A New Wave of Freedom

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Any action that is dictated by fear or by coercion of any kind ceases to be moral. — Mohandas Karamchand Gandhi

India became a Sovereign Republic on 26 January 1950. India became free. Or, more precisely, political power was transferred from the British to Indians. That was a period when a number of countries that were living under the yoke of imperialism broke free. Politically, that is. We still do not enjoy certain freedoms that we deserve.

A new wave of freedom movements, to achieve these freedoms, is now sweeping the world—a movement that is bound to change the way we think, the way we do things and the way we interact. This time it started from the United States and is aiming to free people from the clutches of monopoly corporations. And the role of Gandhiji is being played by an extraordinary person with long hair and a long beard; a man named Richard Mathew Stallman, though he vehemently rejects any comparison with Gandhiji or Nelson Mandela.

"Till we are fully free, we are slaves", said Gandhiji. Developments in technology have made it possible for mankind to enjoy greater freedom in certain ways. However, vested interests, with help from legislators, are now succeeding in preventing society from enjoying this freedom. For instance, with the advent of the computer and the Internet, it has become possible for data, information and knowledge to be communicated instantaneously, provided a computer with Internet connection is available at both ends. However, some of our laws that were designed for an earlier era are preventing society from benefiting fully from this technology. The new freedom movement is finding means to circumvent these laws. And, interestingly, this movement is not led by political parties or activists, but, of all people, by computer programmers (or *hackers*). Let us look at some of the ways in which our freedoms are being curtailed, and how there are ways in which we can regain our freedom even within the existing paradigm.

Freedom in Software

When you switch on your computer, you are making a political statement. This may sound absurd, trying to find politics in even mundane matters. But this is a fact.

In the early days of the computer, users used to write their own programs and they used to exchange these programs according to need. No one used to keep exclusive rights

to the programs. Those days, computers were big and expensive, often occupying their own rooms, but were relatively much less powerful compared even to today's small PCs. As technology developed, computers became smaller and, interestingly, more powerful. It was around the early 1980s, that computer manufacturers started enforcing what was called a *non-disclosure agreement* on programmers who were engaged to write software for their computers. These agreements prevented programmers from disclosing the human-readable source-code of the programs. And software became a product for which users had to pay. Of course, some users continued to write programs for their own purpose, which some people still continue to do, but ready-made programs became available on payment that computer users increasingly started using. It was as a reaction to this productisation of software that Richard Stallman, then working in the Artificial Intelligence Lab of the Massachusetts Institute of Technology, decided to create an operating system (OS) and applications that gave users freedom. He believed that software is like knowledge (as he often says, like a recipe) and, like knowledge, software should not be the property of any individual or organisation. It should belong to all humanity. Stallman wrote:

"What does society need? It needs information that is truly available to its citizens—for example, programs that people can read, fix, adapt, and improve, not just operate. But what software owners typically deliver is a black box that we can't study or change.

Society also needs freedom. When a program has an owner, the users lose freedom to control part of their own lives." (see http://www.gnu.org/philosophy/why-free.html)

As a result, he started a project that he named GNU to create Free Software, and he decided to model his Free operating system on the then very popular Unix. Unix was a proprietary OS that could handle multiple users simultaneously, could be used to interconnect computers, and was very secure. In those days, many programmers used to name a new program that was similar to an existing one by creating an acronym saying this is not that. Thus, for instance, a new text editor similar to the existing Emacs editor was called *eine* for *Eine Is Not Emacs*. In a similar manner, he called his new OS by the name GNU for *GNU is Not Unix*. This was later used along with the Linux kernel (the core part of an OS) and thus was born the GNU/Linux OS. We now have different kernels that can be used along with GNU software, such as Free BSD, Open Solaris and so on.

"Free Software is a matter of freedom, not cost. It is a matter of liberty, not price. The word 'free' in Free Software has a similar meaning as in free speech, free people and free country and should not be confused with its other meaning associated with zero-cost. Think of Free Software as software which is free of encumbrances, not necessarily free of cost. Think of it as *swatantra* software." (see www.fsf.org.in). Free Software is software that gives users four freedoms, namely,

1. Freedom to **use** on any number of computers for any purpose;

2. Freedom to **share** the software with your family and friends;

3. Freedom to **study and modify** the software; and

4. Freedom to **redistribute** the modified software.

The third freedom means that the so-called source code (the human-readable text) of the programs should be available to any user who wants it. But one may wonder what use it is to the users. While most users may not be able to even study and understand the program, let alone modify it, this freedom makes it possible for anyone to get a programmer to modify it, and also makes it possible for programmers around the world to at least study it and ensure that no part of the program causes any harm to the users. In reality, business houses and other organisations are able to modify it to suit their needs.

Stallman soon left his job in MIT because of the fear that MIT may claim the copyright for his work. He was virtually a one-man industry when he started the GNU project in 1984, but was later joined by tens of thousands of people from all over the world. In 1985, He started the Free Software Foundation (FSF) to promote Free Software. Today, apart from the FSF in Boston, USA, (see www.fsf.org) there are FSFs in Europe (www.fsfeurope.org), India (www.fsf.org.in) and Latin America (www.fsfla.org). And Free Software has become powerful enough, and popular enough, to challenge the might of many proprietary software companies. For instance, all schools in Kerala use only Free Software, and the government of Kerala is in the process of migrating all its computers to Free Software. Schools in the Extramadura province in Spain do the same. But much before that, the city of Munich had decided to migrate all its computers to Free Software. Many companies and government bodies have already migrated (such as ELCOT in Tamil Nadu) or are in the process (the Kerala State Electricity Board, for instance). Though the Government of Kerala has adopted an IT Policy that explicitly promotes Free Software, the Government of India is yet to take such a step. Let us hope that the Government of India too will soon declare freedom in software.

Freedom in Knowledge

Now, software is like knowledge, as Stallman found. The similarity can be established in a very detailed manner. Instead of listing all the arguments, it may be pointed out that a lot of knowledge is available in digital format today, and, for a computer, there is little difference between a program and digitised knowledge such as a text file, image file or video file. In this situation, it should be possible to make knowledge also Free, just as the GNU project made software Free.

In March 2000, Jimmy Wales, an American Internet entrepreneur, started Nupedia, a free content online encyclopedia, the forerunner of today's Wikipedia. The content of

the encyclopedia was licenced under the Nupedia Open Content Licence that permitted anyone to copy, modify and distribute it, but prohibited anyone from charging for the content. The content was written by volunteers whose capability in the area was assessed by a committee and the content they submitted was peer reviewed before publishing. The cost of running Nupedia was underwritten by Bomis, an Internet company owned by Wales.

However, Nupedia had a short life. (It was wound up in 2003 after Wikipedia became a success.) Many contributors were unhappy with the extent of editorial control over contributions, and Richard Stallman and the FSF were in favour of giving much greater freedom to contributors. As a consequence, FSF started a new Free encyclopedia called GNUPedia in 2001. But since Jimmy Wales already owned the domain name gnupedia.org, this was renamed GNE (for *GNE is Not an Encyclopedia*) along the lines of GNU. GNE had a still shorter life partly because it was going through a struggle to decide on the extent of editorial control, but mainly because Nupedia started Wikipedia in 2001, which offered total freedom and licenced its content under the GNU Free Documentation Licence. Apparently, it was Stallman who first put forward the suggestion for a Free online encyclopedia in 1999. Though he started GNE, after its failure he has been supporting Wikipedia.

Wikipedia today is the most popular encyclopedia with more than two million articles in English alone and has pages in many other languages. Eight of these languages have more than 3,00,000 articles and eight other languages have more than 1,00,000 articles. 254 languages of the world have at least one Wikipedia page. Indian languages are not well represented in Wikipedia. Telugu tops with 38,000 articles, followed by Bishnupriya Manipuri at 23,000, Bengali (17,000), Hindi (16,500), Marathi (16,200) and Tamil (13,000). All other languages have less than 10,000 articles. It is understood that the Malayalam encyclopedia being published by the Government of Kerala is planning to put all their articles in Wikipedia. Though, admittedly, the number of Internet users is a tiny fraction of the country's population, this is bound to grow and the availability of information in Indian languages would certainly be a great help to all Indians, in India and abroad.

Wikipedia is today run by a non-profit organisation called Wikimedia Foundation with the help of contributions from the public. It has several other projects today, such as Wikibooks, Wikinews, Wiktionary, and so on. All the material, including text and figures, in all these sites can be freely copied, modified and used for any purpose without violating the copyright rules. This really is Freedom in knowledge.

Another related project is Wikimapia (http://wikimapia.org/). To quote Wikipedia, "WikiMapia is an online map and satellite imaging resource that combines Google Maps with a wiki system, allowing users to add information (in the form of a note) to any

location on earth. It was created by Alexandre Koriakine and Evgeniy Saveliev, and was launched on May 24, 2006 with the aim of 'describing the whole planet Earth'. It is one of the top 1000 websites visited, and has over 6 million places marked. While registration is not required to edit Wikimapia, over 153,000 users from around the world are currently registered."

Freedom in Creativity

The word "knowledge" is used here to denote a wide spectrum of material including articles, books, stories, pictures, music, movies and so on. It has to be remembered that each of these has certain features that are not present in the others. Thus, for example, an article on Indian astronomy would largely contain material culled from various sources, though the actual form of presentation may be the author's own. But a story would be the creative work that has emerged totally from the author's imagination.

Thus, for human beings, knowledge has a fundamental difference with software. This is because, unlike software, it may not be advisable for some forms of knowledge to be allowed to be modified by anyone. Thus, for example, an interview with a personality has to retain its form and content since it is a report of an actual conversation. It may become dangerous to allow anyone to modify it. On the other hand, freedom could be given, for instance, to publish it elsewhere without any modification. Again, an artist may not wish anyone else to modify his painting, though it may not cause any problems. Thus, it is not sufficient to have a single licence for all forms of knowledge as we can do with in the case of software. Then what is the solution?

The solution was first offered by Creative Commons (CC) in December 2002. Creative Commons (http://www.creativecommons.org) was launched by Lawrence Lessig, Professor at Stanford Law School, and friends precisely to address this problem. "Creative Commons took its idea 'give away free copyright licenses' from the Free Software Movement. But the problem we aimed to solve was somewhat different." says Lawrence Lessig. And how was it different? "We didn't begin with a world without proprietary culture. Instead, there has always been proprietary culture meaning work protected by an exclusive right. ... But for most of our history, the burdens imposed by copyright on other creators, and upon the culture generally, were slight. And there was a great deal of creative work that could happen free of the regulation of the law. ... All that began to change with the birth of digital technologies, and for a reason that no one ever fully thought through."(see http://creativecommons.org/weblog/entry/5668).

There was another reason that prompted the formulation of these licences. After the Berne convention in 1886, it became unnecessary to register for copyright. Any original material is automatically copyrighted. This was not so earlier. Eventually it became unnecessary even to mark a document as copyrighted. Unless otherwise declared, every

document not in the public domain is copyrighted. Thus, it becomes difficult even to know whether a work is protected under Copyright law or not. This puts considerable difficulties in reusing material that is already available. And authors who may be willing to allow others some freedoms had no means of doing so. It was either Copyright or Public Domain (which allows all rights to everyone).

Creative Commons offers several licences through which the creator can offer certain freedoms to the people—or, as CC puts it, *Some Rights Reserved* as opposed to *All Rights Reserved* under Copyright. CC has four core licences, namely, Attribution (denoted as *by*), Noncommercial (*nc*), No Derivative Works (*nd*) and Share Alike (*sa*). These licences can be combined to produce new licences such as by-sa, by-nc-nd and so on (see http://creativecommons.org/about/licenses/meet-the-licenses for more details) that are more useful than the core licences. CC has also developed a Sampling licence that permits others to use portions of the work in their own work. Remember a young author of Indian origin being penalised some time back for using parts of other books in her novel, even though people liked her novel?

An interesting consequence of CC was demonstrated through the creation of a piece of music through collaboration between different people who never knew each other. Colin Mutchler, an advocate for using media and technology to inspire people and cultures to take action toward a sustainable economy, submitted "My Life," an acoustic guitar song, to Opsound, a music registry that requires Attribution-Share Alike licensing; Cora Beth, a total stranger to Colin, then layered a violin onto the song to create "My Life Changed." No copyright lawyers were consulted—or harmed—in the process. Gilberto Gil, Brazil's Minister of Culture and a Grammy-award winning musician, has been supporting freedom in culture and has released some of his music under the CC Sampling licence.

A natural question is whether the creator will not lose revenue by allowing people to freely use his/her creations. The experience has been that (s)he does not. For instance, music groups have said that free music downloads, in fact, help them get more concerts. And their main income is from concerts (see http://www.news.com/2010-1071-944488.html, for instance. A Google search will find several such reports). And there are ways in which they can earn money, too. As Stallman and others have suggested, there can be a link on the download page that makes it possible for a user to make a payment voluntarily. For a reasonably good work, this could fetch the author a good sum. In any case, illegal copies of most movies and music are freely available in almost all parts of the globe, especially in developing countries, and nothing has happened to either the music industry or the movie industry. However, in the long run, the publishing industry, the recording industry and the film industry may have to move to a new paradigm that may be defined by the new technologies that are bound to emerge, though these industries have always shown a strong tendency to cling on to old paradigms and try their best not

to change. (Remember how the music industry protested when the tape recorder was invented.) Till then, however, no drastic changes can be foreseen.

The music industry in the US succeeded in bringing legislation to support them through the DRM (Digital Rights Management) technology and an associated law and the DMCA (Digital Millennium Copyright Act). Stallman and Free Software enthusiasts call DRM *Digital Restrictions Management*. The technology actually prevents people from copying material recorded using the technology, or even play the recording on another player. Therefore, the word *Restrictions* seems to be more appropriate. Music enthusiasts have been protesting against this and one can find a lot of material on the web on this. They say that DRM even prevents their fair use right to make a back-up copy. Opponents have created software that can overcome DRM technology. But the DMCA makes it illegal to create or use such technology to break DRM. Fortunately, these laws are now present only in a few countries. India is under pressure from Indian and foreign recording industry to implement these laws. But let us hope that India would choose to give the benefits of technology to society than to the industry.

Freedom in Scientific Publishing

Publication of journals in science was started with the intention of communicating the results of research to other scientists. The first scientific journal in the modern sense was the *Philosophical Transactions of the Royal Society of London* which started publication in 1665. In those days, the only means of such communication was through print. Most of the first journals were published by societies of researchers such as the Royal Society. As the number of journals increased, and the number of researchers also increased, publication companies found this a good business. A number of large publishing houses entered the business and, interestingly, the price of journals too started increasing. Eventually, the scientific community started revolting against journals that charged heavily. In 2001, two organisations jointly published what was called *Declaring Independence* (see http://www.arl.org/sparc/DI/).

Scientific or scholarly publishing is in many ways different from other forms of publishing. Here, articles are written by researchers and peer-reviewed by researchers. The editors of journals are also often researchers. The publishing house only prints and sends the journals to subscribers. The researchers are mostly paid by the public. Their research work is also supported by the public. Yet, the copyright of the articles is owned by the publishing house. Researchers and the public need to subscribe to the journals (ie. pay the publishers) for access to the information that was generated through public funds. And the journals were increasingly becoming more and more expensive that even some of the well-to-do universities in developed countries found it increasingly expensive to subscribe to all the relevant journals. These were the circumstances in which the scientists

began to revolt.

The movement seems to have started in 2001 with a petition initiative by Patrick Brown and Michael Eisen, though there were sporadic protests from scientists even earlier. Thus, Prof. Donald Knuth, author of the classic *Art of Computer Programming* and the inventor of TeX, a language for typesetting technical documents, writes, "I love my library and the other libraries I visit frequently, and my blood boils when I see a library being overcharged. Therefore, I wrote a strong letter to Elsevier in August 2001 ... expressing serious concerns about their future pricing policy for the *Journal of Algorithms*. Elsevier, however, ignored my letter and did not reply." (see http://www-cs-faculty.stanford.edu/%7Eknuth/joalet.pdf). The Brown-Eisen petition called for all scientists to pledge that from September of 2001 they would discontinue submission of papers to journals which did not make the full-text of their papers available to all, free and unfettered, either immediately or after a delay of several months. The establishment of the Public Library of Science (PLoS) was the next important event in the move towards freedom in scholarly publishing. Though they had support from an eminent Nobel Laureate, Dr. Harold Varmus, they had to wait for some time before they could become fully operational, with the publication of the journal *PLoS Biology* in 2003. Today they publish 7 journals, the contents of which are freely available on the Internet. They follow an author-pays model where authors of articles have to pay for publishing. They, and similar other journals, have provision to waive payment for authors from developing countries or authors who do not have provision for payment.

In Europe, the *Budapest Open Access Initiative*, which was, at the same time, a statement of intent, a statement of strategy and a statement of commitment, was signed by several scientists at a meeting convened by the Open Society Institute during December 1-2, 2001. Today, the Initiative has been signed by thousands of scientists. This initiative has made a significant impact the world over, especially in Europe. Several research and funding agencies, such as CERN and NIH, have mandated open access for all publications arising out of research funded by them.

Open Access means that the publications are available freely to other scientists and to the public. In fact, it asks for all freedoms for users and demands only that the author be acknowledged and the integrity of the material be maintained. Of course, it does not permit republication of the material in the original form or in modified form, as CC licences do! Open Access to scholarly publications is very important in a country like India, obviously. The Government of India, therefore, should mandate Open Access (OA) for all publications arising out of publicly funded research. This can be in either of two ways: (i) the author can put up the article in his/her own website, in his/her institute's website or at a centralised website (journals that permit this are called OA Green); or, they can publish in Open Access journals that put up their contents on their own websites

(called OA Gold). Fortunately, a large fraction of Indian journals are OA. But most good papers from India are published in journals abroad that are not necessarily OA.

Freedom in Commerce

This is about a new experiment being conducted in India. The idea is to bring total transparency to businesses. An IT company has started functioning in Pune, called *WikiOcean*. Details about the company can be found at www.wikiocean.net. This company is unique in that the company website shows all details of its functioning, including financial transactions. They call this kind of system a *Wekosystem*, a play with *wiki* and *ecosystem*. As its website explains, "WikiOcean is a participatory, non-proprietary organization where professionals join on revenue-sharing model as explained in the wekosystem." This company was inspired by the transparency of Free Software, and, in fact, one of the so-called *catalysts* (the ones who regulate the structure and dynamics of wekosystem) is the Chairman of the Free Software Foundation of India, Prof. G. Nagarjuna. The company has started functioning, and is already working on projects. But it is too early to see how well such a company can survive. Let us hope for the best.

Another absurdly exotic idea is to copy the Free Software model for other products. In other words, make all needs freely available to everyone! Though this may sound totally absurd, we may not be able to simply rule out the possibility since some small scale efforts are already on and seemingly running. This idea is being discussed by a not so small group of people that calls itself *Oekonux* (derived from *oekonomie*, the German word for economy, and Linux). Details can be found at www.oekonux.org and you could join their active mailing list if you are really interested.

Conclusion

As we have seen, new technologies bring new challenges and new ideas. And we may have to rewrite old laws that were created for an entirely different situation, a different technological paradigm. When new technology appears, we need to change our laws to suit the new situation so that the entire society can fully benefit from the new technology. Else a small section of society could garner all the benefits. And, at the pace at which technology is changing, it is not going to be easy to keep track of all its implications. Our technocrats and policy makers need to keep pace.