

**Master's Thesis in Applied Ethics  
Centre for Applied Ethics  
Linköpings University  
28 May 2003**

**INTELLECTUAL PROPERTY RIGHTS – A BARRICADE TO  
TECHNOLOGICAL DEVELOPMENT.  
AN ETHICAL ANALYSIS ON THE LESS DEVELOPED COUNTRIES.**

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## **Acknowledgements**

I am grateful to my supervisor Professor Göran Collste whose expertise, collegiality, extreme patience and constructive criticism has the completion of this thesis possible despite time constraint.

I would like to thank Professor Bo Petersson, researcher Centre for Applied Ethics and Eva Carlestål, an administrator for their cooperation and assistance, and to my colleagues at Centre for Applied Ethics, Linköpings University for making 2002/2003 academic year intellectually challenging and inspiring.

I am deeply grateful to my mother Ramatu Mohammed for her care, love and support. And especially indebted to my brother Ibrahim Idriss (U.S.A.) for his support throughout my educational career.

Finally, my special thanks are due to all my family and love ones.

## **Abstracts**

Debate over Intellectual Property Rights 'IPRs' particularly patent and copyrights is mainly on forward-looking industries in computer software. As part of a trade deal reached in 1994, the member nations of the World Trade Organisation must adhere to a global agreement known as TRIPS, for the Trade-Related Aspect of Intellectual Property Rights.

This study is to analyse the ethical conception of Intellectual Property Rights and in particular its implications on the developing countries in relation to TRIPS. The approach will be to analyse a broad philosophical theories of property to see if there is any justification for a software program to be treated as private property and also argue base on John Rawls two principles of justice in relation to TRIPS Agreement. Some reflections will be put on the use of open-source software by less developing countries.

From the study it was asserted that, strong IPRs protection would hinder technological transfer and indigenous learning activities in the early stage of industrialisation when learning takes place through reverse engineering. And policy makers should consider differentiation in terms of the level of economic and industrial development, if protection and enforcement of IPRs is intended to enhance technological development.

## **Chapter 1** Introduction

The aim for this thesis is to examine the ethical conception of Intellectual Property Rights and in particular its implications on the developing countries in relation to Trade-Related Aspects of Intellectual Property Rights ‘TRIPs’.

Information Technology particularly software programs can give significant aid to less developed countries in their development effort, because information technology is now one of the basic necessary ‘material’ for development. However, integrating intellectual property rights and technological development policies at time becomes problematic, in view of some form of international treaties; in particularly the World Intellectual Property Organisation copyrights treaty (hence forth referred to WIPO), which many countries are pressured in to signing in return for monetary aid from organisations such as the International Monetary Fund and the World Bank. “The World Intellectual Property Organization (WIPO) is an international organization dedicated to helping to ensure that the rights of creators and owners of intellectual property are protected worldwide and that inventors and authors are, thus, recognized and rewarded for their ingenuity. This international protection acts as a spur to human creativity, pushing forward the boundaries of science and technology and enriching the world of literature and the arts. By providing a stable environment for the marketing of intellectual property products, it also oils the wheels of international trade”<sup>1</sup>. The WIPO copyrights treaty, while being less restrictive, still contains provisions concern in less developed countries. Most of the less developed countries particularly those in Africa are lacking behind when it comes to Information Technology (IT) development as a result of high cost of license for proprietary software.

The combination of unfettered capitalism and rigged rules of intellectual property rights are playing a major role in developing countries falling further and further behind.

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1. [www.wipo.org/about-wipo/](http://www.wipo.org/about-wipo/)

Today's rich countries in the past enjoyed many of the protections they now seek to deny developing countries. I am not trying to be anti-free Intellectual Property Rights particularly software program. There is no more important engine of development than intellectual development in information technology in this modern world, but the least developed countries must benefit more from the process due to their deplorable state. Because the necessary infrastructures needed to put in to force the rules of intellectual property rights and even to carry on with technological development are not available

### 1.1 Background

Intellectual Property Law codifies the ownership of product of human mind. Intellectual Property law includes familiar legal instruments such as Copyrights, Patent and Trademark. Patent Law applies to the protection of inventions. It follows that, it is a right to stop others from making, using or selling ones invention. Patent on invention last for a limited period of time.

Under the Annex 1C of the Marrakesh Agreement establishing the World Trade Organisation, signed in Marrakesh, Morocco "copyright protection shall extend to expression and not to ideas, procedures, and methods of operation or mathematical concepts as such. Computer programs, whether in source or object code, shall be protected as literary works under the Bern Convention (1971). Compilation of data or other material, whether in machine readable or other form, which by reason of the selection or arrangement of their contents constitute intellectual creations shall be protected as such. Such protection, which shall not extend to the data or material itself, shall be without prejudice to any copyrights subsisting in the data or material itself."<sup>2</sup> This further increase the already technological gap between the developed and developing countries. Although other analysts argued that it will rather facilitate technological transfer.

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2. Agreement on Trade-Related Aspects of Intellectual Property Rights. The TRIPs agreement is Annex 1C of the Marrakesh Agreement establishing the World Trade Organisation, signed in Marrakesh, Morocco on 15<sup>th</sup> April 1994.

“The global debate over intellectual property rights - patent and copyrights is focusing mainly on forward looking industries like computer software, pharmaceuticals and biotechnology. As part of a trade deal reached in 1994, the member nations of the World Trade Organisation must adhere to a global agreement known as TRIPs, for Trade-Related Aspect of Intellectual Property Rights. TRIPs stemmed partly from the prevailing belief during the 1990s that the free trade wide-open capital markets and strong Intellectual Property protection was the sure way to global prosperity”.<sup>3</sup>

But According to United Nation Development Plan ‘Human Development Report 1999’, “the relentless march of intellectual property rights need to be stopped and questioned. Developments in the new technologies are running far ahead of the ethical, legal regulatory and policy frameworks needed to govern their use. Understanding is needed in every country of the economic and social consequences of the TRIPS agreement. Many people have started question the relationship between knowledge ownership and innovation. Alternatives approaches to innovation, based on sharing, open access and communal innovation, are flourishing, disproving the claim that innovation necessarily requires patents”.<sup>4</sup> Despite this and other criticisms, developing countries seems to cautiously approach possible negotiations on Intellectual Property Rights. In general terms, their proposals aim at making the TRIPS Agreement more balanced between the task of promoting intellectual property rights and promoting development objectives

According to S.C. Mishra, "In the early days, the source codes of the software were not proprietary. It was Microsoft, which in the 1970s made it source codes, proprietary and developed them in such a way as to attract adverse notice of the American Anti-trust laws. Further, the Internet software has entirely changed the rules of the game. It is not a

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3. Steve Lohr, The New York Times, 18<sup>th</sup> October 2002.

4. UNDP “Human development plan 1999” P.73

program for a stand alone PC. The internet software on a server is accessible by many internet users".<sup>5</sup> The American Anti-trust Law prevent a company from exploiting its monopoly power to squelch competition and harm consumers.

Against making the source code of software proprietary and hence copyrightable, is another school of thought by Richard Stallman; who founded the free software foundation and propagate the concept of open-source software. Open-source software comes with a license but the core characteristic of all such Open-Source software license is that, they allow modification and improve the contained source code, and to further distribute the codes, whether modified or not. And proprietary modification or commercial distribution is not allowed.

## 1.2 Problem

Software programs have created moral questions both at the public policy level and individual level. One of these questions is, is it ethically right for computer software to be protected as private property? The most compelling individual level issue have to do with whether it is wrong for an individual or group of individuals to make a seemingly copy of computer software or make some modifications and also whether government policies should allow seemingly copy of computer software in the educational and public institutions. There are a lot of agreements that proprietary software is too expensive and will limit access to technological growth in most less developed countries.

Considering the underlining notion of Intellectual Property Rights and Open-Source software, the following question will serve as instruments for exploring the ethical objective of the purpose of this thesis:

- 1) Should a software program be treated as property?
- 2) What is the moral implication of proprietary software to the less developed countries?
- 3) Is the universal application of Intellectual Property Rights morally justifiable?

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5. S. C. Mishra, software and copyrights.

Considering this thesis, i will imply that there is a demand for morality and considerations of moral and social development on adherent of TRIPS by the least developed countries in the area of software programs to facilitate technological development.

### **1.3 Method/outlook**

My approach will be to analyse and study texts and articles in trying to raise a philosophical discussion on the topic of this thesis. And I will start in chapter two by explaining what software is, and reflecting later on the present discussion about Intellectual Property Rights in relation to software, and current ethical arguments for and against. Then in chapter three I will examine the theories of property rights. The aim is to understand the foundations and justification of property rights and explore how foundational principles apply to computer software. Later in chapter four, I will analyse John Rawls, Theories of justice and find out how it applies to the system of property right in relation to the less developed countries, because Rawls theory of justice establishes conditions that must be established in order for any one to reach an agreement acceptable to all parties. And also look at the moral justification and universal application of the TRIPS and what the least developed countries should do with Open-Source software program now been advocated given the circumstances of their deplorable condition.

### **1.4. Materials**

The materials I will make use of are written texts, Documents on TRIPS, WIPO and WTO, and philosophical articles concerning information technology particularly software program.

## **Chapter 2.** Nature of Software, Previous and Present IPR\* (software) arguments

### **2.1.** Nature and operation of software

In order to understand the software ownership issue in relation to intellectual property rights, it is important to explain the nature and operation of software. Software is a series of instructions intended for a certain result. These results are converted into binary codes to which a computer can respond. Software can be a branded one or customised. Secondly, it can be operating software or application software. The latter is a more advanced category of software containing instructions, which are communicated to the operating software.

To further explain this, “the source code and object code refer to the ‘before’ and ‘after’ version of a computer program. The source code consists of the programming statements that are created by a programmer with a text editor or visual programming tool and then saved in a file. For example, a programmer using the C language types in a desired sequence of C language statements using a text editor and saves them as a named file. This file is said to contain the source code. It is now ready to be compiled with a C compiler and the resulting output, the compiled file, is often referred to as object code. The object code file contains a sequence of instructions that the processor can understand but that is difficult for a human to read or modify. For this reason and because even debugged programs often need some later enhancement, the source code is the most permanent form of the program.”<sup>6</sup>

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6. [www.whatis.com](http://www.whatis.com)

\* Intellectual Property Rights

## 2.2 Previous and present IPR – software arguments

Intellectual Property Rights are the rights given to persons over the creations of their mind. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time. According to this definition, the social purpose of protection of copyright and related rights is to encourage and reward creative work.

In the 1970s and 1980s, there were extensive discussions on whether patent and copyrights systems should provide protection for computer software. These discussions resulted in the generally accepted principle that computer program should be protected by copyright, whereas apparatus using computer software or software related inventions should be protected by patent.

Those who defend the TRIPS global standard for intellectual property protection says that, a strong patent system not only fuels innovations but provide the best way for developing nations to attract investment and encourage a rapid transfer of technology. While this defense seems economical in nature, opponent like John H. Barton, a professor at Stanford law School who led the commission on Property rights says, "if we cut off imitation strategies for developing countries, we are drastically narrowing the options they have to reach an economic take off".<sup>7</sup> Most developing countries lack basic knowledge necessary for technological development. And now intellectual property law has substantially evolved in response to changes in technology and market trend. The emerging system is centered on the economic dimensions of intellectual property rights. The primary concern is rewarding inventors, rather than the encouragement of individual creation and the public dissemination of knowledge, " even if the rhetoric of argument occasionally appeals to notions of justice and equity, modern economic analysis, and its characteristic preoccupation with questions of efficiency, now set the terms for policy discussions about the protection of intellectual property".<sup>8</sup>

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7. Steve Lohr, The New York Times, 2002-10-18.

8. David 1993, P.20

Professor Summon Rogerson in his article 'But IS IT Ethical' gave three dimensions of the focus of ethics regarding Information Systems (IS) or Information Technology (IT); "we should be concerned about how we develop systems. We should consider how advances in the technologies could be best used. Finally, we should develop strategies which promote ethical activities".<sup>9</sup> He summarised his focus by the following terms: "Ethical Development - this is concerned with the used of development methodologies and the consideration of ethical dilemmas, user education and professionalism. Ethical Technology - this is concerned with advances in technologies and likely ethical issues they raise as they are applied to business and social problems.

Ethical application - concerned with developing ethical strategies which allow technology to be exploited in an ethically acceptable way".<sup>10</sup> His second and third points actually indicate the importance of addressing social issues with regards to technological development and how laws concerning technology should be made in order to facilitate the transfer of technology.

Carlos Joaquim Da Anunciacao Roxo also backing the notion of Intellectual Property stated that, " when we speak of ethics we have that the same one is currently the main base of the evolution of the society, if you deal with the positive optic or negative optics any of the two is ways to evolution, therefore, this it has always two sides and it varies forms of been seen. This ethically, the related ideas must belong to who provide them since the process and creation, any that is the principles where it stand is the set of cognitive actions that go to discharge in a new boarding or perspective. As any process of creation this one also has a starting point without which it would not exist and as in all the others the departure process is fruit of a set of other process that had arrives at the end. When if it speaks of ideas also related if it can apply the same form of reasoning we speak of the ideas that suffer influence being that however becomes more difficult to be questioned, but even that way is not impossible to occur".<sup>8</sup> It is undeniably justifiable that

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9. Professor Simon Rogerson, BUT IS IT Ethical? (Originally published in the IDPM journal volume 5 No.1 1995).

10. Ibid

11. Carlos Joaquim Da Anunciacao Roxo, The Ethics in the Intellectual Property, a forgotten and lost variable or an emergent solution, in Ethicomp 2002 pp489.

individual can own what he created or invented as I will show later in my analysis. But current rules under the TRIPS Agreement stated that, only the expression of ideas can be own but not the ideas themselves.

Deborah G. Johnson in her contribution on property right in computer software, focusing on the philosophical and moral foundation of property, argued that, “the moral arguments do not show that computer software must be treated as property. At least, neither utilitarian nor natural rights arguments establish that societies without intellectual property are unjust or immoral societies”.<sup>12</sup> She reiterated that, ‘ Intellectual property rights are socially created rights and a variety of social arrangements are possible that are morally acceptable’, and in her conclusion with a discussion of what she called a micro level question, she argued that, “ it is wrong to make a copy because it is illegal, but not because there is some prelegal immorality involved in the act”.<sup>13</sup>

Professor Ivan Addae-Mensah in his article ‘Biodiversity, Herbal Medicine and Intellectual Property’ raised an interesting ethical argument on intellectual property rights in the medicinal plant research and utilization, quite similar to software issue; because he argued that, “many new drugs discovered from plants have originated from information obtained from a local in formation about the traditional or ethinobotanical use of the plant. But once the drug is commercialized, the source of this original piece of information gets neither benefit nor financial compensation for sharing his knowledge and expertise. There is no protection of the individual’s intellectual property, however rudimentary such protection might be”.<sup>14</sup> Although, this signifies that , not only developed countries call

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12. Deborah G Johnson, Computer Ethics, 3<sup>rd</sup> Ed pp141.

13. Ibid

14. Ivan Addae-Mensah’s article in Helen Laura, Ghana: Changing Values Changing Technologies, Ghanaian Philosophical Studies.II, 2002, pp171.

for intellectual property right, others in developing countries advocate for intellectual property rights. But advocacy by some developing countries is basically to prevent the exploitative nature and abuse of their intellect. However, “ the global regime on intellectual property rights requires a new look. The United State prevailed upon the world to toughen patent codes and cut down on intellectual piracy. But now transnational corporations and rich-country institutions are patenting everything from the human genome to rainforest biodiversity. The poor will be ripped off unless some sense and equity are introduced into this runaway process”.<sup>15</sup>

Addae-Mensah raised an ethical question that, “is it ethically right for research agencies from ‘developed’ countries to go to ‘developing’ countries, obtain valuable information crucial for research and manufacture of precious drug that is likely to be inaccessible to the populations of the ‘developing’ countries, without the latter receiving any meaningful economic benefits for originally providing the knowledge that led to the discovery or development of that drug?”<sup>16</sup> He is arguing for a benefit for the people who originally discovered and provided knowledge of a particular drug; as he showed in the following argument on patent Law.

Regarding patent law and Intellectual Property Rights, Addae-Mensah further argued that, “one of the difficulties bedeviling and attempt at integrating traditional medicine into primary health care has been the secrecy with which each herbalist guards his own preparations for any particular ailment... Now, the problem is that there are no patent laws regarding such knowledge. Normally one cannot patent a plant. One can only patent a particular formulation, or a substance isolated from a given plant. Suppose an herbalist tells a scientist about a plant used for treatment of, say, hypertension, if the scientist is then able to isolate the active ingredient or to formulate even a crude herbal preparation that is thoroughly tested and accepted, then he, the scientist, can patent the drug or the

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15. Sachs Jeffrey, “Helping the world’s poorest”

16. Ivan Addae-Mensah’s article in Helen Laura, Ghana: Changing Values Changing Technologies, Ghanaian Philosophical Studies.II, 2002, pp171.

preparation. But the herbalist cannot patent the plant material, because this is considered to be 'God's universal property.'...So the herbalist has no other alternative but to keep his knowledge close to his bosom. This has serious implications. Suppose a policy is formulated compelling the herbalist to subject every preparation to scientific quality control, to test it for efficacy, toxicity, and so on ... Then the herbalist will be compelled by law to reveal the name of the plant, the source, his mode of preparation and so on, to the licensing authority. The protocol of secrecy exists even in highly industrialised countries, but only during the time that a drug is completed and the legal protection is secured, all the information about a drug can become public knowledge and can even be published in professional journals without threatening the credit and benefit due its discoverer. So the question remains of how to resolve this thorny problem of effectively protecting the intellectual property of our local herbalist, whose knowledge and expertise have been handed over from one generation to the next in accordance with established traditional norms".<sup>17</sup> It is evident here to see that, while others in the less developing countries are reluctantly in their effort to apply the patent laws, some are advocating for it in their effort to secure some benefit on their inventions. This actually indicated that the issue of intellectual property rights particularly copyrights and patents, are not only advocated by developed countries but also some less developed countries do in the area of medical plants. And I think because of lack of information and knowledge on information technology particularly software program, until recently people in the less developed countries seems not to put much emphases on the issue of intellectual property particularly software program.

Most of the literatures were able to give justification for property rights and intellectual property. While others were strongly advocating for adherent to the Intellectual Property Rights, and they ignored the implications of the universal application of the Intellectual Property Rights and its effects to the less developed countries. It is therefore my intention to go deeper into this problem.

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17. Ivan Addae-Mensah's article in Helen Laura, Ghana: Changing Values Changing Technologies, Ghanaian Philosophical Studies.II, 2002, pp173-174

### **Chapter 3: Philosophical Idea of Property**

As I said in my introduction, the aim of this thesis is to examine the ethical conception of intellectual property rights and in particular its implications in relations to the less developed countries. The important part of this examination is to analyse the broad philosophical theories of property to see if there is any justification for a software program to be treated as private property. To do this I will look into the theories of property like natural theory of property, one which defends the claim that natural facts determine what is property and who owns what; instrumental theory, that understands property as a social contract validated in terms of its instrumental capacity to produce or secure other ethical goals, and labour theory, that grounds property claims in productive activity. And I will follow the reflections of John Locke and Robert Nozick on these theories and how they apply to software programs.

#### **3.1 Natural Theory**

It is imaginable to accept that certain things are naturally fit to become property, while others are not. Such an imagination is particularly plausible when one's concept of nature includes God, making a natural theory of property become an attempt to ascertain God's intentions. Although, it is difficult to imagine a thoroughly natural theory of property in a postmodern world, a few compositions from natural theory continue to be probable, and potentially influential. For instance, it is certain characteristics of goods that determine their status as items of property. Rivalness, for example, refers to whether it is possible for more than one person to dissipate the good without diminishing the amount of good available for others. Goods such as canned food and clean water are rivals; goods such as street lighting and national defence are non-rival.

Another natural characteristic is how easy it is to exclude others from using or dissipating a good. For example, canned foods are relatively excludable in that one may lock them up, preventing their appropriation and use by others. By contrast, it may be fairly difficult

to exclude people from access to clean water or street lighting. But this becomes problematic when applying to intellectual property particularly software program. Unlike canned food that one can prevent its appropriation, ideas, procedures and methods of operations or mathematical concept cannot be prevented from functioning in human mind. So more than one person living at different or same geographical area might write a software program performing similar in function, without the knowledge of each one of them. Natural facts about excludability and rivalness thus provide one way to decide whether or not something can be claimed as property. The two traits leave considerable grey area where the relative rivalness and excludability of goods do not provide the basis for a secure judgement for intellectual property particularly proprietary software.

### **3.2 Instrumental Theory**

In contrast to seeing property as a natural kind, it is far more common today to see it as a social contract, as an institution or form of social rule that is validated to the extent that it is useful to produce some more fundamental kind of good. Property rights might be thought to produce some types of goods. One is social utility and the other is social stability. Social stability most likely would be produced if recognition of property claim were necessary in order to resolve disputes or social conflicts, but such disputes and conflicts would most likely arise only when individuals felt themselves to have legitimate property claims for other reasons. However, social stability entails a lot of factors, political stability, and economical and educational developments; and given a proprietary claim particularly software program might lead to unjustified commercial exploitation by the owners and thereby destabilising the society instead of sharing the social good which will rather stabilise the society more.

Utility views are far more predominant in discussion of intellectual property. The idea is that property rights are justified because they facilitate the creation and distribution of value goods in society. The idea that property claims are justified when they create incentives for innovation, that would otherwise be lacking, is an example of utility reasoning. Using the scenario of the two programmers in the above paragraph, if one of

the programmers is able to register for patent earlier than the other, then he is able to prevent the other programmer from using and advancing in his programming development for a certain period of time as stated under patent law. There by denying him and others in the society the value and use of the program, should the patent holder decide to withhold the software program from the society for commercial gain in the future or till it commercial need arises.

### 3.3 Labour Theory

A labour theory of property holds that a person's productive work is the basis for a property claim. People are entitled to claim what they make or create as their own. The mere act of discovery does not establish ownership of property, but the appropriation of the discovered good to some further purpose does imply some element of labour. As long as previous property claims upon the appropriated good are discharged fairly, a person's transformation of the appropriated good to some useful purpose establishes a property claims. Useful purpose here I mean, to the benefit of all in the society irrespective of ones economic and developmental background.

Remarkably, a labour theory of property is not a labour theory of value. Requiring that something is ownerble by virtue of the labour invested in its appropriation, creation, manufacture or development entails nothing concerning its value. If value is determined by exchange, it is clearly possible to invest substantial amount of labour into items which are of no value what so ever. A labour theory of property would nevertheless support the claim that such valueless items are the property of their manufacture irrespective of whether they have exchange value or social utility.

### 3.4 Locke's Theory of Property Rights

The natural ideas in Locke's account of property are stated explicitly, and are indeed a framing assumption for the Locke's thought. He reasserted the claim that reason and revelation converge upon the conclusion that the earth has been given to mankind in

common. The passage might be read as establishing the origins of property in God's grace to mankind, since Locke has expressed in his treatise, opposition to arguments, which establish a monarch's claim upon a servant and property through a similar act of God, he is compelled to conclude that God's grace confers a natural right of property to the earth upon all men in common. This interpretation of Locke's view, are conferred by God, but apparently to all who poses reason. It poses a problem, however, in that "... it seems to some a very great difficulty, how any one should ever come to have a property in any thing".<sup>18</sup> Thus , while natural rights establish metaphysical basis of property, they do not transparently establish the basis for property claims by individuals, as opposed to property held in common by all.

Locke supports two arguments for resolving this difficulty by first using an instrumental argument that "God, who hath given the world to men in common, hath also given them the reason to make use of it to the best advantage of life and convenience"<sup>19</sup> The passage may be read as suggesting that reason will lead us to an interpretation of property that is consistent with, perhaps even shaped by, our mutual desire to obtain advantages and conveniences. Individual property rights will, thus be assigned in so far as they facilitate this end. In the case of proprietary software, one may prefer to keep his proprietary software from commercialising it now to take advantage of better market price later. One may like to have a complete ownership of his software for easier modification and manipulation.

And the other argument is that, "though the earth, and all inferior creatures, becomes common to all men, yet every man has a property in his own person, this no body has any right to but himself. The labour of his body and the work of his hands, we may say are

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18. Locke John, two Treatises of Government. 2<sup>nd</sup> ed. 1967, P18.

19. Ibid

properly his. Whatsoever there he removes out of the state that nature hath provided, and left it in, he hath mixed his labour with and joined to it something that is his own, and there by makes it his property”<sup>20</sup> He concluded that “...it is the taking of any part of what is in common, and removing it out of the state nature leaves it in, which begins the property”<sup>21</sup> and “ the labour that was mine, removing them out of that common state they were, hath fixed my property in them”<sup>22</sup>

Locke’s theory of property assumes an abundance of natural resources and also conditions of fair access. He also emphasizes that what we appropriate has to be within the realm of our own need and ability to put to good use. There are real limit on acquisition, since we have a moral obligation to avoid waste. To be sure, there are numerous problems with Locke’s theory, we do not mix labour with nature but with a complex economic system, and a person’s labour is only a small input contributing to the production of goods. Complex economic system in the sense that, the intellectual property rights is commercial oriented; providing commercial gains or incentives to the patent or copyright holder.

Lockean notion is appealing and using this notion, it would seem that a software developer could argue that the software he or she develops is rightfully his or her property because it was created from his or her labour. This seems a powerful argument for granting some sort of property right in computer software. Yet despite it appealing, the natural rights argument has several faults especially when it comes to computer software. His arguments are unapprehensive in the way it connects ownership to labour. It would seem that the connection has to be justified. Robert Nozick made this point, questioning the connection between labour and ownership, “why does mixing one’s labour with something makes one the owner of it? Perhaps because one has own one’s labour, and so one comes to own a previously unowned thing becomes permeated with

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20. Locke John, two Treaties of Government. 2<sup>nd</sup> ed. 1967, P19.

21. Ibid

22. Locke John, two Treaties of Government. 2<sup>nd</sup> ed. 1967, P20.

what one owns. Ownership seeps over into the rest. But why isn't mixing what I own with what I don't own a way of losing what I own rather than a way of gaining what I don't? If I own a can of tomato juice and spilt it in the sea so that its molecules (made radioactive, so I can check this) mingle evenly throughout the sea, do I thereby come to own the sea, or have I foolishly dissipated my tomato juice?"<sup>23</sup> He further explained that, "perhaps the idea instead, is that labouring on something improves it and makes it more valuable; and anyone is entitled to own any thing whose value he has created."<sup>24</sup>

Nozick's question reveals the possibility of a disconnection between labour and property. That is, a just world in which individuals do not own the products of their labour is possible. Although his point does not apply in a world in which some property rights are recognised.

Applying the notion of property rights based on labour to the intangible commodity of intellectual property; on the surface, there does seem to be some merit in the argument that one is entitled to the fruits of one's labour regardless of whether they are real goods or more intangible things such as a software program. If an individual or group of individuals invest time, money, and labour in creating a piece of software, he or she should possess the end result by virtue of his or her effort. If someone else copies this software and reap some of the benefits, then from a moral stand point, such an action is in contrast to the principle of justice in acquisition. As Nozick stated "a distribution is just if it arises from another just distribution by legitimate means. The legitimate means of moving from one distribution to another are specified by the principle of justice in transfer. The legitimate first moves are specified by the principle justice in acquisition. What ever arises from a just situation by just steps is itself just."<sup>25</sup>

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23. Robert Nozick, *Anarchy, State, and Utopia*, Blackwell publishing, 2002, P174.

24. Robert Nozick, *Anarchy, State, and Utopia*, Blackwell publishing, 2002, P175.

25. . Robert Nozick, *Anarchy, State, and Utopia*, Blackwell publishing, 2002, P151.

But Debora G. Johnson also argued that, “because of the reproducibility of computer software, the labour theory of property cannot be used to justify the assignment of property rights to software developers. If I create a complex piece of software and you copy and used it, I am not deprived of the product of my labour.”<sup>26</sup>

Once a physical object such as a farm, a bag of apples, an automobile, or words and figures on a page, has been created, it is vulnerable to appropriation by persons other than those whose labour created it. If labour indeed originates the property claim, then appropriation without consent violates a property right. Ideas and discoveries are, in themselves, immaterial, and prior to publication, invulnerable to appropriation by others. While we think of intellectual products as nonrival and nonexcludable, knowledge and other purely intellectual goods are potentially the most excludable goods of all, capable of being carried to one's grave without others even suspecting their existence. We do not need legal property rights to protect the labour, which went into the creation of knowledge and ideas, though the papers, notes or data used in the process of discovery would certainly be personal property in virtue of the physical work of writing, and vulnerable to appropriation by others. None of this, however, says anything about how we should regard the act of publishing what one knows, suspects, or otherwise thinks. The labour theory would entail that a scientist may not be compelled to publish against his or her will, but it need not entail that society must allow him/her opportunities to publish under whatever terms he/she demands.

The labour theory thus has a seam with regard to intellectual property. While the intellectual labourer is as entitled to own the immediate fruits of his or her labour as any other, this entitlement does not establish the terms on which publication will take place. Such terms would presumably be negotiated between the intellectual labourer and others desiring the intellectual good. The intellectual labourer knows that upon publication, the intellectual good is both nonrival and nonexcludable, hence he or she may negotiate a

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26. Deborah G. Johnson, *Computer Ethics*, 3<sup>rd</sup> ed. P156.

system of rights or licenses with every person in the society who is likely to use the good prior to publication. People in the society are likely to agree to such terms, since such an agreement may be the only way that they will get to use the good. They will not, however, agree to rights and licenses over knowledge that is easily obtained. One might pay for knowledge about a short cut to the airport, but it is unlikely that everyone in society would be willing to recognize any individual's exclusive right to such knowledge. Judgments about the novelty of the relevant knowledge will therefore become part of the negotiations. Such negotiations are likely to prove time consuming and expensive, however, and one can easily imagine how a system much like patent law would arise to standardize the problem of assigning rights and licenses. The procedure solves the problem of missing criteria for publication, and would provide the intellectual labourer the option of seeking protection, or of publication with such future rights.

As I said earlier, a utilitarian interpretation of instrumental property criteria would justify the recognition of a property claim just in case recognizing the claim optimizes the creation of social value. Some more general points are worth noting, however. As a unilateral theory of property, utilitarian criteria provide no basis for distinguishing between production and discovery, hence fragments of code will presumably both be evaluated in terms of whether recognizing property claims creates more social utility than not. Indeed, they provide no basis for recognizing property rights based upon labour at all, and would justify appropriation of all goods so long as doing so optimizes social efficiency. While cavalier appropriation of property would not be likely to promote social efficiency, it is precisely such likely inefficiency that is the only utilitarian hedge against property rulings violating some of our most deeply held beliefs about who can and does own what.

What is surprising is the extent to which utilitarian theories have held sway in debates over intellectual property, generally, and with respect to software program in particular. The argument most prominently introduced for recognizing property rights in software programming is that doing so will establish incentives for research that will ultimately be socially beneficial. The argument is offered without qualification, despite the fact that

similar arguments produce absurd conclusions for other forms of knowledge and ideas. Teachers would have more incentive to educate their students if they were entitled to a share of each student's lifetime earnings. Scientists would have more incentive to develop broad theories if they could capture royalties in every instance where the theories are republished or applied. Parents would have more incentive to teach their children common sense if they could reap more of the benefits from doing so.

It seems likely that utilitarian analysis of intellectual property claims is actually being carried out against a background of assumptions about property rights that cannot, in themselves, be justified on utilitarian grounds. In addition to the natural and labour criteria discussed here, instrumental criteria for property that examine impact upon liberty and upon social stability may also be a component of those background assumptions (though arguments about social stability can be readily given a utilitarian interpretation). If so, the utilitarian or instrumental arguments are effectively functioning as modifications of broad judgments that previously have been made on the basis of natural or labour criteria. An application of natural criteria would establish a prejudice against recognizing property rights in the software program, but an application of labour criteria would reverse this judgment. Labour criteria are themselves modified in response to the problem of distinguishing production from discovery. Discovery in the sense of having an idea of a software program, where as production is the expression of the idea. Only then would utilitarian criteria become relevant as final elements in concluding a judgment for a particular case

Thus for the sake of fairness and equity and as a reward for ones initiative and industry, one should have the right to retain control (not to the extend of denying society the benefit of his program) over one's intellectual property, without the fear that someone will appropriate that property for their own profit.

The application of Locke's theory is not without problem, but it does suggest that software developers have a moral basis to at least a prima facie right in their creation, on the principle of fairness and equity as well as respect for the fruit of hard labour. But even

if there is a moral basis for property right, that fact does not mean that these rights are absolute or without some limitation. As Cohen notes, “property being only one among other human interests, cannot be pursued absolutely without detriment to human life.”<sup>27</sup> The issue then is how property rights should be limited for the sake of the public interest or the common good. This issue seems especially important for software, which embodies knowledge and ideas that can benefit humanity. One such limit concerns the dichotomy between an idea and its expression, which under the current copyright law, as stated earlier, protects the expression of an idea but not the idea itself. This constrain seems to be a reasonable way of balancing the prima facie right to private property with the common good. However, Nozick find these prima facie rights problematic, because he sees as absolute some rights that are only prima facie rights. The intuition that Nozick discovered in himself is that everyone has an absolute rights to be free from coercion, and an absolute rights to acquire and disposed of his property, so long as he does not violate the same right of others and so long as his acquisition of property does not, for example, give him sole title to the formally public water supply of a desert community. His apprehension is that each person is entitled to his talents and abilities, and to whatever he can make, get or do anything he wants with it, and who ever he gives it to is thereby equally entitled to it. Moreover, anyone is entitled to whatever he ends up with as a result of the indefinite repetition of this process, over however many generations.

To me Nozick’s moral intuitions seem wrong even on a small scale. He denies that any of the rights he detects may be overridden to do good or prevent bad consequences. But even if it is not permissible to unjustifiably copy a software program to promote some highly desirable result, the protected rights do not all have the same degree of importance. Rights limit the pursuit of worthwhile ends, but they can also sometimes override if the ends are sufficiently important. The only way to make progress in understanding the nature of individual right to ownership is to investigate their sources and their relations to

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27. Cohen, Property and sovereignty, P305.

each other and the values on whose pursuit they set limit. While people may have a right to the fruit of their labour, which they claim as their own, they have a duty to reward society, which practically made the very fruitfulness possible.

The benefit of one person sometimes can offset cost to another. To make use of utilitarianism, all one needs is the belief, shared by most people, that it is better for each of 10 people to receive benefit than for one person to receive it, worse for 10 people to be harmed than for another to benefit slightly, and so forth. If a choice among such alternatives does not involve the violation of any rights or entitlements, but only the allocation of limited time or resources, then we regard those comparisons as excellent reasons for picking one alternative rather than another. If we can help either 10 people or one person, not including in the 10, and we help the 10, then we can say that rescue of the 10 outweighs the loss of the one, despite the fact that he does not get some overbalancing good from his sacrifice, and his is the only life he has. So for the purpose of comparing possible outcomes of action, where the violation of rights to ownership is not in question, it is clear that the distinctness of individuals does not prevent balancing of benefits and harms across persons.

The ideas about property are tied to the deeply ingrained notion of rights and fairness. Ethical implication of Public policies on the ownership of various aspects of computer software structure the environment for software development, so it is important to evaluate the moral implication to the less developed countries to insure the future development of computer and information technology. The argument here is interesting and can be further elaborated.

## **Chapter 4: Rawls principles of justice**

In this chapter, I will analyse John Rawls' conception of justice, particularly his conception of the two principles of justice. My idea here is to make an argument based on these principles in relation to TRIPS Agreement. Some article under the TRIPS Agreement will be use for clarification and will not be further elaborated because it is not subject of analysis in this thesis. I then argue on universal application of the TRIPS Agreement. And also put some reflections on the use of open-source software.

### **4.1 The concept of justice and principles of justice**

Rawls theory of justice establishes conditions that must be established in order for any one to reach an agreement acceptable to all parties. According to Rawls the principles of justice are those that equal, rational, self-interested individuals would choose as the terms of a social contract for themselves and their descendants. Rawls formulates a hypothetical construct, which enable one to formulate principle of justice that would command universal assent. It is assumed that all parties act under the “ veil of ignorance”, which prohibit the knowledge of any contingencies one could conceivable use to one's advantage. Thus, a person is not cognisant of his or her own's natural abilities, social status, interest, intelligence, and conception of the good life. One is cognisant of only certain general fact such as elements of social goods and economic theory.

Although parties in the original position do not know their conception of the good nor any specific needs and desires, they do realise that they desire as much as possible of primary social goods. Among such goods are rights, opportunities, power, income, wealth, and self-respect. These are goods necessary for one's self-fulfillments and the advancement of one's interest and goals, as well as the overall plan of life.

With this in mind, Rawls argues that those in an original position are virtually compelled to be fair to everyone so that they can be fair to themselves. And given their aversion to

risk and the chance that they could be among the disadvantaged of the society, Rawls assumes that the rational safest course of action would be to adopt the perspective of the potentially most disadvantaged group in society. It would be to their advantage to maximise this position in case they themselves were included in this group. This reasoning lead to the following principles:

“First principle: Each person is to have an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme liberties for all.

Second principle: Social and economic inequalities are to be arranged so that they are both (a) to the greatest expected benefit of the least advantaged, and (b) attached to offices and positions open to all under conditions of fair equality of opportunities.”<sup>28</sup>

The principles are arranged in lexical order, which means that the second cannot be satisfied at the expense of the first. “The first principle requires that certain sort of rules, those defining basic liberties, apply to everyone equally and that they allow the most extensive liberty compatible with a like liberty for all.”<sup>29</sup> Again, in the first principle, Rawls is arguing that those in the original position would certainly demand an extensive system of liberties, which are essential if one is to pursue different goals. Also according to Rawls, “ These liberties are all required to be equal by the first principle, since citizens of a just society are to have the same basic rights.”<sup>30</sup>

While the first principle guarantees a system of equal liberty, the second, known as the difference principle, deals with the distribution of social goods. According to Rawls those in the original position would not opt for an egalitarian society wherein all goods are distributed equally. Rather, they would choose the second principle. This means that disparities in the distribution of wealth and other social goods would be tolerated only if

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28. John Rawls, *Theories of Justice*, p.72

29. John Rawls, *Theories of Justice*, p. 56

30. *Ibid*

they could be shown to benefit the “ least advantaged,” the lowest on the social scale. Thus a just society is not necessarily an egalitarian one, but one in which inequalities must work to everyone’s advantage, especially the most disadvantaged.

## 4.2 Cooperative justice

Let me assume, to fix ideas, that a society is a more or less self-sufficient association of persons who in their relations to one another recognise certain rules of conduct as binding and who for the most part act in accordance with them. Suppose further that these rules specify a system of cooperation design to advance the good of those taking part in it. Then, although a society is a cooperative venture for mutual advantage, it is typically marked by a conflict as well as by an identity of interest. There is an identity of interest to take part in a contract since social cooperation makes possible a better life for all than any would have if each were to live solely by his own efforts. There is a conflict of interest since persons are not indifferent as to how the greater benefits produced by their collaboration are distributed, for in order to pursue their ends they each prefer a larger to a lesser share. A set of principles is required for choosing among the various social arrangements, which determine this division of advantages, and for underwriting an agreement on the proper distributive shares. These principles are the principles of social justice: they provide a way of assigning rights and duties in the basic institutions of society and they define the appropriate distribution of the benefits and burdens of social cooperation.<sup>31</sup>

The supposition of Rawls seems challenging. “Why does social cooperation create the problem of distributive justice? Would there be no problem of justice and no need of a theory of justice, if there were no social cooperation at all, if each person got his share solely by his own efforts? If we suppose, as Rawls seems to, that this situation does not raises questions of distributive justice, then in virtue of what facts about social

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31. John Rawls, *Theories of Justice*, p.4

cooperation do this question of justice emerge? What is about social cooperation that gives rise to issues of justice? It cannot be said that there will be conflicting claims only where there is social cooperation; that individuals who produce independently and (initially) fend for themselves will not make claims for justice on each other. If there were ten Robinson Crusoes, each working alone for two years on separate island, who discovered each other and the fact of their different allotments by radio communication via transmitters left twenty years earlier, could they not make claims on each other, supposing it were possible to transfer goods from one island to the next? Wouldn't the one with least make a claim on ground that he was naturally least capable of fending for himself? Mightn't he say that justice demanded he be given some more by others, claiming is unfair that he should receive so much less and perhaps be destitute, perhaps starving? He might go on to say that the different individual non-cooperative shares stem from differential natural endowments, which are not deserved, and that the task of justice is to rectify these arbitrary facts and inequalities."<sup>32</sup> The fact that an individual does not live in a vacuum but in a society that involve other people; and the fact that, there is a justifiable claim for an expression of an idea embedded in a software program with regards to intellectual property, which the owner can put in the stream of commerce, and the fact that, there are other entities that are not capable of having access to a particular technology due to their poor economic and developmental background, can raise the issue of justice or let me say distributive justice based on the commercial value put on a particular technology, which will be on economic capability.

Now let us say that a society is well ordered when it is not only designed to advance the good of its members but when it is also effectively regulated by a public conception of justice. That is, it is a society, which (1) everyone accepts and knows that others accept the same principles of justice, and (2) the basic social institutions generally satisfy and are generally known to satisfy these principles. In this case while men may put forth

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32. Robert Nozick, *Anarchy, State, and Utopia*, 2002, p.185

excessive demands on one another, they nevertheless acknowledge a common point of view from which their claims may be adjudicated. If men's inclination to self-interest makes their vigilance against one another necessary, their public sense of justice makes their secure association together possible. Among individuals with disparate aims and purposes a shared conception of justice establishes the bonds of civic friendship; the general desire for justice limits the pursuit of other ends. One may think of a public conception of justice as constituting the fundamental charter of well-ordered human association.<sup>33</sup> But as far as agreement on TRIPS is concern, there is no total acceptability of some of its articles. There is lack of clarity on the criteria or rational used to decide what can and cannot be excluded from patentability in Article 27.3(b). This relates to the artificial distinction made between plants and animals (Which may be excluded) and micro-organisms (which may not be excluded); and also between "essentially biological" processes for making plants and animals (which may be excluded) and microbiological processes. By stipulating compulsory patenting of micro-organism (which are natural living things) and microbiological processes (which are natural processes), the provisions of article 27.3 contravene the basic tenets on which patent laws are based: that substances and processes that exist in nature are a discovery and not an invention and thus are not patentable. Moreover, by giving members the opinion whether or not to exclude the patentability of plants and animals, article 27.3(b) allows for life forms to be patented. It is not in my interest here to analyse the patentability of micro-organism but just to show that there is no total acceptability of some articles under the TRIPS Agreement.

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33. John Rawls, *Theories of Justice*, p.4

## 4.3 Cooperation and the two principles of justice

### 4.3.1 The first principle of justice

The issue of cooperation for negotiations, adherence and implementation of IPRS bring me to grips with Rawls actual discussion on the principles of justice. As I stated earlier on, the first principle goes that, each person is to have an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme of liberties for all. Liberty, which is the condition of being free from restriction or control, is not fully enshrined in the TRIPS agreement. Because several developing countries have questioned certain aspects relating to the implementation of the agreement, namely the continuous use of unilateral pressures. Ever since the end of the Uruguay Round, all countries, developed and developing alike, have been racing against time to ensure due compliance at the national level with the provisions of this agreement. "The seeds of the Uruguay Round were sown in November 1982 at a ministerial meeting of members in Geneva. Although the ministers intended to launch a major new negotiation, the conference stalled on the issue of agriculture and was widely regarded as a failure. In fact, the work programme that the ministers agreed formed the basis for what was to become the Uruguay Round negotiating agenda. Nevertheless, it took four more years of exploring, clarifying issues and painstaking consensus building, before ministers agreed to launch the new round. They did so in September 1986, in Punta del Este, Uruguay. They eventually accepted a negotiating agenda, which covered virtually every outstanding trade policy issue. The talks were extended into several new areas, notably trade in services and intellectual property, and to reform trade in the sensitive sectors of agriculture and textiles."<sup>34</sup>

However, during the transition period granted, developing countries have seen selective unilateral pressures unleashed against countries that have tried to exercise their legitimate rights in full compliance with the letter and spirit of the agreement. And many developing

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34. [www.wto.org](http://www.wto.org)

countries have stressed the difficulties that they faced to put into practice the massive legislative changes required by the TRIPS agreement, and the little support they received from developed countries.

To further increase the pressure and repress the basic liberties of the developing countries to freely and adequately implement the agreement, the European Union has pointed out that the transitional periods, which developing countries can avail themselves of for implementation of TRIPS, will soon expire, and that “ it should of course be kept in mind that the TRIPS acquis is a basis from which to seek further improvements in the protection of IPR. There should therefore be no question, in future negotiations, of lowering of standards or granting of further transitional period”<sup>35</sup>

A similar stand has been taken by Japan, for which “first and foremost, every member should ensure the full implementation of the TRIPS agreement and effective operation of the domestic legislation...we should not discuss the TRIPS agreement with a view to reducing the current level of protection of intellectual property rights. To the contrary, the TRIPS agreement should be improved properly in line with new technological development and social needs” The implementation of “appropriate measures against counterfeiting” is a major concern for Japan.<sup>36</sup>

According to Rawls, “the principles of justice are chosen behind a veil of ignorance. This ensures that no one is advantaged or disadvantaged in the choice of principles by the outcome of natural chance or the contingency of social circumstances. Since all are similarly situated and no one is able to design principles to favour his particular condition, the principles of justice are the result of a fair agreement or bargain.”<sup>37</sup> Rawls has set an abstract but basic principles to be followed in arriving at an agreement, which I

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35. WT/GC/W/193

36. WT/GC/W/242

37. John Rawls, *Theories of Justice*, p.21

think touches the foundation upon which the TRIPS agreement was reached. Rawls defines his original position as a hypothetical state in which people are guaranteed freedom and equality in the selection of moral principles. Thus, he imagines that they choose the rules of their society under a 'Vail of ignorance' not knowing things about themselves that will make them prejudiced, and not knowing the place they will occupy in the society they choose to form. Hence, in original position, Rawls abstracts from considerations of intelligence, strength, and class. But that was not the case during the earlier stage of TRIPS negotiation, because some parties already knew what they were in for on the occasion of the TRIPS negotiation. While the issue of IPRs which for their most part, particularly the least developing countries seem new and generally unknown for the trade negotiators of developing countries.

Technology plays a growing role in the creation of competitive advantages and in any development strategy. The generation of technology is overwhelmingly concentrated in developed countries and privately held. Developing countries reluctantly accepted to enter into negotiation of an agreement on IPRs during the Uruguay Round. Their concerns, particularly with the respect to the access to technologies necessary for development, were dismissed at that time. The proponents of an international agreement anticipated benefits for such countries in terms of increased flows of capital and technology that do not seem to materialise. The strengthening and expansion of intellectual property rights have reinforced the technology owners' capacity to control the use of their intangible assets, including whether to transfer it or not to third parties.

However, developing countries seem to cautiously approach possible negotiations on the TRIPS Agreement. While they seem more eager to review the TRIPS agreement than the developed countries, The developing countries generally aim at balancing the agreement rather than at questioning its basic foundations, except as in the case of the African group in respect of their patentability of living matter.<sup>38</sup> So I think "any future action concerning technology transfer within WTO should recognise the strong linkages existing

between the transfer and local technological capacity building, which remains a main responsibility of host countries. The improvement of the conditions for access to and effective use of foreign technologies will require a broad approach beyond the TRIPS agreement.<sup>39</sup> That is by considering the socio-economic development of a particular countr(s).

#### 4.3.2 The second principle of justice

The second principle hold that social and economic inequalities, for example inequalities of wealth and authority are just only if they result in compensating benefit for everyone, and in particular for the least advantaged members of the society. These principles ruled out justifying institutions on the ground that the hardships of some are offset by a greater in the aggregate. It may be expedient but it is not just that some should have less in other that others may prosper. But there is no injustice in the greater benefits earned by a few provided that the situation of persons not so fortunate is thereby improved. The intuitive idea is that since everyone's well-being depends upon a scheme of cooperation without which no one could have a satisfactory life, the divisions of advantages should be such as to draw forth the willing cooperation of everyone taking part in it, including those less well situated.<sup>40</sup>

This second principle, which Rawls specifies as the difference principle, hold that the institutional structure is to be so designed that the worst-off group under it is at least as well off as the worst-off group, not necessary the same group, would be under any alternative institutional structure. Rawls holds that, “ since everyone's well-being

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38. Carlos Correa

39. Carlos Correa

40. John Rawls, *Theories of Justice*, pp.14-15

depends upon a scheme of cooperation without which no one could have a satisfactory life, the division of advantages should be such as to draw forth the willing cooperation of everyone taking part in it, including those less well situated. Yet this can be expected only if reasonable terms are proposed. The two principles mentioned seems to be a fair agreement on the bases of which those better endowed or more fortunate in their social position could expect the willing cooperation of others when some workable scheme is a necessary condition of the welfare of all.<sup>41</sup>

No doubt, the difference principle presents terms on the basis of which those less well endowed would be willing to cooperate. But is this a fair agreement on the basis of which those worse endowed could expect the willing cooperation of others? With regard to the existence of gains from social cooperation, the situation is symmetrical. The better-endowed gain by cooperating with the worse endowed, and the worse endowed gain by cooperating with the better endowed. But that seems not be the case. One of the important objectives of the WTO agreement, as mentioned in its preamble, is the need for positive efforts designed to ensure that developing countries secure a share in the growth in international trade commensurate with the needs of their economic development. However, the TRIPS agreement in its current form might tempt IPR holders to charge exorbitant and commercially unviable prices for transfer or dissemination of technologies held through such IPRs. It is important, therefore, to build disciplines for effective transfer of technology at fair and reasonable costs to developing countries so as to harmonise the objectives of the WTO and the TRIPS Agreements.

As more generally noted by India, the difficulties faced by developing countries to get access to foreign technology, indicated the need to address that issue under several provisions of the TRIPS agreement. It has been argued that, prospective technology seekers in developing countries face serious difficulties in their commercial dealings with technology holder in developed countries. These difficulties are basically of three kinds:

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41. John Rawls, *Theories of Justice*, pp.25

those which arise from the imperfection of the market for technology; those attributed to the relative lack of experience and skill of enterprises and institutions in developing countries in concluding adequate legal arrangements for the acquisition of technology; and those government policies, both legislative and administrative, in both developed and developing countries, which influence the implementation of national policies and procedures designed to encourage the flow of technology to, and its acquisition by developing countries. In addition, the transfer and dissemination needs of the developing countries have to be seen from the point of view of the capacity of those in need of accessing technologies, particularly where the cost of technology may be prohibitive due to economies scale and other reasons.

The high cost of technology makes it difficult for the smaller, poorer developing countries to acquire appropriate technology on commercial terms. Such countries may be able to acquire appropriate technology critically needed for their development only through government-to-government negotiations and with the financial assistance provided by government and other institutions in developed countries or inter-governmental organisations. For those enterprises and institutions in developing countries, which will not have the benefit external financing, the acquisition of appropriate technology on international commercial terms will impose a burden on the local economy unless the price of the technology can be brought with manageable limits.

The denial of dual-use technologies (technology developed for civilian uses, but which can be used for military applications or to produce weapons of mass destruction. Dual-use technologies are not weapons and are traded, sometimes very widely, for perfectly legitimate civilian purposes.), even on commercial basis, to developing countries is another aspect that leads to widening of the technology gap between developed and developing countries. This further explained to some extent the lack of collaboration or cooperation between well off and worse-off that Rawls displayed in difference principle. And again, under this guise a variety of technologies and products are being denied to developing countries, which could otherwise have helped to accelerate growth process.

This issue needs to be carefully examined and seriously dealt with as a trade distorting and restrictive measure in order to effectively operationalise the specific objectives of the TRIPS agreement in terms of the transfer and dissemination of technology in line with article 7 of the TRIPS agreement which is stated that, “The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations”.<sup>42</sup>

Many different kind of things are said to be just and unjust, not only laws, institution, and social systems, but also particular actions of many kinds including decision, and judgments. Some decision arrived at are not favouring intellectual development of technology to the least developed countries. While developing countries have been required to expand and enhance their intellectual property regimes, very little is in the WTO agreement to effectively facilitate and promote the access to technology. The distribution of the capabilities to generate science and technology give rise, in fact, to the most dramatic North-South asymmetry. According to Reichman, “there is a growing perception that the benefits of higher intellectual property protection may be very unevenly distributed, at least in the short medium terms, even though all developing countries must bear its costs”<sup>43</sup>

Although, as I argued in my previous chapter, that for the sake of fairness and equality and as a reward for ones initiative and industrious, one should have the right to retain control over one’s intellectual property, without the fear that someone will appropriate that for their own profit. It is important for the well-off community to look at the implication of the Intellectual Property Rights particularly proprietary software programs in relation to the cost involve and the burden it put on the least developed countries. It is empirically true that, no country can socially and technologically develops without

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42. Carlos Correa

43. Reichman,1999. p.9

channelling most of its state funds in to the area of technology. And given the deplorable economic situation of the least developing countries, it seems morally unjustifiable to channel most of their state funds for securing patented and copyrighted materials, which will intend affect development in other sector of the economy or society. The moral implication of the strict adherence of the Intellectual Property Rights particularly proprietary software to less developed countries is that it will force them to put more funds in acquiring patentable and copyrightable technology for research and development(R&D), which at the end bring the research program to a stand still because there is no funds for it and adversely affecting other sector of the economy. This is also the fact that, world research and development expenditures are even very asymmetrically distributed. Developing countries on the most recent estimates, only account for four per cent of global R&D expenditures.<sup>44</sup> These expenditures are growingly concentrated in a few countries and firms, and though the apparent “globalisation” of R&D activities has created some expectations as to the transfer of R&D capabilities to developing countries, decentralisation of R&D is only or mainly taking place in developed countries.

In addition, large firms of developed countries have been able to develop a complex network of cooperation in technology through strategic alliances, which further enhance their dominant role in technology generation and use. This is similar to the kind of cooperation that Rawls argued for, to exist between the fortunate ones and less fortunate ones. The supply of technical and financial cooperation for developing and least developed countries is mentioned in article 67 of the agreement, but no specific obligations or operative mechanisms are provided for. The provision of the assistance is on request and subject to mutual agreed terms and conditions. Such cooperation shall include assistance in the preparation of laws and regulations of IPRS as well as on the prevention of their

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44. UNDP 1999.

abuse, the establishment or reinforcement of domestic offices, including the training of personnel. Despite the clear justification and purposes of these provisions, little has been done to implement them. Moreover, the strengthening of IPRs in accordance to the TRIPS Agreement has reinforced the power of private parties to control the use and eventual transfer of technology.

As developing countries reach higher level of technological development, they have a more sophisticated demand for technologies, which have not yet reached the maturity stage. Unlike mature technologies, which are some time easy to acquire, technology, which is still changing and profitable, like software programs are increasingly more difficult to be obtained. TRIPS implies the imposition of standards prevailing in developed countries on developing countries, despite the fact that, in the area of science and technology, developing countries probably face the most dramatic asymmetry in the North-South relationship. This I think according to Rawls difference principle indicate that TRIPS does not match with Rawls idea. Unlike other agreements within the WTO, the TRIPS Agreement does not contain any special or differential treatment for developing countries except the transitional periods, which for developing countries have already expired and are still valid only for the least developed countries and which I think raised a question of moral justification for its universal application that need further analysis.

#### **4.4 Universal justification**

Many countries take a much different ethical view of intellectual property rights. For instance, the least developing countries considered new ideas and technologies to be public goods for everyone to share freely. Because they maintain the assumption that, intellectual property of any kind should be shared in the public domain for the benefit of the society. So developing countries are more concerned about extending technology through out society than providing incentives for major technological innovations. And they favour a weak scheme of protection for intellectual property.

The fundamental conjecture of developing countries particularly the least developed countries is that intellectual property should be seen more as common property than as belonging to exclusively to one individual or corporation. According to Paul Steidlmeier, “developing countries argued that individual claims on intellectual property are subordinated to more fundamental claims of social well-being”<sup>45</sup> He notes that these countries also reject the idea that technological developments will eventually be transferred to others despite a strong system of protection.

Also most countries, particularly the least developed countries do not give much weight to the Lockean arguments on one’s entitlement to the fruit of one’s labour, but maintain that “ while people may have a right to the fruit of their labour, they have a duty to reward society which practically made the very fruitfulness possible”<sup>46</sup>. This assumption is different from what is stated in TRIPS on patent and copyrights protection, and it does show how different, countries perceive TRIPS particularly its application.

According to Carlos M. Correa, “The Uruguay Round has fostered a process of universalisation of IPRs standards of protection. The TRIPs Agreement has clarified and reinforced IPRs protection in three key IT areas: computer programs, databases, and layout designs of integrated circuits. The Agreement leaves, however, certain room to implement its standards in accordance with national legal systems and interests”.<sup>47</sup> But “current trends on IPRs relating to computer programs may impose even harder conditions for the development of a software industry in least developed countries. This will depend, however, on the way in which such countries frame their domestic laws while abiding by the TRIPs Agreement.”<sup>48</sup> However, the administrative cost in writing and securing global patent rights is far within a reach of least developed countries.

These impediments to securing global patent rights arise because, unlike the situation with trade secret and copyright protection, patent protection must be separately sought in

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45( Paul Steidlmeier, P.161.)

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47 Carlos Correa 2000-2d

48. Ibid

each jurisdiction where the patent is to have effect. The rights under a patent do not fully mature unless and until the patent granting process is concluded. Moreover, patent property, throughout its highly limited life, is typically the subject of fees, often escalating progressively, that are imposed to keep the patent rights in force and effective.

The administrative barriers are far from inconsequential. Countries that are bound by TRIPS are required to have patent granting mechanisms. Seeking patent, getting them issued, and maintaining them in force can represent a monumental exercise on the part of developing countries particularly, the least developed countries. For much patent technology, the cost of perfecting the protection throughout the World Trade Organisation (WTO) countries will, in present value terms, exceed the anticipated value of the patent property right.

The economic difficulties are compounded, even if there is an invention, in many less developed countries, the charges incurred by inventors for filing, examining, and maintaining patents exceed the cost of operating the administrative agencies that undertake the patent processing function. Again, much of the work done globally in processing patent applications is completely redundant. This redundancy occurs because countries employ only slightly differing standards for determining whether a patent right can be validity granted and because countries employing substantially the same standards they do not have mechanisms for affording to completed patent validity.

Indeed, some economists view with alarm the trend towards broader and stronger patents arguing that “these would hinder rather than stimulate technological and economic progress as they lead to higher barriers to entry for new firms and would have particularly disastrous effects in developing countries”.<sup>49</sup> However, the practical significance of the option of defining the criteria of patentability to suit national interest for countries that do

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49. Mazzoleni and Nelson 1998

not have skilled examiners or judges appear to be rather limited. Examining of patent applications is a very specialised task performed by highly educated technologists, well trained in patent law, who can make independent determinations of the patentability of complex, frontline inventions. Developing countries would need to pool their resources to achieve such goal.

So in this context, the larger issue of harmonised global patent system and the more specific one of whether every developing country can afford to have individual patent system or whether they should leave such matters to a regional system operated by the national patent office of a few qualified countries, becomes important, because this is more than just an institutional problem that can be addressed through training and development or the writing and dissemination of detailed manuals for patent examination.

According to Carlos M Correa, “the impact of IPRs on the access, acquisition, and use of information technologies has not been systematically explored so far. Examining the impact of IPRs on access, acquisition, and use of information technology (and digital information) in developing countries is a difficult theoretical and empirical endeavour.”<sup>50</sup> This I think elucidate the fact that no adequate information or research has been done to access the capability of the least developed countries to test their capabilities to implement TRIPS Agreement. As to whether the least developed countries will be able to implement the TRIPS agreement before the stipulated time frame given will expire is another awaiting developmental result.

Developing countries particularly the least developed ones have insignificant role in the production of computer software, because knowledge and other technologies necessary for technological development is not available; because a patent program cannot be used as a basis for further development without the authorisation of the patent holder.

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50. Carlos correa

This may block a whole area of possible innovation and it may be difficult in some cases to invent around software patent, since mathematical rules are logical and precise, and in some cases there may be no alternative way for obtaining the same effect. Again if licensing is sought for and obtained on a piece of software, royalties may be too high particularly for a small firm in developing countries to ensure the feasibility of the project. Access then will be problematic.

For less developed countries, even if patents may be circumvented and new technical solutions found, serious problems still remain. It may be impossible to design a program that at a certain point will not infringe an existing patent. Patent searches to establish whether patents would be infringed are extremely costly and difficult to make. What is even worse, a patent search does not guarantee that a patent would not be infringed; and if this is the case, litigation cost may force “small” firms who are trying to come up in least developed countries out of business and demoralise individual effort. As a result said Carlos Correa, intimidated firms may opt for cancelling development projects.

Again copyrights law as stated in TRIPS may have a significant impact on the production of software in developing countries. The impact on production will be dependent on the modalities of protection, particularly on the degree to which the idea and expression dichotomy is recognised and enforced. The existence of protection against literal copying of software as requires by the TRIPS Agreement clearly benefit all enticed in the marketing of software programs. Whether developed or developing countries. However, the main beneficiaries are those that sell packaged software; mostly, existed in the developed countries, since illegal reproduction of custom software is prevented, even more simply, by means of contractual obligations.

Strict enforcement of IPRs may negatively affect the diffusion of computer programs in the less developed countries. If, as generally assumed, such diffusion may foster increases in productivity and enhance firms' competitiveness, barriers to diffusion may in turn jeopardise already poor economic performance of most developing countries.

Moreover, liberal copying of software would arguably reduce the cost of access to software. According to Wells “a country which is not an innovator, it may be convenient, from an economic perspective, to facilitate the obtaining of copies at low cost to stimulate a rapid software diffusion and save foreign currency.”<sup>51</sup> However, “the advantages of unrestricted dissemination of non-authorised copies may be offset by some disadvantages.”<sup>52</sup> The lack of appropriate maintenance and after-sales support may hamper an efficient use of computer programs by the least developed countries who normally buy already packaged software. All WTO Member countries were obliged (by 2000 in the case of developing countries) to provide protection of computer programs as “literary works”, in accordance to the TRIPs Agreement. Non-complying countries may be subject to trade retaliations; which put more pressure on the less developed countries and even the least developed ones whose time will soon elapse.

Although, the adoption of minimum standards under the TRIPS Agreement including such as definition of protected subject matter, terms of protection, and extent of exclusive rights, has reduced national freedom and increased to an unprecedented level the degree of universal harmonisation of IPRs. Agitations on the TRIPS Agreement were initiated by request of and under strong pressure from, industrialised countries. Their objective was to establish minimum standards, with regard to substantive as well as to procedural rules, with a universal application, on practically all areas of intellectual property. Developing countries reluctantly negotiated such standards but finally agreed to make important concession in terms of future reforms of their intellectual property law. This means that, developing countries are bound to incorporate standards of protection basically in accordance with those so far in force in industrialised countries. Basically making the universal application of TRIPS morally questionable.

Despite possible change in the TRIPS Agreement to favour the transfer of technology, the IPRs framework is too limited to address the complex issue involved in the

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51. Wells 1987

52. Correa 1990c

technology transfer process, including the creation of local infrastructure able to absorb the transferred technologies. Technology transfer policy should aim at the absorption of foreign technologies and the building up of local capabilities. Technology transfer alone would be insufficient to develop a viable technological infrastructure.

Given the nature and complexity of the process of acquiring and absorbing technology, developing countries concerns may need to be addressed in the framework of several WTO agreements, and not only of the TRIPS Agreement. Though some WTO agreements may be improved or supplemented, they provide a narrow framework to comprehensively deal with the complex issue at stake in the area of transfer of technology. However, this and other arguments raised above might be deemed appropriate for one to conclude that, universal application, especially strict adherence of the TRIPS Agreement is morally unjust given the deplorable and poor infrastructures necessary for technological development of the developing countries.

#### 4.5 Open-source software program

As I stated earlier in chapter one, against the use of proprietary software because of the cost involved, people begin to look for alternative not by illegal copying of software but by making use of Open-source software/reverse engineering. Open-source programs are programs whose licenses give users the freedom to run the program for any purpose, to study and modify the program, and to redistribute copies of either the original or modified program (without having to pay royalties to previous developers).<sup>53</sup> What marks open-source software out as different from proprietary software is the license under which it is distributed. Open-source licenses allow organizations and individuals to use and modify and resell the code, so long as any modifications are given back to the programming community.

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53. David A. Wheeler, May 7, 2003.

Given the circumstances of the least developed countries and the need for technological development as elaborated earlier on, it is useful here to find a moral ground upon which the use of open-source software is justifiable by the least developed countries. Trends relating to copyright may have a significant impact on the production of software, in developing countries. The impact on production will be dependent on the modalities of protection, particularly on the degree to which the idea/expression dichotomy is recognised and enforced.

The cost of proprietary software is a major problem in developing countries, which forces the government to pay huge sum of money for royalties. And for developing countries to help adapt software to meet their local needs, their government should ensure that their copyright laws allow reverse engineering of software programs, while complying with relevant international treaties they have signed.

Innovation in the software industry is very dependent, as mentioned before, on the improvement of existing products. Development costs can be significantly reduced by the use of reverse engineering. A crucial aspect for innovation for developing countries in the software program is, therefore, the extent to which the reverse engineering and improvement of computer programs are feasible and legitimate.

In contrast to the tacitness present at the production phase, software products are fully formalised and codified. This affects the appropriability of the results of development work, since much of the embodied know-how is "borne on the face" of the product. Other embodied elements of the know-how may be obtained through decompilation and disassembly. "Decompilation" and "disassembly" are technical procedures that permit the reverse engineering of software products. "Decompilation" allows one to translate a machine language program into a high-level representation program, i.e., a more understandable form. By "disassembly", a machine language program is translated into an assembly language program. Though such procedures are useful for small products, this is not necessarily the case for large ones, at state of the art, since decompilation in the latter case is extremely costly and time-consuming.

In principle, under the idea and expression dichotomy, reverse engineering is a legal method of acquiring knowledge of the internal organisation and structure of a program, with a view to producing a new program differently expressed. Reverse engineering is also legitimate with regard to trade secrets, except if unfair practices are used to obtain the relevant knowledge.<sup>54</sup>

Given the following analysis however, national legislation can, therefore, legitimately and morally provide for reverse engineering of computer programs to enhance technological development. And given the definition and condition of open-source software, the use of it is morally right and developing countries could make use of it for their development.

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54. Neff and Smallson 1994: 102

## **Chapter 5 Summary and Conclusion**

The subject of this thesis has been to examine the ethical conception of Intellectual Property Rights and in particular its implications on the developing countries in relation to Trade-Related Aspects of Intellectual Property Rights 'TRIPS'.

I started by looking into the existing laws under the Intellectual Property Rights and the Trade-Related Aspects of Intellectual Property Rights as they apply to patent and copyrights in the area of information technology, particularly software program. And also reflect on the issue of open-source software.

I problematised that, software programs have created moral issues both at the public policy level and individual level. And I asked, if it is ethical for computer software to be protected as private property?

The following questions were asked:

- 1) Should a software program be treated as property?
- 2) What is the moral implication of proprietary software to the less developed countries?
- 3) Is the universal application of Intellectual Property Rights morally justifiable?

To answer these questions, I started by looking in to the philosophical ideas of property, namely: (i) Natural theory,

(ii) Instrumental theory, and

(iii) Labour theory.

I further presented John Locke's theory of property rights and argued that, his notion is appealing and using this notion, it would seem that a software developer could argue that

the software he or she develops is rightfully his or her property because it was created from his or her labour. This seems to be a powerful argument for granting some sort of property right in computer software. Yet despite it appealing, I argued that, the natural rights argument has several faults especially when it comes to computer software. His arguments are unapprehensive in the way it connects ownership to labour. I problematised this by using Nozick's point, questioning the connection between labour and ownership. And later arrived to a point that, labouring on something improves it and makes it more valuable; and anyone is entitled to own any thing whose value he has created. And therefore, hence one can claim ownership of a software program.

I also argued on Rawls conception of justice, particularly his conception of the two principles of justice in relation to the TRIPS Agreement. I then argued on universal application of the TRIPS Agreement. And also put some reflections on the use of open-source software. I concluded that, TRIPS implies the imposition of standards prevailing in developed countries on developing countries, despite the fact that, in the area of science and technology, developing countries probably face the most dramatic asymmetry in the North-South relationship. This I think according to Rawls difference principles indicate that TRIPS does not match with Rawls idea. Unlike other agreements within the WTO, the TRIPS Agreement does not contain any special or differential treatment for developing countries except the transitional periods, which for developing countries have already expired and are still valid only for the least developed countries. I further deduced that, universal application of TRIPS, especially strict adherent of the TRIPS Agreement is morally unjust given the deplorable and poor infrastructures necessary for technological development of the least developing countries; and also that, national legislation can, legitimately provide for reverse engineering of computer programs to enhance technological development. And given the conditions under the open-source software, the use of it is morally right and developing countries could make use of it for their technological development.

I can therefore conclude from my assertions that, strong IPRs protection will hinder rather than facilitate technology transfer and indigenous learning activities in the early

stage of industrialisation when learning takes place through reverse engineering; and only after countries have accumulated sufficient capabilities with extensive science and technology infrastructure then IPR protection becomes an important element in technology transfer and industrial activities. If adequate protection and enforcement of IPRs is intended to enhance development, policy makers should seriously consider differentiation in terms of the level of economic and industrial development.

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