Infotopia: How Many Minds Produce Knowledge

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Chapter Five / **Many Working Minds: Wikis, Open Source Software, and Blogs**

Prediction markets are a simple way to aggregate private information, and the Internet has greatly contributed to their growth. But with the Internet, countless other methods are available. Every day, companies are taking advantage of information from many minds to see what particular minds will find appealing. Consider *collaborative filtering*, the process of figuring out what you're likely to like by investigating the tastes of minds that are like yours. Amazon.com is a familiar example: A computer program identifies the preferences of those who have bought what you bought, and it generates a series of recommendations that are likely to match your tastes. The recommendations can be eerily good.

Netflix.com is more elaborate. You are asked to rate the movies you see. On the basis of those ratings, Netflix identifies your tastes, and then matches them with people with similar tastes. Through this process, Netflix is able to predict how you'll like movies that you haven't yet seen. Many people report that the predictions are uncannily accurate.

I have referred to the idea of the Daily Me, a personal newspaper that caters to your particular tastes. With the Daily Me, you can filter out everything that you don't like and filter in whatever best fits your tastes. As it turns out, we don't need to create a Daily Me. It can be created for us, precisely because producers have access to many minds, some of which are eerily close to ours. No one may be a

perfect match for you—perhaps your enthusiasm for Sheryl Crow fits poorly with your other tastes—but collaborative filtering works exceptionally well. It can even build cocoons.

The question for that process, however, is relatively narrow; it is how to discern the tastes of one person by learning the tastes of others. My question here is much broader: What mechanisms can be used to elicit the dispersed knowledge held by many minds, allowing them to contribute to products and activities that concern us?

Let us focus on three possibilities: wikis, open source software, and blogs. The three have important commonalities and also noteworthy differences. They offer distinct models for how groups, large or small, might gather information and interact on the Internet. They provide important supplements to, or substitutes for, ordinary deliberation. They might even be seen as central places in which deliberation is now occurring—with increasing social importance.

Of course, wikis, open source software, and blogs are only three mechanisms for aggregating information; new ones will inevitably emerge. My hope is that an understanding of these methods will be helpful not only for its own sake, but also as a means of appreciating initiatives that are now just beginning, or that remain mere fantasy. In the domain of information aggregation, things are changing with amazing speed, but we know enough to have a sense of what is on the horizon.

/ Wikis, Wikipedia, Flu Wiki, and Beyond /

Wiki World /

A wiki is a Web site that allows any user to add material and to edit and delete what previous users have done. The term comes from the Hawaiian word *wikiwiki*, which means "fast" or "speedy." (That term may well come from the

English word "quick"; if "quick" were translated into Hawaiian phonology, *wiki* or *kiwiki* would be the result.) The concept of the wiki originated with Ward Cunningham, who sought to produce "the simplest online database that could possibly work."[1] In 1994, Cunningham developed the initial wiki server, which provided an exceptionally easy means of editing and which invited contributions from anyone who wanted to edit or add material.[2]

In the enthusiastic words of Cunningham and his coauthor Bol Leuf, "Wiki is *inherently democratic*—every user has exactly the same capabilities as any other user."[3] Cunningham's own wiki is thoroughly democratic in that sense. Other wiki software, such as the widely used MediaWiki, includes special support for "administrators" with greater powers than other users. Nonetheless, wikis are democratic in the sense that they permit anyone to edit pages.

At first glance, the democratic quality of wikis seems to be a big problem. If anyone in the world can make changes, isn't the text vulnerable to pranks and even destruction? Isn't some kind of security needed to protect against malevolent people? Cunningham and Leuf say that "experience shows that in fact little damage is done to wiki content even in the absence of security mechanisms."[4] If this is so, it is not because of economic incentives, as in prediction markets. It is because most people really want the process to work. An important current use of wikis is to create documentation for technical projects, and many free and open source software projects now use wiki as the preferred format for creating such documentation.

Wikipedia /

Of course, software projects are not everyone's cup of tea. To date, the most notable wiki, by far, is Wikipedia, a free,

Web-based encyclopedia that attempts to take advantage of the information held by its tens of thousands of contributors ("Wikipedians"), who add to and edit the encyclopedia. (Try it, if you like; it's easy.) Wikipedia is written and edited by these numerous volunteers, who can change and add articles however they wish. Its remarkable goal is nothing less than "to distribute a free encyclopedia to every single person on the planet in their own language."[5]

Wikipedia is growing at an explosive rate, and any numbers will rapidly become obsolete. At the present time, there are more than 2 million articles, approaching 1 million in English (amounting to more than 200 million words) and the rest in about two hundred other languages, of which only about half are active. (There is a Wikipedia in Klingon, the fictional language of a race of violence-prone but basically honorable humanoids created on the television show *Star Trek*.) There are nine "major" Wikipedias, with more than fifty thousand articles; twenty-one minor Wikipedias, with more than ten thousand articles; the rest are less active. Interestingly, the growth of the Arabic Wikipedia has been slowed by virtue of the fact that most Arabic Internet users speak English well, and they have been writing Wikipedia entries for the English Wikipedia.

Tens of millions of people visit Wikipedia every day, making it one of the world's most popular sites, more popular than the *New York Times* and even PayPal. The number of visitors, like the number of articles, is rapidly growing. The range is astonishing. If a person suddenly achieves public importance—through election, appointment, or sheer celebrity—it is almost certain that Wikipedia will have a relevant article almost immediately. The article is often detailed; it is nearly always highly informative.

Wikipedia grows out of an old-fashioned, less imaginative, and now-abandoned project, Nupedia, an early effort to create a free encyclopedia on the Internet. Nupedia was structured like an ordinary encyclopedia, with expert writers and a system of peer review. Unfortunately, if also unsurprisingly, the process of writing Nupedia proved exceptionally slow. As a result, Jimmy "Jimbo" Wales, the founder of Nupedia, was persuaded to supplement it with a more informal project, in which ordinary people could write and edit entries. Started on January 10, 2001, Wikipedia had one thousand articles by February, ten thousand by September 7, and forty thousand by August 30, 2002. As early as May 2001, Wikipedias were created in many other languages, including Catalan, Chinese, Dutch, German, Esperanto, French, Hebrew, Italian, Portuguese, Spanish, and Swedish.

It is an understatement to say that Wikipedia generally works. In terms of sheer volume, it dwarfs the *Encyclopedia Britannica.* The number of articles is extraordinary. True, the quality does not always match the quantity; you can easily find articles that are thin or amateurish or that contain significant omissions and errors. But for the most part, the quality tends to be high as well. Specialists are regularly surprised to see a great deal of accuracy, as well as astounding currency, in Wikipedia entries; the millions of visitors are responding to the fact that they have a lot to learn. In a way, this is a real mystery. Why is Wikipedia so successful?

An essential part of the answer is that large numbers of knowledgeable people are willing to participate in creating Wikipedia, and whatever errors they make usually receive rapid correction, simply because so many minds are involved. The involvement of many people ensures that Wikipedians are able to produce a much more comprehen-

sive resource than a small group could, even a small group of experts. Amazing but true: Wikipedia is revised hundreds of times every hour. At last count, more than seven hundred articles were being added every *day*. Wikipedia is thus able to elicit widely dispersed information. But the large set of contributors disguises some distinctive features of this particular wiki. For the English edition, over half of the edits are done by 0.7 percent of all users—a mere 524 people. The most active 2 percent of users, that is, fewer than fifteen hundred people, have done almost three-quarters of all edits. For the Spanish Wikipedia, 8.1 percent of all users produce more than 90 percent of edits. Wikipedia thus combines huge numbers of occasional volunteers with a not-so-huge core of frequent editors.

Wikipedia is in part a deliberative forum, with reason-giving by those who disagree and with deliberative "places" to accompany disagreement. In fact, every page on MediaWiki, used by Wikipedia, includes an accompanying "talk" page. This means that every entry in the encyclopedia can be used as a deliberative space—and many entries are so used.

Wikipedia also has the huge advantage of cumulative knowledge. An initial entry might be thin. In fact, thin entries are described as "stubs," inviting more sustained treatment. In Wikipedia's own words, "Stubs are articles which have not yet received substantial attention from the Wikipedia editors. They have been created, but don't yet contain enough information to be truthfully considered articles. The community believes that stubs are far from worthless. They are, rather, the first step articles take on their course to becoming complete." Over a short period of time, stubs and thin entries do become much thicker.

It is even possible to think of Wikipedia as an exceptionally fast-moving tradition: Everyone who edits is standing on

the shoulders of those who were there earlier. It isn't easy to write an entry from scratch, especially on a technical topic. But if thousands of people are in a position to make small additions and improvements, an initial skeleton can rapidly become a full body. In the anyone-can-edit words of the site itself, "We are working together on statements of what is known (what constitutes free human knowledge) about various subjects. Each of us individually benefits from this arrangement. It is difficult to single-handedly write *the perfect article*, but it becomes easier when working together. . . . We *assume that the world is full of reasonable people* and that collectively they can arrive eventually at a reasonable conclusion, despite the worst efforts of a very few wreckers."[6] Quality control occurs through a kind of peer review, in which new edits appear on a "recent changes" page that is often examined by many people each day.

This attitude leads to a distinctive and, in a way, remarkable attitude toward authorship. On Wikipedia, no person considers himself "the" author of an entry. With wikis in general, the concept of authorship is discouraged and, in a way, senseless; it is disconnected from the very notion of a wiki. Many people consider it "unwiki" to proclaim authorship, or principal authorship, of an entry. Blogs, which I take up shortly, are very different on this count. To be sure, many bloggers release their content under a special kind of license, known as a Creative Commons License, which generally allows free distribution of copyrighted works so long as credit is given. (The development of the Creative Commons License, launched by Lawrence Lessig, is worth emphasizing; because copying is permitted without causing copyright problems, this license promotes access to material by many minds. Wikipedia uses the GNU Free Documentation License, which also rejects standard copyright restrictions in

favor of much freer use.) But bloggers usually protect their authorship by asking that they be credited for ideas and texts. Wikipedia works even though authorship is not rewarded or even claimed.

Of course, there are risks of error, partiality, and vandalism on wikis. People may believe that something is true about evolution, or George W. Bush, or Fidel Castro, or life on other planets, or the Catholic Church, but the belief may be mistaken. Wikipedia works because those who know the truth, or something close to it, are usually more numerous and more committed than those who believe in a falsehood. The site explains, again in prose that anyone can edit, "In all honesty, Wikipedia has a fair bit of well-meaning, but ill-informed and amateurish work. In fact, we welcome it—an amateurish article to be improved later is better than nothing. In any case, when new hands (particularly, experts on the subjects in question) arrive and go to work, the amateurish work is usually straightened out. Really egregious errors are fixed quickly by the thousands of people who read Wikipedia every day. In general, the worse the error, the faster it will be noticed and fixed."

This may be an excessively sunny view of the situation. Some of the entries aren't very good. In areas that involve technology, Wikipedia tends to shine, often outperforming ordinary encyclopedias—a tribute to the technology-savvy participants that it attracts. But in my own field of law, the quality is more mixed, especially in complex areas. Even in law, however, most of the entries are at least serviceable, and it is true that those that are really bad tend to be corrected, often promptly, especially when and because certain pages are watched by editors and authors.

There is a deeper issue. In some areas, what is true is greatly disputed, and it is hard to find an impartial arbiter. If

anyone in the world can serve as an editor, partisans should be able to move content in their preferred directions, making entries quite unreliable. We could easily imagine a situation in which liberals or conservatives skew relevant articles, hoping to influence opinions and perhaps even the outcome of elections. In response to this risk, Wikipedia maintains a general policy of neutrality, and in the event that the policy seems to be violated, Wikipedia offers an ingenious solution: a red "Stop Hand," supplemented by the simple statement, "The neutrality of this article is disputed."[7] In fact, there is a (very) long list of articles whose neutrality is disputed.[8] A recent list, with more than twelve hundred entries, included articles on Jimmy Carter, monogamy, libertarianism, lawyer, Noam Chomsky, Nation of Islam, Palestinian National Authority, Richard Nixon, persecution of Christians, rape, sexism, terrorism, Vietnam War, Fidel Castro, sport utility vehicle, AIDS conspiracy theories, and New Jersey(!). The large number of disputed articles is causing some consternation in the Wikipedia community.

When active debates are occurring about the content of articles, it is necessary to have good norms to provide some discipline. The term "Wikiquette" refers to the etiquette that Wikipedians follow. Wikiquette helps to ensure that the active debates are transferred to separate "talk pages." These are the deliberative forums on Wikipedia, in which those who disagree explain the basis for their disagreement. What is noteworthy is that the articles themselves are (mostly) solid, and that partisan debates have a specifically designed location. Sometimes those debates end up producing shared judgments that can, in turn, be found in articles.

To be sure, vandalism is a potentially serious problem. As Wikipedia is constructed, only an administrator can perma-

nently delete pages. But anyone in the world can make a temporary change or deletion, which will show up on any computer in the world with Internet access. Spamming is also possible. People might alter an entry to make it a string of obscenities, or to turn it into nonsense, or to insert deliberate errors, or simply to cause chaos. In 2005, one vandal wrote that John Seigenthaler Sr., a prominent journalist, may have been involved in the assassination of both President John F. Kennedy and his brother Robert Kennedy; this erroneous statement stayed on Wikipedia for four months before it was taken down. Another vandal has repeatedly added images of Darth Vader to various pages; yet another added fake death notices to the pages of prominent Democratic politicians; other vandals have created nonsense pages. But in general, Wikipedia has done exceedingly well in combating these problems. It describes its own practice as "something along the lines of vigilante justice." This means that individual readers can "revert" the page to the most recent good version or mark the page as one that ought to be deleted.

Readers are also permitted to identify persistent vandals and to suggest that they be added to the "vandalism in progress" page. Such vandals can eventually be blocked by Wikipedia's technology (allowing IP blocking or username blocking). Wikipedia works because the vandals are hopelessly outnumbered by those who want to make the project work.

Why Wikis Work (or Not) /

It is tempting and helpful to explain the success of Wikipedia through Hayek's distinctive lens. Jimmy Wales himself has drawn the connection, saying, "Hayek's work on price theory is central to my own thinking about how to manage the Wikipedia project. Possibly one can understand Wikipedia

without understanding Hayek. . . . But one can't understand my ideas about Wikipedia without understanding Hayek."[9] Certainly, Wikipedia entries often aggregate the information held by numerous people in a way that connects closely to Hayek's claims about the price system. If information is widely dispersed, and if no single "planner" has access to what is known, then Wikipedia's method of operations has the same general justification as the price system. As central planners relate to markets, so, in a way, do standard encyclopedias relate to Wikipedia.

Indeed, we can go much further. Perhaps any particular article, at any particular time, should be seen as a kind of "price" that is a product of many minds and that might be altered, at least to some extent, by any interested person. As we have seen, a price is a result of the judgments and tastes of a large number of consumers. An article on Wikipedia or any other wiki has the same characteristic.

But this is only a metaphor. Wikipedia does not involve or set prices, and here there is an initial and major difference between wikis on the one hand and the price system on the other. In addition, most Wikipedians do not stand to gain or lose by adding information. There are no trades and no mutually advantageous deals. The economic incentive that underlies market behavior usually plays no role in Wikipedia. For many users, participation is attributable not to self-interest, but to other motivations, including people's desire to see their words in print, the value of self-expression, and the apparently widespread desire to be helpful and constructive. To the extent that the economic incentive is generally more reliable than these motivations, Wikipedia's success may not be so easy to replicate. But for many wikis, money and self-interest are apparently less important than economists, at least, tend to think.

A qualification: It is possible to become an enfranchised voter in major decisions about Wikipedia's future (consider the question whether Wikimedia should create a new service of one or another kind). Those who make enough edits to be considered active users obtain the franchise. Some Wikipedians make large numbers of small edits (involving grammar and spelling) to obtain this more powerful status. In this sense, status and reputation can play a significant role in wiki communities, a point to which I return in the context of open source software.

There is another difference between the price system and wikis. In wikis, the last editor can be a self-appointed dictator; in the price system, individual consumers almost never have any such role. If you really like chocolate ice cream, you will probably buy a lot of chocolate ice cream, but your purchases will not much affect the price. But on Wikipedia, you can delete an entry or enter false information, at least until you are caught. If you are confused and add errors, those errors can dominate the story, whatever your predecessors said. I have emphasized that Wikipedia has safeguards against vandalism and that Wikipedians are good at correcting errors. But the last editor has an authority far greater than that of the last purchaser or seller of a product.

For this reason, it should be easy to see that Wikipedia need not always incorporate the multiple diverse views of its editors. Because the last editor can appoint himself as sovereign, no aggregation may occur at all (even though editors who behave inappropriately end up with a brief reign). In the price system, an individual consumer cannot easily become a self-appointed sovereign. President John F. Kennedy's father is said to have purchased forty thousand copies of his son's book, *Profiles in Courage*, to put that

book on the best-seller list; but such behavior is rare in markets. Because Wikipedia uses a "last in time" rule, because no literal price is created, and because economic incentives are not directly involved, Hayek's central arguments about that "marvel," the price system, do not apply, at least not directly.

In this light, we can easily imagine a society in which Wikipedia would not work. Imagine what science fiction writers call a parallel world, one very much like our own but in which many or most contributors to Wikipedia are confused, error-prone, partisan, or eager to engage in vandalism. Here the wrongdoers would triumph, creating error and confusion or worse. The good-faith contributors would be overwhelmed. Nor is this world entirely hypothetical. Some wikis have run into problems as a result of these very problems. In 2005, the *Los Angeles Times* announced that it would begin to run on its Web page "wikitorials," editorials that would operate as wikis, in the sense that all readers could edit them. With evident (charming? naïve?) optimism, the editors said that they were seeking "a constantly evolving collaboration among readers in a communal search for truth."[10]

The opening editorial, involving the Iraq war, was called "War and Consequences," and it was accompanied by a wikitorial titled "Dreams about War and Retribution." Readers were invited to "rewrite the editorial yourself" if they thought that something could be improved. In just two days, the wikitorial was edited more than 150 times, in a way that significantly increased its length and scope. But on the third day, the site was flooded with pornography, and the newspaper eventually lost its technological battle with the vandals. The *LATWiki Main Page* was replaced with this somewhat mournful text: "Where is the wikitorial? Unfortunately, we

have had to remove this feature, at least temporarily, because a few readers were flooding the site with inappropriate material. Thanks and apologies to the thousands of people who logged on in the right spirit."[11]

Wikis and More Wikis /

This is a story of how the wiki form might go wrong. But we should not bow to pessimism, even for wikitorials. Other newspapers are running experiments in just this vein; with better protection against vandals, perhaps the experiments will work, or at least generate some interesting results. For its article on Wikipedia, *Esquire* magazine tried a creative approach: Its author, A. J. Jacobs, posted a badly written, typo-pervaded, error-filled first draft of the article on Wikipedia itself and asked Wikipedians to improve it. The draft was edited 224 times in the first twenty-four hours after it was posted, and another 149 times in the following twenty-four hours. After the article was "locked," it was published in the magazine—and it is quite excellent.[12]

In chapter 1, I mentioned dKosopedia, "the free political encyclopedia," which offers a good deal of information about political issues. At the time of the present writing, the Politics.ie wiki is both more specialized and far more advanced; it attempts to create a comprehensive resource of information relating to Irish politics, and anyone can edit it. Detailed materials can be found about the Labour Party, Sinn Fein, the Green Party, Michael Collins, and much more. Recent events are catalogued as they occur. Wikis devoted to science, in general and in particular areas, are easy to find; a general science wiki was created in 2005.[13] An entire wiki focuses on the politics of open source software adoption.[14] All are warmly invited to participate: "In keeping with the open structure and spirit of wiki collaboration, we

invite you to build on this account of free and open source software politics—adding to or revising the existing accounts, branching out into new accounts of other contexts and processes, or linking to relevant external sources."[15] On Wikicities.com, it is possible to find well over three hundred wikis. Some of these involve entertainment. Wikis are devoted to *Star Trek* (as of this writing, with a disappointing lack of detail), *Star Wars* (same parenthetical), and *Lord of the Rings* (no comment!). Others involve general topics in which many people are interested, such as insurance, cancer, globalization, and genealogy (not to mention shopping).

An especially interesting wiki is the World Wind Wiki.[16] On this site, it is possible to "zoom from outer space to any place on earth. World Wind leverages satellite imagery and elevation data to allow users to experience Earth terrain in visually rich 3D, just as if they were really there. Virtually visit anyplace in the world. Look across the Andes, into the Grand Canyon, over the Alps or along the African Sahara." Numerous users add relevant information, allowing the site to accumulate new facts and data. Lawrence Lessig has posted his influential 2000 book, *Code, and Other Laws of Cyberspace*, as a wiki, and a number of changes have been made.

Some of the most promising efforts are building directly on the Wikipedia model. Wikipedia itself has a range of sister projects, including Wikispecies (a directory of species), Wiktionary (a dictionary and thesaurus), Wikisource (a collection of primary source documents that anyone can edit), and Meta-Wiki (a Web site about the various projects of the Wikimedia Foundation). There are countless other possibilities in this vein. For example, many people have been concerned about the risk of a flu epidemic. State-of-the-art information can be found at Flu Wiki, a Web site

that anyone can edit. Flu Wiki offers articles about prevention, diagnosis, treatment, and much more. As of this writing, a Flu Wiki can be found not only in English, but also in French, Spanish, and Turkish.

As an especially colorful example of the same basic form, consider the Urban Dictionary. The Urban Dictionary defines itself as "a slang dictionary with your definitions." There is no deliberation here, but it operates as a wiki; anyone can add or edit the existing definitions. The word "cool," for example, has fifty-eight definitions (as of September 2005), from the not terribly exciting "cold or having an overall cold temperature" to the somewhat better "laid back, relaxed, not freaked out, knows what's goin on." For its part, the word "cold" has, as one of its definitions, "more than cute and more than sexy its kind of like calling someone a dime." The word "dime" (for those who are puzzled and really want to know) has forty-seven definitions of its own. I won't test the reader's patience, or moral commitments, with further details. But for those who are interested in contemporary American slang, the Urban Dictionary actually provides an excellent place to start (and usually to end). It does so precisely because it aggregates highly dispersed information, as a slang dictionary should.

As a promising variation on the idea that anyone can edit, consider ohmynews.com, an online newspaper that wants to make "every citizen a reporter." The paper was founded by Oh Yeon Ho, a Korean who sought to transform what he called the "closed and elite journalistic culture." Frustrated by that culture, he created a new forum, in which anyone could submit articles. As of late 2005, ohmynews.com had a professional staff of seventy-five people, including forty-five reporters, and an official "staff" of thirty-nine thousand citizen reporters! Every day, more than

two hundred articles are submitted to ohmynews.com, and about 70 percent of the submissions are published. Writers receive a small, nominal payment. As in the case of Wikipedia, people contribute for nonmaterial reasons. Unlike in the case of Wikipedia, the professional staff imposes filters, designed to ensure decent writing and accuracy. But the advantage of ohmynews.com is that it invites everyone to contribute, and in that sense promises to provide a wide range of information.

In Korea, ohmynews.com has had a substantial effect on some political disputes, and its English edition is now flourishing. It counts as a genuine success. We might expect many more ventures in this vein.

Many businesses are now using wikis. E-mail can be time-consuming and cumbersome. It is often much better to create a wiki, producing a document that anyone can edit. Walt Disney, Eastman Kodak, Yahoo, Oxford University Press, and parts of the U.S. military have used private workspace wikis, in which employees can discuss one another's work and also make immediate editorial changes in documents.[17] An artificial intelligence company, Soar Technology Inc., which works for the Office of Naval Research, reports that wikis cut the time required to finish projects by 50 percent. Some people project that in the next five years, wikis will be used by most businesses in the United States.

The quality of the wiki form is immensely variable. It will be exceptionally interesting to see how the form evolves over time. We could easily imagine amplification of errors, hidden profiles, cascade effects, and group polarization on wikis and their cousins (not excluding ohmynews.com and wikitorials). But my hunch is that the diversity of views, along with a widespread desire to cooperate, will ensure

many successes, especially but not only within working groups. Of course, many experiments fail. But the explosive growth of Wikipedia, and of wikis in general, suggests that more and even better developments are on the way.

/ Open Source Software /

Now let us turn to one of the most fascinating developments in modern technology: the rise of free and open source software, often referred to as F/OSS or FOSS.[18] (For the sake of simplicity, I shall refer to "open source software," though the term is controversial for reasons we shall explore.) Much of my discussion focuses on computer code, but the potential applications are limitless. As we shall see, the very idea of "open source" can be used in domains that have nothing to do with software. Biotechnology, for example, can be open source, too. Medical research might rely less on patents; there is an active movement toward "open source medicine," in an effort to develop patent-free drugs.[19] Music too can be open source. Consider Woody Guthrie's copyright notice: "This song is Copyrighted in U.S., under Seal of Copyright # 154085, for a period of 28 years, and anybody caught singin it without our permission, will be mighty good friends of ourn, cause we don't give a dern. Publish it. Write it. Sing it. Swing to it. Yodel it. We wrote it, that's all we wanted to do."[20]

But let us begin with the general concept.

Open Source in General /

In ordinary enterprises, companies own the intellectual property that their employees produce. Microsoft, for example, has developed a great deal of original material, including computer code, which is owned by Microsoft and kept private. So, too, famously and long before, with Coca-