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A Libertarian Defence of Intellectual Property

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Abstract

This essay examines Nozick's theory of entitlement in relation to intellectual property rights, and will provide a case for its moderation in order to properly satisfy the Lockean Proviso. In addition to the often cited principle of leaving 'enough, and as good' in the state of nature for others to appropriate, this Proviso also includes the often neglected 'non-waste' principle, which states that one cannot take from the state of nature more than one can use before it goes to waste due to spoilage. I will argue that the often unlibertarian consequences that result from the strict enforcement of intellectual property rights can in fact be mitigated if Nozick's theory of entitlement with regards to its applications to intellectual property rights is modified to properly represent what is in fact Locke's moderate views on the acquisition of property.

Introduction

I will begin by outlining the types of intellectual property that will be considered in this essay. Next, I will introduce the major criticisms that stem

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from the libertarian applications of property rights onto intellectual property; the 'type-token' and'access problem'. Following this, I will outline Locke's theory of property and Nozick's theory of entitlement, and will propose my suggested amendments to the latter's theory based on adherence to Locke's 'non-waste' principle, dealing with criticisms that may arise.

For the purposes of this essay, the intellectual property under consideration will be limited to that of patents. Patents are, as of date, monopoly privileges of 20 years from the time of application, which are granted to firms or individuals for the creation of a new invention which provides a new technical solution to a problem. The solution has to be non-obvious, original, and has to add to the currently existing knowledge in the field in which it relates. As patents have to provide a technical solution to a problem, scientific or mathematical theories such as Einstein's theory of relativity or the implications of Euclidian geometry do not qualify for patents. Similarly, but less obviously, patents cannot be filed for the discovery of new medical treatments, while the creation of new medical products may be patented.

Granting intellectual property rights to individuals necessarily imposes duties on the rest of society to respect those rights; for instance, in property law, your legal right to ownership of a house, or a bag, imposes duties on members of society not not appropriate these things. The granting and enforcement of such rights, however, is problematic in the case of intellectual property. Unlike the case of physical property where similar problems do not arise, in the case of intellectual property, the law seeks to govern all the material instantiations of particular ideal objects.[1] This is where the major criticisms of intellectual property rights comes in: the 'type-token' problem and the 'access problem'.

The'type-token' problem is the idea that while individuals who discover or create a new product legitimately do have property rights in that token product, they cannot legitimately have property rights in the other physical instantiations of their new product which other individuals have created using their own legitimately acquired property, regardless of whether or not they

[1] Palmer, 'Are Patents and Copyrights Morally Justified?'.

had copied or reverse engineered the original product to create it on their own. Owning the intellectual property rights to a particular creative work or invention would, in effect, limit the freedom of other individuals to do what they want with their own justly acquired property, and this contradicts the core libertarian principle of upholding the liberty of individuals.

The latter criticism of intellectual property rights, the 'access problem', pertains in particular to the affordability and availability of healthcare in the developing world. Research has shown that the vast majority of premature deaths that occur every year, an astoundingly high death toll of 18 million, stem from curable medical conditions that remain untreated as a result of poverty.[2] Since the developers of drugs hold the patents to new chemical formulations that are capable of curing fatal diseases, they effectively have state sanctioned monopoly privileges[3] over their sale of these drugs, resulting in high prices. These high prices are not simply a reflection of the drug's marginal costs of production. They also include the recovery costs of investments that have gone into the research and development[4] of the drug, as well as a profit, which is essential according to the neoclassical theory of the firm since profits are what incentivises corporations to create and sell products.[5] In the absence of an intellectual property rights regime, generic drug manufacturers would be able to free-ride on the investments of pharmaceutical companies by reverse-engineering the new drug and sell it at close to marginal cost. This would enable the less well off in underdeveloped and developing countries to have access to these life saving drugs because of their increased affordability. The enforcement of patents by pharmaceutical companies, however, have made it such that millions of individuals who suffer from poverty, due to no fault of their own, continue to die prematurely under the worst circumstances. This, in a nutshell, is the 'access problem'.

Suggested solutions to this problem include differential pricing in the dif-

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2 World Health Organisation, *The World Health Report 2004.*

3 Machlup and Penrose, 'The Patent Controversy in the Nineteenth Century'.

4 Barnard, *In the High Court of South Africa, Case No. 4138/98.*

5 Weintraub, *Neoclassical Economics: The Concise Encyclopedia of Economics.*

ferent markets, compulsory licensing should there arise national health crises, and the creation of a different system of economic reward for pharmaceutical companies who invent new essential medicines, where the rewards increase proportionately with the scale at which the new drug has eased the global disease burden.[6] My essay will not be dealing with these proposed solutions to the 'access problem', but will instead be suggesting an alternative solution to the problem through the modification of Nozick's theory of entitlement. I will now outline Locke's labour theory of property and Nozick's theory of entitlement.

I. Locke's Labour Theory of Property and Nozick's Theory of Entitlement

In his Second Treatise,[7] Locke introduces us to his labour theory of property which begins with the principle of self ownership: the idea that every individual is free and equal in the state of nature (a situation prior to the establishment of government and the rule of law) to pursue his own self interests so long as in doing so, he does not infringe upon the rights of others are they, too, are autonomous. Locke states that individuals necessarily have ownership over their own bodies and their labour (through which their bodies serve as a medium) because to deny individuals of their labour would effectively render them slaves. The question then arises of how individuals come to have ownership of natural property when prior to their appropriation of goods, God had bequeathed the Earth and its fruits to mankind in common.

In response to this, Locke states that when individuals 'mix their labour' with natural resources, a part of themselves becomes intertwined with the object, and so they come to have ownership over it.[8] Ownership is necessary, according to Locke, because it would prevent a situation in which mankind would die as a result of their inability to feed, clothe, and provide shelter for themselves despite the abundance of available natural resources in the

[6] Pogge, 'Human Rights and Global Health: A Research Program'.
[7] Locke, *Two Treatises of Government*.
[8] Ibid.

natural world. Respect for the property of others, he argues, flows naturally from the fact that there exists an abundance of natural resources in the natural world which is more than sufficient to accommodate the desires of everyone. Hence, Locke's labour theory of property is subject to the satisfaction of two provisos; one is allowed to appropriate any amount of resources only if he A) leaves 'enough, and as good' in the communal store available for the rest of society, and B) if he does not appropriate more than he can use before it becomes wasted due to spoilage. It is thus clear to see that the justifiability of Locke's labour theory of property hinges upon whether or not there exists in society an abundance of natural resources to be exploited.

It is from Locke's proviso – in particular, the leaving 'enough, and as good' for others to appropriate requirement – that Nozick's theory of entitlement[9] gains its force. His theory consists of 3 principles which have to be satisfied in order for the acquisition of a particular resource to be considered just:

A) Principle of Justice in Acquisition – An individual can only justly obtain property rights over a good if his doing so does not, as a results, worsen the position of others who are no longer at liberty to use it. Thus, a person is not entitled to property rights in the only fertile plot of land in a desert community as the rest of the community's inability to grow crops for sustenance would lead to their starvation. Excluded from worsening the condition of others, however, is the worsening that would happen as a result of third parties' reduced chances to appropriate goods in general. Suppose then that the desert had readily available many plots of fertile land. In such a situation, a person would be entitled to property rights in a plot of land even though it would have reduced, insubstantially, the opportunities of others in the community to obtain property rights over goods in general. Also excluded from the notion of worsening is the compromised position of sellers of a particular good due to other individuals acquiring raw materials to produce the same good, thereby increasing market competition.

[9] Nozick, *Anarchy, State, and Utopia.*

B) Principle of Justice in Transfer – Individuals can also obtain property rights over goods if they had received it in a just exchange. For instance, if it had occurred as a result of a fair sale with perfect information on both sides without fraud, or if the good had been a gift. The principle of justice in transfer has to satisfy the principle of justice in acquisition; that is, a transfer that results in the worsening of the position of others who are no longer at liberty to use a good will not be considered just even though the transfer itself may have been just. Taking the example of an individual who acquires one of many fertile plots of land in a desert community as in above, his first acquisition via homesteading the plot of land may have been a form of just acquisition, yet if he continued to acquire all the other plots of land from the other individuals via sale or transfer, this would be in violation of the principle of justice in acquisition. This is because the rest of the community, no longer at liberty to utilise the arable land, would be at a disadvantage. Similarly, if climate change negatively affected the desert community, making it such that only the plot of land acquired by an individual remained fertile, the change in circumstances would, according to Nozick, override his otherwise legitimate land rights, even though his plot had been justly acquired.

C) Principle of Rectification of Injustice – This principle serves to make right any injustices that may have occurred during one's process of obtaining property rights. For example, in the case of justice in acquisition, land titles may be disputed by peoples indigenous to the area, and they may be awarded native title retroactively. Nozick does not offer us any formal solution as to how individuals or nations can rectify past injustices – the point the principle of rectification of injustice serves is merely that for one to have legitimate property rights over something, there has had to be justice in acquisition and justice in transfer, failing which, the injustice has to be remedied.

In the laying down of his theory of entitlement, Nozick briefly mentions how it can be applied to patents. He uses the example of a medical researcher who synthesises a new chemical that cures an as-of-yet incurable disease and

argues that the researcher, in keeping the chemical's formulation to himself, and who acquires an intellectual property right over it in the form of a patent, does not infringe upon the principle of justice in acquisition. His synthesis of the new chemical does not result in the worsened position of third parties who are no longer at liberty to use the chemical since it would not have existed prior to the researcher's creating it. On a similar note, the principle of justice in acquisition is also preserved because, as in the case in new patented medical treatments, the chemicals which were used to formulate the treatment in question are easily available and the medical researcher's appropriation of them did not result in third parties losing access to them.

This second point illustrates that Nozick's theory of entitlement satisfies Locke's leaving 'enough, and as good' requirement, and does so on two counts. Firstly, as I have mentioned above, the medical researcher's acquirement of a patent over a new medical treatment does not prevent others from gaining access to the raw materials (in this case, the various individual chemicals, which were used to formulate the new treatment).

There remains 'enough, and as good' of these individual chemicals for others to appropriate. Secondly, with respect to the patented medical treatment (which is essentially the acquirement of property rights over a particular idea), there still remains an infinite number of ideas available for appropriation by others in the common stock of ideas,[10] even though the particular idea has been appropriated to the exclusion of others until the patent's expiry. This effectively satisfies Locke's leaving 'enough, and as good' requirement. Breakey, however, has argued against the relevance of the justification that allows ideas to be patented on the basis that one's patenting of an idea still leaves an infinite number of ideas in the common stock to be appropriated. He argues that accepting the legitimacy of the appropriation of ideas stems from a flawed understanding of the relationship between ideas and their creation; although there indeed exists an infinite number of ideas to be appropriated from the common stock of ideas, the creation of equally useful and beneficial ideas is dependent on a new creator's ability to 'build upon the prior creations,

[10] Moore, *Intellectual Property and Information Control.*

techniques, methodologies and realisations of science, philosophy, technology and culture'.[11] If one is unable to labour on a new idea using past ideas as a foundation, he argues that not very useful ideas would be created, inviting readers to imagine a situation whereby humankind is forced to reinvent 'basics such as the wheel, lever, switches, cranks, tonic-dominant-major-third musical progressions, three-act plot structures' and so on.

While I agree with Breakey's analysis of the consequences of enforcing intellectual property rights, and while, in addition to that, I also see the 'type-token' problem and the morally abhorrent 'access problem' as severe issues which need to be addressed, I do not share his conclusion that there exists no libertarian justification of intellectual property rights. In the following paragraphs, I will suggest my proposed modifications to Nozick's theory of entitlement based on Locke's frequently overlooked 'non-waste' principle, and illustrate how its inclusion in Nozick's theory of entitlement can mitigate, to a great extent, the concerns illustrated above.

II. Suggested Implementation of Locke's 'Non-Waste' Principle to Nozick's Theory of Entitlement

As mentioned above, Nozick's theory of entitlement gains much of its force from Locke's theory of property; in particular, his famous proviso of leaving 'enough, and as good' resources in society in order for an acquisition to be considered just. His theory, however, completely ignores the requirement of satisfying Locke's 'non-waste' principle, the inclusion of which I believe is fundamental in order for one to come to an appropriate conclusion regarding the extent to which intellectual property rights can be legitimately held and enforced. The comparative absence of the 'non-waste' principle as a justification of intellectual property rights, in relation to the more popular requirement that one leaves behind 'enough, and as good' resources in society, can be attributed to the fact that ideas are not generally thought to be subject to waste since they are intangible, and, unlike perishable natural resources, are

[11] Breakey, 'Intellectual Property Rights and the Public Domain'.

not subject to decay.

I will argue, however, that while ideas may not be perishable in the sense that they are not subject to natural decay, they are still subject to being wasted. The patenting of a particular idea of process, I believe, is potentially an example of how an idea can be wasted. I will use the example of James Watt, often thought to be the inventor of the steam engine, to illustrate my point. Prior to the start of the Industrial Revolution, which largely took off because of the improvements made to the steam engine, James Watt patented his Newcomen model and exploited the legal system in order to secure profits from his invention. In order to secure the huge profits that he was making from the sale of the engines, Watt resorted to suing individuals who sold their independently created models which were of a superior design; Jonathan Hornblower, who suffered this fate, was forced into bankruptcy. As a result of this action, individuals such as William Bull, Richard Trevithick, and Arthur Woolf, all of whom had made improvements to Watt's steam engine prior to the expiration of his patent, only made available their improvements to Watt's steam engine after his patent expired because they were unwilling to suffer the fate of Hornblower. Had Watt not patented his steam engine, research suggests that the industrial revolution would have started two decades before it actually did.[12]

My example suggests that ideas can be wasted if it is hoarded by an individual to the exclusion of others, and if the patent holder does not work on the idea after it is patented. By waste, I mean the potential benefits that would have accrued to society if the patent holder had maximised the idea's full potential by working on it. This is clearly illustrated in Watt's example above; after attaining a patent in his Newcomen steam engine, he stopped working to improve its efficiency and productivity and instead engaged the vast majority of his efforts in preventing others from cutting into his profits through their invention of steam engines superior to his won. Had the patent not expired and had Watt hoarded the idea to his death, third parties would not have been able to improve on the idea, consequently wasting the potential benefits that would accrue to humankind from the idea's further development. Either this,

[12] Boldrin and Levine, *Against Intellectual Monopoly*.

or it would have very likely have been the case that the industrial revolution was further postponed by several decades until another individual created a different and more efficient way of powering an engine. Thankfully, patents have expiration dates and the improvements that were based on the initial steam engine were allowed to benefit society in the end. This supports my earlier mention of Breakey, who argued that the development of new ideas is closely related to the access that new inventors have to already existing ones.

On the same subject of waste, albeit in a different form, Joseph Stiglitz speaks about how the easily transmissible nature of knowledge would make it such that it would cost the economy more to enforce intellectual property rights than it would otherwise.[13] This suggests that the enforcement of patents also leads to waste in the sense that resources which could have been spent on the research and development of the particular idea that was being protected by the patent were instead wasted on litigation suits; in 2013, there were six times as many patent lawsuits compared to the 1980s.[14] Thus, if one looks at Locke's 'non-waste' principle, it is clear that the implementation of intellectual property rights is mostly detrimental on two counts: firstly, because its enforcement leads to the inability of third parties to improve on an idea and hence not waste an idea's potential, and secondly, because of the economic waste (in the form of time and money that is created as a result of the enforcement of patents, which would not have existed in the absence of an intellectual property rights regime.

The question that now has to be dealt with is whether or not a libertarian defence of intellectual property rights exists. Although my argument above would seem to suggest that there exists no libertarian defence of intellectual property rights because any rights in intellectual property would infringe upon Locke's 'non-waste' principle, I will now provide reasons why this is not necessarily the case. Above, I argued that the patenting of a particular

[13] Stiglitz, 6th Annual Frey Lecture, 'The Economic Foundations of Intellectual Property'.

[14] Galetovic, Haber and Levine, 'Patent Holdup: Do Patent Holders Holdup Innovation?'.

idea or process would not be valid if its enforcement resulted in the wasting of an idea's full potential, where potential is measured in terms of the benefits that would accrue to society upon the idea's being fully fleshed out and developed. At first glance, it looks as though patents would not be valid under any circumstances because of the straightforward intuition that the absence of an intellectual property rights regime would allow any individual to improve on the patented idea to the benefit of society. While the intuition that allowing anyone free access to an idea generally results in greater benefits that would accrue to society form the idea being developed, it does not necessarily happen in all situations. In fact, in some situations, it can lead to a directly opposite effect.

A key example of this is the industry of generic drug manufacturers, who do not contribute to the further improvement and development of the drugs they counterfeit, but who instead free-ride on the research and development that was carried out by its original manufacturers. Such action has the consequence of discouraging pharmaceutical companies from engaging in future research and development because the competition created by generic drug manufacturers entering a market, and selling the generic versions of various newly formulated medical treatments at close to the marginal cost of production, results in the inability of pharmaceutical companies to recoup their investments, causing them to make a loss. While it is unlikely that pharmaceutical companies will shut down if such counterfeiting is not halted in underdeveloped and developing countries, it is possible that, in the future, more[15] pharmaceutical companies would choose to focus on the development and manufacture of non-essential drugs, or drugs which help cure illnesses that mainly affect, and which are typically demanded in greater quantifies by, wealthy developed countries. In these countries, the risk of generic drug manufacturers free-riding on innovations is close to zero due to better law enforcement.

In this situation, it would seem fair to suggest that pharmaceutical companies should be allowed to patent their newly formulated drugs because their

[15] Trouiller et al., *Drug Development for Neglected Diseases*.

absence would encourage more prolific counterfeiting of drugs by generic drug manufacturers who do not contribute to the further development of the idea or technique driving the healing potential of the newly invented drug, which could have detrimental social consequences in the long run. As Alex Rosenberg suggests, while the abolishment of pharmaceutical patents might increase social utility in the short run because of the lives that are saved due to the affordability of drugs, it would nevertheless lead to a greater loss of social utility in the long run because of the disincentives that the abolishment of patents would have on the future willingness of pharmaceutical companies to invest in the research and development of medicines.[16]

There is, however, an alternative state of affairs that could result from the abolishment of the patent system; free access to new ideas and techniques would allow the various pharmaceutical companies and independent medical researchers to work on the same idea, thereby contributing to the maximisation in the potential of the previously patented idea which fewer minds had access to. Assuming that the potential application of an idea increases when more minds with the necessary background specialisations have access to it (which I think is a fair assumption to make, it would be a clear violation of the 'non-waste' principle if these minds were restricted from having access to the patented idea. This seems to suggest that if a patent system is to be legitimate, it should at the very least allow individuals who have the necessary specialised knowledge needed to contribute to an idea's development to have access to the idea, to the exclusion of individuals who do not yet fulfil this requirement. This provision would ensure that the 'non-waste' principle is not violated because it would facilitate the collective collaboration of various individuals in their development of different ideas and techniques, thus maximising an idea's potential.

A problem with this new formulation of patent enforcement, however, is the fact that individuals who may have the specialised knowledge needed to develop a patented idea further may not do so. While this in itself is not

[16] Rosenberg, 'On the Priority of Intellectual Property Rights, Especially in Biotechnology'.

problematic because it does not violate the 'non-waste' principle, it becomes an issue when individuals who have access to the patented idea exploit their access to it. This may exactly be the case with generic drug manufacturers who very likely have the specialised knowledge required to further develop an idea, as their ability to reverse-engineer new drugs indicates, but who instead of contributing merely free-ride, resulting in a detrimental state of affairs. Since the 'non-waste' principle is not violated when an individual does not contribute to an idea's development, but rather, is violated when potential contributors to an idea's development lack access to it, it would seem that there is no way of justifying the exclusion of generic drug manufacturers from having access to a patented idea, even though such inclusion would be detrimental in the long run.

The above problem may, however, be resolved if one thinks about the waste that would be created in the long run if generic drug manufacturers are allowed to free-ride on the patented ideas and technologies of pharmaceutical companies. As Rosenberg's work as suggested, while allowing generic drug manufacturers to free-ride on the research done by pharmaceutical companies may yield benefits in the short run, such action would invariably lead to long term losses. Such long term losses are, I believe, equivalent to waste because pharmaceutical companies would be disinclined to develop capital and resource intensive medical treatments in the future due to their aversion to making losses. This would, in turn, result in a stagnant marketplace of pharmaceutical innovation; in other words, allowing generic drug manufacturers to free-ride on the ideas of pharmaceutical companies would effectively create a state of affairs in the future where potential medical innovations that would have flourished in an environment where patents are enforced do not exist.

Thus, if one looks at the potential waste that would result from the inclusion of generic drug manufacturers amongst patent right holders, one would arguably, indeed as I have, come to the conclusion that there is a libertarian defence of intellectual property rights; albeit one that is very different from the current regime. The modified regime would include, amongst its

patent holders, all individuals who currently have the specialised knowledge required to further develop the patented idea, in order to fully maximise the idea's potential, and would exclude individuals and groups whose actions would lead to the long term violation of Locke's 'non-waste' principle.

In order to fully adhere to Locke's 'non-waste' principle, however, another important issue needs to be addressed: the legitimacy of patenting gene sequences. First and foremost, I do not think that the status quo of allowing pharmaceutical companies to patent gene sequences should be permitted because it seems to me, and is an opinion supported by Rosenberg, that the discovery of a gene sequence is synonymous to the discovery of a law of physics or a law of nature.[17] This view is also supported by the description I provided in the introduction of this essay, which states the requirements that have to be met for a particular idea or invention to be patented.

Second, and more relevant to my suggestion of including Locke's 'non-waste' principle in Nozick's theory of entitlement, is the thought that the patenting of a gene sequence prevents individuals – and non-patent holding pharmaceutical companies from conducing research on the patent in question; research that could possibly have resulted in the development of a new life saving drug. Again, this is in clear violation of the 'non-waste' principle because the full potential of an idea has not been realised.

Furthermore, the trend of pharmaceutical companies and universities patenting gene sequences has resulted in the creation of an anti-commons, a situation whereby resources are under-utilised and wasted because too many simultaneous owners who have the right to exclude other owners from the use of a scarce resource exist, thus resulting in a situation where no one has an effective right to use the resource.[18] In the case of the pharmaceutical industry, an anti-commons is created because in order for new medicines to be invented, its research department now has to purchase multiple exorbitant licences from various patent holders before it can amalgamate and create, or

[17] Ibid.

[18] Heller, 'The Tragedy of the Anti-Commons: Property in the Transition from Marx to Markets.'

discover, new medical treatments. The high costs of research in the production of pharmaceutical innovations has thus arguably led to the retardation of drug development,[19] which also ties in to its contribution to the worsening of the 'access problem'.

The 'access problem' is exacerbated as a result of the creation of an anti-commons because it means that the development of new medical treatments becomes more expensive, raising the prices at which they are sold and making them less affordable to individuals who are economically less well off. Due to the reasons above, it is evident that the patenting of gene sequences is another instance where Locke's 'non-waste' principle is violated, which leads me to conclude that it is incompatible with my suggested modification of Nozick's theory of entitlement.

I will now illustrate how my suggestion of including Locke's 'non-waste' principle in Nozick's theory of entitlement will alleviate the 'access problem'. Although the inclusion of Locke's 'non-waste' principle would render the free-riding of generic drug manufacturers illegitimate, which would arguably result in the inability of the poorest individuals to afford medical treatment, it would also reduce the problem of the anti-commons through the substantial reduction in research and development costs, as well as the time spent by pharmaceutical companies manoeuvring around the patent thicket,[20] which I believe would translate to huge savings on the consumer's end. If one considers that under my modified intellectual property rights regime, patent holders consist of individuals that have specialised knowledge who work together to maximise the full potential of ideas, it is possible to see how the benefits that will accrue to society in terms of the extent to which savings are made, compared to the status quo, will exceed the costs that will accrue to society from the outlawing of generic drug manufacturers.

As with regards to the 'type-token' problem, I have argued earlier that the issuing of patents is not justified if it would infringe upon Locke's 'non-

[19] Heller and Eisenberg, 'Can Patents Deter Innovation? The Anticommons in Biomedical Research'.

[20] Boldrin and Levine, *Against Intellectual Monopoly.*

waste' principle – the essence of which is the notion that ideas attain their full potential when they are shared, and improved upon by various individuals. The converse is true; when ideas are hoarded under a patent as Watt did, the result is a decrease in the benefits that accrue to society, as compared to a situation whereby the ideas were not patented. As a result, my suggestion of the inclusion of Locke's 'non-waste' principle to Nozick's theory of entitlement would, I believe, better address the 'access problem', and would greatly reduce, and perhaps even eliminate, concerns of the 'type-token' problem.

Some thinkers have however considered the application of the 'non-waste' condition in their considerations of intellectual property rights but ultimately rejected it because of their belief that its inclusion is unnecessary when Locke's 'enough, and as good' proviso is satisfied. In a world where resources exist in abundance, they argue that it is irrelevant whether or not resources are wasted because there would still exist in society more than enough resources to sustain the lives of everyone; that is, no one is made worse off due to the wasting of resources by anyone else. Wastage also becomes irrelevant, as Locke himself suggests, because of the creation of a monetary system which allows individuals to trade their perishable goods with other individuals in exchange for non-perishable money (not taking inflation and the depreciation of currency into account). Justin Hughes, for instance, draws a distinction between two kinds of wastage with regards to his example on wasting food; through the first perspective, waste occurs 'in others needing something that is not being used', and in the second perspective, waste occurs 'in the consumption of the individual's labour without bringing any benefit to the individual'.[21] That is, the first perspective looks at waste when the object that is being wasted is placed in a social context, and the second perspective looks at waste in the context of the individual who laboured to acquire the object, only to let it go to waste.

Hughes draws a distinction between waste as it is applied to natural resources, and as it is applied to intellectual property. He argues that while food is perishable, ideas are not; while their value, measured in the utility that so-

[21] Hughes, 'The Philosophy of Intellectual Property'.

ciety gains from the applications of that idea, may decrease over time due to the continuing progress of society, the idea itself did not degenerate, and the creator of the idea may still derive pleasure from sharing it with his friends. With regards to the second perspective when applied to intellectual property, Hughes argues that the labour that went into the creation of a new idea cannot go to waste because, unlike the labour which was expended to acquire natural property that may go to waste when the natural resource perishes before the individual gets the chance to consume it, 'the act of consumption is inseparable from the act of production'; that is, the value that pertains to intellectual property is derived solely from the act of creating it. Hence, through his articulation of the two perspectives that may be applied when one looks at intellectual property, Hughes is essentially suggesting that Locke's 'non-waste' principle has no application when applied to intellectual property because ideas cannot be wasted.

I have a problem with Hughes' argument above, which focuses on the notion that ideas cannot be wasted because their sole consumption value is derived from the idea's creation. The thought that the sole utility that stems from the production of an idea lies in the utility that the creator of an idea receives when he creates it seems highly counterintuitive. This is because the implications of an idea may have multiple repercussions in practice, not least because of the impact that it has on its creator. Furthermore, I believe Hughes' comparison of the wastage of food and the wastage of an idea is misguided owing to a misunderstanding of Locke's position on the 'non-waste' principle. Locke believes that wasting natural resources is morally abhorrent because God has given mankind natural resources to enjoy; that is, to use, and to acquire benefit from them. At first glance, such an analysis looks like it would support Hughes' case of the irrelevance of the 'non-waste' principle with regards to intellectual property rights because, as he suggests in his argument, an individual cannot waste an idea since the value that pertains to ideas is derived solely from the act of creating it.

However, if one takes a closer inspection of the example Locke used to support the case of his 'non-waste' principle, I believe that one will come

to the opposite conclusion; that intellectual property rights can be wasted. Locke talks about how an individual is not allowed to gather as many acorns as he likes because he is only allowed to gather as much acorns as he can enjoy; that is, use, or benefit from. The potential of a single idea, I believe, can also be explained using an analogy of acorns; albeit viewing the acorn in terms of its seed spreading capacity, rather than as a consumable entity. The perspective would be more befitting of the potential of an idea because, if we refer back to the acorn, an acorn that is not appropriated by an individual and left to rot, would also have had the opportunity to become an oak tree; an oak tree that would give 'birth' not just to more acorns, but would also be a source of wood, shade, oxygen, and beauty, amongst other things.

Similarly, a single idea, I believe, can be thought of as an acorn with its seed spreading capacity; multiple, and perhaps infinite applications can arise from the permutation of a single idea with other ideas. As such, if a single individual is allowed to patent an idea and hoard it for himself, although his enjoyment does in a sense prevent the idea from being wasted, the idea is actually being wasted to a greater degree than expected because of the losses that society would incur due to their lack of access to it. Reinforcing my point earlier regarding the inclusion of Locke's 'non-waste' principle to Nozick's theory of entitlement, an idea can be wasted if its full potential is not achieved because an individual is hoarding it to the exclusion of others who may be able to maximise the potential of the idea, as in the case of Watt's Newcomen steam engine.

One could, however, reject the inclusion of Locke's 'non-waste' principle on the basis that is gains its moral force from the idea that it is morally abhorrent to let waste what God has provided for mankind's sustenance, and relying on religion does not seem befitting of a philosophical argument. This could also perhaps be another reason explaining why Locke's 'non-waste' principle has fallen out of favour today.

In response to the argument that Locke's 'non-waste' principle ought to be rejected on the basis that it gains its moral force from religious ideas, I suggest that an alternative way of justifying the 'non-waste' principle can be

conceived. Ultimately, the libertarian needs to justify how waste is illegitimate, and how the property rights owned by an individual may be overridden in extenuating circumstances. This is especially apt in the case of pharmaceutical patents, whose enforcement would result in the long term degradation of society's welfare. One can conceive, for instance, a situation where an individual's normally undeniable property rights, is overridden because of extreme circumstances. I now refer to Nozick's principle of justice in transfer, where he states the same; recall my example of an individual whose otherwise legitimate property rights in a plot of fertile land is overridden because climate change made it the only remaining arable plot of land in his community. It is clear that libertarian, even right wing libertarians like Nozick, recognise that property rights can be overridden in special situations, and I hope to have made it clear in my essay, that the hoarding of ideas through patent enforcement, constitutes such a situation.

Furthermore, considering the fact that many of the criticisms facing a libertarian defence of intellectual property can be addressed if one adopts Locke's 'non-waste' principle to Nozick's theory of entitlement, I think it is fair to say that my suggested formulation of the libertarian defence does better than the status quo; that is, Nozick's theory of entitlement taken on its own.

Conclusion

In conclusion, I have argued that the inclusion of Locke's 'non-waste' principle into Nozick's theory of entitlement would result in a more liberal and generous intellectual property rights regime where the 'type-token' problem and the access problem are largely resolved because the patenting of an idea would prevent other individuals from having access to the idea, resulting in their inability to improve it, thereby preventing it from achieving its maximum potential and infringing upon the 'non-waste' principle. I have also argued against the idea that ideas cannot be wasted, putting further the view that an idea is unlike food or other perishable natural resources; even though a single acorn hoarded and wasted is a single acorn, a single idea that is

hoarded, and thus wasted according to my conception of how ideas can be wasted, is not just a single idea that is wasted, but rather a whole host of other ideas that may have developed as a result of the inspiration of improvement of the original idea. Finally, I have also addressed concerns that may have stemmed from Locke's reliance on religion to justify his 'non-waste' principle, utilising that fact that even right libertarians like Nozick believe that certain circumstances call for what would otherwise be strong natural rights, to be overridden.

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