on a new type of reward theory that takes a modified Lockean

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12 Hughes, supra note 7, at 290.
13 Id. at 365. A Lockean labour theory can overcome this objection by suggesting that the patent right per se does not emerge at the moment of invention (the Eureka! moment). The “mere” invention is but the starting point to acquiring patent/property right itself. The “invention” per se is not the patent right. In other words, because the patent monopoly is a monopoly granted by the state to eligible subject matter which satisfies the elements of novelty, inventiveness and utility, then the patent “right” per se is contingent up to that point. The patent right really only comes into existence once the patent is granted. The labour involved in acquiring that patent right is ongoing—from the moment of “invention” through to the grant of the patent. Only then does the “bundle” become complete.

16 Peter S. Menell, Intellectual Property: General Theories, in ENCYCLOPEDIA OF LAW & ECONOMICS 129, 129 (Boudewijn Bouckaert & Gerrit de Geest eds., 2000) (“Utilitarian theorists generally endorsed the creation of intellectual property rights as an appropriate means to foster innovation, subject to the caveat that such rights are limited in duration so as to balance the social welfare loss of monopoly exploitation.”).

[Reward theory predicts that the patent system limits patentability to those inventions where the incentive of a patent is essential to ensure investment in the research needed for discovery; only in this case can the social benefit of patent
view of property rights as its starting point. I argue that the patentable subject matter threshold is low and should be read expansively in light of the purpose of patent law to protect unforeseen advances. Inventors should therefore be rewarded for their labour. However, this invocation of the Lockean approach is tempered by the fact that Locke himself (assuming he turned his mind to the unlikely topic of patentable subject matter) would likely have argued that "mere" discoveries are not patentable subject matter, as these are the things that "God" gave to all "men in common":

God, who has given the world to men in common, has also given them reason to make use of it to the best advantage of life and convenience. The earth and all that is therein is given to men for the support and comfort of their being. And though all the fruits it naturally produces and beasts it feeds belong to mankind in common, as they are produced by the spontaneous hand of nature; and nobody has originally a private dominion, exclusive of the rest of mankind in any of them, as they are thus in their natural state...19

Therefore, under the Lockean model, patentable subject matter covers anything that is mixed with labour, with the exception of discoveries or things that pre-existed in nature (like scientific theories or natural phenomena).

However, there are the Lockean provisos. These are Locke's own limitations on acquiring property rights through labour. The first proviso states that one can acquire property rights only where there is "enough and as good left in common for others."20 The second proviso—concerning waste and spoilage—states that property rights can only be acquired in items to satisfy our needs (anything more is wasteful and leads to spoilage).21

In my modified Lockean approach to patentable subject matter, I do not adopt any of Locke's provisos.22 Aside from the fact that these provisos were specifically created to deal with "real" property rights (as with Locke's theory as a whole), they rights outweigh the considerable social costs. In determining patentability of an invention, the theory calls for focusing on the technical advance represented in the invention, in order to weed out those advances not worthy of a patent.

Id.

18 LOCKE, supra note 8, at 17 ("Whatsoever then he removes out of the state that nature hath provided and left it in, he has mixed his labor with, and joined to it something that is his own, and thereby makes it his property.").

19 Id.

20 Id.

21 Id. at 19.

22 There is also a "third" proviso on charity on subsistence which can be found in Locke's First Treatise. See JOHN LOCKE, TWO TREATISES OF GOVERNMENT § 42 (1689) ("As Justice gives every Man a Title to the product of his honest Industry, and the fair Acquisitions of his Ancestors descended to him; so Charity gives every Man a Title to so much out of another's Plenty, as will keep him from extreme want, where he has no means to subsist otherwise...."). This proviso is rarely spoken of in the intellectual property literature, but it too seems to be either inappropriate, or at odds, with basic patent doctrine. But for situations involving public health and state emergencies, there are no other examples where "extreme want" will serve as a defense or justification for what would otherwise amount to patent infringement.
also appear to be inconsistent with the entire patent system. For instance, Hettinger points out that current patent law runs afoul of the first proviso:

\[\text{By giving the original inventor an exclusive right to make, use, and sell the invention. Subsequent inventors who independently come up with an already patented invention cannot even personally use their invention, much less patent or sell it. They clearly suffer a great and unfair loss because of the original patent grant. Independent inventors should not be prohibited from using or selling their inventions. Proving independent discovery of a publicly available patented invention would be difficult, however.}\]

The second proviso is also fundamentally at odds with basic patent law. This proviso demands that one acquires property rights to satisfy our needs (and no more), but the fact that patents are negative rights does not accord with this proviso. Indeed, to the extent that patents can simply be acquired as a defensive strategy (as in many technology companies) or as an offensive strategy (as with so-called patent trolls), many patent rights are not acquired to satisfy “needs,” rather they are acquired to satisfy “wants.”

Insofar as these provisos are disconnected with the fundamental nature of the patent system—and given the fact that Locke was clearly writing with “real” property interests in mind—I do not adopt these provisos for my own subject matter eligibility theory. I am also drawn to the views of writers like Hettinger and Hull who warn about adopting a purely Lockean approach to various aspects of intellectual property. In fact Hull notes that a purely Lockean approach to intellectual property rights may actually shrink the scope of these rights, perhaps even to non-existence. I am more cautious. I adopt Locke only to the extent that he has fashioned a theory that rewards inventors for the “fruits of their labour.” However, this still does not exclude abstract ideas or even subject matter like the fine

Hettinger, supra note 9, at 44. One could argue that once an invention becomes patentable, then it is no longer part of “the common.” Therefore, an inventor does not deprive future or concurrent inventors of “the common,” rather she is depriving them of that particular advance that was arrived at when that inventor combined her labour with the common in a novel, inventive and useful way. The first proviso may also have implications for patentable subject matter. The patentability of the so-called tools of basic scientific research (discussed later in this section) may be precisely the type of “common” that ought not be the property of anyone. I argue that the tools of basic scientific research are very rarely “basic”—in the sense that the scientific enterprise is constantly revealing layers of fundamentality or “truth”—such that the tools of basic scientific research insofar as they are not pre-existing natural phenomena, scientific principles or abstractions are precisely the types of advances that the patent monopoly ought to protect. The ‘hide and hoard’ cliché becomes all too real if these “tools” were denied patent protection.

One could argue that all corporations acquire patents to satisfy their corporate “needs,” but I would suggest that this line of reasoning is specious, and denies the fact that many patents are granted to independent inventors, researchers and hobbyists.


Hull, supra note 25, at 68–71. See also, William W. Fisher, Theories of Intellectual Property, in NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 185–86 (Stephen R. Munzer ed., 2001) (citing additional problems with a purely Lockean approach to intellectual property—e.g. “what counts as ‘intellectual labor?” and “what exactly is the ‘commons’ in intellectual property?”).
arts, from patentability. Something more is needed in this model to support my approach to subject matter eligibility.

Enter utilitarianism, and the alleged role that incentives play in promoting the public disclosure of inventions. The “incentives” that are particular to my theory of subject matter eligibility concern reproducibility and enforceability.\(^{27}\) Both of these elements are utilitarian in nature because the patent bargain itself and the inventor’s willingness to disclose their invention are tied to both of these concepts, respectively.

Patentable subject matter must be reproducible in the sense that it must be capable of description within the patent specification as to enable someone skilled in the art to create it or put it into effect. This excludes subject matter like the fine arts and other fields where labour is a necessary—but not sufficient—ingredient to ground patentable subject matter. If the public cannot properly work the claimed invention, then from a utilitarian perspective, the *quid pro quo* is disproportionately skewed in favour of the inventor, who may receive the benefit of a monopoly\(^{28}\) without disclosing how the invention actually works.\(^{29}\) This would also exclude subject matter that inherently relies upon *individualistic* skill, judgment or expertise. If a method cannot be reduced to concrete, repeatable steps in the patent specification, then this unfairly monopolises mental steps and pure skills.\(^{30}\)

Patentable subject matter should never extend this far.

\(^{27}\)Although I appreciate that issues of reproducibility and enforceability are conceptually different than questions of subject matter eligibility, they are still closely connected. Just as the exclusion of laws of nature, natural phenomena and abstract ideas per se are grounded in their lack of practical application (a question of utility), so too, the mere fact that my proposed theory incorporates reproducibility and enforceability merely underscores the interrelatedness of subject matter eligibility with other aspects of the patent bargain.

\(^{28}\)In fact, if the public cannot glean how the invention works, it effectively gives the inventor a perpetual monopoly (unless the disclosure is challenged for sufficiency).


\(^{30}\)On the other hand, if the method can be reduced to concrete, repeatable steps that can be put into effect by someone skilled in the art (in a relatively routine, mechanistic manner)—and is novel, inventive, and useful—then this subject matter ought to be properly patentable. See, e.g., Dec. No. 896, [1981] Decisions of the Commissioner of Patents (Can.), available at http://brevets-patents.ic.gc.ca/opic-cipo/comdec/eng/decision/896/summary.html. In that case, the Patent Appeal Board stated:

A mental step in the sense in which the term is employed in patent language is a step in a process, the performance of which is ascertained or controlled by the dictates of the human mind, which step may be performed manually or by mechanical, electrical or chemical means. A mental step which is judgmental or interpretive (purely mental) is definitive of a process the result of which depends on the intelligence and reasoning of the human mind. It seems settled that it is only this latter type of mental step which renders a process unpatentable. The mere fact that a human operator must provide a control function in a claimed process does not per se render it unpatentable.

\(^{28}\)
The element of enforceability is the final peg for my theoretical orientation. If the patentable subject matter in question cannot be enforced then it is ineligible for patentability (ubi jus ibi remedium).31 Even without statutory exclusions, it is nonsensical to grant patents over abstract ideas because their infringement (if it can even be called that) can never be enforced.32 From a utilitarian perspective, there is no incentive to invent (or at least no incentive to publicly disclose what one has invented) if there is no means of enforcing the boundaries of that patent monopoly.33 Although these theories of property are sometimes presented as being competing alternatives to one another, I view them as “close cousins.”34 Indeed, using the labour desert theory as the starting point for my utilitarian arguments is precisely what Alan Ryan meant when he said that natural rights theories have “a buried utilitarian assumption.”35 In other words, by respecting the private rights of individuals in modern society, the utilitarian agenda of maximizing “felicity” is actually promoted.

Therefore, the suggested approach to patentable subject matter—the utilitarian fruits approach—takes Locke as its starting point and utilitarianism as its end. Approaches to patentable subject matter can be explained or justified as a mixture of labour and certain incentives. These “incentives” are refined to mean reproducibility (for the public’s benefit) and enforceability (primarily, for the inventor’s benefit). If these elements are present—and the subject matter in question can be made to fit within the definition of invention (even if slightly uncomfortably), then courts and tribunals should aim to accommodate it.

See Crowne, Review of the “as such” Exclusions, supra note 1, at 470.

Id.

Alternatively, if the enforcement of the patent would lead to absurdity, then the “cost” of the patent bargain is skewed disproportionately in favour of the inventor. This aspect of the patent bargain was mentioned by the Supreme Court of Canada in Apotex Inc. v. Wellcome Foundation Ltd., [2002] 4 S.C.R. 153 (Can.). The Court wrote that:

A patent, as has been said many times, is not intended as an accolade or civic award for ingenuity. It is a method by which inventive solutions to practical problems are coaxed into the public domain by the promise of a limited monopoly for a limited time. Disclosure is the quid pro quo for valuable proprietary rights to exclusivity which are entirely the statutory creature of the Patent Act. Monopolies are associated in the public mind with higher prices. The public should not be expected to pay an elevated price in exchange for speculation, or for the statement of “any mere scientific principle or abstract theorem” (s. 27(3)), or for the “discovery” of things that already exist, or are obvious. The patent monopoly should be purchased with the hard coinage of new, ingenious, useful and unobvious disclosures.

Id. (emphasis added). For instance, from a utilitarian perspective the costs to society would be too great if patents were granted for mere natural phenomena or scientific theories because they could infringed by merely “existing” (e.g. an unapplied mathematical equation that describes heart rate, gravity, hair growth, etc.).


Id.; see Richard Epstein, The Utilitarian Foundations of Natural Law, 12 HARV. J. LAW & PUBL. POL’Y 713, 717–18 (questioning the “sharp line” between natural rights’ and utilitarian theorists).
I acknowledge that by invoking Locke and certain aspects of utilitarianism, I have implicitly attracted the baggage and criticisms of those theories. Nonetheless, I emphasize that my theoretical orientation only borrows from Locke in part, and is specifically tied to patentable subject matter and should not be extrapolated beyond this. My utilitarian fruits approach to subject matter eligibility is intended to frame but one element of patentability, patentable subject matter. The other elements of patentability—novelty, inventiveness and utility—must all still be present of course, and justified accordingly. Unlike other Lockean (or part-Lockean) theories proposed, my approach to patentable subject matter (even across multiple jurisdictions), does not require a radical change in intellectual property laws.

It is true that “[i]ntellectual property is rarely justified on one theory.” Many of the philosophical (and even economic) justifications for the existence of the entire

36 See Wendy Lim, Towards Developing a Natural Law Jurisprudence in the U.S. Patent System, 19 SANTA CLARA COMPUTER & HIGH TECH. L.J. 561, 568–79 (criticizing utilitarianism and natural rights theories); Ikechi Mgbeoji, A Protective Mechanism for Indigenous Knowledge on the Medicinal Uses of Plants, 5 CAN. J.L. & TECH. 1, 3–4 (criticizing all of the major rationales for patenting, including the conflict between “natural rights” theories and patents as state granted monopolies of a limited duration).


38 For an application of the Lockean approach to compulsory patent licensing see, Richard T. Jackson, A Lockean Approach to the Compulsory Patent Licensing Controversy, 9 J. TECH. L. & POLY 117 (2004). For an early attempt at finding a unified theory of patents see, Samuel Oddi, supra note 17, at 271 (“The conclusion that no unifying theory has yet been presented is not intended to diminish the quest for theories, economic and otherwise . . . nonetheless, any unifying theory of patents is apt to prove even more elusive than the unify theory in science.”).

39 See Adam D. Moore, A Lockean Theory of Intellectual Property, 21 HAMLINE L. REV. 65, 92–101 (1997) (proposing that fair use, the first sale doctrine and “exclusive patent rights” are inconsistent with Lockean ideals and therefore should all be eliminated).


The assurance game allows us to consider some overlooked dimensions of the debate over the limitations of morality and the public order. Denying patentability forces inventors of immoral or unsafe inventions to resort to trade secret law or self-help for protection. As has been pointed out by other commentators, denial of patenting does not necessarily mean suppression of the invention. The use of trade secret law would still permit undesirable inventions to exist and be disseminated. Furthermore, the use of secrecy makes it more difficult for such inventions to be regulated by general health and safety laws since these inventions may escape the sunlight of disclosure. As a result, denial of patentability is not desirable under the terms of the assurance game not because of the stronger property protection, but because of the effects on the ability to regulate and promote market integrity.

. . . .

. . . The assurance game shifts our attention to a different conception of patents and intellectual property, not as elements of a hypothetical bargain, but as regulatory tools. Rethinking intellectual property law as regulatory sharpens the focus on how the law affects the inventive process and the marketplace and opens
The patent system remain incomplete.\textsuperscript{42} This is the nature of "justifications." In the spirit of pragmatism and practicality, society accepts that not all criminal punishment serves a deterrent, rehabilitative or punitive effect,\textsuperscript{43} in the same way that the justifications which underlie the patent monopoly may not be wholly adequate. Nonetheless, the patent system exists.

IV. CONCLUSION

From a practical perspective, I have argued in other works\textsuperscript{44} that where the subject matter in question can be made to fit within the definition of invention (even if slightly uncomfortably), then courts and tribunals should aim to accommodate it. This is how courts should deal with issues of subject matter eligibility. These practical considerations can be grounded with the theoretical approach I propose within this paper—the utilitarian fruits approach. This approach explains/justifies patentable subject matter as a mixture of labour and incentive; where "incentives" are refined to mean reproducibility (for the public's benefit) and enforceability (primarily, for the inventor's benefit). Unless the exclusions to patentability are grounded in statute, my utilitarian fruits approach promotes a broad and permissive view of patentability. With these twin approaches, much of the confusion surrounding patentable subject matter can be simplified and rationalized into a coherent body of jurisprudence that is consistent with the underlying goals of the patent system as promoting innovation and public disclosure.


\textsuperscript{42} For instance, Alexander Tabarrok notes that: According to the economic theory of patents, patents are needed so that pioneer firm have time to recoup their sunk costs of research and development. The key element in the economic theory is that pioneer firms have large, hard to recoup, sunk costs. \textbf{Yet patents are not awarded on the basis of a firm's sunk costs. Patent law, in fact, ignores costs.} The disconnect between patent law and patent theory suggests either that modifying patent law so that it better fits with patent theory would reduce the costs and inefficiencies associated with current patent practice or that the standard economic theory of patents is wrong. Alexander Tabarrok, Abstract, \textit{Patent Theory Versus Patent Law}, 1 \textit{CONTRIBUTIONS TO ECON. ANALYSIS \\& POLY} (2002), http://www.bepress.com/bejeap/contributions/vol1/iss1/art9 (emphasis added).

\textsuperscript{43} See generally George Vold, Thomas Bernard & Jeffery Snipes, \textit{THEORETICAL CRIMINOLOGY} (5th ed. 2002) (providing a insight into criminology, deviant behavior, and social conflict).

\textsuperscript{44} See articles cited \textit{supra} note 1.