WIKIPEDIA: A REPUBLIC OF SCIENCE DEMOCRATIZED

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There's a reason we don't simply take experts at their word—not because we do not respect expertise, but because for our purposes we need to know *where* the experts got what they know so that someone can independently verify it, no matter how reliable the contributor may personally be.
~ Kat Walsh[1]

Deference, on Citizendium will be for people, not contributions, and will rely on external credentials, a priori certification, and institutional enforcement. Deference, on Wikipedia, is for contributions, not people, and relies on behavior on Wikipedia itself, post hoc examination, and peer-review.
~ Clay Shirky[2]

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[1] Kat Walsh was appointed to the Board of Trustees of the Wikimedia Foundation in December 2006, and was reelected to serve as a community-elected member in mid 2007 and again in 2009. Her current term will run until 2011.   Wikimedia, Wikimedia Board of Trustees, http://wikimedia foundation.org/wiki/Board_of_Trustees (last visited Apr. 18, 2010), and Template:BoardChart   http://meta.wikimedia.org/wiki/Template:BoardChart (last visited Apr. 18, 2010). The quote is part of her comment on the issue of verification of users' claimed credentials in the context of the Essjay controversy (to be discussed later), archived in the Foundation's mailing list. Accountability: Bringing Back a Proposal I Made Nearly 2 Years Ago, http://lists.wikimedia.org/pipermail/foundation-l/2007-March/028268.html (last visited Apr. 28, 2010).

[2] Clay Shirky is a web culture critic. The quote is from one of the very early responses to Citizendium–a competing free encyclopedia project–when it was announced in September 2006. Posting of Clay Shirky, Larry Sanger, Citizendium   and   the   Problem   of   Expertise,   Many   2   Many, http://many.corante.com/archives/2006/09/18/larry_sanger_citizendium_and_the _problem_of_expertise.php (Sept. 18, 2006) (last visited Apr. 28, 2010).

I. INTRODUCTION

This paper examines the free online encyclopedia Wikipedia and its novel model of knowledge-certification in making reference works. The traditional model of reference works operates in a closed and centralized structure, and obtains it authority from institutionalized publishing practices and from authors and reviewers with academic credentials. The Wikipedia model is an open and loose structure which encourages large-scale collaboration by volunteer editors, with or without academic credentials, and often anonymous. Nevertheless, Wikipedia has a set of behavior and content policies and guidelines to ensure its quality. For example, good editors should be able to provide citations and references, which are usually published sources. Although it does not privilege experts over lay editors, Wikipedia does not necessarily disrespect expertise, but only insists that content should be verifiable independent of the credentials of its provider.

The Wikipedia model challenges the traditional model in the following aspects: 1) all information that appears on Wikipedia is freely accessible, 2) Wikipedia is a collaborative project open to all individuals with Internet access, and 3) Wikipedia is a project that will never ever be completed, and its content is constantly subject to change.[3]

The first characteristic threatens the proprietary basis of publishers' business model, decreasing their market share and profitability. The second challenges both publishers' and academics' authority as the gatekeepers of legitimate knowledge. The third characteristic destabilizes the process of knowledge transmission.

This novel model of reference work production has to show its credibility to effectively challenge the authority of existing institutions which claim to produce certified knowledge. In Thomas Gieryn's *Boundaries of Science*, he describes the task of

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[3] Although Wikipedia has projects to provide an offline version for those who don't have good Internet access (discussed later), the content of which will be stabilized before being included in these distributions, there will always be an online version that keeps evolving. *See* BBC News, Wikipedia Offers Access Offline, Apr. 18, 2007, http://news.bbc.co.uk/2/hi/technology/6566749.stm; Wikipedia, *Wikipedia: Usability Guide for Future Improvements*, http://en.wikipedia.org/wiki/Wikipedia:Usability_guide_for_future_improvemen ts (last visited Mar. 16, 2010); *see also* Milwaukee School of Engineering, What is Wikipedia?, http://www.msoe.edu/library/resources/tutorials/wikipedia/what. shtml (last visited Apr. 16, 2010) (noting Wikipedia is constantly evolving).

the *philosophes* in the 18th century as pushing out the frontiers of their cultural authorities, namely their mixture of rationalism and empiricism, into spaces already claimed by religion and church.[4] Controversies over Wikipedia's reliability often suggest that the demarcation between the Wikipedia model and other traditional reference works is one that is between experts and non-experts.[5] I argue that it is not. Instead, this boundary-work is more similar to the *philosophes'* attempt to discredit the church, the institution which controlled the legitimization of knowledge.[6] Both Wikipedia and traditional reference works hold strong beliefs in the ability of human reason to organize and summarize the vast body of human knowledge, the dividing line between Wikipedia and traditional reference works is the process of how the summary of certified knowledge is produced and the accessibility of such information.[7]

Wikipedia's model is inspired by the Free Software Movement (FSM).[8] The FSM successfully presented a competitive alternative model for the centralized production process of proprietary software.[9] The FSM also discredited the proprietary model of copyright law and its utilitarian assumption, which is

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[4] Thomas F. Gieryn, *Boundaries of Science*, *in* HANDBOOK OF SCIENCE AND TECHNOLOGY STUDIES, 393, 429 (Sheila Jasanoff et al. eds., 2d ed. 1995).

[5] Andrew George, *Avoiding Tragedy in the Wiki-Commons*, 12 VA. J.L. & TECH. 8, 56, 59–60 (2007).

[6] *Philosophes* of the Enlightenment sought to break away from the holds of the Church by advocating freedom of speech, press, assembly, and religion and opposed the monarch. *See* Paul Brians, *Study Guide for Voltaire's Philosophical Dictionary: Selections,* WASH. STATE U., DEP'T OF ENGLISH (Jul. 21, 1997), http://www.wsu.edu/~brians/hum_303/voltaire.html.

[7] *See, e.g., Will Wikipedia Mean the End of Traditional Encyclopedias?* WALL ST. J., Sept. 12, 2006, *available at* http://online.wsj.com/article/SB1157562 39753455284.html (comparing the differences between Wikipedia and a more traditional source such as Britannica).

[8] PHOEBE AYERS ET AL., HOW WIKIPEDIA WORKS: AND HOW YOU CAN BE A PART OF IT §§ 2.4, 2.5, 5.1 (No Starch Press 2008), *available at* http://how wikipediaworks.com/ch02s02.html (noting the technological heritage of Wikipedia stems from the Free Software Movement).

[9] Since the 1990's free software has become a major part of the modern business vocabulary. Because the free software model allows software to be freely shared, it shifts the competitive differentiation among software publishers from proprietary code to the quality of support and services. This shift, along with an adherence to openness and standards, means free software has the potential to radically change the economic equation the software industry has used for the past thirty years. *See* Nathaniel Palmer, *Free Software 2.0*, FREE SOFTWARE MAG. (Jul. 13 2005), 1–2, *available at* http://www. freesoftwaremagazine.com/articles/report_on_free_software.

considered as the foundation of the software industry.[10]   I will use Actor-Network Theory—borrowing mainly Michel Callon's sociology of translation[11]—to argue that what I call the commons-collaborative model has gradually encroached upon the legitimacy of the traditional centralized-proprietary model which attempted to centralize both the process of production and the distribution of results. The success of the FSM proves that the centralized and proprietary model does not monopolize the way to produce quality software.[12] Rather, the commons-collaborative model not only fulfills society's pursuit of progress, but enables all individuals—with a baseline digital capacity and literacy—to freely access and tinker with shared cultural resources, and allows the pool of shared resources to grow.[13] This commons-

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[10]   Richard Stallman, the founder of the Free Software Foundation, argues that copyright is not a constitutional mandate, but rather is permitted in order to promote the progress of science and the useful arts by providing authors with an incentive to develop new ideas. This led Stallman to argue that computer programs have a more functional purpose than novels, hence software users should have more freedoms than novel readers from copyright law. *See* Richard Stallman, *Misinterpreting Copyright – A Series of Errors*, *in* FREE SOFTWARE, FREE SOCIETY: SELECTED ESSAYS OF RICHARD M. STALLMAN, 79, 80, 87–88 (Joshua Gay ed., GNU Press 2002), *available at* http://www.gnu.org/philosophy/fsfs/ rms-essays.pdf. The Free Software Foundation believes that there are various motives for one to write software, and that policies that affect software development (such as law) should not limit themselves to maximizing the profit motive. *See* Free Software Foundation (FSF), Motives for Writing Free Software, http://www.gnu.org/philosophy/fs-motives.html (last visited Apr. 24, 2010). Stallman also distances the FSM from the advocates of "open source". Although some people use the two terms "free software" and "open source software" interchangeably, Stallman argues that "open source" tend to advocate for a practical and efficient software development model, while "free software" emphasizes the freedoms of individuals. *See* Richard Stallman, *Why "Free Software" is Better than "Open Source"*, *in* FREE SOFTWARE, FREE SOCIETY: SELECTED ESSAYS OF RICHARD M. STALLMAN, 57–63 (Joshua Gay ed., GNU Press 2002), *available at* http://www.gnu.org/philosophy/fsfs/rms-essays.pdf.

[11]   Michel Callon, *Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay*, *in* POWER, ACTION AND BELIEF; A NEW SOCIOLOGY OF KNOWLEDGE? 196–223 (J. Law ed., 1986), *available at* http://ionesco.sciences-po.fr/com/moodledata/3/Callon_ SociologyTranslation.pdf; *see also* G. David Garson, *Actor-Network Theory,* http://faculty.chass.ncsu.edu/garson/PA765/actornetwork.htm (last visited Apr. 26, 2010) (noting that the Actor-Network Theory is a social theory developed by Michel Callon, Bruno Latour and John Law).

[12]   *See* Palmer, *supra* note 9, at 12 (noting free software is recognized as a strategic means to lower the cost of development and maintenance of enterprise software).

[13]   *See* Stallman, *supra* note 10, at 79–80, 87; *see also* RICHARD STALLMAN, *What is Copyleft?*, *in* FREE SOFTWARE, FREE SOCIETY: SELECTED ESSAYS OF RICHARD M. STALLMAN, 91 (Joshua Gay ed., GNU Press 2002), *available at*

collaborative model has now inspired a broader social movement that aims to provide a resourceful and freely-accessible digital commons, including Wikipedia.

This paper will first give a short introduction of Wikipedia, then trace back to the FSM, the origin of this commons-collaborative model. I will then come back to Wikipedia, examine several issues concerning the reliability of its content, and discuss how the commons-collaborative model, as exemplified by Wikipedia, may change our perception of legitimate knowledge and the role of citizens in a networked global knowledge society. As Wikipedia is a multi-lingual project and each language community operates independently and may have different practices in some minor aspects, unless otherwise specified, this paper will limit itself to the discussion of the English Wikipedia.

II. WHAT IS WIKIPEDIA AND HOW DOES IT WORK?

On the very top of its main page, Wikipedia welcomes its visitor, describing itself as "the free encyclopedia that anyone can edit."[14] Two concepts are essential to understand Wikipedia's collaborative model of encyclopedia-making: "wiki" and "free." A "wiki" is a set of editable web pages which are heavily linked with each other and can be edited by multiple people remotely.[15] It can also store each edit history, which makes it easy for users to find out the changes made in each version, compare different versions, as well as revert to previous edits.[16] "Free" means Wikipedia adopts a kind of copyright license that permits anyone to freely use, copy, modify, and distribute all the material in Wikipedia.[17] Although contributors remain the copyright holders

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http://www.gnu.org/philosophy/fsfs/rms-essays.pdf; RICHARD STALLMAN, *Copyleft: Pragmatic Idealism*, *in* FREE SOFTWARE, FREE SOCIETY: SELECTED ESSAYS OF RICHARD M. STALLMAN 93 (Joshua Gay ed., GNU Press 2002), *available at* http://www.gnu.org/philosophy/fsfs/rms-essays.pdf.

[14] Wikipedia, *Wikipedia: Welcome to Wikipedia*, http://en.wikipedia.org/wiki/Main_Page (last visited Apr. 16, 2010).

[15] TechTerms.com, Wiki Definition, http://www.techterms.com/definition/wiki, (last visited Feb. 22, 2010) (stating that "wiki wiki" means "superfast" in Hawaiian, and was chosen as the name of the software by its developer Ward Cunningham to indicate the ease with which one can edit such a webpage); Joseph Reagle, *Wikipedia: The Happy Accident*, 16 INTERACTIVE 42, 44 (May & Jun. 2009).

[16] *See* JOHN BROUGHTON, WIKIPEDIA: THE MISSING MANUAL 81–97 (2008) [hereinafter MISSING MANUAL].

[17] WikiMedia, Terms of Use, http://wikimediafoundation.org/w/index.php?title=Terms_of_Use&oldid=39565 (last visited May. 1, 2010) (noting broad

for the material they provide, they have to agree to the copyright license as a condition to submit their edits.[18]

Founded in 2001, Wikipedia now has more than 14.4 million articles in more than 272 languages.[19] The English Wikipedia alone has more than three million articles.[20] According to Alexa, a company that reports information on web traffic, Wikipedia is the sixth most visited website in the world as of October 2009.[21] Aside from these numbers, there is also an increasing recognition by government agencies and researchers that Wikipedia has become a major source of information for the general public.[22] The National Institutes of Health, for example, works to train its employees to edit and to improve the quality of health-related information on Wikipedia.[23] The academic journal RNA Biology requires authors to provide a corresponding Wikipedia article when submitting their manuscript.[24]

Wikipedia was initially a feeder project of Nupedia, another encyclopedia project founded by Jimmy Wales in 2000.[25] The

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permissions are granted to the public to re-distribute and re-use their contributions freely); Wikimedia, Board Resolution: Licensing Policy, http://wikimediafoundation.org/wiki/Resolution:Licensing_policy (last visited Apr. 30, 2010) (noting the goal of the Wikimedia Foundation is to "empower and engage people around the world to collect and develop educational content under a free content license," and that a free content license has to meet the terms of the Definition of Free Cultural Works: permitting the content to be freely studied, applied, copied and/or modified, by anyone, for any purpose).

    [18] WikiMedia, *Terms of Use*, *supra* note 17 (recognizing holders have to agree to license their work under the Creative Commons Attribution/Share-Alike License 3.0).

    [19] Posting of Moka Pantages to Wikimedia Blog, http://blog.wikimedia. org/2010/01/15/another-year-wiser/ (Jan. 15, 2010); Meta-Wiki, *List of Wikipedias*, http://meta.wikimedia.org/wiki/List_of_Wikipedias (last visited Feb. 6, 2010).

    [20] Posting of Jay Walsh to Wikimedia Blog, http://blog.wikimedia.org/ 2009/08/17/3000000 (Aug. 17, 2009).

    [21] Alexa.com, Wikipedia.org–Site Info from Alexa, http://www.alexa.com/ siteinfo/wikipedia.org (last visited May. 1, 2010).

    [22] Many government institutions and multinational businesses are starting to appreciate and embrace the value of the wiki model. In fact, the CIA has started its own Wikipedia-inspired "Intellipedia" as a means to consolidate information. David Bollier, The Commons as a New Sector of Value-Creation, http://onthecommons.org/content.php?id=1813 (last visited Apr. 27, 2010).

    [23] Carla Garnett, *NIH, Wikipedia Join Forces to Improve Online Health Info,* THE NIH RECORD, Sept. 4, 2009, *available at* http://nihrecord.od.nih.gov/ newsletters/2009/09_04_2009/story2.htm.

    [24] Landes Bioscience Journals, RNA Biology Guidelines for Authors, http://www.landesbioscience.com/journals/rnabiology/guidelines (last visited Apr. 23, 2010).

    [25] ANDREW LIH, THE WIKIPEDIA REVOLUTION: HOW A BUNCH OF NOBODIES

goal of Nupedia followed an old enlightenment ideal to provide universal access to a collection of human knowledge with the latest technology.[26] Nupedia was a web-based free encyclopedia which followed a rather conventional method of making encyclopedias—the articles were written by experts and peer-reviewed.[27] However, the progress was slow and not scalable.[28] By the early winter of 2001, Nupedia had published only twenty-five approved articles.[29] In January 2001, Wikipedia started as a side project to produce content which could be later used in Nupedia.[30] Wikipedia generated one thousand articles within less than a month and soon started to have a life of its own.[31] By the end of the first year, Wikipedia had grown to twenty thousand articles and eighteen language editions.[32] Wikipedia was so successful that when the server hosting Nupedia crashed in 2003, it was never restored.[33]

Wikipedia is one of the poster children of the context which is often called Web 2.0, an era in which websites feature interactivity and communication, as opposed to the earlier era, when website owners dominated the content and when information was produced in a centralized process.[34] The

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CREATED THE WORLD'S GREATEST ENCYCLOPEDIA, 32–33, 64 (2009).

[26] Reagle, *supra* note 15*,* at 42.

[27] Nupedia followed a stringent seven-step process for all articles: assignment, finding a lead reviewer, lead review, open review, lead copyediting, open copyediting, and final approval and markup. In the "open review" and "open copyediting stage" the articles were publicly reviewed by the whole community. LIH, *supra* note 25, at 38–39.

[28] *Id*. at 41.

[29] Larry Sanger, *The Early History of Nupedia and Wikipedia: A Memoir*, SLASHDOT, Apr. 18, 2005, http://features.slashdot.org/article.pl?sid=05/04/18/164 213 [hereinafter *Memoir I*].

[30] *See* LIH, *supra* note 25, at 63.

[31] *See id* at 67.

[32] Wikipedia, *Wikipedia*, http://en.wikipedia.org/w/index.php?title=Wikipe dia&oldid=320122627 (last visited Apr. 27, 2010).

[33] Reagle, *supra* note 15 at 45.

[34] Tim O'Reilly, What is Web 2.0, http://oreilly.com/web2/archive/what-is-web-20.html (last visited Apr. 28, 2010) (noting that "Web 2.0" grew out of a brainstorming session at a conference as meaning new design patterns and business models for web platforms which induce user involvements in a network of collaborating data services instead of centralized control). Critics of "Web 2.0" rhetoric argue that the model allows corporations to reap users' labor and contribution in the disguise of collaboration through networks. *See, e.g.*, Trebor Scholz, Introduction to the Conference, The Internet as Playground and Factory: A Conference on Digital Labor, http://digitallabor.org/ (last visited Apr. 28, 2010) (arguing users of web-based social networking applications should demand control of the data they contributed and the ability to port the data

openness of the technical structure, which allows public participation and provides transparent content management, is one of Wikipedia's strongest attractions.[35] At the party of Wikimania 2006, the second annual international gathering of Wikipedians, in one comedic program participants presented mock pitches for (already outdated) Web 1.0 business ideas, ironically reenacting dot-com era presentations before venture capitalists.[36] The loud cheering from the crowd when Jimmy Wales wittily gave his single-word proposal in the pitch—Nupedia[37]—was a sign to see how much Wikipedians value the collaborative nature of the project and how much they enjoy their direct involvements in shaping it.

Wikipedia's commons-collaborative model derives from the Free Software Movement (FSM), and is now broadly used in projects that aim to provide a commons of information in cyberspace.[38] Now let me trace back to the FSM to show how this model has obtained its currency.

III. THE COMMONS-COLLABORATIVE MODEL AND ITS ORIGIN

In 1976, Bill Gates, the General Partner of the then newly-founded Microsoft, wrote an open letter to a group of early personal computer users whom he called "hobbyists."[39] In the

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from one application to another, questioning the digital economy in which corporations benefit from Internet users' free labor—such as users providing tagging for Google's searching services—and seeking to develop strategies to respond to corporations' exploitation of interacting users). I agree with the critiques offered by this conference: there is not necessarily less corporate control with the so-called "Web 2.0" platform design principles, and indeed corporate control can be stronger yet in a more subtle form. This topic is, however, beyond the scope of this paper. Here I use this concept only to indicate the technologies that facilitate user participation and interactivity. As for the issue of users' control of the platform, which is at the heart of criticisms of Web 2.0, Wikipedia seems to offer a good example of how a transparent project governance model results from contributors' continuous demand of control, which I will illustrate in various examples below.

[35] *See* LIH, *supra* note 25, at 6.

[36] Wikimania, *Wikimania 2006*, http://wikimania2006.wikimedia.org/wiki/Main_Page (last visited Feb. 7, 2010); eekim.com, Web 1.0 VC Pitch Champions, http://www.eekim.com/blog/2006/08/07/wikimania2006web1vcpitch (last visited Feb. 7, 2010).

[37] Field note, on file with author. CNET UK listed Nupedia as one of the "greatest defunct Web sites and dotcom disasters." *See* Nate Lanxon, *The Greatest Defunct Web Sites and Dotcom Disasters*, CNET UK, June 5, 2008, http://crave.cnet.co.uk/gadgets/0,39029552,49296926-5,00.htm.

[38] *Wikipedia*, *supra* note 32.

[39] William Henry Gates III, An Open Letter to Hobbyists, (Feb. 3, 1976),

letter, he claimed that professional programmers like himself and his partners were the only ones who were investing money and efforts to provide high-quality software, something hobbyists were unable to offer.[40] Therefore, to ensure society's enjoyment of high-quality software, professionals needed to be paid, and hobbyists must stop "stealing" from them.[41]

Gates' attempt to serve as the spokesperson of society and to self-appoint proprietors as the sole enabler of technological progress reminds us of the sociology of translation, the approach introduced by sociologist Michel Callon to study the role of science and technology in structuring power relationships. In a seminal paper, Callon gave a story about three scientists who proposed a conservation strategy to solve a scientific and economic controversy over the decline in the population of scallops in St Brieuc Bay in France.[42] According to Callon, the scientists first defined the problem and then proposed a research project in which they served as the "spokesperson" in a network of relationships between all concerned actors they identified—the fishermen who wanted to ensure their long-term profit in fishing scallops, the scientific community which wished to learn more about scallops and the scallops which wished to perpetuate themselves.[43] With a technical device they introduced in the research project, the scientists turned the problem into one about the domestication of scallops—whether larvae would anchor in a net that was designed to protect them from potential threats.[44] The anchorage of larvae became the obligatory passage point: if larvae would anchor in the net, as some did in the scientists' early experiment, then the scallops in St Brieuc Bay could be restocked, and the scientists would have advanced knowledge about the scallops as well as repopulated the bay to the benefit of the fishermen and the scallops.[45] This is a translation process that involves a long process of alliance building.[46] The scientists defined the network and appointed themselves as the

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available   at   http://www.tranquileye.com/cyber/1976/gates_open_letter_to_ hobbyists.html.
[40] *Id.*
[41] *Id.*
[42] *See* Callon, *supra* note 11.
[43] *Id.* at 1.
[44] *Id.* at 5.
[45] *Id.* at 7–10.
[46] *Id.* at 8.

spokesperson of the other actors in the network.[47]   They would not be able to remain in their position if the other actors refused to stay in their given role or to associate with one another in the way designated by the scientists.[48]

Gates's open letter was written around the time when software had been "unbundled" from hardware and formed a separate market.[49]   As the scientists in Callon's scallop case, software proprietors such as Gates portrayed themselves, the "professionals," as the spokesperson in their network of proprietary software production.[50]   They offer a "net," that is made of business practices such as copyrighting software, treating source code as trade secret and strong copyright legislation and enforcement, for larvae of good quality software to anchor and flourish, and for society as a whole to enjoy progress in software development.   Although software proprietors' personal economic interests are involved, they appealed to a higher goal of technological progress, economic growth, and human flourishing.[51]   As the proprietors managed to build allies, their claim obtained currency.   More and more programmers were recruited into the industry to become part of the professional workforce.[52]   After signing confidentiality agreements, they began to work within a centralized structure owned by proprietors.[53]   While in earlier days programmers had enjoyed a community in which they freely shared copies of software and had been able to study each other's source code to modify programs and learn from each other, this kind of community now gradually waned.[54]

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[47]   *Id.* at 13–14.

[48]   *Id.*

[49]   Luanne Johnson**,** *A View from the 1960s: How the Software Industry Began*, IEEE ANNALS, Jan–Mar. 1998, at 36; *see* Gates, *supra* note 39.

[50]   Callon, *supra* note 11, at 13–14; Gates, *supra* note 39.

[51]   Gates, *supra* note 39.

[52]   *See* Malcolm H. Gotterer, *Management of Computer Programmers*, AFIPS JOINT COMPUTER CONF. (Am. Fed'n of Info. Processing Soc'y Inc.), 1969, at 419.

[53]   Robert L. Graham, *The Legal Protection of Computer Software*, COMMUNICATIONS OF THE ACM, May 1984, at 422, 423, *available at* http://portal. acm.org/citation.cfm?id=358064.

[54]   *See* Richard Stallman, *The GNU Operating System and the Free Software Movement*, in OPEN SOURCES: VOICES FROM THE OPEN SOURCE REVOLUTION (O'Reilly Media 1999), *available at* http://oreilly.com/catalog/open sources/book/stallman (reporting how the software-sharing community waned with increasing involvement of software proprietors which lead him to the idea of developing a free operating system).

However, software proprietors were unable to recruit every programmer into their property-centralized model. In the 1980's, to counter software proprietors who turned source code into trade secrets and to counter the restrictive copyright law that creates barriers for collaboration, the Free Software Movement (FSM) was founded to rebuild the weakened community.[55] The FSM aimed to rebuild an ecosystem of free software—software that grants everyone the basic freedoms to use it, to study its source code and to improve the program, to make copies and to distribute copies, as well as to distribute any modified version[56]— that would enable programmers to perform all their daily tasks, while bypassing software proprietors[57] and their proprietary network of production. The FSM started with the GNU project— a project aiming at building a free operating system.[58]   To prevent proprietors from exploiting the free software community, the FSM consciously decided not to release their free software into the public domain, but developed an alternative license—the GNU General Public License (GPL)—for the GNU project to distribute its software.[59] The GPL is a "copyleft" license, which means not only software released under the GPL grants all users the basic freedoms, but that the release of all modified versions must be also under the GPL to ensure all users of the subsequent versions have the same freedoms.[60] The FSM later developed the GNU Free Documentation License (GFDL) for the release of free software manuals,[61] and for a long time it was the license adopted by Wikipedia until the community voted to migrate to the Creative Commons Attribution-ShareAlike license (another copyleft license that gives users similar freedoms but has become

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[55] *See generally* Shun-Ling Chen, *Freedom as in a Self-Sustainable Community: The Free Software Movement and its Challenge to Copyright Law*, 4 POLICY FUTURES IN EDUCATION, 337, 337 (2006); *see* Graham, *supra* note 53, at 425.

[56] Free Software Foundation, The Free Software Definition, http://www. gnu.org/philosophy/free-sw.html (last visited Arp. 30, 2010).

[57] *See* Stallman, *supra* 54.

[58] GNU stands for "GNU is not Unix." Unix is a proprietary operating system that was popular among developers. The GNU project aims to develop an operating system that is similar and compatible to Unix but is completely free (as defined by the FSM). *Id.*

[59] *See* Free Software Foundation, What Is Copyleft?, http://www.gnu.org/ copyleft/copyleft.html (last visited Apr. 30, 2010).

[60] *See id*; Free Software Foundation, Licenses, http://www.gnu.org/ licenses/licenses.html (last visited Apr. 24, 2010).

[61] *See id.*

more popular than the GFDL) in May 2009.[62] These alternative licenses are based on copyright law, but reverse its common usage by restraining the exclusive rights copyright conferred to individual authors to ensure users' basic freedoms.[63] Contrary to the model of proprietary software in which the ownership of the copyright and the decision-making process is often centralized in the hand of the corporate administrator, this alternative model enables people to collaborate under the framework of the free license, and the whole community gradually enriches the protected software commons with everyone's contributions.[64]

With the popularization of the Internet, the FSM was able to recruit programmers across continents into its commons-collaborative model.[65] Although initially the FSM only aimed to rebuild the waning programmers' community and did not expect itself to have technical superiority,[66] it gradually showed that the model is capable of producing software that may even out-perform equivalent proprietary options. One explanation for this is Linus' Law (referring to Linus Torvalds, a major figure in the development of the Linux kernel) formulated by advocate Eric Raymond as follows: "[g]iven enough eyeballs, all bugs are shallow."[67]

In 1998, two stories attracted public attention. First, Netscape unprecedentedly released the source code of its browser, adopted a commons-collaborative model, and turned it into what is now known as Mozilla Firefox.[68] The decision could be interpreted as a desperate move made by a company that has been defeated in

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[62] *See* Juan Carlos Perez, *Wikipedia Drops GNU In Favor of Creative Commons License*, TECH WORLD, May 22, 2009, http://www.techworld.com.au/article/304165/wikipedia_drops_gnu_favor_creative_commons_license; *see* Wikimedia Foundation Blog, http://blog.wikimedia.org/2009/05/21/wikimedia-community-approves-license-migration/ (May 21, 2009) (last visited Apr. 24, 2010).

[63] *See* Free Software Foundation, *supra* note 59.

[64] *See* Free Software Foundation, *supra* note 59.

[65] *See, e.g.*, Free Software Foundation, Free Software Users Groups, http://gnu.org/gnu/fs-user-groups.html (last visited Mar. 4, 2010) (listing the number of countries who have free software users groups).

[66] *See* Stallman, *supra* note 54 (describing the collapse and rebuilding of the free software sharing community and stating that the primary goal was achieving a social and ethical advantage, not a technical advantage).

[67] Eric S. Raymond, *The Cathedral and the Bazaar*, FIRST MONDAY, 1998, http://rfrost.people.si.umich.edu/courses/SI110/readings/IntellecProp/Cathedral-Bazaar.pdf.

[68] Mozilla Foundation, History of the Mozilla Project, http://www.mozilla.org/about/history.html (last visited Apr 22, 2010).

the browser market. But the second incident complicated the scene. A series of internal documents produced by Microsoft which analyzed potential threats by free software were leaked.[69] The fact that the software giant started to feel threatened by "hobbyists" signaled the success of the FSM in creating a viable alternative to the proprietary software model.[70] Using Callon's analogy, in FSM's net made of free software licenses and community sharing practices, larvae of good quality software have also anchored and flourished.[71] Especially when one adopts the GPL, with the copyleft clause, not only the "scallops" that grew up in this net will be freely accessible to everyone, but so will their offspring. The amount of available free software in this net will only continue to grow. Plus, unlike real scallops, the enjoyment of software is non-rivalrous and non-excludable.[72]

Software proprietors keep advocating for their translation of the problem: a restrictive copyright regime that provides adequate economic returns is important for society.[73] Without such legal protection, only limited resources will be devoted to technological progress, and everyone will suffer. Society needs professional software companies to hire top software developers and invest in software projects to provide high quality software. Society, therefore, needs to support proprietors by paying for legitimate copies of software.

The FSM showed that pecuniary incentive may not be indispensable to the development of high-quality software, that the bureaucratic structure in a centralized firm may become burdensome for software developers, and that programmers— professional or amateur—may be willing to collaborate through a de-centralized network to provide non-proprietary, yet high-

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[69] Eric S. Raymond, The Halloween Documents, http://www.catb.org/~esr/halloween/ (last visited Mar. 4, 2010).

[70] *See* Eric S. Raymond, Introduction to the Halloween Documents, http://www.catb.org/~esr/halloween/ (last visited Apr. 28, 2010).

[71] Martin LaMonica, *Open Sources Reshaping Services Market*, CNET NEWS, Jan. 10, 2005, http://news.cnet.com/Open-source-reshaping-services-market/2100-7344_3-5504851.html (describing the flourishing of open source services in response to the rising numbers of free software products).

[72] *See* James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 SPG L. & CONTEMP. PROBS. 41–42 (2003).

[73] *See* Anna Nimus, Copyright, Copyleft, and the Creative Anti-Commons, Dec. 21, 2006, http://multitudes.samizdat.net/Copyright-Copyleft-and-the.html ("Copyright has always been a legal tool that coupled texts to the names of authors in order to transform ideas into commodities and turn a profit for the owners of capital." Note that Anna Nimus is the pseudonym of Joanne Richardson and Dmytri Kleiner).

quality, software.

The commons-collaborative model allows people to participate as much or as little as they wish in the network for their own reasons and to take away things they find useful without harming the community.[74] Although FSM's initial goal was not about efficiency, it proved to be an efficient software development model.[75] There is less bureaucracy, participants may self-appoint to positions they wish themselves to fill,[76] and with enough eyeballs all bugs are rendered shallow. Thus, for the same problem of how to supply society with software it needs, the FSM has established another passage point, if not the obligatory one.

In the rise of the commons-collaborative model, not only software proprietors' claim of themselves being the spokesperson has been disputed, but the legitimacy of the restrictive copyright regime which proprietors try to sell as a package is also contested.[77] The current copyright regime is being justified on the ground that property right provides pecuniary incentives for individual authors to engage in producing cultural artifacts, and that each individual author's contribution altogether will promote the progress of arts and science in society.[78] But in practice, employers or intermediaries, such as software companies and publishers, often use copyright as a tool to centralize the production process in their own hands, requiring individual authors to assign their copyrights away or become employees and claim no authorship.[79] In the end, copyright law becomes the foundation of the property-centralized model and allows firms to exercise control of the process and the results of the production of cultural artifacts.[80] As for pecuniary incentives, authors often find rewards to be only nominal, if any at all, but the cost of clearing potential copyright violation in a production

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[74] *See* Yochai Benkler, *Coase's Penguin, or, Linux and the Nature of the Firm,* 112 YALE L.J. 369, 436, 440–41, 444 (2002).

[75] *See* Free Software Foundation, Overview of the GNU System, http://www.gnu.org/gnu/gnu-history.html (last visited Mar. 4, 2010) (describing the initial goals of the GNU system, stating that the GNU project aims to "provide a whole spectrum of software, whatever many users want to have," and providing a link to a catalogue of existing free software applications).

[76] *See* Benkler, *supra* note 74, at 422–23.

[77] *Id.* at 446.

[78] *See* LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD 98 (2001).

[79] Jessica Silbey, *The Mythical Beginnings of Intellectual Property*, 15 GEO. MASON L. REV. 319, 346 (2008); *see also* LESSIG, *supra* note 78, at 111.

[80] *See* LESSIG, *supra* note 78, at 170–71.

process becomes high and burdensome (Larry Lessig gave an example of a documentary filmmaker, who could not afford the 10,000 USD Fox TV charged for 4.5 seconds of "The Simpsons" which happened to be shown in a TV set in the far background of an interview).[81] As a result, copyright law may inhibit further production of cultural artifacts by allowing proprietors to exclude less well-off people from using existing cultural resources.[82]

   Freely accessible resources allow people to participate without legal barrier. FSM's success inspired a series of literature re-examining software proprietors' property-centralized model,[83] and fueled broader application of the commons-collaborative model in other fields.[84] Some of these applications seek not only to provide free access, but to lower the technical burden of access, with an idea that the flattening of both economic and technical barriers will bring more people into the community and enrich the commons with their resources, many of which are often undervalued and underutilized in the property-centralized model.[85] Wikipedia is one such project, open to anyone who has basic digital literacy and capacity, with a goal to provide a free encyclopedia in every language.

IV. THE COMMONS-COLLABORATIVE MODEL IN WIKIPEDIA AND ITS NEW REPUBLIC

The literary property debates of the eighteenth century turned around the opposing concepts of authors' rights and the public right to information. The latter notion fitted well with the Enlightenment ideal of open knowledge – one that cited science (and its technical

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[81] LAWRENCE LESSIG, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY, 95–97 (2004).

[82] *See* Daniel Benoliel, *Copyright Distributive Injustice*, 10 YALE J. L. & TECH. 45, 48–49, 55–60 (2007) (discussing the accusations that copyright holders seek to "maximize their own profits, or even efficiency at large, at the expense of disadvantaged users, creators and amateurs").

[83] *See, e.g.,* YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS & FREEDOM 380–81 (2006); James Boyle, *supra* note 72 at 33, 40 (2003); Anupam Chander & Madhavi Sunder, *The Romance of the Public Domain*, 92 CAL. L. REV. 1331, 1333 (2004); Josh Lerner & Jean Tirole, *The Economics of Technology Sharing: Open Source and Beyond* 4, 18–20 (NBER Working Paper Series Working Paper 10956, Dec. 2004), *available at* http://www.nber.org/papers/w10956.

[84] *See* Allen K. Yu, *Enhancing Legal Aid Access Through an Open Source Commons Model*, 20 HARV. J.L. & TECH. 373, 378–79 (2007) (commenting on how the open source movement promoted and facilitated cooperative arrangements like Wikipedia).

[85] *See id*. at 376, 383–90, 392.

applications) as a prime example, since its advancement required free communication and its value lay in being widely known and usefully applied.
~ Richard Yeo[86]

Wikipedia has benefited from the Free Software Movement. It not only started out using a pre-existing free wiki software, which later was replaced by the current free wiki software MediaWiki,[87] but also adopted free copyright licenses for its content and its software.[88] Using both the technical and the legal frameworks, the Wikipedia community was able to experiment with the novel commons-collaborative model to make reference works.[89] For a long time, Wikipedia explicitly had stated an ambitious mission of "documenting **all** human knowledge",[90] a goal that resembles the enlightenment ideal of early encyclopedists. In the *Preliminary Discourse* of Denis Diderot's *Encyclopédie*, Jean le Rond d'Alembert pointed out that with the accumulation of literature, it was important to have "a dictionary that could be consulted on all artistic and scientific matters, and that would be as useful in guiding those who feel that they have the courage to work for the education of other people as in enlightening those individuals who only seek to educate themselves."[91] He and Diderot recruited a sufficient number of

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[86]   RICHARD YEO, ENCYCLOPAEDIC VISIONS: SCIENTIFIC DICTIONARIES AND ENLIGHTENMENT CULTURE 220 (2001).

[87]   *See* MediaWiki, *MediaWiki History*, http://www.mediawiki.org/wiki/ MediaWiki_history (last visited Apr. 18, 2010).

[88]   *See* Wikipedia, *Terms of Use*, *supra* note 17, MediaWiki, Mainpage, http://www.mediawiki.org/wiki/Main_Page (last visited Apr. 18, 2010).

[89]   *See* Yu, *supra* note 84, at 379–80, 386.

[90]   *See* posting of Sticky Light to http://en.wikipedia.org/w/index.php?title= Wikipedia_talk:Content_disclaimer&oldid=301794238#.22documenting_all_hu man_knowledge.22 (Dec. 28, 2007 07:42 UTC) (emphasis added) (discussing Wikipedia's mission to document all human knowledge). The statement was not taken off until June 26, 2008 when it was replaced with "In its encyclopedic function, Wikipedia contains millions of articles on a vast array of topics." Posting of Weasel Fetlocks to http://en.wikipedia.org/w/index.php?title= Wikipedia_talk:Content_disclaimer&oldid=301794238 (Jun. 26, 2008 10:34 UTC). Nevertheless, the Wikimedia Foundation, the non-profit organization that hosts Wikipedia and sister projects on its servers, still commits to "a world in which every single human being can freely share in the sum of all knowledge." Wikimedia Foundation, Home, http://wikimediafoundation.org/w/ index.php?title=Special:Cite&page=Home&id=46264, Mar. 17, 2010 22:01 UTC, (lasted visited Apr. 28, 2010).

[91]   d'Alembert, *Preliminary Discourse*, *in* DENIS DIDEROT'S THE ENCYCLOPEDIA SELECTIONS 35 (Stephen J. Gendzier ed., trans., 1967).

experienced and talented scholars and artists, assigned them topics they were familiar with, and allowed them to be in charge,[92] hence the project was able to include "more method, certainty, scope, and details than was possible for most lexicographers"[93] in the *Encyclopédie*. D'Alembert pointed out that the nature of the project involved abridging the numerous existing works "to a few volumes,"[94] and that an individual's contribution in such a joint venture would be reduced to very little. Nevertheless, jointly, the contributors would enjoy enough glory from a satisfying encyclopedia.[95]

On the issue of ownership, historian Richard Yeo pointed out that although reference works often abridge existing works, and even copyrighted works, encyclopedia editors and publishers in 18th century England had an interest in both sides' concerns— proprietary ownership of authors/publishers and public access to knowledge.[96] They considered the assemblage of established knowledge as serving a public need and appealed to a public right to knowledge to justify abridging material from other works, including those under copyright.[97] For example, Ephraim Chambers, editor of one of the first English encyclopedias, *Cyclopaedia,* first published in 1728, eighteen years after the first modern copyright law came to effect in England, used the metaphor of bees to describe the work of dictionary compiler/encyclopedia editor: humble, selective, gatherers of materials, and declared: "'Tis vain to pretend any thing of property in things of this nature."[98] Chambers did not see himself violating anyone's copyright by compiling dictionaries.[99] The assemblage of other people's work is done openly, and only

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   [92] *Id*. at 37–38. "In this way each writer, attending only to a subject in which he had special competence, was in a good position to judge soundly what the ancients and the moderns had written about it and consequently to add his own personal knowledge to the information derived from these sources. Nobody trespassed on another's ground or interfered with what he had perhaps never learned." *Id*. at 38.

   [93] *Id.*

   [94] *Id.* at 34.

   [95] *Id.* at 38 ("Certainly this plan reduced the value of an editor to very little, but it was possible to add a great deal to the perfection of the works; and we shall always think that we have acquired enough glory, if the public is satisfied with the 'Encyclopedia.'").

   [96] YEO, *supra* note 86, at 203–04, 208, 215, 220.

   [97] *Id.* at 203, 208, 220.

   [98] *Id.* at 103, 215.

   [99] *Id.* at 208, 216.

for the public good.[100] On the other hand, they also claimed "authorship on the grounds of concise abridgment, clear definition of terms, the explication of theories and the overall organisation of the work."[101] Encyclopedia editors and publishers registered encyclopedias as "books by authors in order to claim copyright protection under the Statute . . . to ensure the intense labour and capital investment such large publication required."[102] To meet the requirement of the legislation, encyclopedias were "attributed to an individual, or group, that claimed authorship of the work . . . on the grounds of learned abridgment, presentation and organization," while continuing to legitimize their drawing content from existing works based on the public right to access the sum of human knowledge.[103] Hence, while the value of scientific knowledge lay in being widely known and applied, and its advancement required free communication, compilers and publishers of the early modern era managed to find a way to exploit the regime of literary copyright, obtaining a monopoly of limited years.

On the structure of production, traditional encyclopedias usually adopt a centralized model. Although such compilations were contributed by those who were knowledgeable in their fields, publishers and editors were still likely to exercise certain control over the content.[104] For example, Archibald Constable, a leading Scottish publisher in the early 19th century, planned for a *Supplement* after acquiring the copyright of Encyclopaedia Britannica.[105] Aside from inviting contributions from leading characters in science and literature, Constable also hired a General Editor to unite and incorporate articles written by experts in different fields, to furnish articles, and take "general responsibility of the Work."[106] To date, Encyclopaedia Britannica still prides itself for not only having expert contributors and a team of professional editors, but a "rigorous editorial process" which new articles and proposed revisions have to go through

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[100] *Id*. at 103–04.
[101] *Id.* at 220.
[102] *Id*. at 204.
[103] *Id.* at 204.
[104] *See id*. at 250–51, 260–61, 263–64 (describing how Napier, editor of Encyclopaedia Britannica's *Supplement*, asserted control over the content of entries submitted by experts).
[105] *Id*. at 255.
[106] *Id*. at 257.

before they are published.[107]

David Gerard, a long term Wikipedian on the English Wikipedia, once said: "A lot of us wouldn't be doing this Wikipedia thing if we weren't encyclopedia fans in the first place."[108]   Not only do many Wikipedians share the enlightenment ideal of organizing all knowledge, the project pushes forward the goal to make the fruit of their collaborative efforts widely and freely available to the public.[109] Although the commons-collaborative model allows anyone to edit, the Wikipedia community repeatedly emphasizes that Wikipedia is an encyclopedia project which aims for a high standard.[110] Following criticism of Wikipedia's quality in 2005, Wales said: "I will never accept that we should use freeness as an excuse for sucking. We want to be free *and* better than Britannnica [sic]" (emphasis original).[111]

Below I summarize the main characteristics of Wikipedia's common-collaborative model and some rules the community has developed in order to improve the collaboration as well as the quality of Wikipedia.

A. Anyone Can Edit

Unlike its precursor, Nupedia, Wikipedia allows anyone to edit an article, and as a feature of wikis, an edit appears in the article as soon as a user hits the "save" button.[112] One is not required to

[107] Encyclopaedia Britannica Blog, Is Britannica Going Wiki?, http://www.britannica.com/blogs/2009/03/is-britannica-going-wiki/ (Mar. 8, 2009).

[108] Posting of David Gerard. dgerard@gmail.com, to the Foundation-l mailing list, http://lists.wikimedia.org/pipermail/foundation-l/2008-December/0 48240.html (Dec. 22, 2008, 20:17 UTC) (responding to a comment on the quality issue of Encyclopaedia Britannica).   David Gerard has served as an Administrator since January 2004 on the English Wikipedia and as a volunteer press contact for the Wikimedia Foundation. *See* Wikipedia, *Special:Users*, http://en.wikipedia.org/w/index.php?title=Special:ListUsers&offset=Alexf&limit =500&group=sysop (last visited Apr 22, 2010) and Wikimedia UK, *British Media Storm over Wikipedia Changes* (Aug 30, 2009)*,* http://blog.wikimedia.org. uk/2009/08/british-media-storm-over-wikipedia-changes/ (last visited Apr 25, 2010).

[109] Wikipedia, *Wikipedia: About*, http://en.wikipedia.org/w/index.php? title=Help:About&oldid=357616145 (last visited Apr. 21, 2010).

[110] *Id*.

[111] Posting of Jimmy Wales, jwales@wikia.com, to the Wikien-l mailing list (Oct. 7, 2005), *available at* http://lists.wikimedia.org/pipermail/wikien-l/ 2005-October/030178.html (last visited Apr 18, 2010).

[112] Wikipedia, *Wikipedia: Tutorial (Editing)*, http://en.wikipedia.org/w/ index.php?title=Wikipedia:Tutorial_%28Editing%29&oldid=356662627 (last

register a user account to be able to edit, though as a response to the Seigenthaler incident which put Wikipedia's credibility on trial (to be explained later), nowadays only registered users can start a new page on the English Wikipedia.[113] For each entry, there is a discussion page and a history page.[114] In the history page, one can review the entire editorial history of an article and compare different versions.[115]

To improve the quality of Wikipedia, users may add articles to their own "watch list" to monitor articles of their interests.[116] Wikipedia has various review mechanisms, including a "peer review" process for articles that are more mature.[117] However, unlike what we normally think of "academic peer review" that is done by scholars (often blindly, i.e. without revealing the identities of the reviewer and/or author to each other. It is a way for scientists/experts to enhance their autonomy and social prestige as a group and to maintain the monopoly over scientific knowledge)[118], any editor can volunteer to be a reviewer and the review is always done in public, showing the reviewer's user name.[119] The peer review process is often part of the preparation of approving a "featured article"—an article that the community decided to have met Wikipedia's highest standard (in "accuracy, neutrality, completeness and style") through a voting process.[120] As all articles may be further edited, a featured article may also be unlisted from this category if the quality of the article deteriorated in its later life.[121]

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visited Apr. 21, 2010).

[113] AYERS, *supra* note 8, ch 11, section 1.1.

[114] Wikipedia, *Wikipedia: Tutorial (Talk_pages)*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Tutorial_%28Talk_pages%29&oldid=354626099 (last visited Apr. 29, 2010); Wikipedia, *Help: Page History*, http://en.wikipedia.org/w/index.php?title=Help:Page_history&oldid=356615089 (last visited Apr. 21, 2010). *See also* MISSING MANUAL, *supra* note 16, at 145–55 (Article Talk(Discussion) Pages); *id.* at 81–90 (Understanding Page Histories).

[115] *Id*.

[116] Wikipedia, *Help: Watching Pages*, http://en.wikipedia.org/w/index.php?title=Help:Watching_pages&oldid=355897184 (last visited Apr. 30, 2010). *See also* MISSING MANUAL, *supra* note 16, at 101–20.

[117] Wikipedia, *Wikipedia, Peer Review*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Peer_review&oldid=357073667 (last visited Apr. 21, 2010) [hereinafter *Wikipedia Peer Review*].

[118] SHEILA JASANOFF, THE FIFTH BRANCH 64 (1990).

[119] *See Wikipedia Peer Review*, *supra* note 117.

[120] Wikipedia, *Wikipedia: Featured Articles*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Featured_articles&oldid=357614466 (last visited Apr. 21, 2010).

[121] *See* Wikipedia, *Wikipedia: Featured Article Review*, http://en.

There also exist exceptions to the "anyone can edit" rule. For example, some pages are protected or semi-protected.[122] Administrators—usually trusted members of the community who are elected to perform administrative duties—can decide to protect or semi-protect a page for a period of time to prevent vandalism or edit wars[123] (when disagreements about the views or facts in one article are so serious that they lead to repetitive revert editing rather than civil discussions or attempts to reach agreements[124]). Only administrators may edit a fully protected page, and only auto-confirmed users (users with an account that is more than four days old and has more than ten edits[125]) may edit a semi-protected page.[126] In 2009, the English Wikipedia community debated a proposal of a two-month trial of the "Flagged Protection and Patrolled Revisions" extension of its software—MediaWiki.[127] This would introduce a new mechanism that still permits anyone to edit but requires reviewers to approve a new edit before it appears for public view.[128] The "Flagged revisions" extension had already been deployed on some

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wikipedia.org/w/index.php?title=Wikipedia:Featured_article_review&oldid=357 306701 (last visited Apr. 30, 2010).

[122] Wikipedia, *Wikipedia: Database Reports/Indefinitely Fully Protected Articles*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Database_reports/ Indefinitely_fully_protected_articles&oldid=357522702 (last visited Apr. 22, 2010); Wikipedia, *Wikipedia: Database Reports/Indefinitely Semi-Protected Articles/1*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Database_repor ts/Indefinitely_semi-protected_articles/1&oldid=357524305 (last visited Apr. 22, 2010).

[123] Wikipedia, *Wikipedia: Protection Policy*, http://en.wikipedia.org/w/ index.php?title=Wikipedia:Protection_policy&oldid=354343599 (last visited Apr. 21, 2010) [hereinafter *Wikipedia Protection Policy*].

[124] Wikipedia, *Wikipedia: Edit Warring*, http://en.wikipedia.org/w/index. php?title=Wikipedia:Edit_warring&oldid=357502612 (last visited Apr. 22, 2010).

[125] Wikipedia, *Wikipedia: User Access Levels*, http://en.wikipedia.org/w/ index.php?title=Wikipedia:User_access_levels&oldid=357016099 (last visited Apr. 22, 2010) [hereinafter *User Access Levels*].

[126] *Wikipedia: Protection Policy*, *supra* note 123.

[127] *See* Wikipedia, *Wikipedia: Flagged Protection and Patrolled Revisions*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Flagged_protecti on_and_patrolled_revisions&oldid=347294572 (last visited Apr. 21, 2010) (proposing the two month trial of the extension of the software); *see also* Wikipedia*, Wikipedia: WikiProject Flagged Provisions*, http://en.wikipedia.org/ w/index.php?title=Wikipedia:WikiProject_Flagged_Revisions&oldid=347491434 (last visited Apr. 22, 2010) (showing a timeline of the flagged protection trials, consensus, and implementation).

[128] Wikipedia, *Wikipedia: Flagged Revisions*, http://en.wikipedia.org/w/ index.php?title=Wikipedia:Flagged_revisions&oldid=350369952 (last visited Apr. 22, 2010).

other Wikipedias, most notably the German Wikipedia.[129]

B. Anonymity and User Privacy

Wikipedia permits users to edit anonymously. The edit made by a user without a user name will be associated with the IP address of the user's Internet connection.[130] Even when one chooses to register and edit with a user name, one can either use the real name or a pseudonym.[131] The registration does not require any verification—even the provision of a valid email address is optional.[132] Unless the user reveals her identity, users with pseudonym are also anonymous.[133] Wikipedia considers the possibility to remain anonymous as an important mechanism to ensure openness of the project and to protect free speech, especially for editors who are involved in editing sensitive topics such as religious conflicts or political dissents in certain countries.[134] One should note that the IP address of an Internet connection may reveal information about the physical location of unregistered or unlogged-in users to a certain extent.[135] Therefore, logged-in users with pseudonyms may actually enjoy more privacy as only their user name will be associated with their edits.[136] (The IP address of registered users is still recorded

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[129] Meta-Wiki: *FlaggedRevs Report December 2008*, http://meta.wiki media.org/w/index.php?title=FlaggedRevs_Report_December_2008&oldid=1619 920 (last visited Feb. 28, 2010).

[130] Wikimedia Foundation, *Privacy Policy*, *available at* http://upload.wiki media.org/wikipedia/foundation/d/d6/Privacy_Policy_Updated10.14.08.pdf (last visited Apr. 18, 2010) [hereinafter *Privacy Policy*].

[131] *Id.*

[132] *Id.*

[133] AYERS, *supra* note 8, ch 11, section 1.1.1.

[134] *See, e.g.*, Human Rights Watch, *False Freedom: Online Censorship in the Middle East and North Africa*, Nov. 2005, *available at* http://www.hrw.org/ reports/2005/mena1105/ (last visited Apr 25, 2010). However, one should note anonymity is not a paramount interest in itself. For example, TOR is a free software and an open network that is designed to enhance privacy of Internet users. *See* Tor: Anonymity Online, http://www.torproject.org/ (last visited Apr. 25, 2010). Although Tor can be used by Internet users in China to bypass the Great Firewall to access Wikipedia (which has sometimes been banned in China), Wikipedia does not permit anonymous edits from Tor editors because Tor's operating structure does not work well with Wikipedia's current vandal fighting mechanism. *See* Graham Webster, Wikipedia missing China's voice in its ten million articles, CNET (Mar 30, 2008), *available at* http://news.cnet.com/ 8301-13908_3-9905964-59.html; Meta-Wiki, Editing with Tor, http://meta.wiki media.org/wiki/Editing_with_Tor (last visited Apr. 25. 2010).

[135] *Supra* note 130.

[136] *Id.*

on the server, but such information is not publicly accessible and is discarded after some time.[137])

The Wikimedia Foundation (WMF), the non-profit organization which runs the servers that host Wikipedia, publishes a privacy policy which details the kinds of user's personal identifiable information that may be revealed through a user's Wikipedia-related activities, and whether such information would be retained by the server permanently or only for a limited period of time, so that users may be aware of the privacy-related consequences of their activities.[138] In general, no users needed to identify themselves with any real-world identities.[139] Starting from 2007, as a response to the Essjay incident (to be discussed later), those users who are entrusted with the authority to view non-public information when performing certain administrative responsibilities[140] have to identify themselves to the WMF to prove that they are over 18 year old and can be legally responsible.[141]

C. Copyright, Collaboration and a Free Encyclopedia

As mentioned above, Wikipedia is a "free" encyclopedia in the sense that it adopts a free license—a license that grants everyone the freedom to use the work, to make copies, to redistribute copies, and to publish improved versions.[142] By adopting a free license, Wikipedia not only provides wide access to its content, but also enhances the collaboration between its contributors. It is based on this kind of alternative copyright license that projects like Wikipedia could go around current copyright law—which grants authors exclusive rights, based on a concept of the author working in solitude, and thereby makes collaboration legally cumbersome—and benefit from the collaborative communities

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[137] *Id.*

[138] *Id.*

[139] *Id*.

[140] These include Oversighters (users who have access to edits that are permanently hidden even from the view of normal administrators), CheckUsers (users who can view the IP addresses that are associated with one user name as well as the edits done from one IP address), and Stewards (users with broad authority who may also perform as CheckUsers and Oversighters when necessary). *See User Access Levels*, *supra* note 125 (describing the positions of Oversighters, CheckUsers, and Stewards).

[141] Wikimedia Foundation, *Resolution: Access to Nonpublic Data*, Apr 11, 2007, http://wikimediafoundation.org/w/index.php?title=Resolution:Access_to_nonpublic_data&oldid=27030 (last visited Apr 30, 2010).

[142] *Terms of Use*, *supra* note 17.

that are made possible by information technologies.[143]

D. Community Self-Governance and Meritocracy

Wikipedia has community policies and guidelines which guide editors and administrators when they contribute and edit.[144] While these policies and guidelines are relatively stable when compared to Wikipedia articles, nevertheless, these documents may also be adjusted and revised to reflect community concerns and to respond to external criticisms.[145] Wikipedians seem to see flexibility as the strength of Wikipedia. The community conceives itself as willing to take challenges and having faith in developing solutions to unexpected problems.[146]

There is a community portal on the Wikipedia website where Wikipedians can coordinate and collaborate in various identified tasks.[147] On the community portal, one finds various mailing lists where people debate over various policies, as well as community news services such as *The Wikipedia Signpost* (a weekly newspaper),[148] *The Wikizine* (a newsletter),[149] *The Wikipedia Weekly* (a podcast),[150] all run and contributed by volunteer editors. In some cities, local Wikipedians have regular physical gatherings. Since 2005, there has been the annual international gathering for Wikipedia and sister projects, Wikimania, which is an occasion for Wikipedians to socialize and

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[143]   LIH, *supra* note 25, at 5.

[144]   Wikipedia, *Wikipedia: Policies and Guidelines*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Policies_and_guidelines&oldid=355796273 (last visited Apr. 30, 2010).

[145]   *See* Wikipedia, *Wikipedia: Requests For Comment/Wikipedia Policies and Guidelines.* http://en.wikipedia.org/w/index.php?title=Wikipedia:Requests_for_comment/Wikipedia_policies_and_guidelines&oldid=357695835 (last visited Apr. 30, 2010); *see also* Wikipedia, *Wikipedia: Centralized Discussions* http://en.wikipedia.org/w/index.php?title=Wikipedia:Centralized_discussion&oldid=356122426, (last visited Apr. 30, 2010)

[146]   One of Wikipedia's five pillars is "Wikipedia does not have firm rules," aside from the principles stated in its other four pillars. Wikipedia, *Wikipedia: Five Pillars*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Five_pillars&oldid=318243472 (last visited Mar. 5, 2010).

[147]   Wikipedia, *Wikipedia: Community Portal*, http://en.wikipedia.org/wiki/Wikipedia:Community_portal (last visited Apr. 28, 2010).

[148]   Wikipedia, *Wikipedia: Wikipedia Signpost*, http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost (last visited Apr. 25, 2010).

[149]   Wikipedia, *Wikipedia: Wikizine*, http://en.wikipedia.org/wiki/Wikipedia:Wikizine (last visited Apr. 28, 2010).

[150]   Wikipedia, *Wikipedia: Wikipedia Weekly*, http://en.wikipedia.org/wiki/Wikipedia:WikipediaWeekly (last visited Apr. 28, 2010).

communicate in person.[151]

Meritocracy is an important element of the volunteer-based administrative mechanism. Editors who are more committed to the project, who spend more time editing, who make more significant contributions, and who conform to community norms and values may be entrusted with higher administrative powers.[152] This means that although Wikipedia permits users to edit without a user name, editing with a consistent identity—either real name or pseudonym—is an important factor when one wishes to participate in the internal governance structure of the community. Administrative positions are occupied by community members who voluntarily take on more responsibilities to maintain Wikipedia without any pecuniary remuneration.[153] Although in the old days it might have been considered as "not a big deal" for committed volunteers to be granted administrative positions,[154] nowadays editors serving administrative positions are elected,[155] and candidates have to go through strict public

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[151] Wikimania, *Main Page*, http://wikimania.wikimedia.org (last visited Apr. 28, 2010).

[152] Wikipedia, *Wikipedia: Administrators*, http://en.wikipedia.org/w/ index.php?title=Wikipedia:Administrators&oldid=353711328 (last visited Apr. 22, 2010).

[153] *Id.*

[154] *See* Jimmy Wales's comment on granting administrator authority on the English Wikipedia mailing list in 2003, *available at* http://lists.wikimedia. org/pipermail/wikien-l/2003-February/001149.html (Feb 11, 2003, 11:55 UTC) (last visited Apr. 30, 2010); *see also* LIH, *supra* note 25, 94–96. Also relevant to this point is Mathieu O'Neil's discussion on the advantage of "early entrants" in a network. O'Neil points out that early entrants are likely to become bigger nodes in the network because new entrants are inclined to link already well-connected actors. Secondly, time can also be a decisive factor in acquiring authority. As reputation is accumulated over time, the length of service in a project may be a figure of considerable authority. *See* MATHIEU O'NEIL, CYBERCHIEFS: AUTONOMY AND AUTHORITY IN ONLINE TRIBES 55–56 (2009). O'Neil also points out that existing inequalities in the offline world, such as gender, class and ethnicity, may persist in the network. *Id* at 61.

[155] Elected positions now include: Arbitrators (members of the Arbitration Committee, the highest body that presides over disputes between editors), *see* Wikipedia: *Wikipedia: Arbitration Committee*, http://en.wikipedia.org/w/index. php?title=Wikipedia:Arbitration_Committee&oldid=356016389 (last visited Apr 30, 2010), Stewards, CheckUsers, and Oversighters. *See* User Access Levels*, supra* note 125. Positions that editors may request to fill but need to be approved by the community with consensus include Bureaucrats and Administrators. Administrators may confer different level of protections to a page and block or suspend a user. Bureaucrats have all the authority of an Administrator, but they can also perform certain actions on other user accounts, such as adding or removing accounts from the "Bot" group, renaming user accounts, or granting a user administrative authority, enacting a community

scrutiny.

E. Content Policy and Quality Control

While Wikipedia allows anonymity and pseudonymity and assumes good faith of all editors,[156] it also has developed mechanisms to verify the accuracy of its content, to prevent damage from malicious edits, and to avoid Wikipedia from being used as a heated forum for political or ill-intentioned arguments.

To present itself as an encyclopedia that aspires for high quality, Wikipedia has three core content policies: 1) "No Original Research": unpublished facts, arguments, concepts, analysis and theories are excluded from Wikipedia.[157]   2) "Verifiability": editors should provide reliable sources for the contents they include, so that readers would be able to independently verify material found in Wikipedia.   Contents that are unverifiable from a reliable source can be removed.[158]   In general, a reliable source is material published by a third party which has a reputation for fact-checking and accuracy.[159] 3) Neutral Point of View (NPOV): established in the early months of Wikipedia in 2001[160] and declared by Wales as absolute and "non-negotiable" in 2003.[161]   The "neutrality" in NPOV is not to collectively establish in the community a universal view that is assumed to

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adminship vote. *Id.*

[156] "Assume good faith" is considered a Wikipedia guideline. Wikipedia: *Wikipedia: Assume Good Faith*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Assume_good_faith&oldid=317532115 (last visited Feb. 28, 2010).

[157] Wikipedia, *Wikipedia: No Original Research*, http://en.wikipedia.org/w/index.php?title=Wikipedia:No_original_research&oldid=320020736 (last visited Feb. 28, 2010).

[158] Wikipedia, *Wikipedia: Verifiability*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Verifiability&oldid=318383562 (last visited Feb. 28, 2010) [hereinafter *Verifiability*].

[159] In general, the most reliable sources are peer-reviewed journals and books published in university presses; university-level textbooks; magazines, journals, and books published by respected publishing houses; and mainstream newspapers. Electronic media may also be used. As a rule of thumb, the greater the degree of scrutiny involved in checking facts, analyzing legal issues, and scrutinizing the evidence and arguments of a particular work, the more reliable the source is. *Id.*

[160] Wikipedia, *Wikipedia: Neutral Point of View*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Neutral_point_of_view&oldid=319404533 (last visited Feb. 28, 2010) [hereinafter *Neutral Point of View*].

[161] The statement was made on the Wikien-l mailing list, *archived at* http://lists.wikimedia.org/pipermail/wikien-l/2003-November/008096.html (Nov. 15, 2003, 12:54 UTC) (last visited Apr. 28, 2010).

be "neutral" or "objective".[162] Rather, NPOV requires Wikipedia content to represent all significant views found in reliable sources, in a fair and non-biased way, "in a disinterested tone", and present them "in rough proportion to their prevalence within the source material."[163] Wikipedia editors are supposed to familiarize themselves with all three content policies and consider each of them as complementary to one another.[164] There is also the policy "Biographies of living persons (BLP)," which is an enhanced application of the three core policies.[165] As biographical articles dealing with living people can easily become sources of complaints and public criticisms, editors are asked to adhere to these policies strictly. When material is unsourced or poorly sourced, BLP even requires immediate removal without discussion.[166]

To limit the damage that may be caused by malicious edits, editors take appropriate steps when they spot edits with bad faith, including reverting edits,[167] leaving warning messages for users who conducted abusive behaviors, or nominating pages for deletion.[168] Editors may also prevent malicious edits by notifying

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[162] *See* Wikipedia, *Wikipedia: Neutral Point of View/FAQ*, http://en.wiki pedia.org/w/index.php?title=Wikipedia:Neutral_point_of_view/FAQ&oldid=3535 90817 (last visited Apr. 22, 2010).

[163] *Id.* There are of course disputes about whether Wikipedia lives up to this policy. Supporters of intelligent design claim that Wikipedia editors systematically discriminated against their viewpoints. *See, e.g.,* The Christian Post, *"Design' Proponents Accuse Wikipedia of Bias, Hypocrisy*, May 9, 2007, *available at* http://www.christianpost.com/article/20070509/27307_'Design'_ Proponents_Accuse_Wikipedia_of_Bias,_Hypocrisy.htm. There is also a project called "Conservapedia" which states that Wikipedia has a liberal bias and claims itself to be "a conservative encyclopedia you can trust." *See* Conservapedia, *Conservapedia*, http://www.conservapedia.com/index.php?title= Conservapedia&oldid=698675 (last visited Feb. 28, 2010).

[164] Wikipedia, *Wikipedia: Core Content Policies*, http://en.wikipedia. org/w/index.php?title=Wikipedia:Core_content_policies&oldid=283226807, (last visited Apr. 22, 2010).

[165] Wikipedia, *Wikipedia: Biographies of Living Persons*, http://en.wiki pedia.org/w/index.php?title=Wikipedia:Biographies_of_living_persons&oldid=35 7638300, (last visited Apr. 22, 2010) [hereinafter *Biographies of Living Persons*].

[166] *Id.*

[167] Reverting an edit means to undo changes made to an article. *See* Wikipedia, *Help: Reverting*, http://en.wikipedia.org/w/index.php?title=Help: Reverting&oldid=320125556 (last visited Feb. 28, 2010).

[168] *See* Wikipedia, *Wikipedia: Template messages/User talk namespace*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Template_messages/User_t alk_namespace&oldid=357561698, (last visited Apr. 22, 2010); *see also* Wikipedia, *Wikipedia: Deletion Policy*, http://en.wikipedia.org/w/index.php? title=Wikipedia:Deletion_policy&oldid=357062477 (last visited Apr. 22, 2010).

administrators to block certain users or to protect certain pages.[169] Bots—automatic processes used to interact with Wikipedia and perform as editors—are also developed to take care of simple tasks such as correcting spelling errors, to assist human editors to detect texts that may require editing, or to fight vandalism.[170] To avoid conflicts and emotional behavior, Wikipedia asks people to be "civil" and to work toward consensus.[171]

The community-developed Wikipedia guidelines and policies summarized above much resemble Mertonian social norms of modern science.[172] Firstly, "communism[173]"—seeing "findings of science . . . a product of social collaboration and . . . assigned to the community", limiting individuals' claim to "intellectual 'property'" to "recognition and esteem" in support of the "common fund of knowledge"[174]—is intrinsic to Wikipedia's commons-collaborative model. By adopting a free content license for the whole project, Wikipedia asks all contributors to share their contributions with everyone within and beyond the Wikipedia community. The copyleft free content license secures all the subsequent contributions to stay in the commons.

Secondly, the Mertonion ethos of "disinterestedness" not only can be found in the behavior guideline "Conflict of Interest"[175] for individual editors, but also applies to the Wikipedia project as a whole. In 2002, when Wikipedia was still run by Wales's for-

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[169] *See* Wikipedia, *Wikipedia: Blocking Policy*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Blocking_policy&oldid=357597311 (last visited Apr. 22, 2010) [hereinafter *Blocking Policy*].

[170] *See* Wikipedia, *Wikipedia: Bot Policy*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Bot_policy&oldid=319595195 (last visited Feb. 28, 2010) [hereinafter *Bot Policy*]; *see also* Wikipedia, *Wikipedia: Bots/Status*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Bots/Status&oldid=316992 030 (last visited Feb. 28, 2010) (listing active and discontinued bots).

[171] *See* Wikipedia, *Wikipedia: Civility*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Civility&oldid=319933591 (last visited Feb. 28, 2010); *see also* Wikipedia, *Wikipedia: The Five Pillars*, *supra* note 146.

[172] *See* ROBERT. K. MERTON, *The Normative Structure of Science, in* THE SOCIOLOGY OF SCIENCE: THEORETICAL AND EMPIRICAL INVESTIGATIONS, 267, 270–76 (Chicago: University of Chicago Press, 1973).

[173] Merton later renamed this as "communalism," perhaps to avoid political connotations. *See* MICHAEL LYNCH, *SCIENTIFIC PRACTICE AND ORDINARY ACTIONS: ETHNOMETHODOLOGY AND SOCIAL STUDIES OF SCIENCE* 61 (Cambridge University Press, 1993).

[174] MERTON, *supra* note 172, at 273.

[175] Wikipedia, *Wikipedia: Conflict of Interest*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Conflict_of_interest&oldid=318682937 (last visited Feb. 28, 2010).

profit company Bomis Inc, some editors in the Spanish Wikipedia broke away and founded *Enciclopedia Libre,* fearing that Wikipedia would take steps to profit from the results of (their) collaborative work.[176] Wales soon announced a no-ads policy.[177] In 2003, the Wikimedia Foundation (WMF) was founded and Wales donated all the copyright of Bomis employee's works that were related to Wikipedia to the non-profit organization.[178] The WMF has firmly held the no-ad policy since Wales's initial announcement.[179]

Thirdly, "universalism" for Merton is twofold. On the one hand it is a standard for scientific knowledge itself. "[T]ruth-claims, whatever their source, are to be subjected to pre-established impersonal criteria: consonant with observation and with previously confirmed knowledge"[180]. Wikipedia's content policy is consistent with this principle, requiring material to be independently verifiable regardless of the reputation of the editor, as illustrated in the opening quote by Kat Walsh.[181] On the other hand, universalism also demands institutions to be open and provide free access to scientific pursuits. Wikipedia's open structure which allows anyone to edit is the ultimate realization of such a "functional imperative".[182]

Fourthly, that Wikipedia does not privilege experts or people with academic credentials backed up by institutions[183] is also consistent with Merton's "organized skepticism," which is called

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[176] *See* LIH, *supra* note 25, at 136–38. The forked Spanish project, Enciclopedia Libre, is still an active project to-date.

[177] *Id*.

[178] Posting of Jimmy Wales, jwales@bomis.com, to the Wikipedia-l mailing list, (June 20, 2003, 16:18 UTC) http://lists.wikimedia.org/pipermail/wikipedia-l/2003-June/010743.html (last visited Feb. 9, 2010) (informing the mailing list of the creation of the Wikimedia Foundation).

[179] On the Foundation-l mailing list, there have been proposals to allow advertisements on the old Wikipedia.com website. *See, e.g.,* Anthony DiPierro's posting to the Foundation-l mailing list on Apr. 23, 2006 (21:21 UTC), *archived at* http://lists.wikimedia.org/pipermail/foundation-l/2006-April/020171.html; *see also* David Gerard's posting to the same list on Apr. 22, 2007 (23:41 UTC), *archived at* http://lists.wikimedia.org/pipermail/foundation-l/2007-April/029523.html. The Foundation has not changed the no-ads policy, either on Wikipedia.com or Wikipedia.org. *See also* Wikipedia, *Wikipedia: Advertisements,* http://en.wikipedia.org/w/index.php?title=Wikipedia:Advertisements&oldid=316060274 (last visited Feb. 28, 2010) (discussing more related history on this topic).

[180] MERTON, *supra* note 172, at 270.

[181] Walsh, *supra* note 1; *see also Verifiability*, *supra* note 158.

[182] *See* MERTON, *supra* note 172, at 272.

[183] *See* Shirky, *supra* note 2.

for because institutions have periodically interfered with empirical and logical judgment and scrutiny.[184] Unverifiable or unreferenced material, even if suggested by experts in the field, will not be considered certified knowledge in the Wikipedia model.[185] Martin Walker, a chemistry professor in real life as well as a Wikipedia editor who is involved in Wikipedia 1.0 (a project that produces an off-line Wikipedia[186]), once commented that many Britannica articles would be rejected by Wikipedia 1.0 for their lack of references,[187] despite the fact Britannica's contributors are almost without exception experts in their own field.

However, the affinity between Wikipedia policies and guidelines and Mertonian social norms alone by no means explains why Wikipedia has achieved its popularity. External recognitions—studies showing Wikipedia's general reliability[188] and most important of all, ordinary users finding satisfaction

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[184] *See* MERTON, *supra* note 172*,* at 264–65.

[185] *Verifiability*, *supra* note 158.

[186] Note that producing such an offline version is not simply storing the data dump of the online version on a device, but entails a further editing and verification process. *See* Wikipedia, *Wikipedia: Version 1.0 Editorial Team*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Version_1.0_Editorial_Tea m&oldid=315435170 (last visited Feb. 28, 2010).

[187] *See* James Rivington, *Wikipedia Guns For Britannica Extermination: Free Future Could Decimate Commercial Rivals*, TECHRADAR.COM, Apr. 26, 2007, http://www.techradar.com/news/internet/broadband/wikipedia-guns-for-britannica-extermination-132792 (last visited Apr 30, 2010). Walker commented that

> [t]he thing with Britannica is that while the disc version has 100,000 articles, many of them are not very detailed at all. They're not thorough, they're not comprehensive. They're not long enough and they have no referencing. I'd say that if you were to submit a large majority of Britannic [sic] articles for inclusion on Wikipedia they'd be immediately rejected on these grounds.

Id.

[188] The distinguished science journal, *Nature*, conducted a study in 2005. The study compared 42 pairs of articles in hard sciences from both Wikipedia and the Encyclopaedia Britannica (Britannica), blindly reviewed by experts in related fields. While 4 serious errors and 162 factual errors were found in Wikipedia, 4 serious errors and 123 factual errors were also identified in Britannica. *Nature* concluded that high profile examples such as the Seigenthaler incident are the exception rather than the rule. Jim Giles, *Internet Encyclopedias Go Head to Head*, NATURE, Dec. 15, 2005, at 438, 900–901. In 2007, a German study found that the German Wikipedia is better than traditional encyclopedias. K. C. Jones, *German Wikipedia Outranks Traditional Encyclopedia's Online Version*, INFORMATION WEEK, Dec. 7, 2007, http://www.informationweek.com/news/global-cio/trends/showArticle.jhtml? articleID=204702694 (last visited Apr 30, 2010).

during their random visits—are more likely to be the reason why the commons-collaborative model has become a serious competitor of reference works with long tradition, such as Britannica.

In the world of reference works, the position of proprietary encyclopedias such as Encyclopaedia Britannica is parallel to proprietary software companies' position in the "property-centralized" software development model.[189] Britannica has followed the tradition of having expert contributors and professional editors as ways of quality control.[190] Facing the expanding online resources, in July 2005 Britannica first resurrected an editorial board of advisers, adding a layer of expert scrutiny, hoping to reassert Britannica's authority.[191] But Wikipedia's commons-collaborative model has proven to be a forceful competitor and more than simply a "faith-based" encyclopedia, as criticized by the former editor-in-chief of Encyclopaedia Britannica, Robert McHenry, in 2004.[192] In 2009 Britannica has introduced a new website to become a hub for a "new online community."[193] The new platform facilitates it for users to provide comments, suggestions and articles for Britannica to consider. Britannica explains that the new platform is an adjustment to their method to make its content more relevant, but it is not "going wiki."[194]

Britannica is not the only one that has made adjustments. As Wikipedia's model challenges existing authorities and order, the new knowledge community has caused discomfort to some educators, encyclopedia publishers,[195] or even fellow advocates of

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[189] *See, e.g.,* Giles, *supra* note 188.

[190] Eliot Van Buskirk, *Encyclopaedia Britannica to Follow Modified Wikipedia Model*, WIRED, Jun. 9, 2008, *available at* http://www.wired.com/epicenter/2008/06/ency/.

[191] Eric Ferkenhoff, V*enerable Encyclopedia Seeks Just the Facts: Board Named in Hoping of Trumping Online Competitors*, BOSTON GLOBE, Jul. 21, 2005, *available at* http://www.boston.com/news/nation/articles/2005/07/21/venerable_encyclopedia_seeks_just_the_facts/.

[192] Robert McHenry, *The Faith-Based Encyclopedia*, TCS DAILY, Nov. 15, 2004, *available at* http://www.tcsdaily.com/article.aspx?id=111504A.

[193] *See* posting of Jorge Cauz, President, Encyclopaedia Britannica, Inc., to Britannicanet.com, Britannica's New Site, http://britannicanet.com/?p=86 (last visited Apr. 28, 2010); Hiawatha Bray, *Enter Britannica*, BOSTON GLOBE, Mar. 31, 2009, *available at* http://www.boston.com/business/technology/articles/2009/03/31/enter_britannica/?page=full.

[194] Bray, *supra* note 193.

[195] Not only did Britannica adjust to new media with the new website, in 2008 Brockhaus, the German encyclopedia publisher, announced that it would

free encyclopedias. Wikipedia has constantly received external criticisms that cast doubt on the project.[196] The Wikipedia community has been making adjustments in reaction to some of these criticisms, as well as continuously experimenting with new policies, which are developed spontaneously by the community.[197] These efforts are part of the boundary-work the Wikipedia community has performed to establish the credibility and legitimacy of itself and its method, which I will explore below in the following section.

V. WIKIPEDIA AND ITS BOUNDARY-WORK

It is precisely because Wikipedia's reliability has been challenged that it has continually instituted policies and procedures for ensuring accuracy and verifiability.
~ Deborah Perron Tollefsen[198]

With a technological platform and social norms that allow open-ended editing, the on-line version of Wikipedia differs from printed encyclopedias by offering inscriptions that are mobile, but not immutable.[199] This factor destabilizes the kind of public

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stop printing physical copies and switch to a new business model with an on-line portal. *See* Deutsche Welle, *Germany's Brockhaus Encyclopedia Goes Online*, DEUTSCHE WELLE CULTURE & LIFESTYLE (Jan. 13, 2008), http://www.dw-world.de/dw/article/0,,3125497,00.html. However, in 2009, Brockhaus was sold to Bertelsmann, the company which published a physical copy of German Wikipedia in 2008. Press Release, Bundeskartellamt, Bundeskartellamt Clears Takeover of the Brockhaus Publishing House by Bertelsmann (Apr. 30, 2009), *available at* http://www.bundeskartellamt.de/wEnglisch/download/pdf/Presse/09 0430_Brockhaus_E.pdf. Posting of Kul Wadhwa, Head of Business Development, Wikimedia Foundation, to Wikimedia Blog, http://blog.wikimedia. org/2008/04/22/wikipedia-in-german-book-form/ (last visited Feb. 6, 2010). The plan of putting Brockhaus encyclopedia online does not seem to have been realized to-date.

[196] See for example the list compiled by Wikipedia editors. Wikipedia, *Criticism of Wikipedia*, http://en.wikipedia.org/wiki/Criticism_of_Wikipedia (last visited Mar. 2, 2010).

[197] *See supra* notes 145–146.

[198] Deborah Perron Tollefsen, *Wikipedia and the Epistemology of Testimony*, 6 EPISTEME 8, 22 (2009).

[199] Here I play with the widely used concept "immutable and combinable mobiles," or "immutable mobiles" in the Actor-Network Theory, developed by Bruno Latour. Immutable mobiles are forms of information—charts, tables, or trajectories—produced by "inscription devices" or "instruments," such as meters, watches, statistics, which are transformed from material substances and can be used to produce literary inscriptions. Such information is stable (immutable), can be compiled with other immutable mobiles (combinable), and can be transmitted for use by individuals at a long distance (mobile). The

trust that was built into traditional encyclopedias—not only because the genre presents itself to be authoritative but also because such knowledge is disseminated in printed form, a fixed medium that is not subject to constant and unlimited changes. But why would we assume the reliability of the information in a published book? Historian Adrian Johns argues that the kind of trust that is now vested into printed materials is not simply a result of technological change.[200] Rather, he suggests that "print culture" is about a complex cultural and social process that forged *trust*—a key element in the making of knowledge.[201] Johns points out that "[a] central element in the reading of a printed work was likely to be a critical appraisal of its identity and its credit", and printers and booksellers were manufacturers of credit with "hard and continuing work carried out 'behind the scenes.'"[202]   Following Johns' argument—it is not something intrinsic in a particular mediating technology that makes the information it channels more or less reliable, rather, the authority is socially constructed by the people using the

collection, compilation, and recalculation of immutable mobiles allows a few men or women in the center, such as a bureau in a government department, to act at a distance to dominate the periphery. *See* BRUNO LATOUR & STEVE WOOLGAR, LABORATORY LIFE (Sage Publications, Inc., 1979); BRUNO LATOUR, SCIENCE IN ACTION 227–37 (Harvard University Press 1987). Latour wrote:

> Everything that might enhance either the mobility, or the stability, or the combinability of the elements will be welcomed and selected if it accelerates the accumulation cycle . . . If inventions are made that transform numbers, images, and texts from all over the world into the same binary code inside computers, then indeed the handling, the combination, the mobility, the conservation and the display of the traces will all be fantastically facilitated.

Id. at 228.

Wikipedia is a site where people collect and retrieve many immutable mobiles. Andrew Lih described how a computer science graduate developed a robotic program to mass-produce standardized articles about cities in the US with publicly available US census data from multiple databases. *See* LIH, *supra* note 25, at 99–106. The modular style of Wikipedia itself, which Lih calls "bento box" writing, is also structured to provide what is considered basic information about an encyclopedia topic. Although Wikipedia also largely enhances the mobility, combinability, accumulation of numbers, images, and texts through its easy access via Internet, as well as many hyperlinks connecting to pages within and outside of Wikipedia, it does not ensure the stability of the information at all times. *See* Loki, *Andrew Lih on the Wikipedia Revolution*, SHOUTING LOUDLY, Mar. 26, 2009, http://www.shoutingloudly.com/2009/03/26/andrew-lih-on-the-wikipedia-revolution/.

[200] ADRIAN JOHNS, THE NATURE OF THE BOOK: PRINT AND KNOWLEDGE IN THE MAKING 2, 3 (The University of Chicago Press 1998).

[201] *Id.* at 2, 3, 31.

[202] *Id.* at 31, 33.

technology—in this section I explore how Wikipedia has been striving to establish the credibility of its new model of making reference works, despite a wiki's editable nature and the open structure of the project.

Thomas Gieryn developed the concept of "boundary-work" as a theoretical tool to explain the cultural authority of science.[203] It is "the attribution of selected characteristics to the institution of science . . . for purposes of constructing a social boundary that distinguishes some intellectual activity as non-science."[204] The demarcation of science, or institutions with cognitive authority over what is and is not credible knowledge, from non-science is driven by a social interest in claiming, expanding, protecting, monopolizing, usurping, denying or restricting the cognitive authority of science.[205]

Wikipedia is not just a project of a small club of participants, but has become an integral part of a larger society. For those who think young adults should be immersed in more rigid and scientific training by first learning from expert-certified knowledge, the Wikipedia model can cause complexity. As a young encyclopedia project with a novel method of organizing knowledge, Wikipedia raises several questions which cartographers of scientific knowledge would find familiar: Is a dispersed community of individuals capable of collecting and organizing a body of information that represents the sum of human knowledge? With what method? How is the community structured? Even if the method is somewhat valid, how does the community regulate the dispersed individuals and enforce its norms?

Both Wikipedia and traditional encyclopedias may draw their own cultural maps to justify the legitimacy of their reference projects. Wikipedia's boundary-work does not seek to discredit traditional encyclopedias' sources of authority—the publishing industry and the academic institutions—but aims to establish itself as another credible reference project with a valid method. I identify two different ways of boundary-making performed by the Wikipedia community.

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[203] Gieryn, *supra* note 4, at 4.

[204] *Id.* at 4–5.

[205] *See id.* (arguing credibility of science is shaped by societal influence or, in his words, "[t]he contours of science are shaped instead by the local contingencies of the moment: the adversaries then and there, the stakes, the geographically challenged audiences").

A. Defense Against External Pressure

As I summarized above, Wikipedia has its own distinct method of making reference works. Some of these characteristics invite criticisms more than others. In general, the goal of providing free access to a large collection of knowledge is not criticized—after all it is noble and fully consistent with enlightenment ideals.[206] Other aspects—anonymous editing and community self-governance—received skepticisms from a variety of actors, including publishers of traditional reference works, educators, like-minded free encyclopedists, as well as living persons who became subjects of Wikipedia articles.[207] When facing criticisms, to prove Wikipedia as a credible project, the Wikipedia community has to either clarify their method and defend it as it is, or modify some policies to improve their method. Below I will review some of the more well-known incidents that led to public criticisms of Wikipedia and how Wikipedia responded in these episodes.

1. Criticism: Wikipedia is Vulnerable to Vandalism

With its open structure that allows anyone to edit, Wikipedia has adopted measures such as temporarily protecting controversial topics to disallow new edits and using bots to monitor new edits.[208] Nevertheless, vandalism edits might be more difficult to spot when they are planted in a way that looks like legitimate content, and when they exist in pages that have less traffic and fewer eyeballs. BLP (biographies of living persons) articles are a major target of vandalism.[209] One has to be a celebrity or at least a minor celebrity in a particular field to pass Wikipedia's "notability" test to have a biographical page.[210] However, there is still a whole range of different attention a BLP

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[206] *See* Jutta Haider & Olof Sundin, *Beyond the legacy of the Enlightenment? Online encyclopedia as Digital Heterotopias,* FIRST MONDAY, *available at* http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2744/.

[207] *See supra* note 196.

[208] *See Blocking Policy*, *supra* note 169.

[209] Daniel Terdiman, *Wikipedia Community Grapples with Changes*, CNET NEWS, Aug. 26, 2009, http://news.cnet.com/8301-13772_3-10317764-52.html (last visited Apr. 22, 2010).

[210] *See Biographies of Living Persons*, *supra* note 165; *see Wikipedia, Wikipedia: Notability*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Notability&oldid=355673681 (last visited Apr. 28, 2010) [hereinafter *Notability*].

page may receive. BLP articles constitute a major source of complaints Wikipedia receives, so much that Wikipedia has developed a special content policy with heightened standard for this category.[211] The policy on BLP was established after John Seigenthaler Sr., writer, journalist and former editor of the daily newspaper USA Today, challenged Wikipedia about the accuracy of his biographical article.[212] In October 2005, Seigenthaler contacted the Wikimedia Foundation about a false statement on his biography on Wikipedia, which suggested that Seigenthaler may have had a role in the assassination of both John F Kennedy and Robert F Kennedy.[213] Although the disputed Wikipedia page was hidden from public view after the complaint, as the page had existed since May 2005, some "mirror" sites (websites which copy information directly from Wikipedia, such as Answers.com) continued to display the inaccurate information.[214]

In November 2005, Seigenthaler wrote an op-ed in USA Today in which he pointed to the false accusation and called Wikipedia a flawed and irresponsible research tool.[215] In early December, Seigenthaler and Wales appeared on National Public Radio, where Seigenthaler expressed his disapproval of the "incurable" Wikipedia editing model and his unwillingness to lend his sanction or approval by actually editing it.[216]

Following the incident, the English Wikipedia adopted a new guideline dealing specifically with BLP.[217] Another policy change was an experimental measure responding to the growth of Wikipedia and the increasing burden for its self-monitoring system.[218] The new policy tightened anonymous editors' access by allowing only logged-in registered users to start a new page.[219]

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[211] *See id.*; Wikipedia, *Resolution: Biographies of Living People*, http://wikimediafoundation.org/wiki/Resolution:Biographies_of_living_people (last visited Mar. 28, 2010) [hereinafter *Resolution: Biographies*].

[212] *See* Lih, *supra* note 25, at 192.

[213] John Seigenthaler, A False Wikipedia 'Biography', USA TODAY, http://www.usatoday.com/news/opinion/editorials/2005-11-29-wikipedia-edit_x.htm (last visited Apr. 22, 2010).

[214] Ken S. Myers, *Wikimmunity*, 20 HARV. J.L. & TECH. 171 (2006).

[215] AYERS, *supra* note 8.

[216] National Public Radio, *Talk of the Nation: Wikipedia to Require Contributors to Register* (Dec. 6, 2005), *available at* http://www.npr.org/templates/story/story.php?storyId=5041077.

[217] AYERS, *supra* note 8.

[218] Posting of Jimmy Wales, jwales@wikia.com, to English Wikipedia mailing list (Dec. 5, 2009, 13;35 UTC), http://lists.wikimedia.org/pipermail/wikien-l/2005-December/033880.html.

[219] Ayers, *supra* note 8.

The "experiment" would continue for years, while some users are skeptical of its efficacy.[220]

Nevertheless, BLP continue to be a category that leads to controversial press coverage on Wikipedia. After a hoax edit reported the death of the now late Massachusetts Senator Ted Kennedy in January 2009, the Wikimedia Foundation Board of Trustees passed a resolution on *Biographies of Living People* in April 2009, to reiterate the BLP policy, requiring projects of all languages to have such a policy in place.[221] Furthermore, Wales started a discussion in the English Wikipedia community, which led to a community poll and decision on a two-month experiment of implementing "Flagged Protection and Patrolled Revisions" on selected articles.[222] While "patrolled revisions" only permits reviewers to mark a revision as patrolled and does not have any effect on the version viewed by readers, on a page under "flagged protection", edits by non-trusted users require reviewers' approval before they are shown as the public default view.[223]

2. Criticism: Wikipedia Is Untrustworthy For Academic Citation

As described above, some studies have found that the quality of Wikipedia—despite there being an unevenness between articles—is surprisingly good for a volunteer-based and unreviewed (in the sense of traditional peer-review) encyclopedia[224]; nevertheless the way it has been uncritically cited by high school or even college students has led to criticisms of its method.[225] In a few university departments, professors have disputed the reliability of Wikipedia and required students to avoid citing Wikipedia as a source in exams or papers.[226] Most

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[220] *Id.*

[221] Resolution: Biographies*, supra* note 211.

[222] BanyanTree, *Flagged Protection Background: An Extended Look at How We Got to Flagged Protection and Patrolled Revisions*, WIKIPEDIA SIGNPOST, Aug. 31, 2009, http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost/2009-08-31/Flagged_protection_background.

[223] *Id.*

[224] Giles, *supra* note 188; Jones, *supra* note 188.

[225] Noam Cohen, *A History Department Bans Citing Wikipedia as A Research Source*, N.Y. TIMES, Feb. 21, 2007, *available at* http://www.ny times.com/2007/02/21/education/21wikipedia.html.

[226] *Wikipedia in Academia: History Department Decision Still Fueling Debate*, MIDDLEBURY COLLEGE 2007 NEWS ARCHIVE, Mar. 23, 2007, http://web. archive.org/web/20070312005444/www.middlebury.edu/about/newsevents/archi ve/2007/newsevents_633084484309809133.htm, (last visited Apr. 22, 2010) [hereinafter *Wikipedia in Academia*].

notably, the history department of Middlebury College in Vermont adopted a resolution which states that "Wikipedia is not an acceptable citation, even though it may lead one to a citable source."[227] The chair of the department Don Wyatt believed that it is the educators' job to "reduc[e] the dissemination of misinformation."[228] The history department did not ban the use of Wikipedia in general, and praised Wikipedia for being "extraordinarily convenient and, for some general purposes, extremely useful,"[229] yet the department attributed Wikipedia's "inevitabl(e) . . . inaccurac[y to] . . . its unique manner of compilation,"[230] to which the department objected, according to Wyatt, not for "its online nature, but its unedited nature."[231]

Wikipedia did not seem to receive the Middlebury College history department's decision negatively, or as serious criticism to its method, and did not respond by making any changes in its content policies.[232] In fact, according to Wales, the department's resolution recommended students to do "exactly what we suggest[: not to] cit[e] encyclopedias."[233] He added, "I would hope they wouldn't be citing Encyclopaedia Britannica either."[234] Other commentators believed that a more fundamental approach to deal with the existence of misinformation on the Internet is to teach students to develop "critical thinking skills to judge."[235] In other words, it is more of a media literacy issue—the ability to make good judgments when facing the sea of information and to navigate through it to find the reliable sources—so one should be learning to use a new tool such as Wikipedia, instead of being a luddite.

3. Criticism: Wikipedia is Prone to be Abused For Tolerating Anonymity

Although Wikipedia has set some restrictions for IP editors (users who do not have a user name or do not log in to edit)

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[227] *Id.*
[228] Scott Jaschik, *A Stand Against Wikipedia*, INSIDE HIGHER ED, Jan. 26, 2007, http://www.insidehighered.com/news/2007/01/26/wiki.
[229] *Wikipedia in Academia*, *supra* note 226.
[230] *Id*.
[231] Jaschik, *supra* note 228.
[232] *Wikipedia in Academia*, *supra* note 226.
[233] *Id.*
[234] Cohen, *supra* note 225.
[235] Jaschik, *supra* note 228.

throughout the past years,[236] the project is still friendly to anonymity. As mentioned above, registered users with a pseudonym may enjoy even higher privacy protection as the registration does not require one's real name, not even an email address, and their IP addresses will not be publicly associated with their edits.[237] One case in particular raised the issue of pseudonymous users and the accuracy of their claimed credentials: in January 2007, a high-profile user with the pseudonym Essjay,[238] who served as an administrator and in other higher functions, was hired by Wales's for-profit wiki-host server company, Wikia.[239] On his user page at Wikia, Essjay posted his real name and biographical information, which differed significantly from the previous description on his user page in Wikipedia.[240] The 24-year-old Ryan Jordan, who holds no advanced degree, earlier claimed on his Wikipedia user page to hold a doctoral degree in theology and canon law and a tenured professorship at a private university.[241]

In 2006, recommended by the Wikimedia Foundation, the *New Yorker* magazine's Pulitzer Prize winning staff reporter Stacy Schiff had interviewed Essjay in an article that discusses Wikipedia's potential to "conquer expertise".[242] The *New Yorker* published a correction to the article in February 2007 stating that the printed biographical information of Essjay in the story was found to be false.[243] After Essjay's fake credential was covered by the media, Wales initially said he did not have a problem with the use of pseudonyms.[244] But Wales later withdrew his support for Essjay after finding he had been using the bogus credentials to back his opinion in content disputes.[245]

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[236] BanyanTree, *supra* note 222.

[237] AYERS, *supra* note 8.

[238] Essjay held the positions of bureaucrat, oversight, checkuser and arbitrator on the English Wikipedia. Michael Snow and Fuzheado, *New Yorker Correction Dogs Arbitrator into Departure*, WIKIPEDIA SIGNPOST, Mar 5, 2007, http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost/2007-03-05/Essjay.

[239] *Id.*

[240] *Id.*

[241] *Id.*

[242] *Id. See* Stacy Schiff, *Know It All: Can Wikipedia Conquer Expertise?* THE NEW YORKER, Jul. 31, 2006, available at http://www.newyorker.com/archive/2006/07/31/060731fa_fact.

[243] *Supra* note 241–42.

[244] *Supra* note 242.

[245] Noam Cohen, *A Contributor to Wikipedia Has His Fictional Side*, N.Y. TIMES, Mar. 5, 2007, *available at* http://www.nytimes.com/2007/03/05/technology/05wikipedia.html.

Essjay was asked to resign his positions both in Wikipedia and Wikia.[246]   Essjay also retired from the Wikipedia project entirely.[247]

The incident immediately led to a heated debate on Wikipedia's mailing lists over whether to establish a new mechanism to verify users' claimed credentials.[248]   While some proposed a more rigid verification process to claimed professional credentials, others argued that such process would be bureaucratic and missing the point.[249]   The opening quote from Kat Walsh was a comment made in this context.   Walsh, a member of the Board of Trustees of the Wikimedia Foundation,[250] argued that academic credentials are really not the point since academic credentials should not be blindly taken as sources of authority anyway.[251] This view is in accordance with Wales's initial response to this incident.[252]   Wales was supportive to the use of pseudonyms and withdrew his support to Essjay only after finding Essjay had used fake credential to bolster his arguments.[253]   The Wikimedia Foundation did make one major policy change after the Essjay incident to address the anonymity issue.   The new policy requires a small number of highly trusted users (Stewards, Oversighters and CheckUsers) with access to nonpublic data to be more than eighteen years old and to provide personal identification documentation to the WMF.[254]   However, this policy does not require these trusted users to reveal their real-world identities publicly, nor does it have any effect on all other users.[255]

Another development in 2007 that also brought public attention to anonymous edits in Wikipedia was the release of WikiScanner by Virgil Griffith.   WikiScanner combines two kinds of information—the list of IP addresses that have been used to

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[246]   *Id*; *see also Jimmy Wales asks Wikipedian to Resign his "Positions of Trust" over Nonexistent Degrees*, WIKINEWS.ORG, Mar. 3, 2007, http://en.wiki news.org/wiki/Jimmy_Wales_asks_Wikipedian_to_resign_%22his_positions_of_t rust%22_over_nonexistent_degrees (last visited Feb. 28, 2010) [hereinafter *Positions of Trust*].

[247]   *See* Cohen, *supra* note 245.

[248]   *See* posting of Chris Winfield, *Wikipedia: Prove Your Credentials People*, 10e20.COM, Mar. 7, 2007, http://www.10e20.com/blog/2007/03/07/ wikipedia-prove-your-credentials-people/.

[249]   *See, e.g.*, Walsh, *supra* note 1 and accompanying text.

[250]   Walsh, *supra* note 1.

[251]   *Id.* and accompanying text.

[252]   *See, e.g., Positions of Trust*, *supra* note 246.

[253]   *Id.*

[254]   *See Access to Nonpublic Data*, *supra* note 141.

[255]   *Id.*

edit Wikipedia and a database that shows what IP addresses belong to which companies.[256] Therefore, WikiScanner is a tool one can use to expose which edits are done by IP addresses that are owned by certain companies (WikiScanner does not work with edits made by logged-in users, as the IP addresses of their Internet connection are not public and can only be accessed by CheckUsers and server administrators.)[257]   The release of WikiScanner made it easier to expose how companies (or even government agencies) may be using Wikipedia to serve their own public-relations purposes or to vandalize against competitors.[258] The Wikipedia community did not receive WikiScanner negatively. On the contrary, the existence of such a tool could discourage edits that violate "conflict of interest"—one of the Wikipedia behavioral guidelines[259]—and Wikipedia did not make any policy change after WikiScanner made news.

4. Criticism: Wikipedia Disrespects Expertise

Back in 2006, Larry Sanger, Nupedia's editor-in-chief and co-founder of Wikipedia, started a competing encyclopedia project—Citizendium, or a "citizens' compendium of everything."[260] Citizendium is also non-profit, using a MediaWiki platform, adopting a free licensing model and allowing anyone to edit. However, the new project differs from Wikipedia by adding "gentle" expert oversight and requiring contributors to use their real names.[261] One reason Sanger left Wikipedia in 2003 was his disagreement with what he calls "anti-elitism" in Wikipedia.[262]

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[256] Virgil Griffith, *WikiScanner Frequently Asked Questions*, http://virgil. gr/31 (last visited Mar. 5, 2010) [herein after *WikiScanner FAQ*].

[257] *See* AYERS. *supra* note 8, ch 11.

[258] WikiScanner FAQ, *supra* note 256, and Privacy Policy, *supra* note 130.

[259] Katie Hafner, *Seeing Corporate Fingerprints in Wikipedia Edits*, N.Y. TIMES, Aug. 19, 2007, *available at* http://www.nytimes.com/2007/08/19/ technology/19wikipedia.html; *see also Conflict of Interest*, *supra* note 175.

[260] *See* Memoir I, *supra* note 29; LIH, *supra* note 25, 210–12; Citizendium.org, Citizendium: About, http://en.citizendium.org/wiki?title=CZ: About&oldid=100611725 (last visited Mar. 5, 2010) [hereinafter *Citizendium: About*].

[261] *See* Larry Sanger, *Why the Citizendium Will (Probably) Succeed* (March 2007), *available at* http://www.citizendium.org/whyczwillsucceed.html (last visited Apr. 25, 2010); *see also* Citizendium: About, *supra* note 260.

[262] *See* Larry Sanger, Op-Ed., *Why Wikipedia Must Jettison Its Anti-elitism*, KURO5HIN.ORG, Dec. 31, 2004, http://www.kuro5hin.org/story/2004/12/ 30/142458/25 [hereinafter *Anti-elitism*]; *see also* Larry Sanger, *The Early History of Nupedia and Wikipedia: A Memoir, Part II*, SLASHDOT, Apr. 19, 2005, http://features.slashdot.org/article.pl?sid=05/04/19/1746205&tid=95 [hereinafter

Sanger argued that "regardless of whether Wikipedia *actually* is more or less reliable than the average encyclopedia, it is not *perceived* as adequately reliable" because it allows *anyone* to edit and lacks traditional review processes.[263] A second reason was his frustration from dealing with problem users.[264] While Sanger believed that anonymous "trolls" could be and should be "named and shamed," others wanted to take a soft-handed approach—not to identify "trolls" and remove them only after a long public discussion.[265] Sanger believed that the tolerance for "trolls" also originated from Wikipedia's lack of respect for expertise.[266] Because Citizendium gives privilege to scientists and other experts, allowing editors with proper academic qualification more power to settle disputes, Sanger believes that this model will be attractive to scientists and experts who are frustrated by the consensus model in what he calls Wikipedia's "radical egalitarianism."[267]

Citizendium received positive media coverage within its first year.[268] On the one hand, public attention had been driven to the abuse of anonymity on Wikipedia in the past, such as by the Seigenthaler incident (caused by an anonymous user), the exposure of Essjay's real identity, and the release of WikiScanner.[269] On the other hand, disregarding some positive evaluations of Wikipedia's overall quality, educators such as the history department of Middlebury and librarians were concerned about students' over reliance on the popular and easily accessible reference work.[270] Citizendium was reported as aiming to be a

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Memoir II].

[263]   *Anti-elitism, supra* note 262.

[264]   *Memoir II, supra* note 262.

[265]   *Id*.

[266]   *Anti-elitism*, *supra* note 262.

[267]   Posting of Larry Sanger to Citizendium Blog, Wither Wikipedia? http://blog.citizendium.org/?p=559 (Nov. 25, 2009, 17:12); *see also* Lawrence M Sanger, The Fate of Expertise After Wikipedia, 6 EPISTEME, 52, 67, (2009) [hereinafter *The Fate of Expertise*].

[268]   *See* Larry Sanger, *Citizendium Wiki Celebrates One Year Online: New Knowledge Society Takes Root, Flourishes*, TIDES CENTER, Oct. 31, 2007, http://www.tidescenter.org/news-resources/news-releases/single-press-release/ article/citizendium-wiki-celebrates-one-year-online-new-knowledge-society-takes-root-flourishes/.

[269]   *See* Brian Bergstein, *Citizendium Aims to Be Better Wikipedia*, USA TODAY, Mar. 25, 2007, *available at* http://www.usatoday.com/tech/webguide/ 2007-03-25-wikipedia-alternative_N.htm; *see also* Hafner, *supra* note 259.

[270]   *See supra* note 225; *see also* Lynn Olanoff, *School Officials Unite in Banning Wikipedia*, THE SEATTLE TIMES, Nov. 21, 2007 *available at*

"better Wikipedia"[271] , "kinder, truer Wikipedia"[272], the Wikipedia of tomorrow,[273] or "Wikipedia [w]ith [m]anners"[274]. Meanwhile, Citizendium also received skepticism from web critics such as Marshall Kirkpatrick[275] and Clay Shirky[276]. Shirky was especially critical of Sanger's belief that the authority of experts could exist independent of institutional frameworks.[277] Shirky predicted that Citizendium would suffer more than it would benefit from the principle, because vetting institutional credentials and internal policing would be too costly.[278] Citizendium did not take off the way Sanger had wished, taking almost two years after its official launch to past the 10,000-article benchmark,[279] a number the English Wikipedia managed to reach within ten months of its birth.[280] Citizendium does not seem to have proved its claimed potential,[281] and Sanger himself also has been largely inactive on Citizendium since mid 2009.[282]

A Wikipedian provided a positive way to see Citizendium—as a project that offers a similar-enough environment for valuable long-term experiments of some policy proposals that had never

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http://seattletimes.nwsource.com/html/living/2004025648_wikipedia21.html.

[271] Bergstein, *supra* note 269.

[272] Barbara Quint, *Citizendium: A Kinder and Truer Wikipedia?*, NEWS BREAKS, Oct. 30, 2006, http://newsbreaks.infotoday.com/nbreader.asp?ArticleID =18546.

[273] Neha Tiwari, *Wikipedia Today, Citizendium Tomorrow*, ZDNET ASIA, Apr. 23, 2007, http://www.zdnetasia.com/insight/internet/printfriendly.htm?AT =62007585-39001263c.

[274] Thomas Claburn, *Citizendium Fancies Itself Wikipedia with Manners*, INFORMATIONWEEK, Mar. 29, 2007, http://www.informationweek.com/news/ internet/showArticle.jhtml?articleID=198700886.

[275] Marshall Kirkpatrick, *Citizendium: A More Civilized Wikipedia?*, TECHCRUNCH, Sep. 17, 2006, http://www.techcrunch.com/2006/09/17/ citizendiuma-more-civilized-wikipedia/.

[276] Shirky, *supra* note 2.

[277] *Id.*

[278] *Id*.

[279] *See* Wither Wikipedia? *supra* note 267; posting of Larry Sanger to Citizendium-l mailing list, We broke the 10,000 barrier!, https://lists.purdue. edu/pipermail/citizendium-l/2009-February/001404.html (Feb. 20, 2009, 13:22 EST).

[280] Meta-Wiki, *Wikipedia Milestones*, Aug. 17, 2009, http://meta.wiki media.org/w/index.php?title=Wikipedia_milestones&oldid=1606401.

[281] *See* Richard Waters, *Citizendium Founder Ready to Jump Ship*, FINANCIAL TIMES, http://blogs.ft.com/techblog/2009/08/citizendium-founder-ready-to-jump-ship/ (Aug. 25, 2009 23:54) ("Sanger's creation is increasingly in danger of being consigned to footnote status in the entry for 'Online Encyclopedias.'").

[282] *Id*.

gained enough support in Wikipedia.[283] However, Citizendium's lack of success prevented it from having any pressure on or providing incentive for Wikipedia to change the policies criticized by Sanger. Wikipedia does not plan to change its policy on anonymous or pseudonymous users.[284] Wikipedia traditionally has involvements from experts of various fields, and the Wikimedia Foundation does seek to outreach to more different kinds of potential editors, including people with expertise.[285] In fact, as mentioned above, research institutions like the National Institutes of Health and academic journals like RNA Biology now also seek to engage in Wikipedia as this online encyclopedia has become a major source of information for the public.[286] What Wikipedia has not changed is its policy of vetting the content instead of the editor who provides the content, as reflected in the quotes of Kat Walsh and Clay Shirky.[287]

B. Community-initiated Policy Experiments

In the previous section, I explored how Wikipedia responded to external criticisms and pressures. Only some of them have led to policy changes, and among these changes, only very few were not adjusting existing policies but introducing new ones.[288] Most of the Wikipedia policies, guidelines and governance structures are developed spontaneously by and within the community.[289] To be sure, the Wikipedia community is not entirely independent from the rest of society. Its members interact constantly with their own social groups and obtain ideas about what credible knowledge means. Spontaneity here only means the community developed certain norms without direct external influence or pressure. I have addressed several content and behavior policies

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[283] *See* HaeB, *Lessons from Citizendium*, Aug. 28, 2009, *available at* http://wikimania2009.wikimedia.org/wiki/Proceedings:226.

[284] There are failed policy proposals to prohibit unregistered users from editing and to impose higher registration which can be found at http://en.wikipedia.org/wiki/Wikipedia:Editors_should_be_logged_in_users and at http://en.wikipedia.org/wiki/Wikipedia:Disabling_edits_by_unregistered_ users_and_stricter_registration_requirement.

[285] *See* WIKIPEDIA FOUNDATION, 2007/2008 ANNUAL REPORT 13, *available at* http://upload.wikimedia.org/wikipedia/foundation/2/2a/WMF_20072008_Annual _report.pdf.

[286] *See supra* notes 23–24 and accompanying text.

[287] See Walsh, *supra* note 1; Shirky, *supra* note 2 and accompanying text.

[288] *See, e.g.*, *supra* note 196; *see also* discussion *supra* Part V.A.

[289] *See* discussion *infra* V.B.

and guidelines, which were mostly developed by the community. For example, requiring material to be well-sourced and presenting all significant viewpoints to ensure the quality of an article, developing robotic programs (bots) to update pages or to spot questionable content, protecting controversial articles when users engage in editing wars, etc.[290] One important block of the Wikipedia model is its self-governance structure operated by volunteers with multiple layers of user groups, each with its own access level to perform the designated tasks.[291] How a user group came into being may differ from one to another. Below I give the example of one user group—CheckUser, which deals with abuse of anonymity.

Anonymity has been one major source of criticisms and doubts Wikipedia received.[292] It has also caused certain difficulties in the internal governance.[293] As mentioned above, one of the reasons Lawrence Sanger, the co-founder of Wikipedia, left the project was that Wikipedia's open structure may be prone to manipulation by anonymous editors.[294] From time to time, editors in Wikipedia have proposed to disallow anonymity.[295] Nevertheless, enough Wikipedia editors believe that Wikipedia's openness relies on its respect for anonymity, and have kept anonymity alive despite the tradeoff.[296]

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[290] *See Wikipedia: About*, *supra* note 109 (asserting "Wikipedia content is intended to be factual, notable, verifiable with cited external sources, and neutrally presented"); *Bot Policy*, *supra* note 170; *Wikipedia: Protection Policy*, *supra* note 124 (outlining the reasons for, and types of, page protection).

[291] *Wikipedia: User Access Levels*, *supra* note 125.

[292] Wikipedia, *Wikipedia: Criticism of Wikipedia, supra* note 196.

[293] *See supra* Part V.A-3.

[294] *See* AFP, *Wikipedia Founder Sets up Rival*, AUSTRALIAN, Oct. 19, 2006, http://www.theaustralian.com.au/australian-it/wikipedia-founder-sets-up-rival/story-e6frgamx-1111112381852.

[295] Wikipedia, *Wikipedia: Perennial Proposals*, WIKIPEDIA, Dec. 22, 2009, http://en.wikipedia.org/wiki/Wikipedia:Perennial_proposals.

[296] *Id.* On the issue of permitting anonymous contributors, Wikipedia's structure is more open than many free/open source communities. Gabriella Coleman described how Debian, a Linux distribution project, revised its procedure for admitting new maintainers as the project grew from a close-knit community to a much larger size. The revised procedure is to enhance trust among the virtual community. To become a new maintainer, one needs an "advocate" who is already a member of the community to serve as the mentor, teacher, examiner and evaluator. *See* E. Gabriella Coleman, The Social Construction of Freedom in Free and Open Source Software: Hackers, Ethics, and the Liberal Tradition 282–88 (Aug. 2005) (unpublished Ph.D. dissertation, University of Chicago) (on file with author). Both Coleman and Gaby Rasters described the signing of "PGP (Pretty Good Privacy) keys" as a way for free

In the Wikipedia community, "sockpuppeting" refers to a kind of manipulation taking advantage of the community's respect for anonymity by registering and editing from multiple accounts.[297] Sockpuppeting leads to several problems. For example, as Sanger's criticism has pointed out, anonymity makes it difficult for the community to enforce its own rules as violators may come back with a different user name to avoid sanctions.[298] Also, when a user is persistent in adding or removing certain content in an article, she may use multiple accounts to make a viewpoint appear to be more significant than it actually is.[299] On the community governance level, sockpuppeteers may unfairly influence a community voting.

In the early days, server administrators who had access to users' IP information would perform manual checks to detect sockpuppeting upon request.[300] In 2005, a Wikimedia developer introduced an IP checking tool to the English Wikipedia.[301] The tool—revised and eventually named "CheckUser"—was designed to retrieve the IP addresses of logged-in users and user/edit data by a client IP address (since 2007 the tool also retrieves information about users' browser version and operating system

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software developers to verify each other's identity. PGP keys are used to generate "signatures" to verify that a piece of message, text, or software comes from the person who possesses the key. Key-signing activities are common in developers' gatherings and it requires key owners to exchange pieces of government-issued picture identification. Through key-signing, individuals obtain digital identification that enables them to extend "face-to-face-like" relationships in the distributed network. *See id* at 285; Gaby Rasters, Communication and Collaboration in Virtual Teams: Did We Get The Message? 164–66 (unpublished Ph.D. dissertation, Radboud Universiteit Nijmegen, Netherlands, 2004), *available at* http://dare.ubn.kun.nl/bitstream/2066/19547/1/ 19547%20_commancoi.pdf. On the issue of anonymous contributors' involvement in a free software project, Karl Fogel observes that many free software hosting sites require users to obtain an account even for simple tasks like filing a bug, arguing that this may often set the involvement bar too high. *See* Karl Fogel, Producing Open Source Software: How to Run a Successful Free Software Project (2005), *available at* http://producingoss.com/en/web-site.html# anonymity.

[297] Wikipedia. *Wikipedia: Sock Puppetry*, http://en.wikipedia.org/w/index. php?title=Wikipedia:Sock_puppetry&oldid=357842868 (last visited Apr 25, 2010).

[298] Posting of Larry Sanger to Citizendium Blog, http://blog.citizendium. org/2007/05/17/identity-necessary-for-democratic-polity/ (May 17, 2007, 07:46).

[299] *Id.*

[300] *See* Meta-Wiki, CheckUser, http://meta.wikimedia.org/w/index.php? title=CheckUser&oldid=118714 (archived version Apr. 12, 2005) (last visited Apr. 29, 2010).

[301] *Id.*

version), but only for edits within a rather short amount of time.[302] The tool can help investigating sockpuppets and detecting the range of IP addresses used by vandals to enable an IP range block when necessary.[303]

One major concern about the use of the tool is that it involves users' IP addresses, which is information that has been kept from public view for privacy concerns.[304] The community started to discuss who should be granted access to it, when an authorized user may perform user checks, under what situations can such information be given to a third party, how to ensure such users only make necessary IP checks with their privileged access, and whether such a tool should be implemented on other projects than the English Wikipedia.[305] Following several months of discussion, the CheckUser Policy went live in November of the same year, governing the use of the tool by the new category of user access level—CheckUsers, a new group of volunteers who are entrusted with the access to the tool.[306] CheckUsers take

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[302] *See id.*; s*ee also* HaeB, Address at Wikimania 2008, *CheckUser And Editing Patterns: Balancing Privacy and Accountability on Wikimedia Projects* (July 18, 2008), http://upload.wikimedia.org/wikipedia/wikimania2008/6/63/ CheckUser_and_Editing_Patterns.pdf (last visited Feb. 9, 2010) (noting the historical development of the CheckUser tool).

[303] HaeB, *supra* note 302.

[304] *See* CheckUser, *supra* note 300; Meta-Wiki, *Talk:CheckUser Policy*, http://meta.wikimedia.org/w/index.php?title=Talk:CheckUser_policy&oldid=175 7678 (last visited Feb. 9, 2010) (explaining that CheckUser logs are kept private because "privacy reasons . . . trump transparency"); Meta-Wiki, *Talk:CheckUser Policy/Proposition 2005*, http://meta.wikimedia.org/w/index.php?title=Talk: CheckUser_Policy/Proposition_2005&oldid=232940 (last visited Apr. 29, 2010) (showing initial discussion of the CheckUser Policy when it went live); Meta-Wiki, *Talk:CheckUser/Archive 1*, http://meta.wikimedia.org/w/index.php?title= Talk:CheckUser/Archive_1&oldid=570880 (last visited Apr. 30, 2010) (containing in-depth debate prior to June 2005 of the value of privacy of IP addresses versus the need to prevent system abuse). *But cf. Privacy Policy*, *supra* note 130 (stating explicitly that IP addresses may be shared on certain occasions, and that users should take this possibility into consideration when participating in Wikipedia).

[305] *See CheckUser*, *supra* note 300 (soliciting input from the community about availability, access, authorization, limitations, alterations to the privacy policy, and expansion of the tool); *see also Talk:CheckUser Policy/Proposition 2005*, *supra* note 304; *Talk:CheckUser/Archive 1*, *supra* note 304; Meta-Wiki, *Talk:CheckUser/Archive 2*, http://meta.wikimedia.org/w/index.php?title=Talk: CheckUser/Archive_2&oldid=570882 (last visited Feb. 9, 2010); Meta-Wiki, *Talk:CheckUser/Archive 3*, http://meta.wikimedia.org/w/index.php?title=Talk: CheckUser_policy/Archive_3&oldid=971845 (last visited Feb. 9, 2010) (ongoing discussion prior to April 2008 on implementation and revisions of the CheckUser Policy).

[306] Meta-Wiki, *CheckUser Policy*, http://meta.wikimedia.org/w/index.php?

requests from the community, perform investigations and publish the results in the local project (e.g. CheckUsers on the English Wikipedia do not have CheckUser access on other Wikipedias), and Stewards—another higher elected administrative category—also have access to the tool and can perform cross-wiki checks.[307] Sockpuppeting is sometimes hard to determine as different persons may be sharing an IP address, and one person may be using different IP addresses.[308] Plus, suspected accounts might be making both legitimate and suspicious edits.[309] CheckUsers' activities are logged (CheckUser logs) and such information is available to other people with CheckUser access on the same local project.[310] To prevent abuse of power, not only are CheckUser activities logged, but when one local project decides to introduce this category of user access, it must have more than one CheckUser, so that there may be some checks and balances among the CheckUsers.[311]

The layer of CheckUser was formally added to Wikipedia's internal governance structure in 2005 with the adoption of the CheckUser Policy.[312] But like all other Wikipedia policies and guidelines, the community continued to discuss the efficacy and reasonableness of the CheckUser layer and to suggest subsequent changes.[313] In 2006, to strengthen control, an Ombudsperson Commission was established and granted access to the CheckUser log to conduct investigation on privacy related complaints, and in particular, abuse of the CheckUser power.[314]

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title=CheckUser_policy&oldid=1630384 (archived Sept. 5, 2009) (last visited Feb. 9, 2010).

[307] *Id*. *See also* Meta-Wiki, *Stewards*, http://meta.wikimedia.org/w/index. php?title=Stewards&oldid=1919567 (last visited Apr. 22, 2010) (noting the capabilities of Stewards and how they are elected).

[308] Wikipedia, *Wikipedia: Signs of Sock Puppetry*, http://en.wikipedia. org/w/index.php?title=Wikipedia:Signs_of_sock_puppetry&oldid=354824845 (last visited Apr. 29, 2010).

[309] *See CheckUser Policy (Sep. 05, 2009)*, *supra* note 306 (noting that users may legitmately have multiple accounts); Meta-Wiki, *Help:Checkuser*, http://meta.wikimedia.org/w/index.php?title=Help:CheckUser&oldid=1752136 (last visited Apr. 29, 2010) (describing ways multiple users may use the same IP address/range or one user may have several IP addresses); HaeB, *supra* note 302 (examining ways IP address/range and user data might be mistakenly interpreted).

[310] S*upra* note 306.

[311] *Id.*

[312] *See supra* note 306 and accompanying text.

[313] *See* sources cited *supra* notes 305–06.

[314] Wikimedia Foundation, *Resolution: Ombudsperson Checkuser* (July 23, 2006), http://wikimediafoundation.org/wiki/Resolution:Ombudsperson_check

CheckUsers were initially appointed by the Arbitration Committee—the highest dispute resolution body in the Wikipedia community—but since 2009 the position is elected by the community.[315]   CheckUser exemplifies how the Wikipedia community strives to become more credible by trying to find the fine balance between its respect for anonymity and potential abuse of its open structure.

VI. NEW ACTORS/ROLES IN WIKIPEDIA'S NETWORK

In this section I come back to Callon's sociology of translation to explain how Wikipedia structures its new network of reference work making. It enlisted two new actors. One is the WMF, and charged it with various roles—in particular, as an institutional buffer between the community and the rest of the society. The other new actor is actually a new role Wikipedia casts on its readers—vigilant readership—which allows Wikipedia to open up central positions which were occupied by institutions traditionally enjoying epistemological authority—academics and publishers—to ordinary readers who are expected, as well as trusted, to be capable of reasoning and making good judgment. Nevertheless I emphasize that the demarcation between the Wikipedia model and the traditional encyclopedia model is not that between having expert or lay contributors, but the two different kinds of institutions of encyclopedia production.

A. Enlisting an Institutional Buffer: The Wikimedia Foundation

I have explained the main characteristics of Wikipedia's method of making reference works and explored how Wikipedia has responded to some external criticisms and pressures it has

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user (last visited Feb. 9, 2010); Meta-Wiki, *Ombudsman Commission*, http://meta.wikimedia.org/w/index.php?title=Ombudsman_commission&oldid=1860047 (last visited Apr. 22, 2010).

[315] *See* Wikipedia, *Wikipedia: CheckUser*, http://en.wikipedia.org/w/index.php?title=Wikipedia:CheckUser&oldid=356297240 (last visited Apr. 22, 2010) (describing the process for elections in the English Wikipedia community); *see also* Wikipedia, *Wikipedia: Arbitration Committee/CheckUser and Oversight*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Arbitration_Committee/CheckUser_and_Oversight&oldid=354152131 (last visited Apr. 22, 2010) (delineating the procedural arbitration commission policy and the appointment and election process); *Talk:CheckUser Policy*, *supra* note 304 (showing some of the community discussion behind the transition from the appointment to the election process).

received.[316] I have mentioned the Wikimedia Foundation (WMF) when it had some roles in the above episodes I summarized.[317] In this section, I offer my observations of the various roles the WMF plays, and in particular, how it may serve as an institutional buffer for the Wikipedia community to prevent external intervention from directly interfering with the operation of the community. In other words, that the Wikipedia community and the WMF consciously maintain a special kind of relationship is essential for Wikipedia's boundary-work. Such an institutional buffer negotiates more room and time for the relatively young community to experiment with their method and to establish its credibility in the process.

   As mentioned above,[318] Wikipedia is hosted on the servers of the Wikimedia Foundation (WMF), a non-profit organization based in the U.S.[319] The WMF was incorporated in 2003, when Wikipedia had already gained initial achievements and public attention.[320] The organization has undergone an expansion from two employees to over thirty employees within only a few years.[321] In addition to an administration task force, it is also equipped with a technical team, a fund-raising team, a program team to help coordinate volunteers and to reach out to potential users and editors, and a usability team to lower beginners' entry barrier to participate in editing.[322] On the corporate governance

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[316] *See supra* Part V.A (discussing Wikipedia's response to charges of being vulnerable to vandalism, being academically untrustworthy, being open to abuse through its policy of anonymity, and disregarding expert knowledge).

[317] *See, e.g.*, *supra* note 222 and accompanying text (citing WMF's recent policy guidelines for biographies of living people), note 250 and accompanying text (reporting a WMF Board member's assertion that academic credentials do not necessarily guarantee expert knowledge), and note 254 and accompanying text (noting WMF's requirements that users exercising considerable community authority be older than age eighteen and provide the Foundation with personally identifying information).

[318] *See* Wikimedia Foundation, Home, *supra* note 90.

[319] *Id.*

[320] *See supra* note 178.

[321] *See* Wikimedia Blog, *Help Shape the Future of Wikimedia* (Sep. 22, 2009), http://blog.wikimedia.org/2009/09/22/help-shape-the-future-of-wikimedia; Wikimedia Foundation, Staff, http://wikimediafoundation.org/wiki/Staff (last visited Feb. 9, 2010) (showing thirty-seven employees) [hereinafter *Staff*]; WIKIMEDIA FOUNDATION., ANNUAL REPORT 2008-2009, http://upload.wikimedia.org/wikipedia/foundation/a/a4/WMF_Annual_Report_20082009_online.pdf (last visited Apr 22, 2010) (noting thirty-four employees).

[322] *See Staff*, *supra* note 321; *see also* posting of Erik Moeller, erik@wikimedia.org, to Wikimedia Foundation-l mailing list, (Jan. 11, 2008) http://lists.wikimedia.org/pipermail/foundation-l/2008-January/037383.html

level, there have been community-elected seats in the WMF
Board of Trustees (the Board) since 2004, along with a number of
members who are appointed for certain professional skills.[323]

The WMF supports Wikipedia and other projects that are
hosted on their servers.[324]   Before the WMF decided on the
supportive and non-interfering role, the relationship between
WMF and the community has undergone some experiments.[325]
The WMF still has an "Office Actions" policy for the English
Wikipedia, under which the Foundation may perform official
changes to remove illegal or questionable contents.[326] The policy
was introduced in February 2006 by Wales in response to
increasing complaints the Foundation was receiving from the
public.[327]   But now the WMF considers the overly broad
application of such a measure as a result of immaturity of the

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(making available a post describing employee personnel and positions from Sue
Gardner, sgardner@wikimedia.org, to http://lists.wikimedia.org/mailman/list
info/staff on Jan 11, 2008).

[323] The WMF Board started with only five members, including Wales and
two Bomis members, as well as two community-elected seats, *see* LIH *supra* note
25, at 184. In 2008, two seats were established for local chapters—in general,
non-profit organizations started by editors in a particular country that are
approved by WMF as its local partners but are not affiliated with the WMF.
There are currently twenty-seven local chapters (Wikimedia Foundation, *Local
Chapters*, http://wikimediafoundation.org/w/index.php?title=Local_chapters&
oldid=40356, last visited Feb. 9, 2010). The current board of trustees has 10
seats – three community-elected, two chapters-selected, four board-appointed
"specific expertise seats" and one board-appointed "founder seat" for Jimmy
Wales. Wikimedia Foundation, *Board of Trustees/Restructure Announcement*,
http://wikimediafoundation.org/w/index.php?title=Board_of_Trustees/Restructu
re_Announcement&oldid=26599 (last visited Apr. 29, 2010).

[324] *See* Wikimedia Foundation, *Our Projects*, http://wikimediafoundation.
org/wiki/Our_projects (last visited Feb. 9, 2010) (listing Wikipedia, Wiktionary,
Wikiquote, Wikibooks, Wikisource, Wikispecies, Wikinews, Wikiversity,
Wikimedia Commons, and MediaWiki); *see also* WIKIMEDIA FOUNDATION.
ANNUAL REPORT, *supra* note 321, at 19.

[325] *See* Michael Snow, Confusion Over Office Actions as Veteran
Contributor Briefly Blocked, WIKIPEDIA SIGNPOST (Apr. 24, 2006),
http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Signpost/2006-04-24/Office_
actions (last visited Feb. 9, 2010) (describing the negative reaction to blocking of
a user by a WMF official); *see also infra* text accompanying notes 327–30.

[326] Wikipedia, *Wikipedia: Office Actions*, http://en.wikipedia.org/w/index.
php?title=Wikipedia:Office_actions&oldid=344580302 (last visited Apr. 22,
2010) (providing a rationale for the procedural policy of deleting or blanking
user-generated content).

[327] *See* Wikipedia, *Wikipedia: Office Actions* (revision as of Feb. 6, 2006,
21:43 UTC) http://en.wikipedia.org/w/index.php?title=Wikipedia:Office_actions
&diff=prev&oldid=38516715 (last visited Apr. 29, 2010) (archived version of
Office Action policy edited by Jimmy Wales, explaining authorization for WMF
removal of content without community discussion or consent).

organization in its early age,[328] and that the WMF should "almost never engage in direct editing or removal of project content," except when it is required by law.[329] From the discussions on the Foundation-l mailing list—a forum for people to address WMF policies and related issues—WMF staff and members of the Board, as well as community members, have been openly and constantly addressing the importance for the WMF to stay out of the editorial decisions.[330] As a non-profit organization, the WMF was able to obtain charity organization status to receive tax-deductible donations.[331] The WMF has also registered Wikipedia as a trademark that it is constantly policing to prevent its dilution.[332] In other words, the WMF can be seen as an agent

[328] *See, e.g.,* posting of Kat Walsh, kat@mindspillage.org, member of WMF Board of Trustees, to Wikimedia Foundation-l list, (May 18, 2008), http:// lists.wikimedia.org/pipermail/foundation-l/2008-May/043106.html; posting of Michael Snow, wikipedia@verizon.net, member of WMF Board of Trustees, to Wikimedia Foundation-l list, (May 19, 2008) http://lists.wikimedia.org/piper mail/foundation-l/2008-May/043126.htm.

[329] Posting of Mike Godwin, mgodwin@wikimedia.org, General Counsel of the Wikimedia Foundation, to Wikimedia Foundation-l list http://lists.wiki media.org/pipermail/foundation-l/2008-May/043046.html (advocating near total non-interference in user postings); *accord* posting of Mike Godwin, mgodwin@wikimedia.org, to Wikimedia Foundation-l list, (May 18, 2008) http://lists.wikimedia.org/pipermail/foundation-l/2008-May/043084.html.

[330] *See, e.g.*, Wikimedia Foundation-l mailing list, May 2008 Archives by Thread (May 1, 2008 -May 31, 2008) http://lists.wikimedia.org/pipermail/ foundation-l/2008-May/thread.html#43231 (last visited Feb. 9, 2010) (containing links to several discussion threads in May 2008 alone regarding the removal, blocking, and editing of contributor posts by the WMF). *See also* posting of Mark (Markie), newsmarkie@googlemail.com, to Wikimedia Foundation-l mailing list, Fwd: [WL-News] Wikimedia Foundation in danger of losing immunity under the Communications Decency Act (May 17, 2008), http://lists.wikimedia.org/pipermail/foundation-l/2008-May/043008.html (last visited Feb. 9, 2010) (posting a press release from Wikileaks alleging the WMF is suppressing and removing content and engendering a lengthy mailing list discussion of several days and numerous posts); posting of White Cat, wikipedia.kawaii.neko@gmail.com, to Wikimedia Foundation-l mailing list, En.wikipedia's arbcom (May 18, 2008), http://lists.wikimedia.org/pipermail/ foundation-l/2008-May/043401.html (last visited Feb.9, 2010) (questioning the role of English Wikipedia's Arbitration Committee in suppressing content, sparking a lengthy discussion of these issues).

[331] Letter from Lois G. Lerner, Director, Exempt Organizations, Rulings and Agreements, Internal Revenue Service, to Wikimedia Foundation, Inc. c/o Jimmy Wales (Apr. 2, 2005), http://upload.wikimedia.org/wikipedia/foundation/ 9/90/501%28c%293_Letter.png.

[332] Mike Godwin (mnemonic1) and others: IRC Office Hours / Office Hours, Oct 15, 2009, http://meta.wikimedia.org/wiki/IRC_office_hours/Office_ hours_2009-10-15 (discussing how the WMF deals with trademark violation); *see also* Wikimedia Foundation, Resolution: Trademark Statement, http://wiki mediafoundation.org/wiki/Resolution:Trademark_statement (last visited Apr.

managing services and resources for Wikipedia and its sister projects.

Second, the WMF also serves as a window for the Wikipedia community to communicate with the rest of the society. While the free online encyclopedia project has quickly gained cultural and social significance with its popularity, many people are still unfamiliar with its commons-collaborative model and technical platform (wikis, which are subject to constant revisions).[333] When they wish to make complaints, questions or comments, they may prefer an entity that is legally incorporated such as the WMF over disperse and often anonymous/pseudonymous individuals.[334] However the WMF often simply refers these day-to-day inquiries to the volunteer-run email support ticket system, which was initiated in 2004 to handle the public relations of Wikipedia and sister projects.[335] While in the past the WMF office did directly respond to some complaints, and even established the Office Actions policy in early 2006, it has gradually taken on a clearer stance that the organization is not the community, does not, and should not make decisions for the community.[336]

29, 2010) (stating that Wikimedia's policing strategy seeks to be unrestrictive because of its overall "commitment to openness and community empowerment").

[333] *See* Wikipedia, *supra* note 32 (explaining Wikipedia's open editing model called "wiki," which allows for virtually anonymous editing and immediate availability of revisions without prior review); *see also* Christian Wagner, *Wiki: A Technology for Conversational Knowledge Management and Group Collaboration*, 13 COMM. ASS'N FOR INFO. SYS. 265, 265, 268-70 (2004), *available at* http://researchwiki.peacocktech.com/images/9/96/Wiki-_A_Tech nology_for_Conversational_Knowledge_Management_and_Group_Collaboration .pdf (defining and generally describing the development of the wiki model); s*ee generally* Lee Raine &Bill Trancer, *Wikipedia: When in Doubt, Multitudes Seek it Out*, PEW RESEARCH CENTER, Apr. 24, 2007, http://pewresearch.org/pubs/460/ wikipedia (analyzing the popularity of Wikipedia and finding that it is "especially popular among the well-educated and the college-aged").

[334] *See* Wikipedia, *Wikipedia: Volunteer Response Team*, http://en.wiki pedia.org/w/index.php?title=Wikipedia:Volunteer_response_team&oldid=35154 1486 (last visited Apr. 2, 2010) (explaining that the individuals who may hear initial complaints referred to them by WMF can remain anonymous).

[335] *See id*; *cf.* Wikimedia Foundation, *Elections to the Board* (June 2007), http://wikimediafoundation.org/wiki/Elections_to_the_board_(June_2007) (last visited Feb. 10, 2010) (stating that WMF Board members are not responsible for resolving regular community disputes or dictating editorial policies); Wikimedia Foundation, *Board Letter/September 2004*, http://wikimediafoundation.org/ wiki/Board_letter/September_2004 (last visited Feb. 10, 2010) (outlining new initiatives, such as volunteer committees, to effectively handle public relations).

[336] *See supra* notes 326–30 and accompanying text.

Third, the WMF may formally adopt policies or resolutions, which affect the operation of the project.[337] However, the WMF seems to have adopted policies that impact the community at large only when community consensus can be assumed or when there have been efforts to actively seek for consensus.[338] For example, WMF's Licensing Policy restates that all projects hosted on its server must be using a free content license to carry out WMF's mission,[339] a goal that is known to and agreed by most, if not all, contributing users.[340]

In April 2008, the WMF Board passed two resolutions. First, the Board adopted the Data Retention Policy, stating that the WMF only retains the least amount of users' personally identifiable information as needed for maintenance of its services, consistent with its Privacy Policy, or as required by governing law.[341] The community did not seem to perceive the resolution as having changed the existing practices,[342] and a Board member, Domas Mituzas, explained that the resolution is to provide "clear guidelines, [for] what we want to comply with, and a place to point at anyone who wants more (or less) [private information] than what we do [have]."[343] From public records, it is hard to tell whether the Board proposed the Data Retention Policy as a response to outside pressure.[344] The proposal was

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[337] *See* Wikimedia Foundation, *Home*, *supra* note 90 (stating that the Wikimedia Board of Trustees has the highest authority on directing the activities of the Foundation); *see also* Wikimedia Foundation, *Bylaws*, http://wikimediafoundation.org/wiki/Bylaws (last visited Feb. 10, 2010) (setting out the bylaws of the Foundation and indicating its power to pass resolutions and policies). *See generally* Wikimedia Foundation, *Policies*, http://wikimedia foundation.org/wiki/Policies (last visited Feb. 10, 2010) (listing all official policies of the Wikimedia Foundation); Wikimedia Foundation, *Resolutions*, http://wikimediafoundation.org/wiki/Resolutions (last visited Feb. 10, 2010) (listing passed resolutions of the Wikimedia Foundation).

[338] *See infra* notes 339–58 and accompanying text.

[339] Wikimedia Foundation, *Resolution: Licensing Policy*, *supra* note 17.

[340] *Id*.; Wikimedia Foundation, *Terms of Use*, *supra* note 17.

[341] Wikimedia Foundation, *Resolution: Data Retention Policy*, http://wiki mediafoundation.org/wiki/Resolution:Data_Retention_Policy (last visited Apr. 30, 2010).

[342] For instance, Lodewijk (a.k.a effe iets anders), a Dutch user, appears to understand the resolution was simply restating what the actual practices have been. Posting of effe iets anders to Wikimedia Foundation-l mailing list, http://lists.wikimedia.org/pipermail/foundation-l/2008-May/042760.html (May 9, 2008, 08:04:56 UTC).

[343] Posting of Domas Mituzas to Wikimedia Foundation-l mailing list, http://lists.wikimedia.org/pipermail/foundation-l/2008-May/042762.html (May 9, 2008, 09:15:40 UTC).

[344] WMF's Executive Director Sue Gardner wrote in the monthly Report

made in February 2008, almost immediately following the
January "Video Professor" incident (in which the WMF provided
a user's IP address when served a subpoena; I will explain more
later), and the rationale of having the policy—to provide "a place
to point at anyone who wants more . . . [private information] than
what we do [have]"—also corresponded to WMF's position in the
incident.[345]

The second resolution the WMF adopted in April 2008 was to
amend its Privacy Policy.[346] Besides addressing the privacy-
related consequences of the various kinds of user activities in the
Wikimedia projects, the Privacy Policy also states the limited
occasions when the WMF—as the owner of the servers—may
have to provide users' personally identifiable data retained on its
servers to third parties, including law enforcement agencies.[347]
The community traditionally developed the Privacy Policy. But
the Board resolved to revise the document after a user, Nsk92,
protested the WMF for providing his personally identifiable
information (IP address in this case) to a third party without first
notifying him or her when it was served a subpoena in a civil law
process,[348] although it was a practice which the then Privacy
Policy permitted.[349] Nsk92 was among the users[350] who edited an
entry about "Video Professor"—a U.S. company (VPI) that

to the Board of February 2008 that the Board requested the WMF office to
provide a draft of the Data Retention Policy. Sue Gardner, *Foundation Report
to the Board, February 2008*, http://meta.wikimedia.org/wiki/Foundation_
report_to_the_Board,_February_2008 (last visited Apr. 10, 2010).

[345] *See id.* (noting the request for the policy in the February 2008
newsletter); *see also* Ral315 (Ryan Lomonaco), *Policy Updates*, WIKIPEDIA
SIGNPOST (May 12, 2008) http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Sign
post/2008-05-12/Policy_updates (last visited Feb. 10, 2010) (quoting Mituzas,
supra note 343); *see also infra* notes 348–58 and accompanying text (describing
the "Video Professor" incident and its effect on Board policy and action).

[346] Wikimedia Foundation, *Resolution: Privacy Policy Update April 2008*,
http://wikimediafoundation.org/wiki/Resolution:Privacy_policy_update_April_20
08 (last visited Feb. 10, 2010).

[347] Wikimedia Foundation, *Privacy Policy*, *supra* note 130. *See also*
Wikimedia Foundation, *Privacy Policy*, http://wikimediafoundation.org/wiki/
Privacy_policy (last visited Feb. 9, 2010) (publicly posting the policy on the
WMF wiki for easy reference).

[348] *Policy Updates*, *supra* note 345.

[349] Meta-Wiki, Tim Starling, *Release of Data by Developers,*, http://meta.
wikimedia.org/wiki/Talk:Privacy_policy/archive#Release_of_data_by_developers
(Nov. 17 2004) (last visited Apr. 29, 2010) (clarifying that information about a
potentially abusive user may be released to others but not the user him/herself).

[350] Wikipedia, *Video Professor* (archived Aug. 20, 2007, 18:08), http://en.
wikipedia.org/w/index.php?title=Video_Professor&oldid=152512779 (last visited
Apr. 22, 2010) (showing the first revision of the entry made by Nsk92).

provides computer tutorial CDs.[351]   The article mentioned criticisms of VPI's business model which often involves advertising a first free trial disc, charging only shipping cost, but then assuming subscriptions and automatically charging subsequent course fees.[352] VPI did not appreciate the negative descriptions of its practices on Wikipedia and went after users who edited the article.[353] When WMF complied with a subpoena and provided Nsk92's IP address to VPI, this being the private information the WMF retains about such a user, the WMF considered its action as merely throwing the ball to Comcast, Nsk92's Internet service provider, to decide whether it would provide the subscription information associated with the IP address.[354] Nsk92 questioned the WMF for not having contacted him and giving him an opportunity to resist the subpoena. Nsk92's stance obtained wide support in the community and led to the subsequent Board resolution.[355] In May 2008, I was interning at the WMF and was involved in preparing the draft. I was instructed to only incorporate the new board resolution, reorganize community-developed privacy related policies, and to provide one coherent and comprehensive document. The draft developed by the WMF office was posted on a public wiki in June for two rounds of comments and discussions, and the final version was largely taken from a revision provided by users.[356]

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[351] VideoProfessor.com, Press Kit, http://www.videoprofessor.com/about videoprofessor/presscenter/presskit/presskit.html (last visited Feb. 9, 2010).

[352] *See supra* note 350. *See also* Joseph S. Enoch, *Video Professor Drops Subpoena, Goes After Wikipedia Users*, ConsumerAffairs.com, Dec. 18, 2007, http://www.consumeraffairs.com/news04/2007/12/video_prof03.html (reporting on the subpoena arising from VPI's response to the criticisms by Wikipedia users).

[353] Enoch, *supra* note 352.

[354] *See* various Wikipedia users, *Releasing IP Addresses of Registered Users: the Video Professor Incident*, http://en.wikipedia.org/wiki/Wikipedia: Village_pump_(policy)/Archive_25#Releasing_IP_addresses_of_registered_users :_the_Video_Professor_incident (last visited Feb. 9, 2010) [hereinafter *Releasing IP Addresses*].

[355] *Id.* (archiving policy discussions and critiques of Wikipedia's action from Jan. 11 through Jan. 28, 2008). *See also* Wikipedia Signpost, *supra* note 345.

[356] Meta-Wiki, *Draft Privacy Policy June 2008*, http://meta.wiki media.org/w/index.php?title=Draft_Privacy_Policy_June_2008&oldid=1050218 (last visited Feb. 10, 2010); Meta-Wiki, *Talk: Draft Privacy Policy June 2008*, http://meta.wikimedia.org/w/index.php?title=Talk:Draft_Privacy_Policy_June_2 008&oldid=1060489 (last visited Feb. 10, 2010); Meta-Wiki, *Draft Privacy Policy June 19 2008*, http://meta.wikimedia.org/wiki/Draft_Privacy_Policy_June_19_ 2008; Meta-Wiki, *Talk: Draft Privacy Policy June 19 2008* http://meta.wiki

Even after such an extended online discussion process, the Board requested more comments from the community in August[357] and did not adopt the current Privacy Policy until October 2008.[358]

The legal immunity enjoyed by the WMF provides the Wikipedia community with an institutional buffer, preventing the intervention of legal institutions from directly interfering with community norms and practices, and allowing the community to self-govern/self-police according to its deliberated rules. The WMF has two kinds of applicable legal immunity: first, as a service provider it can resort to the safe harbor clause in the Digital Millennium Copyright Act (DMCA)—so long as it does not have knowledge of infringing activities and properly responds to the take-down notice from a copyright holder, it is not liable for copyright violations committed by its users.[359] However, as the WMF only applies the Office Actions policy in extreme cases, the policing of copyright violations on Wikipedia is mostly done by community volunteers.[360] When the copyright status of a material is in dispute, to ensure the autonomy of the community and avoid opening the door to direct intervention from outside, volunteers tend to set a high threshold for keeping any questionable materials.

Additionally, under the Communications Decency Act (CDA) the WMF cannot be held liable for information that is provided by its users, as it acts merely as an "interactive computer service provider"—a service provider, a conduit, but not a speaker— according to section 230 of the CDA (CDA 230). The WMF has taken on a clearer stance that the organization does not get involved in editorial decisions to avoid jeopardizing its CDA 230 immunity status,[361] for without such a status, it would be exposed

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media.org/w/index.php?title=Talk:Draft_Privacy_Policy_June_19_2008&oldid=1 146941 (last visited Apr. 29, 2010).

[357] Posting of Michael Snow, wikipedia@verizon.net, to the Foundation-l mailing list, http://lists.wikimedia.org/pipermail/foundation-l/2008-August/0451 69.html (Aug. 8, 2008, 02:37:11 UTC).

[358] The Board adopted the latest version of the WMF Privacy Policy on Oct. 3, 2008. *See supra* note 131.

[359] 17 U.S.C. § 512 (2006).

[360] *Wikipedia: Office Actions*, *supra* note 326; Mike Godwin (mnemonic1)*, IRC Office Hours / Office Hours 2009-10-19*, http://meta.wikimedia.org/wiki/ IRC_office_hours/Office_hours_2009-10-09 (with General Counsel Mike Godwin) (last visited Apr. 26, 2010) ("[I] typically get only one or two true takedown notices a year. [I] always thought [I] would get more, but our community is very good at removing infringing material before a copyright owner complains [sic] to us.").

[361] Godwin, *supra* note 329.

to legal threats in libel cases which the WMF often receives in complaints about BLPs or cases like Video Professor.[362] The immunity under CDA § 230 may have been the most important clause for the proliferation of user-generated content websites in the Web 2.0 era.[363] Without such a clause, service providers would have shied away from offering interactive services for fearing any potential liability for content provided by users.

While the WMF is immunized from libel claims, in a lawsuit that involves claimed harmful Wikipedia content, the WMF may still need to comply with civil or criminal law procedures to provide the information it has. Since unregistered or unlogged-in editors already revealed their IP addresses in the edit history, these proceedings would only go after the WMF for the IP addresses that associate with user accounts, which are treated as non-public information on Wikipedia and can only be accessed with special authority either by few trusted users or the WMF staff.[364]

The Data Retention Policy of April 2008 states that the WMF retains only "the least amount of personally identifiable information."[365] As the U.S. has comparatively lower data retention requirements, the WMF is consciously maintaining "the least legal footprint" to limit the number of national jurisdictions to which it has to respond.[366] Combining the immunity status under CDA 230 and the Foundation's policies and legal strategies, the WMF would have very little or no user's personally identifiable information if such information were ever requested by a third party.[367] As a result, when a third party

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[362] *See* posting of Mike Godwin, mgodwin@wikimedia.org, to http://lists. wikimedia.org/pipermail/foundation-l/2008-May/043084.html (May 18, 2008, 18:38:13 UTC).

[363] *See* Adam Thierer, *Dialogue: The Future of Online Obscenity and Social Networks*, ARS TECHNICA, http://arstechnica.com/tech-policy/news/2009/ 03/a-friendly-exchange-about-the-future-of-online-liability.ars (last visited Feb. 6, 2010).

[364] *See* Wikimedia Foundation, *Privacy Policy*, *supra* note 130.

[365] Wikimedia Foundation, *Resolution: Data Retention Policy*, *supra* note 341.

[366] For example, in April 2009, a South Korean user brought WMF's attention to South Korea's amendment which requires online users to provide real names. WMF staff responded by speeding up the process of a scheduled relocation of its servers in South Korea. *See* posting of RYU Cheolto, rcheol@gmail.com, to the Foundation-l mailing list, http://lists.wikimedia.org/ pipermail/foundation-l/2009-April/051256.html (Apr. 9, 2009, 04:53:01 UTC).

[367] *See generally* Mike Godwin (mnemonic1)*, IRC Office Hours / Office Hours 2009-10-19*, *supra* note 360 (stating Wikimedia Foundation's policy on

questions certain information on Wikipedia, it would not be easy for the third party or a court to step in and intervene with the ways the community deals with potentially questionable or illegal content by identifying an anonymous user and make her comply with norms that are established and supported by the formal legal institutions. Hence the WMF serves as an institutional buffer which negotiates for the community an environment that may accommodate the community's high expectation for privacy protection. This is not to say that WMF's immunity status is providing Wikipedia a leeway to avoid responding to inaccuracy complaints, or that it is allowing Wikipedia to tolerate irresponsible speeches. As I summarized, the Wikipedia community has developed a complicated set of norms to ensure the quality of their collaboration and has been diligent about enforcing it, sometimes even with a higher standard than legal norms. Rather, the institutional buffer offers the Wikipedia community a partial incubator, negotiating more room and time for the young community to enforce its norms and to validate its methods of making reference works, such as requiring credible sources for disputed material, removing unsourced and biased information, setting protection for a disputed article, detecting if there are "sockpuppets" and suspending or even banning certain user names or IP addresses when necessary.

These measures are supposed to apply to all articles as a way to ensure the quality of Wikipedia content, not only the disputed ones.[368] However sometimes the Wikipedia method may fail to work as the community expects—for example, the false statement about Seigenthaler was unsourced, yet, was not spotted by other users and remained on the page for months— and the community would have to identify the weakness of its method and seek to improve it—in this particular case, the low traffic of this page (not enough eyeballs) is considered as one of the main reasons that defeated Linus' Law.[369] The policy on BLP[370] is used by the Wikipedia community to prevent similar

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storing readers' web server log information).

[368] *See generally*, *Wikipedia: About*, *supra* note 109 (discussing the editorial measures used to ensure quality of articles appearing on Wikipedia).

[369] *See* Daniel Terdiman, *Wikipedia's Open-source Label Conundrum*, CNET NEWS, Dec. 9, 2005, http://news.cnet.com/Wikipedias-open-source-label-conundrum/2100-1038_3-5988267.html (last visited Apr. 27, 2010) (discussing the Seigenthaler Wikipedia error "scandal"); *see* Raymond, *supra* note 67.

[370] *See Biographies of Living Persons*, *supra* note 165.

controversies. The policy did not always work either and the false announcement of Ted Kennedy's death led the community to more discussions about editorial practices and the proposed two-month trial of "Flagged Protections and Patrolled Revisions" in the English Wikipedia.[371] Sometimes the Wikipedia method may work but a sourced negative description, which the community decides to keep, may still upset the subject of article, as it might have been the case in the Video Professor incident.[372] Without WMF's heightened privacy practices—enabled by its immunity status and other conscious policies and practices— which offer the Wikipedia community a buffer zone during controversies, the external intervention by institutionalized power could cause chilling effects even if it does not directly order the community to change its methods.

While the number of employees in the WMF grew from two in 2005 to over thirty in 2009,[373] the growth of the WMF and its professionalization does not mean it is overseeing the development of its hosting projects more closely. The WMF is by no means functioning as the corporate proprietor in the traditional model which centralizes the decision-making process and claims the ownership of the project. On the contrary, Wikipedia remains a community-run project.[374] On project ownership, every editor holds the copyright of the pieces of the information she contributed to Wikipedia, while at the same time releasing it under a free content license to allow further collaboration both within and beyond the project.[375] On the governance level, Wikipedia is run by the community and is largely independent from the WMF, although in few areas where the WMF acts as Wikipedia's server and service provider, it may make decisions and rules that affect the community.[376] Yet at the same time, the WMF is open to the scrutiny of the community,[377]

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[371] *See Wikipedia: Flagged Protection and Patrolled Revisions*, *supra* note 127; Terdiman, *supra* note 209.

[372] *Releasing IP Addresses*, *supra* note 354.

[373] *See supra* note 322.

[374] *See Wikipedia*, *supra* note 32.

[375] Wikipedia, *Wikipedia: Copyrights*, http://en.wikipedia.org/w/index.php ?title=Wikipedia:Copyrights&oldid=337798056 (last visited Apr. 23, 2010); *contra id.* (stating the situations where editors include public domain materials or copyrighted materials under the Fair Use doctrine).

[376] *See supra* notes 337–58 and accompanying text.

[377] For example, WMF's Executive Director posted her Monthly Report to the Board on the Foundation-l mailing list for public view and comments. Posting of Sue Gardner to the Foundation-l mailing list, http://lists.wikimedia.

even though it is not a member-based organization. Borrowing Callon's sociology of translation again, I suggest that so far the community seems to have managed to enlist the WMF in the network of its commons-collaborative model to serve various purposes. There can also be tensions between the WMF and the community, which is especially reflected in the community's concern about the recent professionalization process and the expansion of the WMF. Can a professional without much experience of wiki culture become a competent WMF employee or a member of the Board? Will the WMF accept donations or a partnership deal on a condition that the community may consider as inappropriate? How would a professionalized Foundation be responsive and accountable to the community that contributed to the projects it hosts? These are questions that have been raised in the community,[378] and the WMF to this date has been responsive to such community concerns.[379] But as Callon pointed out in the example of scientists, fishermen and scallops in the St Brieuc Bay, it is always possible for an actor who was first enlisted to perform a certain role in the network to betray the spokesperson later; for example, scallops which refused to anchor in the designated nets.[380] Whether the Wikipedia community would be able to keep the WMF in the designated place in the process is likely to be a continuous negotiation within the network.

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org/pipermail/foundation-l/2009-September/054904.html (Sept. 9, 2010, 02:15:32 UTC). as well as on the Meta-Wiki, http://meta.wikimedia.org/wiki/Reports#The_Gardner_Report. Since fall 2009, the WMF offices started to host "office hours" on Internet Relay Channel (IRC) for staff to answer questions from community members, *see* Meta-Wiki, IRC Office Hours, http://meta.wikimedia.org/wiki/IRC_office_hours (last visited Feb. 7, 2010) (listing the dates of "Office Hours" held in 2009 and 2010 to-date).

[378] *See* LIH, *supra* note 25, at 225–26.

[379] *See supra* note 337–58 and accompanying text (discussing the Foundation seeks community consensus when making major policy decisions), and *supra* note 377 (stating the Foundation is open to the community's scrutiny).

[380] Callon, *supra* note 11, at 219–20.

B. From Trusted Experts to Vigilant Readers

That is not to say that you will not find valuable and accurate information in Wikipedia; much of the time you will. However, Wikipedia cannot guarantee the validity of the information found here.
~ Wikipedia General Disclaimer[381]

In any case, Wikipedia is a work in progress, and many articles contain errors, bias, duplication, or simply need tender loving care. We encourage readers to help us fix these problems.
~ Wikipedia Content Disclaimer[382]

Wikipedia's model is based on a belief that the lay person is capable to operate the model with reason, neutrality, and other sound methods.[383] Since sources are supposed to be verifiable, an individual editor's personal credentials in real life will not have to be a concern. But the other side of the coin is that, even if contributions were made by someone with professional or academic credentials, such edits should not be taken as given simply because of the names or institutional positions associated with contributors. All information on Wikipedia is supposed to be independently verifiable by other users with the same standard developed by the community.[384] This characteristic of Wikipedia often leads people to consider that the difference between Wikipedia and traditional reference works is one between a work done by non-experts and experts.[385] I argue that this is not the actual dividing line. First, Wikipedia does have contributors who can be considered as experts in their fields.

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[381] Wikipedia, *Wikipedia: General Disclaimer*, http://en.wikipedia.org/w/index.php?title=Wikipedia:General_disclaimer&oldid=311774481 (last visited Apr. 27, 2010).

[382] Wikipedia, *Wikipedia Content Disclaimer*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Content_disclaimer&oldid=284678109 (last visited Apr. 27, 2010). The disclaimer provides links to other pages which provide greater detailed explanations regarding accuracy disputes [errors], Neutral Point of View disputes [bias], how users may help to merge duplicating articles [duplication] and "clean up" [tender loving care]. *Id*.

[383] *See generally* Wikipedia, *supra* note 32 (stating almost every article can be edited anonymously); *Wikipedia: Neutral Point of View*, *supra* note 160 (proclaiming that Wikipedia articles must have unbiased and neutral point of view); *Wikipedia: Five Pillars*, *supra* note 146; Verifiability, *supra* note 158 (holding that articles must be verifiable but not necessarily truthful).

[384] *Verifiability*, *supra* note 158.

[385] *See* Criticism of Wikipedia, *supra* note 196; *see also* McHenry, *supra* note 192.

Second, its content policies require information to come from reliable and published sources, which are very often works written by experts.

I suggest that the demarcation between Wikipedia and traditional reference works is not one between non-experts and experts, but one between two different kinds of institutions that claim to compile certified knowledge under the genre of reference works. The institution here involves two things: the ownership of the reference work itself (commons v. proprietary) and the structure and process of how a reference work is produced (collaborative v. centralized). The two characteristics together lead to the call for a radical change of the role of ordinary readers and consumers, which is also seen in other examples of the commons-collaborative model.

The broader free culture movement, as its advocate Lawrence Lessig frames it, is about moving from a read-only culture to a read/write culture.[386] By adopting copyright licenses which remove various restrictions imposed by copyright law, former passive consumers of cultural artifacts are now equipped with more tools and ability to participate more actively in the meaning-making process in a political and cultural community.[387] Although the broader free culture movement asks authors to let go of some of the property rights in the bundle of copyright, unlike the commons-collaborative model,[388] it allows authors to retain control of the further development of a work (i.e. authors may prohibit others from producing derivative works, which is considered as a basic freedom in the FSM and the Definition of Free Cultural Works that is endorsed by the WMF in its licensing policy).[389]

In a commons-collaborative model, the equalization of resources and the open and flattened structure of production further blur the line between consumers/readers and producers/writers.[390] In an ethnography of a free software

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[387] Lawrence Lessig, Remix 28–31 (Penguin Press 2008).

[388] *Id,* at 17.

[389] *See generally* Shun-ling Chen, *To Surpass or to Conform—What Are Public Licenses for?*, 2009 J.L. TECH. & POL'Y (2009), *available at* http://www.jltp.uiuc.edu/archives/Chen.pdf.

[390] Note that readers and consumers are not necessarily passive, but their interventions and alterations are not considered as productive and might even be considered as illegitimate in the current property regime. *See supra* note 387, at 100.

community, Gabriella Coleman observes that individuals are expected to take on more responsibility while resources are being equalized through the adoption of free licenses. Programmers who are capable of reading code now have access to code and are granted the rights to modify the program for their own purposes.[391] When encountering a problem, they lose the excuse of being a passive consumer who relies completely on software proprietors' good will or sound business practices. In a common "comedic" response among programmers—"[r]ead the [f]ucking [m]anual"—Coleman identifies a kind of "stern . . . social discipline."[392] "It pushes other hackers to learn and code for themselves as well as an [sic] affirms that effort has been put into documentation, an accessible form of information that benefits the group but in a way that still requires independent learning."[393]

Wikipedia definitely invites everyone to not only be a reader but also to be a contributor.[394] But even if one chooses not to give the project any kind of "tender loving care," Wikipedia asks readers to be vigilant readers.[395] Wikipedia has a Risk Disclaimer, which reads: "[p]lease be aware that any information you may find in Wikipedia may be inaccurate, misleading, dangerous, addictive, unethical or illegal. . . . [d]o not rely upon any information found in Wikipedia without independent verification."[396] It also asks users to "take all steps necessary" to make sure the information on Wikipedia "is correct and has been verified," and points users to "check the references at the end of the article[,] . . . [r]ead the . . . 'talk page' and revision history" of the article, and "[d]ouble-check . . . information with independent sources."[397] In other words, the Wikipedia model asks its readers not to be passive receivers of information, assigning them a new role in its network as vigilant and critical actors who should be

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[391] *See* Coleman, *supra* note 296, at xv, xix, 138.

[392] *Id.* at 234–35.

[393] *Id.* at 235.

[394] Wikipedia, *Main Page*, *supra* note 14 (describing Wikipedia as "the free encyclopedia that anyone can edit"); Wikipedia, *Wikipedia: Introduction*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Introduction&oldid=357864050 (last visited Apr. 29, 2010) (encouraging users immediately to become active contributors and editors).

[395] *About*, *supra* note 109.

[396] Wikipedia, *Wikipedia: Risk Disclaimer*, http://en.wikipedia.org/w/index.php?title=Wikipedia:Risk_disclaimer&oldid=340530845 (last visited Apr. 23, 2010).

[397] *Id.*

responsible for judging the validity of the information they find on Wikipedia. By doing so, Wikipedia differences itself from the traditional model of reference works which claims to provide "trusted, expert written" articles[398] and whose credibility is based on the symbiosis of two mutually-recognizing institutions (the publishers of encyclopedias and the academics/experts whom they endorse) in the making of reference works.

There exist theorizing efforts which seek to understand the novelty of Wikipedia's model and its impact on epistemology. *Episteme*, a journal on social epistemology, even produced a whole issue with the theme of the epistemology of mass collaboration.[399] A few contributors examined the example of Wikipedia, including Lawrence Sanger, whose article I will summarize in a later section, criticizing Wikipedia's model and arguing why Citizendium's policy of real names and expert oversight may make it a better model.[400]

Deborah Perron Tollefsen focused on how Wikipedia's collaborative model differs from a traditional understanding of the epistemology of testimony, which is largely based on "testimon[ies] of individuals" as a source of knowledge.[401] She suggested that Wikipedia can be understood as a group with a collective epistemic agency—a group in which "members are intentionally related," consciously share certain goals or aims with other members, and have "mechanism[s]" for making group decisions.[402] Although Wikipedia is contributed to by multiple individuals and its articles contain individual testimonies, she argued that in mature articles, such as "featured articles and good articles," through a lengthy vetting process defined by the community, Wikipedia can be understood as having "transform[ed] . . . individual testimon[ies]" to a "group testimony."[403] Tollefsen provided two ways of "monitor[ing the] trustworthiness" of Wikipedia's group testimony: first, the accessible archived history of each Wikipedia article allows users to retrieve the "reasoning process," the "sincerity and competence" of "a subgroup of *Wikipedia*"; second, users may

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[398]   Britannicanet.com, New Site Live, http://britannicanet.com/?p=90 (last visited Feb. 9, 2010) (the quote is from the embedded video in the posting).

[399]   Sanger, *supra* note 268.

[400]   *Id*, at 52, 65 (2009).

[401]   Tollefsen, *supra* note 198, at 8–18, 22.

[402]   *Id.* at 15–16.

[403]   *Id.* at 16.

accept a testimony based on their own "general background knowledge" and need not actively find reasons for trusting or not trusting the speaker.[404] Nevertheless, Tollefsen reckoned that Wikipedia is still "immatur[e]" and contains both "individual testimon[ies] and group testimon[ies]."[405] She offers two possibilities of the future of the project—either it may "mature[ ] . . . [and] the need to reflectively monitor [its trustworthiness] will vanish[, or] . . . this medium [will] become[ ] as familiar and routine as our everyday exchanges, [and] our learning mechanism or epistemic sensibility will develop in such a way as to be able to respond to group testimony in an unreflective yet critical way."[406]

P. D. Magnus applied traditional strategies used to assess claims to Wikipedia and found that Wikipedia's model defeats all of them to some degree. Most of the examples Magnus gave are related to Wikipedia's open and collaborative platform.[407] One such strategy he applied was to assess the reliability of a claim by resorting to authority or reliable sources.[408] Magnus acknowledged that reliability does not necessarily require the knowledge of the identity of the author, hence, Wikipedia's anonymity principle is not a main concern.[409] However, he argues that one should not appeal to the authority of "*Wikipedia tout court*" because it lacks consistency.[410] Even if someone who is traditionally considered as a reliable source of knowledge links to Wikipedia when discussing a topic, the Wikipedia page is likely to have been subsequently edited.[411] Another strategy he applied was to judge the reliability of a claim based on its overall

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[404] *Id.* at 19–22.

[405] *Id.* at 22.

[406] *Id.* (citations omitted).

[407] P. D. Magnus, *On Trusting Wikipedia*, 6 EPISTEME 74, 76–78, 81-82, 86 (2009).

[408] *Id.* at 84.

[409] *Id.* at 83–84 (providing the analogy of trusting an article that appears in the *New York Times* because it is a *Times* article, not because a reader knows the identity of the reporter whose name appears in the byline).

[410] *Id.* at 84 (asserting that "the lack of any centralized control" and the multiple contributors delegitimizes Wikipedia's authority).

[411] *Id.* at 84–85 (stating that later editing of the post of a reliable source by casual or less-knowledgeable editors may undermine and erode the trustworthiness of the entry). Although this problem can be avoided by citing the "permalink", i.e., a stable link to the version of the Wikipedia article. *See* Wikipedia, *Wikipedia: Citing Wikipedia*, http://en.wikipedia.org/w/index.php? title=Wikipedia:Citing_Wikipedia&oldid=343580100 (last visited Apr 28, 2010).

quality, such as the style of general plausibility of content.[412] However, on Wikipedia, as the bad style or common mistakes in an article may be more easily spotted and corrected by users than other false information, it would be more difficult for users to judge the reliability of an edited article.[413] Magnus considered it "unhelpful to [fit] *Wikipedia* into [the] pre-existing category encyclopedia,"[414] for Wikipedia's platform has features—such as history of edits—that traditional encyclopedias do not have.[415] He agreed with Cory Doctorow "that reading *Wikipedia* requires a new skill set,"[416] and suggested that "teaching people to engage *Wikipedia* responsibly will require getting them to cultivate a healthy scepticism, to think of it differently than they think of traditional sources, and to learn to look beyond the current articles—and it will require learning to engage with it more responsibly ourselves."[417]

Having a critical attitude, as in Tollefsen's second scenario, is actually what Wikipedia suggests to its users in all its disclaimers,[418] with which Magnus, Cory Doctorow, and some librarians seem to agree.[419] Wikipedia's commons-collaborative

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[412] *Id.* at 79, 80–81, 85–86.

[413] *Id.* at 85-86 (noting in considering plausibility of style and of content that the removal of more obviously incorrect information may result in the remaining information looking more trustworthy even if it is also incorrect).

[414] *Id.* at 75.

[415] *Id.* at 78, 88–89.

[416] *Id.* at 88.

[417] *Id.* at 89.

[418] *Wikipedia: Risk Disclaimer*, *supra* note 396.

[419] *See* Magnus, *supra* note 407, at 79, 87–89 (encouraging the development of new, critical reading and usage skills when consulting Wikipedia for information); *id.* at 87–88 (quoting Doctorow as saying "reading *Wikipedia* is a media literacy exercise . . . [y]ou need to acquire new skill-sets to parse out the palimpsest" (in Cory Doctorow, *On 'Digital Maoism: The Hazards of the New Online Collectivism' by Jaron Lanier*, 2006 EDGE at http://www.edge. org/discourse/digital_maoism.html (last visited Feb. 9, 2010)); posting of Marc Meola to ACRLog: Computing Wikipedia's Authority, http://acrlog.org/2007/08/ 15/computing-wikipedias-authority/ (Aug. 15, 2007) (advocating to the Association of College and Research Libraries blog the use of new technologies such as WikiScanner as well as critical thinking skills when evaluating Wikipedia's reliability); Gould Library, Carleton College, Using Wikipedia, http://apps.carleton.edu/campus/library/for_faculty/faculty_find/wikipedia/ (last visited Feb. 9, 2010) (directing students and faculty on the appropriate use of Wikipedia in conducting academic research); North Carolina State University Libraries, *Wikipedia: Beneath the Surface*, http://www.lib.ncsu.edu/tutorials/ wikipedia/ (last visited Feb. 9, 2010) (providing students with an online tutorial encouraging the critical use of Wikipedia); Karl Helicher, et al., *I Want My Wikipedia*, LIBRARY J. (Apr. 1, 2006), *available at* http://www.libraryjournal. com/article/CA6317246.html (concluding that although there are reasons to

model and the nature of the technological platform, which provides mutable inscriptions, requires a new tool set and web literacy, which it expects its users to actively pursue.[420] Wikipedia 1.0, the project that aims at making offline versions, may be a better example than featured or good articles for Tollefsen's idea of group testimony. First proposed by Wales in 2003, the project has released a Version 0.5 with 1,964 articles in 2007 and is preparing for Version 0.7.[421] With an elaborated review and editing process developed by the community, Wikipedia 1.0 may provide a more stabilized group testimony.[422] Nevertheless, the inscriptions on the online Wikipedia will remain mutable, challenging the conventional structure of knowledge certification, and urging readers to take on its newly designated role in Wikipedia's new network.[423]

VII. WIKIPEDIA AS A DEMOCRATIZED REPUBLIC OF SCIENCE

The undertaking of the scheme [the Oxford English Dictionary], he said, was beyond the ability of any one man . . . . It would be necessary to recruit a team—moreover, a huge one—probably comprising hundreds and hundreds of unpaid amateurs, all of them working as volunteers.

The audience murmured with surprise . . . . But . . . it did have

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proceed with caution, "(at least for now) Wikipedia may be granted librarian's seal of approval"). *See generally* UC Berkeley Library, Evaluating Web Pages: Techniques to Apply & Questions to Ask, http://www.lib.berkeley.edu/Teaching Lib/Guides/Internet/Evaluate.html (last visited Feb. 9, 2010) (outlining a series of questions for critically evaluating the reliability of online resources and information); Elizabeth Kirk, Evaluating Information Found on the Internet, Sheridan Libraries, Johns Hopkins University, http://www.library.jhu.edu/ researchhelp/general/evaluating/ (last visited Feb. 9, 2010) (offering critical means for evaluating Internet information reliability and promoting the concept "*Caveat lector: Let the reader beware*").

[420] *Wikipedia: General Disclaimer*, *supra* note 381; *About*, *supra* note 109.

[421] Press release of Wikimedia Foundation, Wikimedia Announces the Release of Wikipedia Version 0.5 – A CD Collection of Articles from the English Wikipedia, http://meta.wikimedia.org/wiki/Wikimedia_press_releases/Wikimedi a_Announces_the_Release_of_Wikipedia_Version_0.5_-_A_CD_Collection_of_ Articles_from_the_English_Wikipedia (last visited Apr. 28, 2010). *Version 1.0 Editorial Team*, *supra* note 186.

[422] Wikipedia, *Wikipedia: Version 1.0 Editorial Team/FAQs*, http://en. wikipedia.org/w/index.php?title=Wikipedia:Version_1.0_Editorial_Team/FAQs& oldid=345205573 (last visited Apr. 23, 2010). When such an off-line version is completed, those who are interested in comparing the validity of the commons-collaborative model with the property-centralized model may find Wikipedia 1.0 a better study object than the online Wikipedia.

[423] *Version 1.0 Editorial Team*, *supra* note 186.

*some real merit. It had a rough, rather democratic appeal. It was
an idea consonant with Trench's underlying thought, that any grand
new dictionary ought to be itself a democratic product, a book that
demonstrated the primacy of individual freedoms, of the notion that
one could use words freely, as one liked, without hard and fast rules
of lexical conduct.*
~ Simon Winchester[424]

I have argued elsewhere that the FSM is not only about "free
speech".[425] Rather, the FSM is about the freedom one could enjoy
when living in a "self-sustainable community," in which its
members produce the free software they need for performing
daily tasks and therefore are able to bypass the software
proprietors, the self-proclaimed spokespersons and the net they
devised, and making available not only to themselves, but society
at large, an alternative production model to enjoy software of
high quality, following their own norms.[426] When writing about
the cultural significance of the FSM, anthropologist Chris Kelty
coined the term "recursive public."[427] Building on Habermas's
concept of public sphere, he suggested that a public is a shared
imagination of moral order that developed from daily practices of
communication and association, guiding or checking power
through shared discourse and enlightened discussions.[428] The
"recursive public" involves a public that is vitally "concerned with
the ability to build, control, modify, and maintain the

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[424] SIMON WINCHESTER, THE PROFESSOR AND THE MADMAN: A TALE OF
MURDER, INSANITY, AND THE MAKING OF THE OXFORD ENGLISH DICTIONARY 106–07
(1998). The Oxford English Dictionary was proposed by the Philological Society
in London in 1857, and Richard Chevenix Trench, together with Herbert
Coleridge and Federick Furnivall were leaders of the project. Brief History of
the OED, Oxford University Press Archive, http://www.oup.com/uk/archives/
16.html (last visited May 5, 2010).

[425] Free Software Foundation, *supra* note 56 ("Free software is a matter of
liberty, not price. To understand the concept, you should think of free as in free
speech, not as in free beer. Free software is a matter of the users' freedom to
run, copy, distribute, study, change and improve the software."). *See generally*
Chen, *supra* note 389, at 107, 112 n.31 ("Free software advocates have been
clear that 'free software' is about the kind of freedom as in 'free speech,' but not
in 'free beer.'" (citing GNU Operating System, The Free Software Definition,
supra); *supra* notes 54–62 and accompanying text (describing the origins of the
Free Software Movement (FSM)).

[426] Chen, *supra* note 55, at 337, 340–42, 344–45.

[427] CHRISTOPHER M. KELTY, TWO BITS: THE CULTURAL SIGNIFICANCE OF
FREE SOFTWARE 3 (Duke University Press 2008).

[428] *Id.* at 39.

infrastructure that allows them to come into being in the first place and which, in turn, constitutes their everyday practical commitments and the identities of the participants as creative and autonomous individuals."[429] With such self-sustainability—as I phrase it—the community is capable of "assert[ing] itself as a check on other constituted forms of power [software industry and legal regime that supports software proprietors]" through the production of actually existing alternatives.[430]

FSM's social imaginary is a public with a de-centralized social structure and equalized resources in which individuals are empowered and expected to take control of the tool they use, as well as to communicate and collaborate with one another. [431] In many ways, the Wikipedia community shares FSM's social imaginary, but it aims to be a check on a different kind of power—the institutions that traditionally dominate the production of certified knowledge. Institutions serve as stable repositories of knowledge and power, and are one of the instruments often used to maintain order in the society.[432] The Wikipedia model challenges at least two different kinds of institutions in the production of knowledge: the publishers of reference works and academic institutions as certifiers of expertise. Traditionally, these two institutions work closely in the property-centralized model.[433] Reference works are generally copyrighted   and   produced   by   for-profit   publishers.[434]

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[429] *Id.* at 7. Relevant to this point is the critique of Web 2.0 as a design pattern and business model that facilitates corporations to exploit Internet users' labor and that users should demand more control of the platform. *See supra* note 34.

[430] Kelty, *supra* note 427.

[431] *Id.* at 39–40 (defining the term social imaginary as "a way of capturing a phenomena that wavers between having concrete existence 'out there' and imagined rational existence 'in here.'" *Id.* at 39.

[432] Sheila Jasanoff, *Ordering Knowledge, Ordering Society, in* STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND SOCIAL ORDER 13–45, 39–40 (2004).

[433] *See* Stephen T. Jordan, *The Problem of the Aggregate Author: Attribution, Accountability, and the Construction of Collaborative Knowledge in Online Communities,* 4 INT'L J. OF THE BOOK 161–62 (2007) (discussing the credibility of sources when there is an absence of participation from the academic society); Brock Read, *Can Wikipedia Ever Make the Grade?,* THE CHRON. OF HIGHER EDUC. (Oct. 27, 2006), *available at* http://chronicle.com/article/Can-Wikipedia-Ever-Make-the/26960/ (discussing Wikipedia's refusal to give experts priority over other experts).

[434] *See* Bill Katz, *Publishing, Review and the Reference Process*, *in* THE PUBLISHING AND REVIEW OF REFERENCE SOURCES 3, 4 (Bill Katz and Robin Kinder eds., 1987) (noting "all [publishers of reference works] hope to be able to

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Contributing experts, often academics whose authority is endorsed by the hiring institution, are invited by the publisher, and their viewpoints are usually presented as objective— what Donna Haraway calls "a conquering gaze from nowhere"[435].

Not unlike their predecessors, *philosophes* in the 18th century who conceptualized knowledge as a reasoning project,[436] many Wikipedians who have been involved in developing the Wikipedia model are believers of reason and rationality.[437] They equalize opportunities to allow people to exercise their reasoning power and to join their young "republic of science," and as a whole, they seek to be recognized as a credible knowledge community.[438] Different from established models, this novel and de-centralized model is a network participated by volunteers who do not necessarily have credentials from established institutions.[439] Nevertheless, Wikipedia's policies provide guidance for what certified knowledge means in Wikipedia, and both contributors and receivers of information are expected to critically review any results produced by this network.[440] Human reason is important for Wikipedians both when they edit and when they deliberate Wikipedia's basic principles and policies.[441] While the property-centralized model and the power structure on which it is based have occupied a center position for knowledge production,[442] Wikipedia and other free reference projects in the common-collaborative model question its efficiency, its self-interestedness, the possibility that it might work against the goal of human flourishing and cause injustice by excluding those who are less

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pay the mortgage").

[435] For example, encyclopedias, which are reference works, are compiled by editors who "commission signed articles by well-known experts." Encyclopaedia, Encyclopaedia Britannica, http://www.britannica.com/EBcheck ed/topic/186603/encyclopaedia/ (last visited Feb. 11, 2010). *See* Donna Haraway, *Situated Knowledge: The Science Question in Feminism and the Privilege of Partial Perspective*, FEMINIST STUDIES 575–99 (1988).

[436] Gieryn, *supra* note 4, at 429.

[437] *See id.* at 429–30 *(*The author highlights how Diderot's *Encyclopédie* exemplified a shift toward basing the construction of knowledge on reasoning and rational logic. Such a turn dropped an ecclesiastic perspective for a more reasoned-based understanding of knowledge.).

[438] *See* discussion *infra* Part VII.

[439] *See* Jordan, *supra* note 433, at 161; *see also Wikipedia*, *supra* note 32 (noting Wikipedia's departure from expert written articles, as well as the volunteer status of its contributors).

[440] Jordan, *supra* note 433, at 161.

[441] *See supra* Part IV. A-E.

[442] Yeo, *supra* note 86, at 204–06, 220.

privileged in the existing system.[443]

In a doctrinal article, Michael Polanyi suggested that the community of scientists is like a closely-knit organization, in which members coordinate their independent pursuits, which would lead to a joint result.[444] He used a jigsaw puzzle as a metaphor—it is more effective to have a group of helpers than only a single person to put the pieces together.[445] In this group, every scientist self-assigned a position to start and coordinate with other scientists without having a centralized power ordering them how to provide their help, and "[a]ny attempt to organize the group of helpers under a single authority would eliminate their independent initiatives and thus reduce their joint effectiveness to that of the single person directing them from the centre. It would, in effect, paralyse their cooperation."[446] Polanyi admitted there exists a "paramount authority" which is not distributed evenly in this republic of science.[447] Yet he argued that such authority is mutual and established between scientists, not above them.[448] While the republic of science as a whole upholds the authority of scientific opinion over the lay public, it demands a self-governing autonomy from its hosting society to be able to foster, control and protect the pursuit of a free scientific inquiry: "[t]he soil of academic science must be exterritorial in order to secure its rule by scientific opinion."[449]

In many ways, the Wikipedia governance structure is similar to the Polanyian republic. There is no centralized power. Rather, all Wikipedians self-appoint themselves to take on certain tasks in the project, work independently, but in coordination with others. Authority in the community is mutual, between community members, based on a meritocracy structure developed by the community through daily practices. However, I argue that there is a major difference between the two self-coordinating republics: Wikipedia's envisioning of a republic of

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[443]   *See supra* Part IV. C.

[444]   Michael Polanyi, *The Republic of Science; Its Political and Economic Theory*, 1 MINERVA 54-74 (1962), *available* at http://sciencepolicy.colorado.edu/ students/envs_5100/polanyi_1967.pdf, at 1.

[445]   *Id.* Note that Wikipedia's logo—the unfinished puzzle globe whose completion awaits readers' input—shows that the Wikipedia community shares Polanyi's metaphor of the jigsaw puzzle.

[446]   *Id.* at 1–2.

[447]   *Id.* at 7.

[448]   *Id.*

[449]   *Id.*

reason that is more inclusive than the Polanyian republic.

Polanyi's model polity constitutes only those who are admitted to the community of scientists. In this picture, scientists are the pioneers of human society, who would take lead in the pursuit of an unknown future "for the sake of intellectual satisfaction," and will "enlighten all men and are thus helping society to fulfill its obligation towards intellectual self-improvement."[450] Yet, such a republic demands autonomy to safeguard science, and according to Paul Feyerabend, for Polanyi there is no way an outsider can judge science.[451]

While Wikipedia's internal organization structure is similar to the Polanyian republic,[452] it is not an elitist but a democratized one, recognizing its editors' talents and experiences although some of them might not be apprentices of science.[453] It also tries to engage more citizens to take on a more active role via the technological platform (a wiki which anyone can edit), the ownership structure (free content licenses), and a deliberated policy decision to respect anonymity.[454] Although the meritocracy confers more authority to active and responsible members,[455] there is no discrimination against laity. Committed community members often express a strong faith that Wikipedia's open structure is fundamental for having well-intended participants— professional or amateur—who are committed to the pursuit of certified knowledge in this collaborative and never-ending consensus-building process.[456] Wikipedia not only invites everyone to the meaning-making process, but also archives the communications between interlocutors for others to see how and which meanings get made.[457]

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[450] *Id.* at 10.

[451] PAUL FEYERABEND, PROBLEMS OF EMPIRICISM: VOLUME 2: PHILOSOPHICAL PAPERS 26 (1985).

[452] *See* Polanyi, *supra* note 444, at 1 (noting the Polanyian republic is one in which "initiatives . . . are co-ordinated because each takes into account all the other initiatives operating within the same system," similar to Wikipedia editing model).

[453] *See* Wikipedia, *supra* note 32.

[454] *Id.*

[455] *Id.*

[456] *See* LIH, *supra* note 25, at 217; *see* AYERS, *supra* note 8, ch 3.

[457] *See* Jordan*, supra* note 433, at 166 (argues that in paying attention to sensational stories of vandalism on BLPs or worrying about the accuracy and reliability of Wikipedia as a learning resource for students, "we miss the central irony of our own scholarly endeavor to understand how interlocutors make meanings, and we overlook the potential of *Wikipedia* as a resource for those of us interested in how rhetorical interaction constitutes knowledge. We've

Wikipedia expects its editors and readers—both professional and lay—not to give full allegiance to authorities but to verify them independent of the institutional affiliation of the speaker. People who are convinced by the Polanyian ideal or who have personal stakes in upholding existing authorities may disagree with Wikipedia's character of "organized skepticism".

Larry Sanger, for example, criticized Wikipedia for disdaining expertise and calls Wikipedia's respect for anonymity "radical egalitarianism."[458] He suggests that "[b]y allowing anonymous contribution, *Wikipedia* is nearly as completely open as it can be," and that "anonymity is an especially effective technical way to implement and encourage egalitarianism."[459] Although Sanger agrees that openness is the key to Wikipedia's success and recognizes Wikipedia's overall quality,[460] he sees two main problems anonymity could bring. First, anonymity makes it difficult for the community to enforce its norms, as violators can simply come back with a different user name even if their previous user names were banned.[461] Second, anonymity opens the door to those who have little respect for authority, and those who, when determined, may be so disruptive to the project that they may drive experts away.[462] Sanger believes that this is a main reason why some Wikipedia articles are mediocre.[463] His prescription for the problem is a wiki-based project that is similarly open and bottom-up; however, it requires a user's real name and formally recognizes certain users' epistemic authority (namely, that of experts) by giving them more power in editorial decisions.[464] On the issue of authority and related institutional arrangement, the Citizendium model may be even closer to the Polanyian republic, although the project has yet to show the robustness that Sanger projected to have real influence.[465]

theorized to death (or 'the death of the author' as it were) where meanings gets made, and now we are threatened that it is actually happening in a medium that is dynamic enough to *record* it." [emphasis original]).

[458] Sanger, The Fate of Expertise, *supra* note 267, at 65, 67.
[459] *Id.* at 66.
[460] *Id.* at 53, 69.
[461] *Id.* at 65–66.
[462] *Id.*
[463] *Id.*
[464] *Id.* at 66–67.
[465] Yaron Ezrahi sees freedom as a means of generating alternative systems of order and authority in modern liberal democratic societies, and discusses the political function of knowledge in different conceptions of freedom. One of the formulations involves a community of free and rational individuals

Wikipedia's democratic characteristics are also reflected in its breadth of topics, which can be seen from the sheer volume[466]—3 million articles in the English Wikipedia as of August 2009. A topic has to pass Wikipedia's notability test to have a stand-alone article.[467] As users are empowered to start a new article about a topic of their own interest,[468] it is not surprising that Wikipedia has articles that traditional encyclopedias do not include. Physical encyclopedias, unlike Wikipedia, are more restricted in space and have fewer and generally shorter articles. But Wikipedia also has its own capacity issue. While storage space is not as limited as printed pages, Wikipedia's open structure demands continuous maintenance efforts.[469] As mentioned above, an error or an act of vandalism in an article that does not receive enough attention is not as likely to be corrected in time as in other more visited articles. Although some criticize Wikipedia

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who are capable of generating objective knowledge and defining truth, thereby establishing authoritative constraints that prevent decentralization from leading to chaos. For Yaron Ezrahi, the Polanyian ideal of a republic of science—an autonomous body with an authority established by reason—exemplifies this kind of public enlightenment. Within the narrower field of reference work making, both Wikipedia and Citizendium are experiments in this kind of freedom.

Without suggesting Citizendium is diminishing decentralized interaction, I find affinity between Citizendium's reason for giving experts more authority and another one of Ezrahi's formulations of freedom. This view sees order as "generated and maintained not through public enlightenment but through the action of the enlightened few," and knowledge as "a means by which the results of voluntary interaction can be anticipated and therefore simulated by a third party so as to avoid the 'waste' and 'inefficiencies' of decentralization".

See YARON EZRAHI, THE DESCENT OF ICARUS: SCIENCE AND THE TRANSFORMATION OF CONTEMPORARY DEMOCRACY 19–23 (Cambridge, MA: Harvard University Press, 1990).

[466] *See* Alexander Halavais & Derek Lackaff, *An Analysis of Topical Coverage of Wikipedia*, 13 J. COMPUTER-MEDIATED COMM. 429, 431–35, 437–48 (2008) (concluding that Wikipedia does well even in the least covered areas because of its sheer volume); *see also* Mary Ann Fitzgerald, *Wikipedia: Adventures in the New Info-Paradigm*, *in* 34 Educational Media and Technology Yearbook 177, 179.

[467] *Notability, supra* note 210 ("If a topic has received significant coverage in reliable secondary sources that are independent of the subject, it is presumed to satisfy the inclusion criteria for a stand-alone article.").

[468] Wikipedia, *Wikipedia: Starting an Article*, http://en.wikipedia.org/wiki/Wikipedia:Starting_an_article (last visited Feb. 6, 2010) (instructing registered users on how to start an article).

[469] *See* Aaron Swartz, Who Runs Wikipedia, http://www.aaronsw.com/weblog/whorunswikipedia (Sept. 7, 2006) (last visited Apr. 28, 2010).

for having longer articles in pop culture than in classics,[470] a specialized topic which may not be included in general encyclopedias may find its way to Wikipedia.[471]

There are still limits to the inclusiveness of Wikipedia. First, a computer and Internet access are the basic technical requirements to use and participate in the online version of Wikipedia.[472] Even for those who do not have technical hurdles to consult Wikipedia regularly, many do not make edits.[473] Studies have shown that only a small number of users actually edit Wikipedia, and only a fraction of them make substantial edits instead of minor ones such as formatting and copy-editing.[474] Some of the potential barriers may have technical solutions—a WMF task force is now trying to improve the friendliness of the user interface to make editing a less intimidating experience.[475] Other barriers may require the

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[470] *See* Cynthia Rettig, *The Culture of Wikipedia*, DIGITAL ATHENA, http://www.digitalathena.com/culture-of-wikipedia-new.html (last visited Feb. 6, 2010) (As Wikipedia grew, "popular culture and trivia have come to predominate. The article on Paris Hilton is the same length as the article on Aristotle and longer than the one on Virginia Woolf. The article on Shakespeare is only slightly longer—by six hundred words—than the one on Britney Spears.").

[471] Halavais and Lackaff showed that Wikipedia has relatively more coverage in certain areas (such as science, naval science, the military, history, geography, political science) than published books by comparing Wikipedia topics against Books in Print—an index to books currently available in the U.S.—while recognizing some of the differences may be exaggerated by certain technical features or categorization systems in Wikipedia. *See* Halavais & Lackaff, *supra* note 466, at 432–33. Joseph Reagle compared Wikipedia's and Britannica's coverage of biographies of women in the National Women's History Project and of those in *Time*'s "100" most influential people, finding Wikipedia has better coverage and provides more information in these biographies. Gender Bias in Wikipedia Coverage?, http://reagle.org/joseph/blog/social/wikipedia/wp-eb-gender-bias-coverage (Sept. 25, 2009); Gender Bias, Part II, http://reagle.org/joseph/blog/social/wikipedia/wp-eb-gender-bias-coverage-2 (Oct 2, 2009) (last visited Apr. 23, 2010).

[472] FOX News, *How to Create a Wikipedia Article*, *available at* http://www.foxnews.com.news-channel.org/search-results/m/29966130/how-to-create-a-wikipedia-article.htm (last visited Apr. 23, 2010).

[473] *See* Aaron Swartz, Who Writes Wikipedia, http://www.aaronsw.com/weblog/whowriteswikipedia (Sept. 4, 2006); Ruediger Glott & Rishab Ghosh, Analysis of Wikipedia Survey Data (Topic: Age and Gender Differences), available at http://wikipediasurvey.org/docs/Wikipedia_Age_Gender_30March%202010-FINAL-3.pdf 20-22 (last visited Apr. 23, 2010) (showing only about 30% of readers edit Wikipedia).

[474] *See* Swartz, *supra* note 473.

[475] *See* Wikimedia Foundation Blog, UX + Usability Study Take Two http://blog.wikimedia.org/2009/11/18/ux-usability-study-take-two/ (Nov. 18, 2009) (last visited Apr. 23, 2010) (showing the Foundation's initiative to

Wikipedia community to reach out more actively to recruit people to its network to act as both a vigilant reader and an active contributor to achieve its democratic ideal.[476] Second, not every valuable source of knowledge is included.[477] The policy on citing reliable sources tends to privilege published materials and may exclude cultures with oral traditions, viewpoints, and even languages that are marginalized in the academics or the publishing market. As Wikipedia's model of reference work still partly hinges on traditional knowledge-certifying authorities, I suspect the community will find this second inclusiveness problem even harder to tackle than the first one.

VIII. CONCLUSION: THE COMMONS-COLLABORATIVE MODEL AS A (DE-STABILIZING) INSTITUTION OF KNOWLEDGE PRODUCTION AND MORE

In this paper, I borrowed Callon's sociology of translation and Gieryn's concept of boundary-work to provide my observation of how Wikipedia can be seen as a locus of the reorientation of knowledge and power. Some people find Wikipedia to be creating disorder, making it difficult to tell the right from the wrong and the significant from the trivial.[478] But one of the benefits of having this disorder is to question the previous ordering, and re-examine how and why we can tell whether a claim of knowledge is legitimate.

The Wikipedia community is still in the process of establishing its credibility,[479] although its dynamic platform is unlikely to generate immutable inscriptions and its commons-collaborative model may not lead to an order-maintaining institution. Nevertheless, it is proud of its openness, democratic principles,

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improve the user interface and the study it undertook for this purpose); *see* Wikimedia Foundation Blog, *Wikimedia Gets Ready for Some Big Changes*, http://blog.wikimedia.org/2010/03/25/wikimedia-gets-ready-for-some-big-changes/ (last visited Apr. 23, 2010) (announcing the application of major changes to the user experience of Wikipedia in April as part of the Foundation's usability initiative).

[476] *See supra* note 469.

[477] *See supra* note 473 (explaining how anyone can write and edit an article on Wikipedia, which can result in some information being left out).

[478] Matthew Battles, *The Wiki Effect: Wikipedia Relies on 'Community,' A Notion That's Beginning to Carry the Weight and Promise of 'Expertise'*, THE BOSTON GLOBE, Dec. 18, 2005, *available at* http://www.boston.com/news/globe/ideas/articles/2005/12/18/the_wiki_effect/?page=1.

[479] *See supra* Part V.

and self-policing capacity.[480]

With interactive information and communication technologies, Wikipedia is also a site for citizens in a knowledge society to experiment how human agency can be enabled or restricted by the new de-centralized network. The challenge for the Wikipedia community is how to negotiate with various actors and established institutions when striving to live up to its goal. The challenge for citizens in the globally connected world is to identify the new characteristics of a global structure of power and knowledge and to seize opportunities to make meaningful interventions.

Wikipedia's open and democratic organizational structure and consensus-building practice also make it a site for testing and reaffirming political cultures. With the close affinity between the commons-collaborative model and the liberal political philosophy, the Wikipedia model may lead to stronger reactions in societies that are based on a different political culture. But even within western democratic countries, commons-collaborative projects of a global scale such as Wikipedia may also have impacts on the civic epistemology of a political culture—how the public assesses claims by or on behalf of science, or how any knowledge comes to be perceived as reliable in political setting in modern democratic societies[481]–by posing challenges to institutions which traditionally possess authority over the legitimization of knowledge.

With the commons-collaborative model, we see the rise of a global network of knowledge-production that is established and maintained by a network of informed and voluntary individuals under democratic and negotiated social norms. Either in the FSM's "brave new world", or in the pursuit of the noble goal of "freely shar[ing] in the sum of all knowledge",[482] the commons-collaborative model is demanding everyone to take on the new role of a vigilant, responsible and proactive learning individual and citizen in the ideal publics, which these communities are incubating.

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[480] *Id.*
[481] SHEILA JASANOFF, DESIGN ON NATURE, 250-51 (Princeton Univ. Press 2005).
[482] Wikimedia Foundation, *supra* note 90.