



Universidad de Valladolid
DEPARTAMENTO DE FILOSOFIA

DOCTORAL THESIS:

Wikipedia and Theories of Knowledge in Encyclopaedism

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In many of the more relaxed civilizations on the Outer Eastern Rim of the Galaxy, the *Hitchhiker's Guide* has already supplanted the great *Encyclopaedia Galactica* as the standard repository of all knowledge and wisdom, for though it has many omissions and contains much that is apocryphal, or at least wildly inaccurate, it scores over the older, more pedestrian work in two important respects.

First, it is slightly cheaper; and secondly it has the words **DON'T PANIC** inscribed in large friendly letters on its cover.

Douglas Adams "The Hitchhikers Guide to the Galaxy"

Mais une considération que nous ne pouvons trop rappeler, c'est que le nombre des systèmes possibles de la connoissance humaine, est aussi grand que le nombre des esprits, & qu'il n'y a certainement que le système qui existe dans l'Entendement Divin, d'où l'arbitraire soit exclu.

Denis Diderot and Jean d'Alembert "Prospectus à l'Encyclopédie"

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Introduction.

Some technologies seem to inevitably change the societies they are used in. Information technologies do so in very interesting ways. The printing press was one of such technologies. As the use of it spread over Europe, the cost and utility of reading grew in such a way that problems began to arise. There was an excess of information from which it was often very hard to extract any one piece of surplus information needed at any one juncture. The excess of information was not easily turned into real useful knowledge with any alacrity. One of the possible solutions proposed by Leibniz was to organise all the useful information from the vast disarray of published works into one organised artefact.¹ In this great work every piece of knowledge would have its rightful, rational place. There would be no time-consuming overlaps, and space would be left for those ideas which, according to this rational system were yet to be discovered. This would also be necessarily accomplished in a perfect, rational language, and therefore be perfectly comprehensible to any reader in any language. As a first step in accomplishing any of this, Leibniz proposed the creation of an encyclopaedia, a book in which the meaning of all words would be defined in a complete rational way.

Though Leibniz began organizing the creation of such a thing, his encyclopaedia was never really started. Other scholars were more successful in their own encyclopaedic enterprises, following the footsteps of medieval lists and bestiaries, but none as much as Diderot and d'Alembert, when they turned a project consisting in the translation of Chamber's *Cyclopaedia* into the enormous, successful and influential *Encyclopédie*.² The tomes of this encyclopaedia have represented and reflected the values of the European enlightenment which it was created in, and very specially the way knowledge was understood, thought to function, and used. The *Encyclopédie*, and other Enlightenment encyclopaedias, came to be for at least two reasons.

¹ Richard Yeo, *Encyclopaedic Visions* (Cambridge: Cambridge University Press, 2001) [hereafter Yeo, *Encyclopaedic Visions*], p. 1.

Louis Couturat, *La Logique de Leibniz d'après des documents inédits* (Paris: Presses Universitaires de France, 1901) [hereafter Couturat, *Logique*], p. 117.

² *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers, etc.*, eds. Denis Diderot and Jean le Rond D'Alembert. University of Chicago: ARTFL *Encyclopédie* Project (Spring 2011 Edition), Robert Morrisey (ed), <http://encyclopedia.uchicago.edu/> (last visited 17/10/14), Prospectus, p. 1 [hereafter Diderot, D'Alembert, *Encyclopédie*].

First, printing technology allowed the creation of large bound collections at a greater volume and faster rate than it had before, making the sale of lengthy series of books a profitable enterprise in a way that had not been possible before. As way of example; The technology had become so cheap, and was so readily available to entrepreneurs, that the piracy of books started to become an important problem, with the sale of pirated copies of mayor works surpassing the sale of originals.³

Secondly, the intellectual atmosphere allowed, and even demanded, the creation of encyclopaedias. We have already glimpsed Leibniz's reasoning for the creation of an encyclopaedia- and will examine it again at a later point in more detail- but this philosophical construct was not the only reason behind the commercial and intellectual success of encyclopaedias. Classification and organisation were important aspects of intellectual life following the scientific revolution. In the same way that astronomers had studied and classified objects in the celestial sphere for years, ultimately allowing Brahe, Copernicus, Galileo, and finally Newton to disentangle, understand and conclusively prove how the stars and planets moved, intellectuals in every other sphere believed that if they classified and studied their objects of interest in a similarly rational way, they too could succeed. Bouffon is well known for attempting a classification of life. Throughout Europe at this time, Philology was being born, as institutions and individuals created dictionaries defining and classifying words. Similarly, philosophers tried to classify knowledge and concepts, often resulting in encyclopaedias, in which there is an attempt to organise all human knowledge in a rational and easy-to-access manner.

Simultaneously, there was a vast number of not very well-read people, low-level aristocrats and successful burghers mostly, for whom it was now a matter of certain importance to be seen as not being ignorant of the new developments in the different realms of culture and science. These people were already spending a fortune on books they very often did not understand very well. For these people, the idea of a limited series of volumes in which they might find every piece of knowledge they might need to know to be regarded as interesting and well-read at an intellectual soirée with peers at the court, university or café would be very interesting indeed. These books sold specially well when it was claimed that the knowledge within the tomes was rationally organised, suggesting they were easy to read and understand. This demand for organised collections of knowledge turned what might have otherwise been

³ Darnton, Robert, *The Business of the Enlightenment: A Publishing History of the Encyclopédie 1775-1800*. (Cambridge, Massachusetts, and London: The Belknap Press of Harvard University Press, 1979) [hereafter Darnton, *Business of the Enlightenment*].

manuscripts along the line of mediaeval bestiaries, treatises or etymologies into a great intellectual enterprise into which work and money were continuously poured for decades on end, and the product of which ended up being read by all classes of people all over the world, shaping and being shaped by its time.

Over the last 30 years, information technology has again changed the way we read. Computers, and through them the internet, have changed what we read, when we read, and how we read. The vast amounts of information- greater than the contents of any single library- that are now offered to anyone with access to the world wide web would be impossible to manage without specialised tools. One of the tools which are generally used by everyone using internet in search of information is the 'search engine'. There are many such engines, the most commonly used one being 'Google',⁴ and the task they carry out is that of finding web pages with content which includes words we have searched, or similar words, in the hope that these pages will have the information we are seeking. These engines have a similar function to that of a librarian in a physical library.

Another set of tools which are used are encyclopaedias. Internet encyclopaedias differ from paper encyclopaedias in many ways, but there are two ways in which they remain the same. They act as a shortcut to information in a world saturated by it, and they reflect the way knowledge is believed to function and is used in the world they are created in. Of the encyclopaedias of the internet, by far the vastest, the most used, and the most important is *Wikipedia*. I believe that by studying the development, and structure of this artefact we may gain some understanding of the way knowledge is believed to function, ought to be organised, and is used by many, if not most members of our society.

Wikipedia is the largest, most widely used encyclopaedia ever, and is also amongst the most visited web pages.⁵ The nature of encyclopaedias consists in organizing and preparing information, so that they may become fast and reliable sources of knowledge. By studying the development and structure of this encyclopaedia and comparing it to other influential encyclopaedias since the Enlightenment, we shall attempt to discover different ways in which knowledge is used and understood by the general public at the present time.

⁴ <http://www.alexa.com/siteinfo/google.com> (Last visited 26/01/15).

⁵ <http://www.alexa.com/topsites> (Last visited 26/01/15).

Introducción.

Algunas tecnologías parecen cambiar de manera inevitable las sociedades en las que son usadas. Las tecnologías de la información hacen esto de forma muy interesante. La imprenta es una de estas tecnologías. Al difundirse por Europa el uso de la imprenta la facilidad y utilidad de la lectura creció de tal manera que empezaron a surgir problemas. Había un exceso de información de entre la cual a menudo era difícil extraer la información pertinente para un momento dado. No resultaba fácil transformar rápidamente esta información excesiva en conocimiento realmente útil. Una de las posibles soluciones a este problema, propuesta por Leibniz, fue la de organizar todo el conocimiento útil, de modo que pudiese pasar de un desorden de obras publicadas a un solo artefacto organizado.⁶ En ésta gran obra cada pieza de conocimiento tendría su lugar correcto y racional. No habría repeticiones que hicieran perder el tiempo, y se dejaría sitio para aquellas ideas que, según este sistema racional aún quedaban por descubrir. La tarea se llevaría a cabo necesariamente en un lenguaje racional perfecto, y por lo tanto sería perfectamente comprensible para cualquier lector en cualquier idioma. Como primer paso en esta dirección, Leibniz propuso la creación de una enciclopedia. Un libro en el cual el significado de todos los conceptos quedaría definido de una manera completa y racional.

Aunque Leibniz empezó a organizar este proyecto, la redacción de su enciclopedia nunca llegó de hecho a empezarse. Otros académicos tuvieron más éxito en sus propias empresas enciclopédicas, siguiendo la guía de las listas medievales y de los bestiaros, pero ninguno tuvo tanto éxito como el que obtuvieron Diderot y d'Alembert, cuando convirtieron un proyecto que consistía en la traducción de la *Cyclopaedia* de Chambers en la enorme, exitosa e influyente *Encyclopédie*. Los tomos de esta enciclopedia han representado y reflejado los valores de la Ilustración Europea, de la cual fueron fruto, y muy especialmente la manera en que se pensó que funcionaba el conocimiento, tal como era entonces entendido y usado.⁷ La *Encyclopédie*, y otras enciclopedias ilustradas llegaron a existir por, al menos, dos razones.

En primer lugar, la tecnología de la imprenta permitió la creación de grandes colecciones encuadernadas, con un volumen y velocidad desconocidos hasta entonces. La venta de largas series de libros se convirtió en una empresa lucrativa, cosa que no

⁶ Yeo, *Encyclopaedic Visions*, p. 1.

Couturat, *Logique*, p. 117.

⁷ Diderot, D'Alembert, *Encyclopédie*.

había sido posible previamente. A modo de ejemplo; La tecnología de la imprenta se había abaratado y difundido de tal manera, que la piratería de libros alcanzó cotas problemáticas, hasta el punto de que la venta de copias piratas de obras importante llegó a sobrepasar a la de las copias legítimas.⁸

En segundo lugar, el ambiente intelectual permitía, e incluso exigía, la creación de enciclopedias. Ya hemos vislumbrado los razonamientos de Leibniz para la creación de una enciclopedia, y los volveremos a examinar en más detalle posteriormente, pero no fueron estos razonamientos la única razón –dentro del ambiente intelectual– detrás del éxito intelectual y comercial de las enciclopedias. La clasificación y la organización se convirtieron en aspectos importantes de la vida intelectual tras la revolución científica. De la misma manera en que los astrónomos habían estudiado y clasificado objetos celestes durante años, permitiendo finalmente a Galileo y Newton desenredar, comprender y demostrar conclusivamente los movimientos de estrellas y planetas, muchos estudiosos de otras materias creyeron que si clasificaban y estudiaban sus objetos de interés de parecida manera racional, ellos también alcanzarían el éxito. Por ejemplo, el conde de Buffon es conocido por sus intentos de clasificar los seres vivos. Se puede añadir que precisamente en este momento están naciendo las filologías en toda Europa; Tanto individuos como instituciones se esfuerzan en la elaboración de diccionarios en los cuales se definen y clasifican palabras. De manera similar, algunos filósofos intentan clasificar los conceptos y el conocimiento –no solo los contenidos del conocimiento, sino incluso su supuesta estructura esencial–. A menudo este proceso les lleva a la creación de auténticas enciclopedias, en las que encontramos un intento de organizar todo el conocimiento humano de una manera racional y accesible.

Simultáneamente, encontramos un enorme número de personas con poca cultura lectora, principalmente baja aristocracia y burgueses exitosos, para quienes resultaba de cierta importancia el no ser considerados como ignorantes de los nuevos desarrollos científicos y culturales. Estas personas ya estaban gastando una fortuna en libros que frecuentemente no llegaban a entender bien. Para ellas la idea de una serie limitada de volúmenes en que los pudieran encontrar cada pieza de conocimiento que pudieran necesitar para ser tenidos por interesantes y cultos en una velada intelectual en la corte, universidad o café, sería de gran interés. Especialmente si todo este conocimiento está organizado racionalmente, sugiriendo al comprador una lectura sencilla. Esta demanda de colecciones organizadas de conocimientos convierte lo que de otra manera hubieran sido manuscritos similares a los bestiarios, tratados y etimolog-

⁸ Darnton, *Business of the Enlightenment*.

ías medievales en una gran empresa intelectual. Durante décadas se dispendia en la misma dinero y esfuerzo. El producto enciclopédico acaba siendo leído por toda clase de personas en todo el mundo, dando forma y a su vez –en su evolución– siendo formado por su tiempo.

Durante los últimos treinta años la tecnología de la información ha vuelto a cambiar el modo en que leemos. Los ordenadores, y a través de ellos internet, han cambiado lo que leemos, cuándo leemos, y cómo lo leemos. Las enormes cantidades de información, mayores que los contenidos de cualquier biblioteca tradicional, que ahora son ofrecidas a cualquiera que disponga de acceso a la red de redes serían imposibles de manejar sin herramientas especializadas. Los llamados ‘motores de búsqueda’ constituyen una de las herramientas más generalmente utilizada por los usuarios de internet. Hay muchos buscadores similares, pero ‘Google’ es el más usado.⁹ La tarea que llevan a cabo es la de encontrar páginas web con contenido que incluya las palabras buscadas, o palabras similares. El usuario los emplea con la esperanza que las páginas encontradas por el buscador contengan la información deseada. Estos motores tienen una función similar a la de un bibliotecario en una biblioteca tradicional.

Las enciclopedias son también herramientas muy usadas. Las que podemos encontrar en internet se diferencian de las enciclopedias en papel en varios aspectos, pero al menos hay dos aspectos en los que no se distinguen unas de otras. Actúan como atajos hacia la información en un mundo saturado por ella, y reflejan la manera en que se entiende el conocimiento y la forma en la que es utilizado en el momento en que son creadas. De las enciclopedias en internet, la mayor y más importante con diferencia en cuanto a volumen y uso es *Wikipedia*. Creo que estudiando el desarrollo y estructura de este artefacto podemos mejorar nuestra comprensión de la idea de conocimiento que tiene nuestra sociedad, de la organización y función que atribuimos al conocimiento, así como del uso que hacemos del mismo.

Wikipedia es la enciclopedia más usada hoy día, además de ser una de las páginas web más frecuentadas. Forma parte de la naturaleza de las enciclopedias el organizar y preparar información para su uso, son empleadas como fuentes rápidas y fiables de conocimiento. Al estudiar el desarrollo y la estructura de *Wikipedia*, comparándola con otras influyentes enciclopedias a partir de la Ilustración, pretendemos descubrir las distintas maneras en las que el conocimiento es usado y comprendido en la actualidad por el público general.

⁹ <http://www.alexa.com/siteinfo/google.com> (Last visited 26/01/15).

Objectives.

The objective is to use *Wikipedia*, related internet sources and other related cultural objects and phenomena to describe ways in which members of our society are using, pursuing, and comprehending information and knowledge. The final result should take the form of an epistemology of internet users. Matters of interest will include:

- How knowledge is organised on the internet.
- How and why epistemological theories have been used by the general public, and the effect of *Wikipedia* upon Epistemology.
- How knowledge is judged to be knowledge, to be relevant, or of interest.
- The effect of *Wikipedia* on the internet, on society and on the world at large.

Other secondary objectives which will be achieved as a by-product of the above shall be:

- A re-examination of the history of encyclopaedias, including the latest developments.
- An examination of the history of the internet and of the communities of users.
- An examination of the inner workings of *Wikipedia*, the community it supports, and of *Wikimedia*, the organisation running it and its sister sites.
- How communities are built around the construction of forms of sharing knowledge and information on the internet.

Ultimately the most important objective will be that of deciding up to what point the premise of using an encyclopaedia to study the common epistemological understanding of a large community of users of the encyclopaedia and of others within the same cultural spectrum is a useful one, and reaching a decision as to precisely what these epistemological ideas are, and to whom they can be ascribed.

Methodology.

Before attempting to answer any questions, the history of encyclopaedias and of the internet will be described. *Wikipedia* will then be broken down genealogically, historically and structurally. Only after this process will we study more specific episte-

mological aspects and problems within *Wikipedia*. The workings of *Wikipedia* will be confronted with different epistemological and hermeneutic interpretations of what knowledge is, how it works and how it is organised. This examination will allow an understanding of the use and understanding of knowledge within *Wikipedia* to be gleamed. Before concluding, the previous findings will be used to judge the effect of *Wikipedia* upon its cultural surroundings.

State of the Art.

Wikipedia is slowly becoming a topic of great interest amongst researchers. Sylvain Firer-Blaess' 2011 paper 'Wikipedia: State of the Art of the Research'¹⁰ covers an important part of what work has been done on the topic. Research on *Wikipedia* is still mostly focused on quantitative analysis from computer science researchers.

In this paper Firer-Blaess goes on to classify research done on *Wikipedia* according to theme. The issues Firer-Blaess discusses are motivation, participant behaviour, organisation, hierarchical or egalitarian structure, technical structure, content, quality and relationship with the rest of the world.

I will rapidly mention all these studies, as he classifies them, but will not go into detail as to their contents.¹¹

Regarding motivation:

Rafaeli Sheizaf (2005),¹² Kuznetsov (2006),¹³ Auray *et al.* (2007),¹⁴ Oded Nov (2007),¹⁵ Joachim Shroer and Hertel Guido (2009),¹⁶ Yang Heng-Li and Lai Cheng-Yu (2010),¹⁷ Xioquan Zhang and Feng Zhu (2011)¹⁸ and Yair Amichai-Hamburger (2008).¹⁹

¹⁰ Sylvain Firer-Blaess, "Wikipedia: State of the Art of the Research" *Published online* (2011) [hereafter Firer-Blaess, *State of the Art*].

¹¹ Some of the texts appear more than once in different categories. This indicates they deal with themes concerning two or more of Firer-Blaess' divisions.

¹² Rafaeli Sheizaf, "Wikipedian's sense of community, motivations, and knowledge building : a cross-cultural study." *Proceedings of Wikimania 2005*. (2005).

¹³ Stacey Kuznetsov. "Motivations of contributors to Wikipedia." *SIGCAS Comput. Soc.*, Vol. 36 (2) (2006).

Regarding participant behaviour:

Aniket Kittur (2007),²⁰ Auray *et al.* (2007),²¹ Sander Spek *et al.* (2006),²² Wilkinson and Huberman (2007),²³ Anthony *et al.* (2005, 2009),²⁴ Adler and de Alfaro(2006),²⁵ Stein and Hess (2007),²⁶ Viegas *et al.* (2004),²⁷ Ehman *et al.* (2008),²⁸ Luyt *et al.* (2008),²⁹ Halfaker *et al.* (2009),³⁰ O’Neil (2009),³¹ Bryant *et al.* (2005),³² and Priedhorsky *et al.* (2007).³³

¹⁴ Nicolas Auray, Celine Poudat and Pascal Pons. “Democratizing Scientific Vulgarisation. The balance between Cooperation and Conflict in French Wikipedia.” *Observatorio Journal*, Vol.3 (2007): 185-199 [hereafter Auray *et al.*, *Democratizing Scientific Vulgarization*].

¹⁵ Oded Nov, “What Motivates Wikipedians?,” *Association for Computing Machinery. Communications of the ACM*, vol. 50. (2007).

¹⁶ Joachim Shroer and Guido Hertel, “Voluntary Engagement in an Open Web-Based Encyclopedia: Wikipedians and Why They Do It.” *Media Psychology*, 12: 1 (2009), pp. 96-120.

¹⁷ Heng-Li Yang and Cheng-Yu Lai. “Motivations of Wikipedia content contributors.” *Computers in Human Behavior*, vol.26. (2010).

¹⁸ Xiaoquan (Michael) Zhang and Feng Zhu. "Group Size and Incentives to Contribute: A Natural Experiment at Chinese Wikipedia." *American Economic Review*, 101(4) (2011), pp. 1601-15.

¹⁹ Yair Amichai-Hamburger, Naama Lamdan, Madiel Rinat and Tsahi Hayat. “Personality Characteristics of Wikipedia Members.” *CyberPsychology & Behavior*, 11(6) (2008), pp. 679-681.

²⁰ A. Kittur, B. Suh, B. A. Pendleton and E. Chi, “He says, she says: Conflict and coordination in Wikipedia” *Proc CHI 2007*, *ACM Press* (2007), pp. 453-462.

²¹ Auray *et al.*, *Democratizing scientific vulgarization*.

²² Sander Spek, Eric Postma, H. Jaap van den Herik. “Wikipedia : organisation from a bottom-up approach.” (Paper presented at the Research in Wikipedia-workshop of WikiSym 2006, Odense, Denmark, 2006). [hereafter Spek *et al.*, *Wikipedia*].

²³ Dennis Wilkinson and Bernardo Huberman, “Assessing the value of cooperation in Wikipedia.” <http://arxiv.org/abs/cs.DL/0702140v1> (2007). [hereafter Wilkinson and Huberman, *Assessing the value of cooperation in Wikipedia*].

²⁴ Denise Anthony, Sean W. Smith and Timothy Williamson. “Explaining Quality in Internet Collective goods: Zealots and Good Samaritans in the Case of Wikipedia.” *Innovation & Entrepreneurship Seminar at MIT* (2005).

Denise Anthony, Sean W. Smith and Timothy Williamson. “Reputation and Reliability in collective Goods : The Case of the Online Encyclopedia Wikipedia.” *Rationality and Society*, 21 (2009), p. 283.

²⁵ B.T. Adler and L.A. de Alfaro, “Content-Driven Reputation System for the Wikipedia.” *Technical report ucsc-crl-06-18. School of Engineering, University of California, Santa Cruz* (2006).

²⁶ Klaus Stein and Claudia Hess, “Does it matter who contributes? A Study on Featured Articles in the German Wikipedia.” *Proceedings of the 18th conference on Hypertext and hypermedia* (2007).

²⁷ F.B. Viegas, M. Wattenberg, K. Dave, “Studying cooperation and conflict between authors with history flow visualisations.” *Proceedings from ACM CHI 2004 Conference on Human Factors in Computing Systems*, (2004), pp. 575-582 [hereafter Viegas *et al.*, *Studying cooperation*].

²⁸ Katherine Ehmann, Andrew Large and Jamshid Beheshti. “Collaboration in context : Comparing article evolution among subject disciplines in Wikipedia.” *First Monday*, 13 (2008), p. 10.

²⁹ B. Luyt, T. C. H. Aaron, L. H. Thian and C. K. Hong, “Improving Wikipedia's accuracy: Is edit age a solution?” *Journal of the American Society for Information Science and Technology*, 59 (2008), pp. 318-330.

Regarding Organisation :

Wagner (2006),³⁴ Arazy (2006),³⁵ Surowieki (2005),³⁶ Bruns (2008),³⁷ Niederer and Van Dijck (2010),³⁸ Bryant *et al.* (2005),³⁹ Firer-Blaess (2011),⁴⁰ Viegas *et al.* (2004, 2007 a, 2007b),⁴¹ Hansen *et al.* (2007),⁴² Kittur *et al.* (2007b),⁴³ Foglia (2008),⁴⁴ Priedhorsky *et al.* (2007),⁴⁵ Forte *et al.* (2009)⁴⁶ and Ingawale *et al.* (2009).⁴⁷

³⁰ Aaron Halfaker, Aniket Kittur, Robert Kraut and John Riedl. "A Jury of Your Peers: Quality, Experience and Ownership in Wikipedia?" *WikiSym2009: Symposium on Wikis and Open Collaboration* (2009) [hereafter Halfaker *et al.*, *A Jury of your Peers*].

³¹ Mathieu O'Neil, *Cyberchiefs: Autonomy and Authority in Online Tribes*. (London, New York: Pluto Press, 2009) [hereafter O'Neil, *Cyberchiefs*].

³² S. Bryant, A. Forte and A. Bruckman, "Becoming Wikipedian: Transformation of participation in a collaborative online encyclopedia." *Proceedings of GROUP 2005*. (2005) [hereafter Bryant and Bruckman, *Becoming Wikipedian*].

³³ R. Priedhorsky, J. Chen, S. Lam, K. Panciera, L. Terveen, and J. Riedl, "Creating, destroying, and restoring value in Wikipedia." *GROUP'07, Sanibel Island, Florida, USA*, (2007) [hereafter Priedhorsky *et al.*, *Creating, destroying and restoring value in Wikipedia*].

³⁴ Christian Wagner. "Breaking the Knowledge Acquisition Bottleneck Through Conversational Knowledge Management." *Information Resources Management Journal*, 19(1), (2006), pp. 70-83.

³⁵ Ofer Arazy, Wayne Morgan and Raymond A. Patterson, "Wisdom of the Crowds: Decentralized Knowledge Construction in Wikipedia." (paper presented at the 16th Annual Workshop on Information Technologies & Systems, 2006) [hereafter Arazy *et al.* *Wisdom of the crowds*].

³⁶ Surowieki *Wisdom of the crowds* (New York, Toronto: Anchor Books, Random House, 2004, 2005.) [hereafter Surowieki, *Wisdom of the Crowds*].

³⁷ Axel Bruns, *Blogs, Wikipedia, Second Life, and Beyond: from Production to Produsage*. (New York: Peter Lang Editions, 2008).

³⁸ Sabine Niederer, Jose van Dijk, "Wisdom of the crowd or technicity of content? Wikipedia as a socio-technical system" *New Media Society*, Vol.12(8) (2010) [hereafter Niederer and van Dijk, *Wisdom of the Crowd or Technicity of Content*].

³⁹ Bryant and Bruckman, *Becoming Wikipedian*.

⁴⁰ Sylvain Firer-Blaess, "Wikipedia: an Example for Electronic Democracy?" *Studies in Social and Political Thought*, Vol.19 (2011) [hereafter Firer-Blaess, *Wikipedia*].

⁴¹ Viegas *et al.*, *Studying cooperation*.

F.B. Viegas, Martin Wattenberg and Matthew M. McKeon, "The Hidden Order of Wikipedia." *Online Communities and Social Computing, HCII 2007I*. (2007), pp. 445-454.

F. B. Viegas, Martin Wattenberg, J. Kriss and F. van Ham, "Talk before you type: Coordination in Wikipedia." *Proceedings of the 40th Hawaii International Conference on System Sciences*. (2007).

⁴² S. Hansen, N. Berente and K. Lyytinen, "Wikipedia as Rational Discourse: An Illustration of the Emancipatory Potential of Information Systems" *Proceedings of the 40th Hawaii International Conference on System Science* (2007).

⁴³ A. Kittur, E. H. Chi, B. A. Pendelton, B. Suh and T. Mytkowicz, "Power of the few vs. wisdom of the crowd: Wikipedia and the rise of the bourgeoisie." *25th Annual ACM Conference on Human Factors in Computing Systems*. (2007) [hereafter Kittur *et al.*, *Power of the Few*].

Regarding hierarchical or egalitarian structure:

Firer Blaess (2008, 2011),⁴⁸ Burke and Kraut (2008),⁴⁹ O’Neil (2009),⁵⁰ Konieczny (2009),⁵¹ and Halfaker (2009).⁵²

Regarding technical structure :

Buriol *et al.*(2006),⁵³ Capocci *et al.* (2006),⁵⁴ Zlatic *et al.* (2006),⁵⁵ Voss (2005),⁵⁶ Wilkinson and Huberman (2007),⁵⁷ Spek *et al.* (2006),⁵⁸ Ingawale *et al.* (2009)⁵⁹ and Lam and Reid (2009).⁶⁰

⁴⁴ Marc Foglia, *Wikipedia, Média de la connaissance démocratique?* (Limoges: FYP éditions, 2008) [hereafter Foglia, *Wikipedia*].

⁴⁵ Priedhorsky *et al.*, *Creating, destroying and restoring value in Wikipedia*.

⁴⁶ Andrea Forte, Vanessa Larco and Amy Bruckman, “Decentralisation in Wikipedia Governance” *Journal of Management Information Systems*, Vol.26, No.1 (2009).

⁴⁷ Myshkin Ingawale, Roy Rahul and Seetharaman Priya. “Persistence of Cultural Norms in Online Communities: the Curious Case of Wikilove.” *PACIS 2009: Pacific Asia Conference on Information Systems* (2009) [hereafter, *Ingawale et al., Persistence of Cultural Norms*].

⁴⁸ Firer-Blaess, *Wikipedia*.

Firer-Blaess, *Wikipedia Governance*.

⁴⁹ Moira Burke and Robert Kraut, “Taking up the mop: identifying future Wikipedia administrators” *Proceedings of the Conference on Human Factors in Computing Systems, Florence, Italy, 5-10 April 2008* (2008), pp. 3441-3446.

⁵⁰ O’Neil, *Cyberchiefs*.

⁵¹ Piotr Konieszczny, “Governance, organisation, and Democracy on the Internet: the Iron Law and the Evolution of Wikipedia.” *Sociological Forum*, Vol.24, No.10 (2009).

⁵² Halfaker *et al.*, *A Jury of your Peers*.

⁵³ L. Buriol, C. Castillo, D. Donato, S. Leonardi, and S. Millozzi, “Temporal Evolution of the Wikigraph.” *Proc. of the Web Intelligence Conference. Hong Kong, December 2006. IEEE CS Press.* (2006).

⁵⁴ A. Capocci, V.D.P. Servedio, F. Colaiori, L.S. Buriol, D. Donato, S. Leonardi and G. Caldarelli, “Preferential attachment in the growth of social networks: the case of Wikipedia.” *Physical review E* (2006).

⁵⁵ V. Zlatic, M. Bozicevic, H. Stefancic and M. Domazet, “Wikipedias: Collaborative web-based encyclopedias as complex networks.” *Physical Review E*, 74 (2006), pp. 16-115.

⁵⁶ J. Voss, “Measuring Wikipedia.” *Proceedings of the Tenth International Conference of the International Society for Scientometrics and Informetrics: Stockholm* (2005).

⁵⁷ Wilkinson and Huberman, *Assessing the value of cooperation in Wikipedia*.

⁵⁸ Spek *et al.*, *Wikipedia*.

⁵⁹ Ingawale *et al.*, *Persistence of Cultural Norms*.

⁶⁰ Shyong (Tony) K. Lam and John Riedl, “Is Wikipedia Growing a Longer Tail?” *ACM 2009 International Conference on Group Work* (2009).

Regarding Content:

Emigh and Herring (2005),⁶¹ Fallis (2008),⁶² Reagle (2005) and⁶³ Tollefsen (2009)⁶⁴ and Wray (2009).⁶⁵

Regarding Quality:

Giles (2005),⁶⁶ *Encyclopaedia Britannica* (2006),⁶⁷ Chesney (2006),⁶⁸ Halavais and Lackaff (2008),⁶⁹ Nielsen (2007),⁷⁰ Luyt *et al.* (2007),⁷¹ Rector (2007),⁷² Clauson (2008),⁷³ Laurent and Vickers (2009),⁷⁴ Schweitzer (2008),⁷⁵ Bragues (2007)⁷⁶ and Elvebakk (2008).⁷⁷

⁶¹ W. Emighand, S.C. Herring, "Collaborative authoring on the web: A genre analysis of online encyclopedias." *Proceedings of the 38th Hawai'i International Conference on System Sciences (HICSS-38)*. Los Alamitos: IEEE Press. (2005).

⁶² Don Fallis "Toward an Epistemology of Wikipedia" (preprint) *Journal of the American Society for Information Science and Technology*, 59, 10, Wiley Periodicals (2008), pp. 1662-1674 [hereafter Fallis, *Toward an Epistemology of Wikipedia*].

⁶³ Joseph M. Jr Reagle "A Case of Mutual Aid: Wikipedia, Politeness, and Perspective Taking." *Proceedings of Wikimania 2005* (2005).

⁶⁴ Deborah Perron Tollefsen, "Wikipedia and the Epistemology of Testimony" *Episteme*, volume 6, number 1 (2009), pp. 8-24.

⁶⁵ Brad K. Wray. "The Epistemic Cultures of Science and WIKIPEDIA: A Comparison", *Episteme*, volume 6, number 1 (2009), pp. 38-51.

⁶⁶ James Giles, "Internet Encyclopedias go Head-to-Head." *Nature* 438 (2005), pp. 900-901.

⁶⁷ Encyclopaedia Britannica, Inc. "Fatally Flawed." *Published online* (2006). Published at: http://corporate.britannica.com/britannica_nature_response.pdf (Last visited 26/01/15).

⁶⁸ T. Chesney, "An empirical examination of Wikipedia's credibility." *First Monday*, 11 (2006).

⁶⁹ Alexander Halavais and Derek Lackaff, "An Analysis of Topical Coverage of Wikipedia." *Journal of Computer-Mediated Communication*, Vol.13 (2008).

⁷⁰ Finn Arup Nielsen, "Scientific citations in Wikipedia" *First Monday*, 12:8 (2007).

⁷¹ Brendan Luyt, Wee Kwek, Ju Sim and Peng York, "Evaluating the Comprehensiveness of Wikipedia: The Case of Biochemistry." *Asian Digital Libraries. Looking Back 10 Years and Forging New Frontiers*. Springer Berlin/Heidelberg (2007).

⁷² Lucy Holman Rector, "Comparison of Wikipedia and other encyclopedias for accuracy, breadth, and depth in historical articles." *Reference Services Review*. 36: 1 (2007), pp. 7-22.

⁷³ Kevin A. Clauson, Hyla H Polen, Maged N Kamel Boulos and Joan H Dzenowagis, "Scope, Completeness, and Accuracy of Drug Information in Wikipedia." *The Annals of Pharmacotherapy*. 42 (2008), pp. 1814-1821.

⁷⁴ M.R. Laurent, T.J. Vickers, "Seeking health information online: does Wikipedia matter?" *J Am Med Inform Assoc*, 16(4) (2009), pp. 471-479.

⁷⁵ N. J. Schweitzer, "Wikipedia and Psychology: Coverage of Concepts and Its Use by Undergraduate Students" *Teaching of Psychology*, 35: 2 (2008), pp. 81-85 [hereafter Schweitzer, *Wikipedia and Psychology*].

Regarding relationship with the rest of the world:

Rask (2007),⁷⁸ Stvilia *et al.* (2009),⁷⁹ Pfeil *et al.* (2007),⁸⁰ Sook (2009),⁸¹ Head and Eisenberg (2010),⁸² Schweitzer (2008),⁸³ Calkins and Kelley (2009),⁸⁴ and Black (2008).⁸⁵

We find that many of the articles mentioned by Firer-Blaess are statistical and quantitative in nature. An important amount of work done about *Wikipedia* is of this nature. Though this is done due to the scale of *Wikipedia* in the hope that statistical analysis will help discover trends within it, the very scale of the encyclopaedia often defeats this purpose. Apparent trends discovered within one set of data in *Wikipedia* are not always reproduced in another. Statistical analyses of the whole are difficult, if not impossible to do, not least because it is a continually growing whole. These problems reoccur in a number of the texts mentioned by Firer-Blaess, though not in his own texts.

In those texts discussing motivation, the problem is generalised. Even though some context is given, motivation is deduced from answers to questionnaires, which are then subjected to statistical and, in the case of Amichai-Hamburger *et al.*, psychological analysis.

⁷⁶ George Bragues, "Wiki-Philosophizing in a marketplace of ideas: evaluating Wikipedia's entries on seven great minds." *Social Science Research Network Working Paper Series* (2007).

⁷⁷ Beate Elvebakk, "Philosophy democratized? A comparison between Wikipedia and two other Web-based philosophy resources." *First Monday*, 13: 2 (2008).

⁷⁸ Morten Rask, "The Richness and Reach of Wikinomics: Is the free web-based encyclopedia Wikipedia only for rich Countries?" *Proceedings of the Joint Conference of The International Society of Marketing Development and the Macromarketing Society, June 2-5, 2007* (2007).

⁷⁹ B. Stvilia, A. Al-Faraj and Y. Yi, "Issues of cross-contextual information quality evaluation—The case of Arabic, English, and Korean Wikipedias." *Library & Information Science Research*, 31(4) (2009), pp. 232-239.

⁸⁰ U. Pfeil, P. Zaphiris and C. S. Ang, "Cultural differences in collaborative authoring of Wikipedia." *Journal of Computer-Mediated Communication*, 12(1). (2007).

⁸¹ Lim Sook, "How and Why Do College Students Use Wikipedia?" *Journal of the American Society for information Science and Technology*. 60(11) (2009), pp. 2189-2202.

⁸² Alison J. Head and Michael B. Eisenberg, "How today's college students use Wikipedia for course-related research." *First Monday*, 15:3 (2010) [hereafter Head and Eisenberg, *How College students use Wikipedia*].

⁸³ Schweitzer, *Wikipedia and Psychology*.

⁸⁴ S. Calkins and M.R. Kelley, "Who writes the past? Student perceptions of Wikipedia knowledge and credibility in a world history classroom." *Journal on Excellence in College Teaching*, 20 (3) (2009), pp. 123-143.

⁸⁵ Erik W. Black, "Wikipedia and academic peer review: Wikipedia as a recognised medium for scholarly publication?" *Online Information Review* 32(1) (2008), pp. 73-88.

The texts on participant behaviour are more varied. Some of the texts offer a historic view of the evolution of *Wikipedia*'s users; Larry Sanger's text offers a particularly interesting account, as it is written by someone who has been in the front lines of *Wikipedia*'s development for many years and at its birth. Other papers discuss the division which can be made between very frequent users -'activists'- and occasional or one-time users -'passerbyes'-. In spite of there being divergences as to the estimation of amount and quality of work from the participants from each group, there is one thing which seems clear: both groups are needed for *Wikipedia* to function correctly. Another interesting piece of information, offered by several of the texts mentioned, is the existence of what has been called 'first mover effect', by Viegas *et al.* This describes the way in which the creator of an article seems to keep a certain amount of power over that article's final configuration, meaning that some errors are unlikely to be corrected unless the article creator himself does it. A last aspect mentioned in Firer-Blaess' discussion of articles on participant behaviour is that frequent contributors are generally this active as soon as they join *Wikipedia*, suggesting that 'wikipedians' do not need a period of adaptation before becoming activists, and that a passerby is unlikely to become an activist.

Some of the articles concerning organisation- particularly Arazy, Surowiesky, Niederer and Van Dijck, Aurey *et al.* and Kittur *et al.*- are quite interesting and will be cited in section 2.2.1.2. concerning the concept of 'Wisdom of the Crowds'. In the same section concerning organisation Sylvain mentions Hansen *et al.*'s depiction of *Wikipedia* as a 'Habermassian Rational Discourse'. This idea, as well as Firer-Blaess's development of it⁸⁶ will be mentioned in section 2.2.3.1. Ideas about the occurrence of 'vandalism in *Wikipedia*' -including some of those appearing in Foglia, Priedhorsky *et al.*, Forte *et al.*, and Ingawale *et al.*'s texts.- will be discussed in section 2.2.1.3.

Many of the articles concerning hierarchical or egalitarian structure are too statistical and quantitative in nature to be of much use. Nevertheless texts by O'Neil and Firer-Blaess will be mentioned whilst discussing the concept of Wisdom of the Crowds.

The characteristics criticised earlier- statistical and quantitative approaches- are even more evident in the articles discussing *Wikipedia* structure. Though I must discuss *Wikipedia*'s structure, it will be done in a merely descriptive manner; Deeper statistical analysis of exact figures is neither needed not helpful for the purposes of this

⁸⁶ Firer-Blaess, *Wikipedia*.
Foglia, *Wikipedia*.

thesis. Most information concerning these facts has been extracted either from *Alexa*,⁸⁷ or *Wikipedia* itself.

The most important text regarding quality- which was unavoidably included in Firer-Blaess' short guide- is the article published in *Nature*, by Giles, in 2005. This article compared 42 articles in *Wikipedia* and *Encyclopaedia Britannica*, and startled many people by concluding that both encyclopaedias are of a similar quality, in spite of the many differences between the two. Other articles mentioned by Firer-Blaess include *Britannica's* rebuttal to *Nature's* claim, as well as studies both confirming *Nature's* conclusions, and articulating the ways in which quality in *Wikipedia* and the *Encyclopaedia Britannica* differ. Other articles mentioned examine differences in quality between articles within *Wikipedia*, showing that different subjects are not necessarily covered with the same precision and exactitude, depending on the topic area.

Finally, those texts mentioned under the label of relationship with the rest of the world, will mostly not be used directly, as there are other, more recent texts, which are more illuminating- Graham (2004)⁸⁸ and Glott and Ghosh (2010)⁸⁹- and which will be used in sections 2.2.2.1. and 2.2.2.2. Though these texts are fundamentally statistical in nature, I have found them very illuminating, and in spite of many reservations, have used them. So as to show the limitations of this approach, however illuminating and useful it can be, I contrast all sources, and use the statistical information as mere guidelines for what is undoubtedly a more complicated reality. Included within this category, we can find a series of texts concerning the use made of *Wikipedia*, which will be briefly mentioned in Chapter 3.

Amongst other texts to be used concerning *Wikipedia*, but not mentioned by Firer-Blaess, we can find Felipe Ortega's book *El potlatch digital*.⁹⁰ This text was directly influenced by his doctoral thesis.⁹¹ The book develops the thorough quantitative analysis done in the thesis, and offers it more context and a certain amount of qualitative

⁸⁷ <http://www.alexa.com> (Last visited 26/01/15).

⁸⁸ Mark Graham, Bernie Hogan, Ralph K. Strausmann and Ahmed Medhat, "Uneven Geographies of User-generated Information: Patterns of Increasing Informational Poverty. Pre-publication version" *Annals of the Association of American Geographers*, Volume 104, Issue 4 (2014), pp. 746-764. [henceforth Graham *et al.*, *Uneven Geographies*].

⁸⁹ Ruediger Glott, Rishab Ghosh "Analysis of Wikipedia Survey Data. Topic: Age and Gender Differences" *United Nations University MERIT* (March 2010) [hereafter Glott, Ghosh, *Survey Data: Age and Gender*]

⁹⁰ Felipe Ortega and Joaquín Rodríguez, *El potlatch digital* (Fuenlabrada: Cátedra, 2011) [hereafter Ortega, *El Potlatch Digital*].

⁹¹ Felipe Ortega, "Wikipedia: A quantitative analysis." (Doctoral Thesis, Universidad Rey Juan Carlos, Madrid, 2009).

analysis. Also of interest is Pierre Gourdain and his team's book on the subject,⁹² which studies *Wikipedia* as a sociological phenomenon. Experimentation on *Wikipedia* by Gourdain's team led to irritation of *Wikipedia* editors, as they attempted to test *Wikipedia*'s resilience to the introduction of errors by consciously introducing errors into it—going against the project's objectives and creating extra work for those correcting errors on those pages. Another book which offers insights into *Wikipedia* for those first studying the phenomenon is Tomás Saorín's *Wikipedia de la A a la W*.⁹³

Other texts used can be divided into:

- Original source material
 - Published or internet-based text important to the history or development of the internet or *Wikipedia*.
 - Wikipedia* articles.
- Published articles
 - Articles published by academia concerning *Wikipedia*.
 - Press articles written as popular press pieces in newspapers and magazines.

In the first category we find 'A Brief History of the Internet'⁹⁴ published online by the 'Internet Society', texts published on the internet, such as those of Sue Gardner,⁹⁵ Larry Sanger⁹⁶ and Jimmy Wales,⁹⁷ as well as the content of *Wikipedia* and *Wikimedia*.⁹⁸

Articles used include articles on the epistemology of *Wikipedia* such as Don Fallis's 'Toward an Epistemology of Wikipedia',⁹⁹ P.D. Magnus's 'Epistemology and the

⁹² Pierre Gourdain *et al.* *La Revolución Wikipedia*, (Madrid, Alianza, 2008) [hereafter Gourdain, *Revolución Wikipedia*].

⁹³ Tomás Saorín, *Wikipedia de la A a la W* (Barcelona: Editorial UOC, 2012).

⁹⁴ "A Brief History of the Internet". *Internet Society*. Archived from the original on September 18, 2008. (2008) [hereafter *A Brief History of the Internet*].

⁹⁵ Sue Gardner, "Nine reasons why women don't edit Wikipedia in their own words" *Suegardner.org*. February 19, 2011. (2011) [hereafter Gardner, *Nine Reasons*].

⁹⁶ Larry Sanger, "The early history of Nupedia and Wikipedia: A memoir" *Published online*, 2005. [hereafter Sanger, *Early History*].

Larry Sanger, "Why Citizendium will (probably) succeed" *Citizendium*, 2007. [hereafter Sanger, *Citizendium*].

⁹⁷ Jimmy Wales, "Wikipedia would rather give up business in China than tolerate '5 seconds of Censorship'" *Global Times*. August 13, 2013.

⁹⁸ The organisation developed to finance and organise Wikipedia and its sister projects.

⁹⁹ Fallis, *Toward an Epistemology of Wikipedia*. pp. 13-14.

Wikipedia',¹⁰⁰ and Manuel Pinedo-García's 'The *Wikipedia*: Knowledge as social, fallible, externalist and holistic'.¹⁰¹ The three articles are very different. Pinedo-García's article uses encyclopaedias -*Wikipedia* in particular- to show the shortcomings of individualistic, internalist and intellectualist accounts of knowledge. Magnus, on the other hand, claims that the variable reliability of *Wikipedia* does not allow its epistemic categorisation along with traditional encyclopaedias. Don Fallis examines the epistemic consequences of a great number of people using *Wikipedia*, concluding that these are generally positive, but could be improved.

Other articles examine *Wikipedia* from more statistical, or sociological points of view. Amongst these are Stivia *et al.*(2008),¹⁰² Rheagle and Rhue(2011),¹⁰³ Graham *et al.* (2004),¹⁰⁴ and Glott and Ghosh (2010).¹⁰⁵

Press articles are always cited from the online versions that newspapers and magazines have available, even in those cases in which the printed sources were those first used by the author. This is both to accommodate any changes to the article after original publication, and for ease of access to the reader.

Many other articles and books have been used, but as they do not relate directly to *Wikipedia*, they will only be mentioned when they are relevant to the development of the thesis.

¹⁰⁰ P.D. Magnus, "Epistemology and the Wikipedia" Paper presented at the *North American Computing and Philosophy Conference* in Troy, New York, August 2006.

¹⁰¹ Manuel Pinedo-García, "The Wikipedia: Knowledge as social, fallible, externalistic and holistic." *Papers of the 30th IWS*(eds. H Hrachovec, A. Pichler, J. Wang) (2007), pp. 180-182.

¹⁰² Besiki Stivia, Michael B. Twidale, Linda C. Smith and Les Gasser "Information Quality Work Organisation in Wikipedia" *Journal of the American Society for Information Science and Technology*, 59 (6) (2008), pp. 983-1001.

¹⁰³ Joseph M. Reagle and Lauren Rhue "Gender Bias in Wikipedia and Britannica", *Communications Studies Faculty Publications, Northeastern University, Paper 1* (2011), pp. 1138-1158.

¹⁰⁴ Graham *et al.*, *Uneven Geographies*.

¹⁰⁵ Glott, Ghosh, *Survey Data: Age and Gender*.

Chapter 1- The Evolution Of Encyclopaedism.

The history of encyclopaedism is old. According to Alain Rey,¹⁰⁶ and Collison¹⁰⁷ the existence of encyclopaedism is more ancient than the existence of texts we might recognise as encyclopaedias. Encyclopaedism has been defined in many different ways, by different authors. These definitions can encompass varied amounts of cultural works and different spans of time.

Robert Collison includes a wide range of books in his definition, if not of encyclopaedia, of encyclopaedic works. These include some pre-Christian and non-European books.¹⁰⁸ John Lough agrees on this point with Collison,¹⁰⁹ and includes books such as Pliny the Elder's *Natural History*, or the ancient Chinese encyclopaedias. Richard Yeo believes we can also trace the origin of encyclopaedias to the Greco-roman circle of knowledge.¹¹⁰ Alain Rey distinguishes encyclopaedias and encyclopaedism, as Collison does. He considers that encyclopaedias, in the most generally accepted sense are reference works and editorial projects which appear in occidental Europe during the seventeenth century. Encyclopaedism on the other hand is a cultural project that has existed in numerous civilizations ever since the dawn of writing.¹¹¹ consisting in attempts to organise and filter all important knowledge.

So as to understand the relationship we find between encyclopaedias, encyclopaedism and the time period they exist in it is of the greatest utility to explore the history of sources so classified.

¹⁰⁶ Rey, Alain, *Miroirs du monde: Une histoire de l'encyclopédisme*, (Saint-Amand-Montrond: Librairie Arthème Fayard, 2007) [hereafter Rey, *Miroirs de Monde*].

¹⁰⁷ Collison, Robert, *Encyclopaedias: Their History Throughout the Ages: A Bibliographical Guide with extensive Historical Notes To the General Encyclopaedias Issued Throughout the World from 350 B.C. to the Present Day*. (London: Hafner Publishing Co. Ltd., Star Yard, 1964) [hereafter Collison, *Encyclopaedias*].

¹⁰⁸ Collison, *Encyclopaedias*, chronology xiii.

¹⁰⁹ John Lough, *The Encyclopédie* (Genève, 1989) [hereafter Lough, *The Encyclopédie*], p. 2.

¹¹⁰ Yeo, *Encyclopaedic Visions*, preface xi.

¹¹¹ Rey, *Miroirs du monde*, pp. 12-13.

1.1- Origins.

We will start by describing different encyclopaedias or encyclopaedic texts as they have appeared in geographical and chronological order. This section will culminate with the appearance of the first texts we might recognise as modern encyclopaedias in the early European Enlightenment.

1.1.1- Encyclopaedism in China.

Amongst the oldest encyclopaedic works are Chinese accounts. According to Alain Rey, going back to the ‘Warring States Period’ (722 to 480 BC) we can find ‘accounts of characters’.¹¹² Even earlier than that we find historical accounts of the events of kingdoms, during the reign of emperor Xuang Wang (827 to 782 BC), of the Zhou dynasty. The practice of keeping these annals is continued by most dynasties after the Han dynasty, and are unified in the XVIII Century by Qian long as the official corpus *Twenty-four dynastic histories*.¹¹³

In the II century BCE the Han also create the *Er ya* a great reference work which was traditionally attributed to an even earlier time, and even to Confucius. Though it is encyclopaedic in organisation, its contents are those of a dictionary or glossary. Four centuries later a more developed reference work is recognised. The *Huang lan*, or *Mirror of the Emperor* written in 220 AD for emperor Wei cao pi has unfortunately been lost, but is thought to have been a compilation of classic works.¹¹⁴

The first work we could call an encyclopaedia which has not been lost is the *Pien-chu*, a seventh century anthological manual. The creation of these manuals was institutionalised with the appearance of exams for the new Chinese bureaucracy of the time.¹¹⁵

¹¹² “recueils de caractères (*ci shu* [*tzu shu*])” -Rey, *Miroirs du monde*, p. 147.

¹¹³ Rey, *Miroirs du monde*, pp. 147-148.

¹¹⁴ Rey, *Miroirs du monde*, p. 148.

¹¹⁵ Rey, *Miroirs du monde*, p. 148.

Encyclopaedic texts in China are often groupings and classifications of earlier texts known as ‘classics’ which were originally of a Confucian nature and time-period. But later Taoist and Buddhist influence and texts find a place within these compilations.

During the whole imperial period Rey¹¹⁶ estimates 600 compilations of this kind, of which 200 still exist. These were generally either decreed by the Emperors, or were initiatives started by high functionaries though often supported by the Empire. Printing allows for vulgarization of these texts during the Tang and Ming periods, in the form of small popular encyclopaedias.¹¹⁷

Notable examples of this manner of encyclopaedic texts include Yu Shinan’s *Beitang Shushao* known as *Citations from the North Hall*, Sun Mien’s *Tang yun*, Li Fang’s *Taiping yulan* written for Emperor Song Taizong, the *Cefu Yuangui* written by 15 scholars by order of a Song Emperor, or Ma Dualin’s thirteenth Century annotated *Complete research of literary documents*. Ma Dualin was the first to critically annotate an anthology at a time in which the principle of authority often excluded the use of any kind of reference. Other changes in Chinese encyclopaedism within the same couple of centuries include a greater development of historical accounts in Gao Chebg’s *Writings on the origin of things*, and a renewal of bibliographies, as is exemplified by Wang Yinglin’s *Yu hai* known as *The jade ocean*.¹¹⁸

Though the number of private attempts at works of the encyclopaedic sort diminishes in the Ming Dynasty, Emperor Chengzu in the early fifteenth century orders the creation of what would be the greatest encyclopaedic account of human history to have been set down in physical format. Between 1403 and 1404 the Hanlin academy achieves a first version of the text, which the Emperor considers too brief, and a team of 2100 writers works on extending the encyclopaedia, finishing what was thereafter known as the *Yongle Dadien*, or *Yongle encyclopaedia* in 1408. It is a work of 11000 volumes and 22817 chapters which each correspond to an ideogram. Unfortunately the greater part of this work has been lost. Only 2000 chapters have been recovered from those parts which were included in other books.¹¹⁹

Later texts are of a more reasonable size; The seventeenth century *Guang bowuzhi* is divided in only 22 main sections though they are themselves subdivided. The eighteenth century *Qinding Gujin tushu Jicheng*, published in 1726, was divided in 6109

¹¹⁶ Rey, *Miroirs du Monde*, p. 146.

¹¹⁷ Rey, *Miroirs du monde*, pp. 149-150.

¹¹⁸ Rey, *Miroirs du monde*, pp. 151-153.

¹¹⁹ Rey, *Miroirs du monde*, p. 153.

themes, was 850000 pages long and was printed in 5020 volumes. Also in the seventeenth and eighteenth century we can find new technical encyclopaedias such as *Human and natural creations*, the *Nongsheng quanshu*, and the *Gezhi jingyuan*. The first is a 1637 text devoted to arts and crafts, including agriculture, the second is exclusively devoted to agriculture. The third is also concerned with technical crafts and was published between 1717 and 1735. Emperor Qianlong (1736-1795) was especially interested in these kind of compilations and ordered the creation of a great compilation of agricultural practices, which has a special emphasis in rituals. He also ordered the creation of a collection of 600 paintings of 'tributary peoples', which include minor ethnicities from within the empire, neighbouring and occidental nations. Between 1772 and 1782 an 80000 volume anthology of literature, called *Siku quanshu* was created by his orders.¹²⁰

This is practically the last example of the great encyclopaedic compilations within the boundaries of Chinese culture, with a few minor exceptions, for example, Ruan Yuan wrote with encyclopaedic curiosity on a great variety of subjects, in a way reviving this tradition during the 19th century. It is not until the late XXth century, and due to Occidental and Japanese influence and to the renewed economic vigour, that the tradition revives.¹²¹

1.1.2- Encyclopaedism in the Ancient World.

Amongst the first occidental instances of encyclopaedism we find Aristotle's oeuvre. Though it is disjointed in that it exists spread throughout his many books, many of them now lost, it can be considered encyclopaedic in scope. Though Aristotle was not the first Greek philosopher or indeed writer to be interested in capturing the natural world in writing, he is the first to attempt to systematise the natural world. This attempt- the categories- would influence encyclopaedism in Europe in the form of scholasticism, an influence which was revived when lost texts were brought back to Europe from Islamic lands, where their influence was also enormous. Though Plato's texts are not encyclopaedic in the way we can claim Aristotle's were, Platonism's

¹²⁰ Rey, *Miroirs du monde*, pp. 154-157.

¹²¹ Rey, *Miroirs du monde*, p. 158.

views influenced many ancient schools of thought, leading to unified views of knowledge that have some bearing on the idea of encyclopaedism.¹²²

Speusippos, a Greek mathematician and disciple of Plato, and Poseidonius, a later philosopher, are thought to be amongst the first encyclopaedists, in that their work is supposed to have included a large spectrum of knowledge. Unfortunately there is little more than snippets to base this conclusion on, and no way of knowing how the ideas might have been structured.¹²³

Cato's work, if compared to that of Aristotle and other Greek writers shows an important difference between Greek and Roman thought. Whereas the Greek are more theoretical, Roman encyclopaedism is more technical, dealing with ethical and pragmatic aspects of knowledge that did not seem interesting to Greek writers. Other Roman writers tend to be interested in both ways of understanding knowledge.¹²⁴

One of the first truly encyclopaedic books is Pliny the Elder's *Naturalis Historia*, A thirty-seven book compilation of information with a large scope and collecting citations from 146 Roman authors and 327 Greek authors, making his oeuvre one of the first examples of bibliographical encyclopaedism.¹²⁵

Varro's work predates Pliny's, but unfortunately a great part of it has not survived to our days. Nevertheless, it is believed that *Antiquitates rerum humanorum's* 45 books, and *Disciplinae's* 9 books, *Rusticae's* 3 books, and *Hebdomades vel imagibus's* 15 books worked as a reference work at a universal scale, and not just as reference for those interested in Varro's thought.¹²⁶

There were many other texts in the same style being written and copied in the same time period, for example Martianus Capella's *Satyricon* and Casiodorus's oeuvre. There are also many books that concentrate on a subject, for example Pomponius Mela's *De Choreographia*, an encyclopaedia of geography. Towards the fifth century Aristotelian and platonic sciences have in great part become part of *mirabilia*, and therefore are included in the Christian criticism of profane *curiositas*, opposed to the

¹²² Tomás Calvo Martínez, *Aristóteles y el Aristotelismo* (Madrid: Akal, 2001).

Giovanni Reale, *Introducción a Aristóteles* (Barcelona: Herder, 2003).

Rey, *Miroirs du monde*, p. 94.

¹²³ Rey, *Miroirs du monde*, p. 94.

¹²⁴ Rey, *Miroirs du monde*, p. 95.

¹²⁵ Rey, *Miroirs du monde*, pp. 97-98.

¹²⁶ Rey, *Miroirs du monde*, pp. 95-96.

kind of knowledge available to those embracing Christian faith.¹²⁷ This leads to a new phase in encyclopaedism in Christian Europe.

1.1.3- Medieval Europe.

In Medieval times we can find other examples of encyclopaedic books. The older Roman tradition is in part continued by Christian authors, such as St Augustine in his Book *Doctrina Christiana*. The main difference we encounter is that the role of the Greek theoretical knowledge, or the Roman practical knowledge is substituted by the idea of religious or divine knowledge. Though it would be incorrect to think that this form of mystic knowledge was totally absent in the Roman world –Apuleius, for example, wrote books that were orientated to cultural didactics of religion and Gnostic poetry-, the rise of Christianity turned these kind of texts into the norm, and led to a repudiation of any other kind of knowledge. In spite of this, authors such as Boecius, Cassiodorus, and even St. Augustine transmitted some of the ancient Aristotelian, platonian and neo-platonian ideas. In spite of this the main objective of reading and writing classes during this time period become that of analysing and understanding sacred texts.¹²⁸

St Isidore of Seville's *Etimologies*, are of special interest. They are composed of twenty parts, divided according to the seven liberal arts into six books: Grammar, Rhetoric, Quadrivium, Medicine, Law and Sacred Sciences. There are a further fourteen books dealing with angels, God and a dictionary. The last five books are devoted to the physical world and crafts. The order of the books goes from the theoretical to the practical, and also from the divine to the human. The volumes were very successful and were circulated throughout Europe. There are a thousand copies still extant. It inspired Bede's *De Natura Rerum*, though in some ways Bede was critical of it.¹²⁹

Later authors that contributed to an expansion of the encyclopaedic spirit- at least as regards geography- are the eighth century Alcuin of York, and his disciple Dicuil, and- in the matter of philosophy- Duns Scotus. Raban Maur, who studied under Al-

¹²⁷ Rey, *Miroirs du monde*, pp. 98-99.

¹²⁸ Rey, *Miroirs du monde*, pp. 99-101.

¹²⁹ Rey, *Miroirs du monde*, pp. 101-105.

cuin, wrote *De rerum naturis*, also inspired by Isidorus, though eliminating pagan sources and adding more citations from Scripture.¹³⁰

The Byzantine Empire had its own tradition of encyclopaedism. Photius's *Lexicon*, is an example of it, as is the *Suda*- so named after a supposed and in all probability imaginary author. Another example is the *Excerpta*, though the irrational way in which it is organised justifies the title of 'anti-history' given to it.¹³¹

The second half of the middle ages saw an increase in encyclopaedism, occurring during the twelfth century. Examples of this are Lambert of Saint-Omer's 1120 *Liber excerptionum* and the 1130 *De diversis artibus*, Hugues' *Didascalion*, Richard's *Liber excerptionum*, and Radulfus Ardens' *Speculum universal*. The word 'speculum', meaning mirror will recur in the later middle ages, as these texts are written to be a reflection, an image, of Creation.¹³²

William of Conches' *Philosophia mundi*, and *Dragmaticon*, and Adelard of Bath's *Questiones Naturales* are not strictly speaking encyclopaedic, but introduce new ways of tackling knowledge that would affect later encyclopaedism. Amongst authors with these characteristics we find Alexander Neckham, author of *De nominibus ustenilium*, Bartholomeus Anglicanus' *De propriatibus rerum* and Vincent de Beauvais's 1244 *Speculum majus*. The later work is an enormous seven part 'mirror' of the natural, doctrinal and historic worlds, as well as of a moral world based on Thomas Aquinas's texts. It was very successful as indicated by the fact 80 manuscripts still exist. Though the *Speculum majus* is the last mayor encyclopaedia of this time, other later examples exist, including Thomas of Cantimpré's *De naturis rerum*, the anonymous *Compendium philosophiae*. Another exception to this trend is Ramón Llull's deeply Christian oeuvre, which nonetheless includes the promise of universal knowledge, a promise which is in many ways fulfilled by the *Arbre de ciència*.¹³³

¹³⁰ Rey, *Miroirs du monde*, pp. 105-107.

¹³¹ Rey, *Miroirs du monde*, pp. 108-109.

¹³² Rey, *Miroirs du monde*, pp. 111-114.

¹³³ Rey, *Miroirs du monde*, pp. 115-116, 119-124, 127-128.

1.1.4- The Islamic world.

Alain Rey believes the nature of encyclopaedism in the Islamic world has a triple origin;¹³⁴ Those books created for the education of civil servants, ‘adab’ literature for the enjoyment of learned classes- including specialist encyclopaedias- and thirdly, philosophic-religious reflexions on the nature and order of the world.

The first author we can speak of is Al-Gahiz, author of the *Book of animals*- a critique of Aristotle- and *Of the circle and the square* which has been called an ‘encyclopaedic embryo’ by Charles Pellat.¹³⁵ Al-Farabi’s oeuvre has a great epistemological coherence that can also be considered encyclopaedic in extent. The collective work of Basra’s Brother’s of Purity is commonly called an encyclopaedia and presents an Ishmaelite view of heterodox ninth century Islam rooted in neo-platonism. A century later Ghazâli creates a counter-encyclopaedia, *rebirth of the religious sciences*, which classifies sciences in a hierarchic way that prioritises reason, and attempts to reconcile mysticism with orthodoxy, and a philosophical criticism of the *falsafia*, or Islamic Aristotelism. In the thirteenth century Yâqut- an ex-slave- creates *Great Dictionary of the written word*, and also a geographical compilation- *Diccionary of countries*- which, remarkably was last re-edited in the early twentieth century due to its popularity. Ibn ‘Abd Rabbih’s *Unique necklace* is an example of the dynamic cultural strength of Islam at the time, in particular Iberian Islam.¹³⁶

Al Razi’s and Avicena’s medical encyclopaedias, al-Kindi’s Aristotelian oeuvre, Ibn Jaldun’s Introduction to Universal History and Averroes’ Aristotelian oeuvre are other examples of the encyclopaedic spirit in the Islamic world.¹³⁷

1.2- European Enlightenment.

The European Enlightenment is when the first books we can recognise as modern encyclopaedias appear. During the Renaissance period, there is an intermediate pe-

¹³⁴ Rey, *Miroirs de Monde*, p. 136.

¹³⁵ Rey, *Miroirs de Monde*, pp. 131-132.

¹³⁶ Rey, *Miroirs de Monde*, pp.131-136.

¹³⁷ Rey, *Miroirs de Monde*, pp136-139.

riod of Encyclopaedism which can neither be called Medieval nor Enlightened. Cultural and technological developments –particularly the printing press– slowly affect encyclopaedism. Enlightenment encyclopaedias therefore do not appear magically but are greatly influenced by earlier encyclopaedic attempts and ideas. We shall therefore examine some precursors, and– only then– the most important early encyclopaedias of the enlightenment and eighteenth century.

1.2.1- Precursors.

A inherited perspective for Enlightenment encyclopaedias is the flood of seventeenth century dictionaries and encyclopaedias such as the work of Antonio Zara (1614), Johann Heinrich Alsted (1630), Louis Moréri (1674), Thomas Corneille (1694), Jacob Johan Hoffman (1677-1683), Étienne Chauvin (1692) and John Harris' *Lexicon Technicum*.¹³⁸

Rey believes that this new flood of encyclopaedism reflects the growth of Science, and its slow disentangling from the limits imposed by Theology in the centuries prior.¹³⁹ In light of this, two of the most interesting precursors to the encyclopaedias of the Enlightenment are Sir Francis Bacon's groundbreaking *Great Instauration* and also *The advancement of Learning*, and Friedrich Gotlib Leibniz's early but failed attempts at creating a systematic and universal encyclopaedia. Both Bacon and Leibniz deserve a more detailed examination as precursors to later encyclopaedism.

Francis Bacon is an obvious, and acknowledged influence for the encyclopaedias of the Enlightenment. Before his *Great Instauration*, medieval encyclopaedias were relatively limited in their scope and ordering of knowledge. Bacon, influenced by Pliny the Elder, gave up on scholastic and academic disputes and concentrated on the practical organisation of knowledge.¹⁴⁰ In this way Bacon attempted to facilitate the creation of new knowledge, rather than merely preserve the knowledge of past generations. He tried to organise knowledge in new and more practical ways, though this was ultimately unsuccessful as an encyclopaedic project. In spite of this, it was an inspiration to later encyclopaedists. Both Ephraim Chambers and the authors of the

¹³⁸ Rey, *Miroirs de Monde*, pp. 169-174.

¹³⁹ Rey, *Miroirs de Monde*, p. 169.

¹⁴⁰ Collison, *Encyclopaedias*, p. 82.

philosophes' *Encyclopédie* acknowledge their debt to him. Chambers claims "[Bacon] by opening new Tracts, [has] carried our knowledge a great way further."¹⁴¹ In the *Encyclopédie*'s 'Discours préliminaire des editeurs' by d'Alembert we can read; "Francis Bacon, whose work is so justly esteemed, and yet better esteemed than it is known, deserves our reading more than our praise. Considering the sane and extended points of view of this great man, the multitude of objects upon which his spirit sat, the boldness of his style which collects the most sublime images everywhere with the most rigorous precision, we might be tempted to consider him the greatest, most universal & most eloquent of the Philosophers... We declare here that we owe mainly Chancellor Bacon the encyclopaedic Tree."¹⁴² In the section called 'Observations sur la Division des Sciences du Chancelier Bacon', the debt the *Encyclopédie*'s classification of knowledge owes Francis Bacon is again acknowledged, and Bacon's system is explained, exposed and compared to the *Encyclopédie*'s.

The direct influence of Francis Bacon on Chambers', though it exists,¹⁴³ is more limited. Conversely, though Francis Bacon is cited often in the *Cyclopaedia*, the systematization of knowledge within it is not as similar to Bacon as the *Encyclopédie*'s is. Any debt is much more subtle, and of similar significance to that of previous encyclopaedists, except, possibly, for the emphasis Chambers put on the use of knowledge as a tool for the betterment and happiness of mankind. Francis Bacon was the first European thinker to explicitly place any such emphasis on the role of knowledge, but by the time the *Cyclopaedia* is written this conception is no longer quite so unique. Therefore, whether this emphasis in the *Cyclopaedia* owes itself directly to Bacon or indirectly through other authors is difficult to discern clearly. Perhaps it is enough to be able to determine that the way of understanding knowledge that the *Great Instauration* seeded is flowering at the time, and that the *Cyclopaedia* is a great example of that mode of understanding the role of knowledge in society.

¹⁴¹ Ephraim Chambers, *Cyclopaedia, or, an universal dictionary of arts and sciences* University of Wisconsin Digital Collections, <http://digital.library.wisc.edu/1711.dl/HistSciTech>. [hereafter Chambers, *Cyclopaedia*], preface, p. I[i]-xxx.

¹⁴² "François Bacon, dont les Ouvrages si justement estimés, & plus estimés pourtant qu'ils ne sont connus, méritent encore plus notre lecture que nos éloges. A considérer les vûes saines & étendues de ce grand homme, la multitude d'objets sur lesquels son esprit s'est porté, la hardiesse de son style qui réunit par - tout les plus sublimes images avec la précision la plus rigoureuse, on seroit tenté de le regarder comme le plus grand, le plus universel, & le plus éloquent des Philosophes.... Nous déclarerons ici que nous devons principalement au Chancelier Bacon l'Arbre encyclopédique."

Diderot, D'Alembert, *Encyclopédie*, p. xxii.

¹⁴³ Rey, *Miroirs du monde*, p. 176.

The *Encyclopédie*'s debt to Francis Bacon, as the quotes have already revealed is even greater. The encyclopédistes perceived in Bacon not only a magnificent way of understanding the role of knowledge in society, but also an alternative way of systemizing knowledge to Chambers'.

Smellie's *Encyclopaedia Britannica*- important due to the pervasive presence of posterior editions of the *Encyclopaedia Britannica* throughout the centuries separating us from the Enlightenment- owes its structure to Bacon only in as much as it was influenced by the *Cyclopaedia* and the *Encyclopédie*. Smellie is trying to organize knowledge in a different way from these two encyclopaedias, and does so by eliminating the tree of knowledge, and the idea of an encircling systemization of knowledge. He believes "it is well if a man be capable of comprehending the principles and relations of the different parts of science, when laid before him in one uninterrupted chain. But where is the man who can learn the principles of any science from a Dictionary compiled upon the plan hitherto adopted?"¹⁴⁴ By going against Bacon, Chamber, and Diderot's systemization of knowledge Smellie believes he is making a more readable book, that is, an encyclopaedia composed of quasi-independent essays, and therefore of greater use.

Gottfried Leibniz was perhaps not as influential in a direct way, but he serves as an example of- or a mirror to- what was trying to be done with encyclopaedias and dictionaries prior to the eighteenth century. Though some of Leibniz's motivations are almost exclusively personal to him, there are others we can see as parallel to those of other encyclopaedists. His quest to create a compilation of all knowledge does not stem principally, as it does in Bacon, from the desire to systematise all knowledge. Some of Leibniz's other and more important motivations are his desire to reduce the size of libraries- by having all the facts normally found in a library of hundreds, or thousands of books bound in a single volume, or a small collection thereof- and his wish of having a consistent series of interrelated complete definitions through which to advance his 'Universal Language'.¹⁴⁵

¹⁴⁴ William Smellie, *Encyclopaedia Britannica; or, A dictionary of arts and sciences, compiled upon a new plan. In which the different sciences and arts are digested into distinct treatises or systems; and the various technical terms, &c. are explained as they occur in the order of the alphabet. Illustrated with one hundred and sixty copper-plates* (Edinburgh: Printed for A. Bell and C. Macfarquhar, 1771), preface.

¹⁴⁵ Leibniz had many different notations and projects that, at one time or another were part of his Universal Language project. There is a great terminological imprecision, but he generally called the project Universal, or Real Language. The written form of this language is the Universal or Real Characteristic. It would allow an ordering of the 'Republic of Letters', making all knowledge accessible in a single well-ordered publication, derivable from the grammar and vocabulary of the Universal Language, therefore

Though Francis Bacon believed systematization of knowledge might aid in the acquisition of new information, Leibniz went even further, and believed that an encyclopaedia might be the first in a series of steps leading to the automation of the process of discovery. Though it is difficult to demonstrate the extent of the effect on later encyclopaedia writing caused by Leibniz's philosophy and his attempts at creating an universal encyclopaedia and universal language, the similarities that do exist indicate that, at the very least, there was a common way of understanding knowledge that echoed through these different scholars. We know Chambers was aware of Leibniz's existence, as he is mentioned in many articles, and his interest in the systemization of knowledge and creation of dictionaries is acknowledged in the preface to the *Cyclopaedia*.¹⁴⁶ The *Encyclopédie*, apart from referencing Leibniz in many articles and even having an article on his philosophy, discusses Leibniz's desire for a great systematic encyclopaedia; "Up until this point no-one had envisioned such a large Work, or at least no one had accomplished it. Leibnitz, of all Scholars the most able of knowing the difficulties, wished them to be surpassed. In the meantime there were Encyclopaedias; and Leibnitz was aware of them, while demanding one."¹⁴⁷ The *Encyclopédie* partly justifies its own existence as a fulfilment of this wish.

The *Encyclopaedia Britannica* has no direct connection to Leibniz's encyclopaedism. As with Bacon's legacy, any influence received is due to its immediate predecessors, the *Cyclopaedia* and the *Encyclopédie*.

1.2.2- The Modern Encyclopaedia.

According to Yeo, earlier two volume works -including John Harris' *Lexicon Technicum*, Ephraim Chambers' *Cyclopaedia*- but also William Smellie's more recent first *Encyclopaedia Britannica*- correspond to a distinct earlier project, and were 'dictionaries of

making any other book obsolete. The system contains within it, at the very least in a virtual form, an encyclopaedia, but also needed an encyclopaedia, or dictionary from which to derive its vocabulary.

Olga Pombo, *Leibniz and the Problem of a Universal Language*. (Münster: Nodus Publikationen, 1987).

¹⁴⁶ Chambers, *Cyclopaedia*, preface, p. Xxi.

¹⁴⁷ "Jusqu'ici personne n'avoit conçu un Ouvrage aussi grand, ou du moins personne ne l'avoit exécuté. Leibnitz, de tous les Savans le plus capable d'en sentir les difficultés, desiroit qu'on les surmontât. Cependant on avoit des Encyclopédies; & Leibnitz ne l'ignoroit pas, lorsqu'il en demandoit une."

D'Alembert, *Discours Préliminaire*, p. xxxij, in Diderot, D'Alembert, *Encyclopédie*.

arts and sciences' but not fully-fledged encyclopaedias. In great part this is because they did not include history or biography.¹⁴⁸ Some developments that lead to modern encyclopaedias start with the *Encyclopédie* and the third edition of the *Encyclopaedia Britannica*. They are, in fact, the first ones Yeo recognizes as modern encyclopaedias. He links their appearance to the emergence of modernity, the public character of information and the desirability of free intellectual and political exchange. He believes they are generally conceived by historians as epitomes of science and reason, but regards them also as the epitome of print capitalism.¹⁴⁹

Though I agree with the facts Yeo uses to distinguish what he calls 'scientific dictionaries'- such as the *Cyclopaedia* and Smellie's *Britannica*- from true encyclopaedias, I believe he contradicts himself somewhat in drawing these distinctions. He justifies his classification by drawing attention to the fact that these books do not include all knowledge within them, because they lack History and Biography. However, he does not pick this bone with the *Encyclopédie*, which he classifies as an encyclopaedia although it does not delve into these subjects either. I agree with Alain Rey's broader definition, which does include what Yeo calls scientific dictionaries in the same category as encyclopaedias. I would classify Chamber's *Cyclopaedia* as the first modern encyclopaedia, and would justify this by drawing attention to his use of cross-referencing.

Cross referencing is an immensely important development, as it allows links between concepts to be easily visualised. There was- in the time-period being discussed- some difficulty in creating these links in a satisfactory manner. In any encyclopaedia published in a series of volumes- volumes which were edited and printed as soon as they were written- it is difficult to know exactly what content will be included in future volumes. In the *Cyclopaedia*, the *Encyclopédie* and Smellie's *Britannica*, words starting with letters placed at the beginning of the alphabetical sequence are more likely to have articles, and those articles are more likely to be long and descriptive. As the projects were completed and time and money constraints turned up, less effort was put into less important words. This means that whereas references to articles extant in earlier volumes are always useful and useable, references made to articles supposedly extant in later volumes sometimes correspond to no articles at all, or to articles of little use, size, or importance.

¹⁴⁸ Yeo, *Encyclopaedic Visions*, pp. 12-13.

¹⁴⁹ Yeo, *Encyclopaedic Visions*, preface p. xii.

These new encyclopaedias are of great importance because they become physical embodiments of 'Trees of Knowledge'- idealised visualisations of the perfect rational organisation knowledge- through the use of referencing. They are also important because they embody much of what is unique about the Enlightenment. In them we find, at play, the knowledge of the rapidly developing new sciences, and the religious and cultural limitations imposed on them. Chambers's *Cyclopaedia* was not censored in Britain, as British authorities were relatively tolerant, and Chambers was not specially inflammatory. He was content to limit the contents of his encyclopaedia to what would be acceptable to most of the British public. Nevertheless when articles from this encyclopaedia were translated and adapted for use in the French *Encyclopédie* things had to be changed to appease French censors. Articles concerning matters in which Chambers dismissed Catholic items of faith as falsehoods- whereas tolerable in non-catholic Britain- were not permitted in Catholic France. Diderot got away with publishing those articles only by adding rebuttals to Chamber's arguments.

In most of the *Encyclopédie* similar things were done. So as to present new ideas to the public, articles devoted to them were often ironic condemnations of these ideas. Thanks to strong personal links between the *Encyclopédie's* editors and some of the people involved in granting permission to publish this style was tolerated for many of the *Encyclopédie's* volumes. Nevertheless there were times when the French Jesuits managed to get the publication cancelled due to these issues. The pressure of the censors shook d'Alembert in such a way that he mostly abandoned the project to Diderot, limiting himself to articles on non-controversial topics such as mathematics. To avoid direct trouble with the authorities, many of the articles are unattributed. Indeed to appease these influential sectors of the public and ensure the *Encyclopédie* was published many articles were altered behind Diderot's back, to his great dismay once he found out.

An immense diversity of encyclopaedias were inspired by the French *Encyclopédie*; In almost every culture with a language to call their own in Europe the demand for a similar encyclopaedia in their native tongue emerged. French copies and translated copies, as well as new projects influenced by the *Cyclopaedia* and the *Encyclopédie* sprung up in every European nation. Pirate editions of these books were also widely available, in any case even new licit projects often borrowed heavily from earlier books. Considerations on copyright in this time period will be re-examined in section 2.2.1.1.

1.3- 19th and 20th Century.

The centuries following the Enlightenment saw the concept of encyclopaedias establish itself as a necessary part of civilised western life, and even take root in the rest of the world. Every nation calling itself civilised publishes an encyclopaedia in which to reflect its values, ideology and state of knowledge. Eventually encyclopaedias become a virtual necessity in the homes of an increasing number of people throughout the world; In particular in those places where child education becomes universal. Almost any home that can afford them ends up purchasing a set of encyclopaedias. In spite of this, by the end of this period print encyclopaedias are losing influence. Though the encyclopaedic ideal is stronger than ever, encyclopaedias take on a digital form, making access to encyclopaedic knowledge easier and easier. The early twenty-first century, and the mass access to the internet will be the final straw, turning encyclopaedism's relationship with print into a historical footnote. This final step will be related in the next chapter.

1.3.1- Print.

Nineteenth century encyclopaedism in Europe can be divided by nationalities, each producing their own encyclopaedias. In Germany the *Frauenzimmer Lexicon*, which later became the *Conversations-Lexicon* and later still the *Brockhaus*, became exceedingly popular in its different editions throughout the century. The *Conversations-Lexicon* appears in different editions in many countries in Europe and America. Few other encyclopaedias are truly successful in Germany. The *Allgemeine Enzyklopädie der Wissenschaften und Kunte* by Ersch and Gruber, which was cut short, Meyer's short *Meyers Grosse Konversations-Lexicon* and the shorter *Herders* are amongst the few existing examples.¹⁵⁰

In Britain, and generally in the English language in spite of the success of the *Encyclopaedia Britannica*- or perhaps in part thanks to it- there was great and fierce competition which gave rise to a wide variety of encyclopaedias. Undoubtedly a wider possible diffusion of the English language in the globe helped. Wilkes' *Encyclopaedia Londinensis*, Rees' *Cyclopaedia* -based on Chambers' *Cyclopaedia*-, Francis Lieber's *Ency-*

¹⁵⁰ Rey, *Miroirs du monde*, pp. 197-199.

clopaedia Americana -an adaptation of the Brockhaus- and C.F. Partington's *British Encyclopaedia* are all competitors in the English language nineteenth century encyclopaedia market. Another adaptation of the Brockhaus is *Chamber's Encyclopaedia*, which was turned into the *International Encyclopaedia*. The poet Samuel Taylor Coleridge also attempted to create an encyclopaedia according to his philosophic and poetic ideas of what an encyclopaedia should be, in opposition to the eighteenth century *Encyclopédie*. During his life this project did not come to fruition, though several versions, none of them very true to the intent of the original author appeared after his death under the name of *Encyclopaedia Metropolitana*. In the meantime the *Britannica* did nothing but grow, both in size- as new editions became bigger and more thorough- and in sales.¹⁵¹

As soon as the eighteenth century the successive editions of the *Encyclopaedia Britannica* left aside Smellie's style and manner of making an encyclopaedia. New contents were created by larger teams, and by the end of the nineteenth century there are more than a thousand collaborators. The company moved to the USA in 1901.¹⁵²

In France, Panckocke finished his *Encyclopédie méthodique* early in the nineteenth century. French editions of the Brockhaus started moving in, whereas other encyclopaedias, such as the *Encyclopédie moderne, dictionnaire abrégé des lettres, des arts, de l'industrie et du commerce* continued the French eighteenth century tradition. In 1866 Pierre Larousse prints the first in his long line of successful encyclopaedias: *Le grand Dictionnaire universel de XIXe siècle*. In spite of it being the beginning of a successful line of progressive encyclopaedias, at the time, two others were more successful in its own field. Pierre Leroux and Jean Reynaud's *L'Encyclopédie Nouvelle*, and Maurice Lachatre's *Dictionnaire Universel*.¹⁵³

During the twentieth century encyclopaedism expanded all over the world with a plethora of encyclopaedias in every country, with specialised information in each country, and within the richer countries a wide variety of specialised encyclopaedias for children, higher class readers, lower class readers, and readers interested in specialist subjects. All these encyclopaedias essentially follow the occidental model, even in countries such as China with an older tradition of encyclopaedism. Many of these encyclopaedias become national encyclopaedias in the same way the *Encyclopaedia Britannica* was a British encyclopaedia. There are French, Italian, American and Soviet

¹⁵¹ Rey, *Miroirs du monde*, pp. 199-202.

¹⁵² Rey, *Miroirs du monde*, pp. 194-196, 202-203.

¹⁵³ Rey, *Miroirs du monde*, pp. 203-209.

encyclopaedias bearing these names on the cover. Nationalism and ideology become represented in these books.¹⁵⁴

Early in the twentieth century the greatest change occurs to the *Encyclopaedia Britannica* in its eleventh edition. The way it was ordered since Smellie's first encyclopaedia- with a large number of smaller articles interspersed with larger articles- is altered. The larger articles become more common throughout the book. Also, greater numbers of editors collaborate in later editions, including the participation of celebrities from each field, such as Trotsky, Einstein and Freud in the thirteenth edition.¹⁵⁵

1.3.2- Digital.

The history of online encyclopaedism is relatively short. Before the appearance of Compact Disks for computers there were no realistic platforms on which to record the necessary amount of data for a digital encyclopaedia. As soon as CD-Roms became available CD encyclopaedias started appearing. Encarta is one of the most notable. In spite of its short life-span it was remarkable for only having existed in the CD format, and for incorporating moving images and sound. Other CD encyclopaedias were mostly versions of print encyclopaedias, though often with multimedia features. Nevertheless, the growth of the internet soon made the CD encyclopaedias obsolete. Before 2001 there had been several unsuccessful attempts at making an encyclopaedia available on the internet. The two most successful attempts since have been the online edition of the *Encyclopaedia Britannica* -which will probably soon be the only active edition of the long lived series of encyclopaedias, and which already accounts for 60% of the *Encyclopaedia Britannica*'s profits-, and the wholly remarkable *Wikipedia*.

¹⁵⁴ Rey, *Miroirs du monde*, pp. 211-220.

¹⁵⁵ Rey, *Miroirs du monde*, p. 216.

Chapter 2- Wikipedia.

Wikipedia is the main focus of this thesis. The examination of this encyclopaedia will take two paths. In first place there will be a historic examination of *Wikipedia* examining the specifics of its appearance and the evolution of its structure up to the present day. Secondly there will be a philosophical examination of its social, epistemic and cultural constructs.

2.1- History.

The history of *Wikipedia* will be examined in three parts. Its precedents, its evolution and its structure. As its encyclopaedic precedents have already been dealt with, the precedents to be examined here will be those web pages which preceded it -a history of the internet-. The section titled 'Evolution of *Wikipedia*' will examine how its present structure arose, and this will naturally lead to the section examining this structure.

2.1.1 Internet History.

The digital age of encyclopaedias entered a new phase with *Wikipedia*; this development fulfilled an urgent need for order in the then more chaotic internet. To understand the origins of *Wikipedia* we need to understand the early internet.

The internet's origin can be traced back to the 'ARPANET' computer connexion¹⁵⁶ that connected the computers of several West Coast Universities and research institutes. This was funded by the 'U.S. Department of Defence', in 1969. It developed protocols and packet switching similar to those used later in the modern internet. The early ideas for a computer network were described in the 1962 memoranda 'Intergalactic Computer Network', by J.C.R. Licklider, a 'BBN' employee. When he was employed by the U.S. Defence Department's 'Advanced Research Projects Agency'

¹⁵⁶ Bolt, Beranek and Newman Inc, *A History of the ARPANET: The First Decade*, (Arlington: Darpa, 1981).

(ARPA), he convinced Ivan Sutherland and Bob Taylor, and MIT researcher Lawrence G. Roberts of the importance of a network of computers of the kind he had described in the memoranda. This was fortunate, as Licklider left ARPA before the concept was worked on. Sutherland and Taylor initially used the concept to make the ARPA computers available to ARPA-sponsored researchers in different corporate and academic locales, and to make software and results available to them all quickly. To start with, the computer terminals were 1-to-1. This means each computer connected to only one other computer. The three computers Taylor was using were connected to 'SDQ' in Santa Monica, 'Project Genie', at the University of California, Berkeley, and 'Multics' at MIT. ARPANET appeared when Taylor decided to unite all the terminals in a single computer. Simultaneously, packet switching based on the work of Donald Davies¹⁵⁷ and Lawrence Roberts¹⁵⁸ appeared at the 'NPL' in the UK.

The fact that the Department of Defence was financing all this work led to rumours that ARPANET was a way for US intelligence to withstand a nuclear attack without losing information. Nevertheless this rumour is widely considered to be uniquely due to an unrelated study, the RAND group study on secure voice in 1964, which *did* take into consideration nuclear war.¹⁵⁹ There is no other documentation linking ARPANET to the preservation of knowledge in the case of nuclear war. In spite of this, it is true that the idea was developed in later internet-developing programmes, in which robustness and survivability were considered of the greatest importance.¹⁶⁰ Charles Herzfeld, ARPA Director between 1965 and 1967 explains that, in spite of the need for such a nuclear resistant system, ARPANET was not that system, and that the main reason for the ARPANET Project to have flourished within a Defence program was the need for researchers who were geographically separated to share the use of the few large powerful computers then in existence.

Other networks similar to this one started to flourish, especially in academic circles; Networks such as 'NSFNET', or the networks at SLAC and CERN. Networks that predated the internet also include the previously mentioned British NPL, as well as the American 'Merit Network' and the French 'Cyclades'; All were developed during the seventies.

ARPA's research paved the way to the 'International Communication Union' (ICO) developing X.25 packet switching standards. This was succeeded in 1978 by The Brit-

¹⁵⁷ http://www.thocp.net/biographies/davies_donald.htm (Last visited 26/01/15).

¹⁵⁸ http://www.livinginternet.com/i/ii_roberts.htm (Last visited 26/01/15).

¹⁵⁹ Paul Baran, "On Distributed Communications Networks", IEEE Trans. Comm. Systems, March 1964.

¹⁶⁰ A Brief History of the Internet.

ish Post Office, Western Union International and Tymnet's 'International Packet Switched Service'- the first international packet switched network- which grew throughout the eighties and by the nineties provided an international network infrastructure. The first commercial network providers such as, 'Compuserve', 'America OnLine' (AOL) and 'Prodigy' were developed upon these foundations.

A mayor problem at this stage is that, instead of a unified network there was a multitude of unconnected networks. The unification of these networks is what would create the internet. Vinton Cerf of Stanford University was recruited by Robert E. Kahn of ARPA and ARPANET to solve this problem. In 1973 the differences between network protocols were hidden by using a common internetwork protocol. Hubert Zimmerman, Gerard LeLann and Louis Pouzin are also credited with aspects of this internet design. Vinton Cerf, Yogen Dalal and Carl Sunshine- in a paper specifying the design of this structure- coin the word 'internet'.¹⁶¹

Meanwhile between 1984 and 1988 a TCP/IP¹⁶² network is set up to connect CERN's major internal computer systems, workstations, PC's and accelerator control system. This system is called CERNET and was self-developed and incompatible with other external systems used at the time. These intranets remain isolated from the internet until 1989, when CERN opened its first external TCP/IP connections thanks to hardware from Cisco and the collaboration of Daniel Kerrenberg, Ben Segal and Len Bosack. Simultaneously 'Réseaux IP Européens' (RIPE) was created as a regular meeting of IP network administrators so as to coordinate work together. This ultimately lead to RIPE registering as a cooperative in Amsterdam in 1992. Returning to 1989, connections to ARPA and between Australian universities using X.25 and *UUCPNet* technologies are slowly substituted by IP networks, unifying network infrastructures and making international connections easier and cheaper.

Internet started having a presence in Asia when the 1984-built 'JUNET network' connected to 'NSFNET' in 1989. In 1990 Singapore developed 'TECHNET'. The first global internet connection in Thailand was that between Chulalongkom University and 'UUNET' in 1992. In the same year Kobe, in Japan, hosted the annual meeting of the 'Internet Society', INET'92.¹⁶³

¹⁶¹Vinton Cerf, Yogen Dalal and Carl Sunshine, "Specification of Internet Transmission Control Program" *Network Working Group*, 1974.

¹⁶² TCP/IP is an net protocol which is used to ensure discrete packets of information can be sent without error and in the correct order.

¹⁶³ <http://public.web.cern.ch/public/en/about/webstory-en.html> (Last visited 26/01/15).

During the nineties and early two-thousands the internet suffers a process of commercialisation which changes the pre-existing early-internet culture. The early internet is mostly used by people who are both content-users and content-creators. The main communication interfaces were internet forums, and chats. The contents being discussed were most often meta-contents, that is to say, discussions about the internet, web-pages, or new computer programmes. Few people spent money when visiting web-pages, though the prospect of potential benefits created a short-lived internet bubble. The speed of the internet was vastly slower than that of today. This meant, especially at the beginning, that what one mostly did online was read and write. Chat-rooms, the most famous example of which was 'IRC', had an important presence in the early internet. In them, one had the possibility of meeting complete strangers. Often these chats might have subdivisions in them based on age, sex and/or localisation,¹⁶⁴ though often enough the divisions might also be built along lines of shared interest, as it usually was in forums.

The main differences between internet forums and chats are of speed and reach. Even though, technically, one might have had a discussion on a forum which went as fast as one on a chat, that did not usually happen. Messages in a forum generally had more checks to their publication, at the very least a send button. In a chat it was usual practice for messages to be sent simply by pressing the enter key. By custom, messages on forums would be longer- generally at least a paragraph- and would stay on the forum board permanently. Therefore more time was spent writing them, and checking them for errors. Answers to posts might not be immediate, but be delayed in time hours, or even days. The messages sent on a chat were shorter, generally the length of a sentence, and would disappear from view as soon as the conversation with the other internet-user was over. The rhythm of these conversations was generally fast, even compared to face to face communication. Chats were very useful to transmit relatively large amounts of not very important information fast- getting to know someone, finding out someone's opinion on something, reaching a joint decision- forums were slower but the information on them was, generally, more important, and could be retrieved at any time. A thread, or conversation, might be retaken at any time, though generally answers might come through hours or days after the original post. Any person on the forum could answer a post, and on most forums, any person

¹⁶⁴ Though only in theory, the anonymity of the internet meant that it was impossible to truly enforce these divisions, or in any way try to verify the truth of much of what was claimed by a user, except by organising a face to face meeting. Even today, when photographs can be shared with no waiting time and real-time video has been common for many years, the idea of meeting someone only known from the internet, and being dismayed on discovering lies about essential aspects of their personality or appearance has become a cliché.

connected to the internet could join. Generally a post would be about finding a solution to a problem, though other common aims for posts were to share a piece of information, or to convince others of ones opinion.

The rise of internet giants such as *Google*, *Yahoo*, *Facebook*, *Amazon*, or *YouTube*, was dependent on several factors, the first of which was a greater massification of the internet. An ever greater number of users, spending an ever greater amount of time on the internet increased the potential revenue of companies working in the medium. The proportion of users with the necessary knowledge to create content from scratch was greatly reduced, while the total number stayed the same, or even grew. The need for content, for ways to find content, and to upload and download content rose. The greater amount of money from advertisers allowed for greater amounts of money to be made by having a presence on the internet, while at the same time the possibility of paying by internet with credit cards, or other mediums, multiplied the possible revenue of selling products or services on the internet.

This process meant that it was in these companies interest to direct the maximum amount of traffic towards their sites. They had enough money to do so, and to keep the traffic in their sites by making everything as easy as possible, therefore leading newcomers away from the old forums and chats, which were neither as user friendly nor as rich in content.¹⁶⁵ Greater amounts of content are user-generated, but these contents are under the control of private companies, and not necessarily the content generators, or the internet public.

The great exception to this model is *Wikipedia*.

By 1993 the internet was open to the public, but not yet massified in the way it now is. The search for information was still a complicated task. Internet pioneer Rick Gates proposed the creation of a digital encyclopaedia on the internet in an email to the 'PACS-L public forum', in which information would be found in an ordered fashion, as opposed to the chaotic, disorganised way in which it existed on the internet then. A first project, called *Interpedia* was soon abandoned, though it paved the way for other internet encyclopaedias.

¹⁶⁵ In spite of how much has been written about web 2.0, it is in many ways it's a false terminology. User content isn't necessarily increased proportionally to the number of contributors, rather the means of sharing content are facilitated by big companies, whereas the code, is increasingly provided by professionals, and not anonymous amateurs.

Tim Berners-Lee, interview by DeveloperWorks.
<http://www.ibm.com/developerworks/podcast/dwi/cm-int082206txt.html> (Last visited 26/01/15).

Those encyclopaedic projects were quite traditional in many ways, except for the fact that they were digitised, and uploaded on the internet. The way work was organised, and the contents written was traditional. Experts were called in to write on different subjects.

One such encyclopaedic project was *Nupedia*. This was to be a free of charge encyclopaedia and was meant to include copyright-free content English language peer-reviewed content. It first appeared on the web in March 2000, but consisted of only two articles. It started out with its own license, but adopted the *GNU Free Documentation License*¹⁶⁶ in 2001 due to Richard Stallman and the 'Free Software Foundation'¹⁶⁷ requesting the change. Richard Stallman had previously proposed the creation of a free encyclopaedia on the internet in 1999, and in 2001 was supporting *Nupedia* and *Gnupedia*¹⁶⁸ simultaneously.

Stallman had first become aware of the changing ethics of programmers as a group, when in 1979 Brian Reid- a doctoral student at Carnegie Mellon University- refused to share a text-formatting programme he had designed. Instead of sharing the program and allowing other programmers to use it and make it better- which was the way most programmers worked in Stallman's experience- Reid decided to sell the programme to 'Unilogic', explicitly stating he desired the program not to become public-domain. Indeed he took special pains to insure this, as copies of the programme would stop working after 90 days unless a code was supplied by Unilogic.¹⁶⁹ The piece of code making this possible was easily removable once it was discovered, but was a waste of time for those removing it, or indeed for those having to renew the code supplied by Unilogic every 90 days. It has been described as an intentional bug. At a similar time Stallman and fellow programmers at MIT's 'Artificial Intelligence Unit' had come across problems with a donated state-of-the-art Xerox printer, for which source code had not been given. When Stallman visited Carnegie Mellon, he searched another programmer who was rumoured to have the code. However when the researcher was tracked down, he revealed to Stallman that he could not give him the code. A 'non-disclosure agreement' (NDA) had been signed when Xerox had given him the code. At that time this was something new. Programmers had generally thought of code as a resource to be shared, not as property to be protected. Though Stallman does not see

¹⁶⁶ Licenses will be discussed in 2.2.1.1.

¹⁶⁷ More on this organisation in 2.2.1.1.

¹⁶⁸ An unsuccessful free internet encyclopaedia. More on internet encyclopaedias in 3.1.

¹⁶⁹ Williams, Sam, *Free as in Freedom (2.0): Richard Stallman and the Free Software Revolution Second edition revisions by Richard M. Stallman*, (Boston: Free Software Foundation 2002, 2010) hereafter Williams, *Free as in Freedom*.

this as the only thing to stimulate his activism he has stated that “It was my first encounter with a nondisclosure agreement, and it immediately taught me that nondisclosure agreements have victims, in this case I was the victim. [My lab and I] were victims.”¹⁷⁰

This was the first step in a process which led him to become one of the most recognizable advocates of Free Software, the creator of the GNU software license, and original president of the Free Software Foundation. He is also a firm defender of maintaining the difference between ‘open source’, and ‘free software’. He does not support the first notion, as it is not centred in maintaining the freedom and rights of users, but only the technical advantages of sharing code. For Stallman one of the main concerns of Free Software and derived ventures should be the freedom of users to take the product, and share or change it as they see fit. The focus should be in better ethics, not better software, even though both things may be true simultaneously. The only exception to this contemplated by Stallman are cultural products such as individual accounts of facts, which cannot be changed without mangling their content.¹⁷¹

The ‘Free Software spirit’, for which Stallman has become a reference, is directly related to the spirit of the first generation of internet forum users which spawned *Wikipedia*- a spirit which has become better known as hacker ethics-. In the early two-thousands *Wikipedia* was only one of the many web-pages in which this spirit was present, but its enormous expansion in recent years has led it to be one of the main vehicles for this work philosophy, and a fully-working proof of concept. Those pioneers who first explored and created the internet believed in sharing knowledge for no profit, in helping others expecting nothing in return, except only the greater good-either of the internet community they were a part of, or even society as a whole- and the benefit of individual users, themselves included. *Wikipedia* only functions because this spirit lives on.

¹⁷⁰ Williams, *Free as in Freedom*, p.9.

¹⁷¹ Williams, *Free as in Freedom*, p 115.

2.1.2- *Wikipedia* History.

The following description of the rise of *Wikipedia*, should help us understand why, though the Free Software spirit was so pervasive in the early internet, *Wikipedia* was the only non-commercial web-page to have levels of success similar to those of the most successful commercial web-pages.

Wikipedia appears as an application added to *Nupedia* on the 15th of January 2001. It was planned as a platform from which internet-users could collaborate with experts, and start articles for them, before final revision and peer-review. Users could- if they wished- gather information about any subject so as to lessen the workload of the experts creating the encyclopaedia. Unexpectedly, *Wikipedia* outgrew *Nupedia* in a drastic way.¹⁷² There were two main factors involved in the eventual substitution of *Nupedia* for *Wikipedia*. One of the main factors was the discrepancy between the content-creators of *Nupedia* and *Wikipedia*. The editors of *Nupedia*, with Larry Sanger at the fore, had little to no trust in an encyclopaedia which was not written by experts. Indeed, *Nupedia* was not only written by experts, but it was also peer-reviewed. This process was slow, and therefore not very efficient, but it was considered necessary to make an encyclopaedia which was to be trustworthy. The fact that *Wikipedia* grew fast was not necessarily surprising- though the speed was greater than that foreseen- but the fact that the articles were legible and generally reliable was. Another surprise was that errors were corrected by the readers. In spite of this, the reasonable fear still existed that the lack of control could turn the whole enterprise into shambles at any time, or that the volunteers might at any time become bored with *Wikipedia*, and stop cooperating with the project. It seems that the spirit that the expert volunteers of *Nupedia* shared with the volunteers of unknown expertise of *Wikipedia* was not recognised by the organisers of the first project. In spite of Larry Sanger being at the helm of both *Nupedia* and *Wikipedia* at the beginning, Sanger to this day believes *Wikipedia* ought to have remained subordinate to *Nupedia* or another similar project.

Another factor leading to the rise of *Wikipedia* over *Nupedia* was the cheaper production model of *Wikipedia*. *Nupedia* was written by experts, and each article was peer-reviewed before being made available to the public. It had a seven step approval process consisting of:

¹⁷² When *Wikipedia* launched in 2001 *Nupedia* had less than twenty-four articles. One month later *Wikipedia* had two hundred articles. One year later, the number had risen to eighteen thousand. Sanger, *Early History*.

1. Assignment.

A writer asks the editor to be assigned a topic, or a editor asks someone to write it. The writer must be an expert in the field, generally someone with a PhD in a relevant topic, or at the very least an excellent writer.

2. Finding a lead reviewer.

A lead reviewer is assigned to keep track of the writers progress.

3. Lead review.

A blind review is organised between the writer and the lead reviewer, leading to a first draft, which is posted in a review group, or groups.

4. Open review.

The first draft is reviewed by at least one review group, and other volunteers' suggestions are made, leading to revisions. When a draft is approved by the peer groups and the subject editor the article is submitted to a copy-editing group.

5. Lead copy-editing.

The article is checked for good grammar, usage, etc... by the lead reviewer.

6. Open copy-editing.

The article is checked for good grammar, usage, etc... and is imputed into an article submission form on the website by a copy-edit group and other volunteers.

7. Final approval and mark-up.

The article is converted into XML format and the article is uploaded into *Nupedia's* database, ready for public access.¹⁷³

The limited number of writers and the limited amount of time they would dedicate to the project as volunteers, both as writers and as proof readers, as well as the excessively lengthy peer-review system explain the slow growth rate of this encyclopaedia. On the other hand, *Wikipedia*- designed to offer the experts articles to refine- was growing extremely fast. In part this can be explained by the 'wiki' technology that gives it its name.

¹⁷³ <http://web.archive.org/web/20010331211742/www.nupedia.com/policy.shtml> (Last visited 26/01/15).

A wiki is a web page that allows users to create and modify that web page through a web browser using a simplified programming language called 'WISIWYG'. It was developed by Ward Cunningham in 1994. This manner of programming means that using a limited number of codes, a web page of certain complexity can be written, and can therefore be used fast and easily by people with no prior experience in computer or web-page programming. This technology allows any internet user to modify the way a web site looks in a considerable number of fashions, including creating and eliminating pages. The only limits are those placed by the original creators of the wiki.

Ben Kovitz, being aware of Ward Cunningham's wiki projects was able to suggest it to Jimmy Wales as a way of increasing *Nupedia's* growth. Jimmy Wales, who was financing *Nupedia* along with Tim Shell and Michael E. Davis via their internet advertising company 'Bomis', suggested the use of the wiki to the experts working on *Nupedia*.

Larry Sanger was the head editor, and the editors did not agree with the use of the wiki technology on *Nupedia*, which was being run by experts. On the other hand they did not mind the technology being experimented on in a different domain, and the resulting encyclopaedia- if there were any results- being a mere annex to *Nupedia*. By applying this technology to the creation of an encyclopaedia, what was being done was letting anybody with an internet connection who knew about- or happened to stumble across- the project share his knowledge on one or more subjects, add information about a subject, or even introduce a brand new subject and write about it. The list of volunteers was only limited to those willing to work for free, who had an internet connection and who knew about the site. This number of people was surprisingly large, and they had a surprisingly large amount of time on their hands. A small number of officially recognised volunteer experts centrally coordinated by Larry Sanger could not write and peer review as fast as an ever growing and changing group of people, experts and laymen alike, simultaneously writing, correcting and reviewing in a disorganised, yet active way.

The impossibility of many *Nupedia* editors to fully accept the benefits of the wiki, and the great success of the latter, therefore lead to the two projects being in ever diverging routes, until the dot com crisis forced Bomis to reduce finance of the projects in 2002. When this happened it was the project that could go on almost unfunded, and that had given greater results that survived. *Wikipedia* became fully independent of *Nupedia*, as the latter was dissolved.

We have mentioned that *Wikipedia* grew fast several times already. Some numbers are needed to give a more accurate idea of the rate of growth. About a month after it

had officially started, by mid-February 2001, *Wikipedia* already had 1000 articles. By September 2001 the number had risen to 10000, and after a year there were 20000 articles. On the other hand, *Nupedia* published twelve articles in 2000 and two more in 2001. Looking at these numbers makes the decision taken by Bomis seem like an obvious one. One can still visit a copy of the *Nupedia* page and find it as it was when the project was abandoned. There are very few complete articles, and a larger but still minute number of unfinished articles.¹⁷⁴ In spite of this, even the unfinished articles are fairly well written, and if we were to nitpick, one could say that, to this day *Nupedia* has a larger number of finished articles than *Wikipedia* (at least in its English language version), because *Wikipedia* articles are not static, and therefore remain ever unfinished. But this criticism is not fair; The articles in any encyclopaedia are –in an important sense– never finished or complete, the constant renewal of editions, of articles and of facts in any of the encyclopaedias which have flourished since the Enlightenment are a testimony to that. The fact that an article can remain stable during a larger amount of time is not therefore, necessarily a bonus. It is even reasonable to say that it is a bonus to be able to rapidly change an article at any time. This line of thought will be continued later.¹⁷⁵

Wikipedia's popularity has been linked to *Google*'s method of ordering results. At first, to know about *Wikipedia* it would have been necessary to visit more or less specialised sites and discussion boards. Later, growing contents and relatively large and increasing numbers of visits would have made its pages amongst the top results in many *Google* searches. The increase in traffic this caused would recursively assure more visits, more potential editors and– therefore– more contents and better results with *Google*. This has culminated in *Google* using information from *Wikipedia* to create automatic informative boxes for many common queries, and in *Wikipedia*'s current success.¹⁷⁶

This growth in *Wikipedia* soon developed linguistically, with French, German, Catalan, and Swedish versions appearing between March and May 2001, and other languages soon after that. It was also in these early days when some of the defining policies of *Wikipedia* were introduced, such as the 'Neutral Viewpoint Policy', introduced by Jimmy Wales, to be equivalent to *Nupedia*'s 'Lack of Bias' policy.

¹⁷⁴ <http://web.archive.org/web/20010331021622/http://www.nupedia.com/> (Last visited 26/01/15).

¹⁷⁵ See section 3.3., p. 131.

¹⁷⁶ Sanger, *Citizendium*.

When Bomis stopped financing internet encyclopaedias, *Wikipedia* had to find a way to earn the income necessary for the maintenance of its infrastructure. There were two possible ways of doing this, by accepting advertising in *Wikipedia*, or by accepting donations. After much debate— as well as the separation of the Spanish-language *Wikipedia* from the rest of the organisation when it was thought advertising would be introduced¹⁷⁷ the latter option was agreed upon. Though many did not believe *Wikipedia* could survive only from donations, the fact that it has spawned a greater organisation, ‘*Wikimedia*’, and still survives on donations, proves that enough people believe the project to be useful to justify financing it. Initially, donations were considered to be the riskier option by many, whereas advertising seemed like an easy way of paying for servers and other infrastructure.

The reason advertising seemed unacceptable to many *Wikipedia* users is that they were worried that those paying for advertisement would be able to threaten *Wikipedia* with withdrawing funding if articles were not favourable to their company or company policies. At the very least, advertising would be a policy that made people worry about this possibility. Catering to advertisers desires would obviously be contradictory with the ‘Neutral Viewpoint Policy’. It was therefore declared *Wikipedia* would not accept any form of advertising, and became a charitable organisation.

Wikipedia which had till then been hosted on *wikipedia.com*, changed to *wikipedia.org*. Simultaneously, sister sites began emerging so as to organise information which did not seem to fit in an encyclopaedia. The first of these was *Wiktionary*, a free online dictionary. Also, the first style and editorial policy manual appears at this time, so as to ensure stylistic unity within the encyclopaedia.

In 2003 the ‘Wikimedia Foundation’ is created to supervise and finance *Wikipedia* and all sister-projects. By this time the English-language *Wikipedia* has 100000 articles, and the second largest *Wikipedia* language version at that time –the German-language version– has 10000. The feverish growth continues during 2004, when a total of a million articles in different languages exist.

This growth both in number of articles and in number of languages is not universally appreciated. Some countries, such as China, start intermittently blocking the page. The first of these blocks lasts two weeks.¹⁷⁸

¹⁷⁷ The still extant *Enciclopedia Libre Universal en Español* is a result of that split, though the Spanish *Wikipedia* was reinstated shortly after the separation.

¹⁷⁸ See section 2.2.1.1., pp. 65–66.

Additionally *Wikipedia's* growth makes it the target of greater criticism, the main one being a lack of organisation; More important articles were sometimes incomplete whereas there was excessive information about irrelevant subjects. This, and other criticisms were dealt with in different ways. 'Projects' were organised to increase labour in the more important articles, and an effort was made to rid all articles of any bias the original writers might have inserted in them.

In 2005, one of the greatest scandals in *Wikipedia's* short history takes place. The 'Seigenthaler' incident involves the discovery of a biographical article with false information months after the information had been uploaded. John Seigenthaler Sr. a well-known American author and journalist discovered blatantly false and hurtful information about himself. Scandalised by this Seigenthaler litigated and *Wikipedia's* gaffe soon made the headlines in the USA. This bad publicity soon made *Wikipedia* tighten security on biographical articles and catalysed an important effort to limit the effect of 'vandalism' on the project.¹⁷⁹

Attacks on *Wikipedia's* reliability and accuracy are called vandalism, and have always been a possibility due to the open nature of the project. Vandalism on *Wikipedia* is the act of wilfully degrading the contents of *Wikipedia*. This can be done in many ways with different degrees of consequence. For example, if a user changes all the contents of an important and widely visited page for a collection of rude words, it is unlikely that the changes will survive more than a few seconds. The changes will be reverted¹⁸⁰ in very few seconds. A potential reader will have a very small window in which to be misinformed and would in any case, very probably be able to realise the contents are not reliable. This kind of vandalism, though problematic, is easily corrected thanks to the constant supervision of editors. There is another kind of vandalism which is harder to detect, and therefore more problematic. The Seigenthaler incident is of this sort. It consists in changes for the worse, normally small but occasionally quite drastic, to articles in ways that do not seem incorrect. Information is added which, unless thoroughly verified, does not appear to be incorrect.

¹⁷⁹ Noam Cohen, "Wikipedia to limit changes to articles on people", *The New York Times*, (August 24, 2009).

¹⁸⁰ An action an editor might take by which he changes a Wikipedia page to a previous state.

In 2006 there were a controversial series of episodes regarding 'Essjay', a *Wikipedia* contributor, and a salaried 'Wikia'¹⁸¹ worker. In that year Essjay was found to have been lying about his identity and qualifications, not only to other *Wikipedia* editors, but to journalists, while being interviewed about *Wikipedia* for 'The New Yorker'.¹⁸² The first suspicions had already been raised before the interview by the *Wikipedia* user Daniel Brandt in a thread named 'Who is Essjay?' The answer to that question turned out to be 'Ryan Jordan'. He had claimed to be a tenured professor of religion at a private university, and also an expert in canon law. He had used his supposed expertise and prestige to gain points in discussions in *Wikipedia* 'Talk Boards' and achieved great status within the site. Ryan turned out to be a 24 year old college student in Kentucky. The perception of *Wikipedia* as a creditable institution suffered a dramatic blow. In spite of initial support from some *Wikipedia* editors, including Jimmy Wales, who considered that anonymity within *Wikipedia* was a right, Ryan ended up losing his *Wikia* job and his position within *Wikipedia*. It was hard to defend Essjay was trying to stay anonymous when the site history clearly showed he had used his fake off-line persona to settle content disputes. Since then *Wikipedia* has been much stricter about ensuring that reasonable argumentation and good sourcing are used to settle disputes. Today claims of authority on any subject are likely to be ignored unless sources are provided. Quite possibly the effect of the controversy made the inner workings of *Wikipedia* better, as it offered an example of what can happen when one trusts an authority one cannot check on. In spite of this it was a PR disaster, especially in regards to academia, which were already wary of the free encyclopaedia.¹⁸³ Fortunately for *Wikipedia* it had no noticeable overall effects in the growth of the online encyclopaedia.

During 2011 and 2012 *Wikipedia* continued to expand at a similar rate as it had during the earlier 10 years. It started to take a political stance against internet censorship in western countries, symbolically shutting down in several countries, on different dates. 'Wikipedia zero' was launched for easy access through mobile phone networks in third world countries, in an effort to counter one of the criticisms it had encountered, a bias in favour of subjects culturally and geographically close to first world countries.¹⁸⁴ Greater interactivity between the different language editions was planned for 2013, as 'Wikidata' made it easier to compare the different language versions. In 2014 *Wikipedia* growth and readership has started to decline, most probably because many

¹⁸¹ Wikia is a private for-profit company founded by Jimmy Wales and Angela Beesley. Though it hosts web pages with a superficial similarity to *Wikipedia* technologically, it is not part of the Wikimedia non-profit organisation.

¹⁸² Schiff, Stacy. "Know it all: Can *Wikipedia* conquer expertise?", *The New Yorker*, July 31, 2006.

¹⁸³ See sections 2.2.1.3., p. 78 and 3.3., p. 132.

¹⁸⁴ See section 2.2.2.2., pp. 103-104.

questions can now be answered directly from *Google* thanks to *Google*'s 'Knowledge Graphs'.¹⁸⁵

2.1.3- *Wikipedia* structure: rules and organization.

As well as its history, it is necessary to introduce the reader to the rules and structures that make *Wikipedia* what it is. Otherwise it will be impossible to understand what the encyclopaedia is, what it is meant to be and what it represents.

The rules that govern *Wikipedia* are numerous, and those that exist are constantly being challenged by new rules being proposed. In spite of this apparent quasi-anarchy there are a series of ground rules or principles, that have been called 'Pillars of *Wikipedia*' and which are usually sufficient for the purposes of most users.

The 'five pillars' are:

-*Wikipedia* is an encyclopaedia.

This rule defines *Wikipedia*'s main objective, and directs any effort within it. By defining the web-page as an encyclopaedia it is circumscribing the project within cultural boundaries in which actions and attitudes can be understood. Those actions that help *Wikipedia* function as an encyclopaedia, will be acceptable whereas those that make *Wikipedia* unlike an encyclopaedia will be unacceptable. The rule is followed- in many of the versions of it that exist- by a list of things that *Wikipedia* is similar to- classic encyclopaedias, almanacs, gazetteers- and a larger list of things it is not similar to: "a soapbox, an advertising platform, a vanity press, an experiment in anarchy or democracy, an indiscriminate collection of information, or a web directory. It is not a dictionary, a newspaper, or a collection of source documents."¹⁸⁶

-*Wikipedia* is written from a neutral point of view.

This rule informs the reader of what kind of encyclopaedia *Wikipedia* is meant to be. Its editors do not desire to construct articles in such a way that the opinions of

¹⁸⁵ Varma, Subodh "Google eating into Wikipedia page views?". *The Economic Times* (*Times Internet Limited*) (2014-01-20).

¹⁸⁶ http://en.wikipedia.org/wiki/Wikipedia:Five_pillars (Last visited 26/01/15).

the reader would necessarily be swayed in a particular direction. It is not describing the ‘truth’, or ‘the best point of view’, but a point of view that can be generally agreed upon. This particular rule was first proposed by *Wikipedia* founder Jimmy Wales. The general idea it transmits is easy to understand, and it is a practical, pragmatic statement. In spite of this, only a ‘common sense’ or overly pragmatic philosophy can adequately consider a concept such as a ‘Neutral Point of View’ as usable. A more detailed philosophic examination will reveal it to be problematic.¹⁸⁷

-*Wikipedia* is free content than anybody can edit, use modify and distribute.

This rule is of great importance as it describes one of the things that makes *Wikipedia* unique among encyclopaedias, and is a direct consequence of its origin and continuity within the Free Software community. The main effect it has is to stop any part of *Wikipedia* being protected by copyright or being owned by any individual author, and therefore making its commercialisation, if not impossible, very difficult. The contents of *Wikipedia* are in no way private property, but are public in the most extensive way possible. It is a gift from the contributors to all users, which theoretically includes the entire human race.¹⁸⁸

-Editors should interact with each other in a respectful and civil manner.

This rule simply states that etiquette and courtesy are an essential part of *Wikipedia*, as they must be in any collaborative effort. Under it we find more specific rules about the etiquette that is actually used. These rules could easily change, as long as the contributors agree on them and feel comfortable using them, notwithstanding, common sense tells us that a series of norms must necessarily exist. Therefore, these rules may change, but never disappear completely. It is this notion that is covered by the rule, more than the specific customs that have taken root amongst *Wikipedia* users.

-*Wikipedia* does not have firm rules.

This last rule seems to supersede all the other ones, though that may be a false impression. Basically what the rule tells us is that no rule is more important than the functioning of *Wikipedia*. If any rule does not result in a better encyclopaedia, it must

¹⁸⁷ See sections 2.2.2.2., pp. 103-104, and 2.2.3.1., p. 114.

¹⁸⁸ See section 2.2.1.1., pp. 57-58.

be superseded, or ignored. The similarity of this rule with part of Feyerabend's Philosophy of Science will be examined later in this work.¹⁸⁹

Apart from these five pillars, there are a multitude of rules in *Wikipedia* which are constantly being debated by *Wikipedia* editors. Amongst the aspects that have changed the most in the past, but which seem the least likely to change in the future, is the social organization of privileges within *Wikipedia*. According to the time and effort spent in *Wikipedia*- as perceived by fellow editors- different users acquire different responsibilities and duties, and therefore the privileges that allow those responsibilities and duties to be taken care of. To explain these rules, we shall examine the panoply of actions available to different kinds of *Wikipedia* editors.

When someone logs on to *Wikipedia* without having registered as a user he can click a box named 'edit' at the top of any article. This takes him to the edit page in which- with the minimal knowledge of programming necessary for writing Wiki style pages- he can alter almost any aspect of almost any page. By doing this he becomes an 'anonymous user', identified only by his IP address. By registering- a fairly easy and straightforward process- one becomes a 'registered user'. Four days later, one gains a series of powers, the abilities to:

- Create new articles.
- Alter the aesthetic aspect of *Wikipedia* while logged to one's account.
- Send messages to other registered users.
- Create an automatically renewed list of changes to the pages one chooses, collaborates in or creates.
- Use more advanced editing tools than anonymous users.
- Keep his IP secret.
- Participate directly in all discussions and elections.

Making ten contributions allows the user- now a 'self-confirmed user'- to:

- Work on semi-protected pages.¹⁹⁰
- Rename articles.
- Upload images.

¹⁸⁹ See section 2.2.3.2., pp. 115-116.

¹⁹⁰ "Semi-protection prevents a page from being edited by anonymous and newly registered users." https://en.wikipedia.org/wiki/Category:Wikipedia_semi-protected_pages (Last visited 26/01/15). "Full protection prevents a page from being edited except by administrators." https://en.wikipedia.org/wiki/Category:Wikipedia_protected_pages (Last visited 26/01/15).

-Eliminate whole articles.

To gain more privileges and responsibilities, one must be elected to be ‘admin’ –an abbreviation of administrator- or ‘sysop’– an abbreviation of system operator- by a certain number of editors, which must argue for and against the decision, whilst being supervised by a ‘bureaucrat’. Normally only notable contributors are elected to this post.

The next step up is the aforementioned rank of bureaucrat. The post is also elected, but the demands on the contributor are higher. Next in line are the ‘stewards’, who unlike admins and bureaucrats have privileges in all *Wikimedia* projects and not only in those in which they have been elected. The elections to receive the post cannot be called at any time but occur at least annually, and the demands are high. Apart from this structure there are people who work for *Wikimedia*, and who therefore have great privileges- those demanded by their work-description. We must also mention the- mostly- democratically elected ‘*Wikimedia* council’, in which Jimmy Wales holds the post of ‘Founder’. This council is also composed of three people chosen by the users, two chosen by local councils, and four by ‘experts’ in different areas.

The way this structure translates to reality is the following. Any number of registered or unregistered users might use *Wikipedia*, or any of its sister pages, and read the information within it, or alter it in almost any way. Though any page can be read, along with almost any previous version of a page, there are some pages that cannot be altered by anyone. These pages, normally containing biographical information, or contents which might be sensible to distortion, can be either semi-protected or fully protected.

This section has offered a description of *Wikipedia* both historically and in form. *Wikipedia* is a product defined by its origin and format- the internet, early hacker ethics, open programming and free software-, and its history –the separation from *Nuopedia*, the rules created collectively by the editors, the decision to not accept advertising, the massive use by users and boost given by *Google* searches-. After describing *Wikipedia* as it shows itself, it is time to examine it from a variety of philosophical perspectives. This will allow us to examine specific aspects of *Wikipedia* which feed into the way it processes and distributes knowledge, and the way knowledge is perceived and manipulated within *Wikipedia*.

2.2-Philosophy.

Wikipedia- as an organisation- works following the lines set by those who have used it. Earlier users had an enormous influence setting up a physical and social backdrop. The technology used by *Wikipedia* and the primary directives, as well as the motivating concept behind the project have an overarching importance in the structuring of the whole. Nevertheless policies decided upon by current users are very important as well, and are essential to the direction the project takes. Observing the way these decisions have played out allow us discover and describe the philosophical cornerstones upon which *Wikipedia* has been built.

This section will be further divided into three sub-sections. A first section will attempt to describe those conceptions of knowledge which differentiate *Wikipedia* from other encyclopaedias, and the way the characteristic aspects of the project are determined by these ways of understanding knowledge.

A second section will examine *Wikipedia* from sociological points of view. In it, the information gleaned will provide a contrast between *Wikipedia's* epistemological ideals and the real ways in which it distributes knowledge.

The third section will examine *Wikipedia* from well-known philosophical points of view. These will shed light upon the project.

2.2.1-Conceptions of knowledge in *Wikipedia*.

There are ways in which *Wikipedia* treats encyclopaedic knowledge which are quite different from the ways it has been treated in other encyclopaedias. Nevertheless the causes for these differences are not completely unknown to previous thought. Indeed some of the conceptions of knowledge and specific ideas used are hundreds of years old. On the other hand, some of the problems caused by these ways of understanding knowledge in an encyclopaedic context- and the solutions given to them- are particular to *Wikipedia*.

This section will be divided into three parts. The first sub-section will examine multiple ideas which can be classified under the overarching theme of 'Free Knowledge'. This idea is at the root of *Wikipedia*, as well as of a growing part of technological culture. We will examine what it means for knowledge in *Wikipedia* to be separate from economic and political restraints, the difficulties this entails, and up to what point these restraints still act upon *Wikipedia*. Apart from this we will delve deeper into the origin of the idea of Free Software, and how it has affected the idea of Free Knowledge.

The second part will deal with the concept of 'Wisdom of the Crowd'. In it, we will examine the validity of the concept and the way this validity is important for *Wikipedia*. The origin of the idea, linked to Enlightenment theories of democracy, but also to the power of statistics and large numbers of people, has evolved to become an important factor in the creation of *Wikipedia*. Nevertheless, there are severe limitations and important drawbacks to the power of the Wisdom of the Crowds which *Wikipedia* has had to- and still has to- deal with.

A third part will examine concepts with specific meaning within *Wikipedia*; 'Vandalism', 'deletionism' and 'inclusionism'. All three concepts pertain to limitations to *Wikipedia*'s model of collecting knowledge and creating a usable database. Vandalism are acts which- in some manner- sabotage *Wikipedia*. Deletionists attempt to erase those parts of *Wikipedia* they consider do not belong in the project. Inclusionists attempt to limit- what they consider- deletionists' destructive excesses.

2.2.1.1- Free knowledge.

Wikipedia is sometimes called 'the Free Encyclopaedia'. This is mainly because it was created with the belief that knowledge, including knowledge transmitted through an encyclopaedia ought to be free.

Jimmy Wales explains this and attempts to justify it in a *Wikipedia* announcement:

*"A **free encyclopedia**, like any other form of free knowledge, can be freely read, without getting permission from anyone. Free knowledge can be freely shared with others. Free knowledge can be adapted to your own needs. And your adapted versions can be freely shared with others.*

Wikipedia produces a massive website filled with an astounding variety of knowledge. If it were to produce this website using proprietary software, it would place potentially insurmountable obstacles in front of those who would like to take our knowledge and do the same thing that we are doing. If you need to get permission from a proprietary software vendor in order to create your own copy of our works, then you are not really free.

For the case of proprietary file formats, the situation is even worse. It could be argued that as long as Wikimedia content can be loaded into some existing free software easily enough, then its internal use of proprietary software is not so bad. Offering information in a proprietary or patent-encumbered format, violates the commitment to freedom and forces others who want to use “free knowledge” to use proprietary software themselves, which limits their freedom.

The Wikimedia community aims to be the vanguard of a knowledge revolution that will transform the world. They are the leading edge innovators and leaders of what is becoming a global movement to free knowledge from proprietary constraints. A hundred years from now, the idea of a proprietary textbook or encyclopedia will sound as quaint and remote as we now think of the use of leeches in medical science.

Through this work, every single person on the planet will have easy low cost access to free knowledge to empower them to do whatever it is that they want to do. Wikipedia (along with its sister projects) has become one of the largest websites in the world using a model of love and cooperation that is still almost completely unknown to the wider world. But it is becoming known, for both its principles and achievements – because it is the principles that make the achievements possible.

That is why the Wikimedia Foundation always uses free software on all computers that it owns, and that it always puts forward its best effort to ensure that free knowledge really is free, in that people are not forced to use proprietary software in order to read, modify, and redistribute it as they see fit.”¹⁹¹

What is generally understood by this is that the sharing and expansion of knowledge should not be limited artificially, neither for political reasons- for example censorship- nor for economic reasons- for example profit. This idea, in its actual form is relatively new and seems to go against a long tradition- both in academia as in the printing business- of exchanging money- often in large amounts- for knowledge. It is also opposed to political control of knowledge, though that aspect is seen as less problematic in the western sphere as there is a long tradition of supporting free speech, which we can trace back to –amongst others- John Locke.

¹⁹¹ http://en.wikipedia.org/wiki/Wikipedia:Free_encyclopedia (Last visited 26/01/15).

In this section we shall examine the philosophical roots of the twin ideas that knowledge must be free from economic interference and the idea that knowledge must be free from political interference.

We can trace the origins of the idea of economic freedom of knowledge back to Socrates' criticism of the sophistic practice of making money from the use, and often misuse of knowledge. Admittedly, Socrates' criticism of sophistry in Plato's oeuvre is not limited to this aspect and the exact nature and extent of the criticism is still harshly debated. Notwithstanding, Plato draws a plain contrast between the rich charlatans- the sophists- and the humble true philosopher- Socrates-.

To some degree, the idea that knowledge should be independent from economic powers exists throughout the medieval period, books and ideas were shared amongst clerics, students and professors without economic exchanges being the main limiting factor- though these economic exchanges certainly existed, as parchment was expensive, books were rare, and copying was time-intensive labour-. Political control of knowledge was strong, and the dominating factor in these exchanges; Only a chosen few could partake directly in the exchange of ideas, and a relatively narrow selection of ideas were allowed to flourish.

The arrival, and most importantly, the expansion of printing in Europe and its colonies parallels the expansion of print capitalism. Almost all late modern and Enlightenment authors believe that paying for knowledge (and more importantly, getting paid for it) is not only reasonable, but necessary. The laws of economic freedom discovered by Adam Smith were believed to be inclusive of knowledge as merchandise, or at the very least no one suggested otherwise openly.

There are two possible exceptions to this principle of paying for knowledge, though one is more pragmatic than philosophical in nature. The pragmatic exception is the generalised use of plagiarism and book-piracy, both in encyclopaedias and in books of other kinds. Though both were officially persecuted in the 18th century, book piracy, in particular, was rife. For example pirate editions of the *Encyclopédie* outsold the original by a large amount.¹⁹² This could almost be considered a form of poetic justice when we take into account the fact that many of the articles in the *Encyclopédie*, which started out as a translation of Chamber's *Cyclopaedia*, were still mere translations of Chamber's long after the point where it was supposed to be original work. The first edition of the *Encyclopaedia Britannica* also uses these articles. This al-

¹⁹² Darnton, *Business of the Enlightenment*.

lows us to suppose that for many authors and thinkers of the time the issue of the economic restraints of knowledge might have been completely pragmatic. They were only too glad to be paid for their work developing or expanding knowledge, and were also willing to recognise the rights of others to be rewarded in a similar way. But once published, they had no shame in using the thoughts and even the exact words and turns of phrase of others to build their own structures upon.

Another exception is constituted by the thought and principles of Thomas Payne. This English author, pamphleteer and revolutionary was willing to pay for the publication of his tracts, even if it meant he and his publishers lost money. His will to see his word spread freely prevailed over any desire to make money. He made little money with either *Common Sense* or *The Rights of Man* as in both instances he was more preoccupied with a wide and massive distribution than with a large profit margin.¹⁹³

Since the 18th century, the opposition to Free Knowledge has grown. Opposition has generally stemmed from the creators of new knowledge and art, and to a great extent from those commercialising these creations. The position that knowledge ought to be paid for was first taken by writers, editors, printers and academics. However, the gradual conflation and growth of the economic interests of these groups along with new technologies in the twentieth century meant that opposition to Free Knowledge expanded to include politicians and the producers and creators of audio-visual media. As a result, copyright laws and similar limitations to the commercial and personal use of knowledge have grown stronger and longer lasting.

Nevertheless, there have also been advocates of Free Knowledge. Creators and even political regimes have supported the free use of knowledge, independent of economic interests. For example, many pharmaceutical products are not truly protected in India, as the country attempts to make drugs cheaper to its growing population, challenging the interests of the pharmaceutical industry in many other countries.¹⁹⁴ Jonas Salk famously refused to patent his Polio vaccine claiming “There is no patent. Could you patent the sun?”¹⁹⁵ Also, ‘Linux operating systems are becoming well established

¹⁹³ http://www.thomas-paine-friends.org/peterson-hans_thomas-paine.html (Last visited 26/01/15).

¹⁹⁴ www.reuters.com/article/2014/02/06/us-india-usa-pharma-idUSBREA150H320140206 (Last visited 26/01/15).

¹⁹⁵ Johnson, George. "Once Again, A Man With A Mission". *The New York Times*. (25/11/90). Video excerpt of CBS Television interview, on *See It Now* (12/04/55) available at <http://media.awesomestories.com/media/user/128f45a2b2.mp4> (Last visited 26/01/15).

in public administration, particularly Spain,¹⁹⁶ though even the White House¹⁹⁷ and the United States Department of Defence¹⁹⁸ make use of open source Operating Systems. Though neither the Indian government, Spanish public administration, nor the US government and military are fervent defenders of Free Knowledge, by using these operating systems, or ignoring patent and copyright systems they are implicitly supporting this new way of creating and distributing knowledge.

Very recently, alternatives to the copyright system have appeared, and are starting to gain acceptance. The Free Software Foundation (FSF) has possibly been the most important vector of these alternatives.

Founded in 1985, “the FSF is a non-profit [organisation] with a worldwide mission to promote computer user freedom and to defend the rights of all free software users.”¹⁹⁹ This organisation, as its name indicates, mostly champions the cause of free software. Nevertheless their efforts to create programs- the code of which everybody can study, modify and share if they so desire- have overflowed into other domains. Today, FSF licenses are applied to all sorts of cultural phenomena: films,²⁰⁰ books,²⁰¹ music,²⁰² and of course, encyclopaedias, such as *Wikipedia*.

FSF believes free software is a better choice than traditionally licensed software for several reasons. As has already explained, it allows us to study, modify and share the software without infringing copyright. FSF believes these are basic rights for software users. Additionally in their web page they claim “free software is hard to use for surveillance.” This claim is supported by the fact that free software is, by its nature, transparent. It is easy to examine its code and therefore any espionage or security risks can be easily detected and fixed.

FSF assists the growth of free software by providing infrastructure to the GNU project. The GNU project is at the foundation of the growing GNU/Linux family of operating systems. According to the FSF these systems run a greater part of the internet

¹⁹⁶ Bodnar, Ladislav “Linux in Spain” *Lwn.net*. (July 30 2003) available at Lwn.net/Articles/41738 (Last visited 26/01/15).

¹⁹⁷ Steven J. Vaughan-Nichols “Obama Invites Open Source into the White House” *PC World* (29/10/09).

¹⁹⁸ Linux.com “Open technology within DoD, Intel Systems” *Linux.com* available at <http://archive09.linux.com/feed/61302> (Last visited 26/01/15).

¹⁹⁹ Organisation site at www.fsf.org (Last visited 26/01/15).

²⁰⁰ For example, at Straycinema.com/footage-2011/ (Last visited 26/01/15).

²⁰¹ For example, at Opensource.com/resources/ebooks (Last visited 26/01/15).

²⁰² For example at Opensourcemusic.com (Last visited 26/01/15).

than any other single operating system. FSF also promotes the use of free software at the annual 'Libre Planet' conference, fighting commercial software interests, which they believe threaten computer user rights. Finally, they defend freely licensed software. They stop it from becoming proprietary, advise developers on licensing issues, and certify hardware which works with only free software.

These licenses are often applicable to any other cultural product (as has already been mentioned) with few, if any, changes. Nevertheless many licenses have been developed specifically for cultural creations other than software. Some frequently used licenses are:²⁰³

- Against DRM.

This is a free copyleft²⁰⁴ license for artworks. It contains two important clauses. The first gives the licensee rights over related or derivative work. The second disallows Digital Restriction Management (DRM) to impose restrictions on the licensed product.

- BSD-like non-copyleft licenses.

These are simple licenses granting the user very broad rights. Their concise wording makes them simple to understand and unambiguous. They are denominated 'BSD-like' because the first of its kind was the one used by 'Berkeley Software Distribution'.

- CC0 Public Domain Dedication.

Also known as CC-0, and Creative Commons 0, it is the most permissive 'Creative Commons'²⁰⁵ license, effectively releasing a work into the public domain.²⁰⁶

- CERN OHL.

According to Myriam Ayass, creator of the license, "the CERN Open Hardware License (CERN OHL) [...] is to hardware what the General Public License (GPL) is to software."²⁰⁷ This license was originally written for CERN designs hosted in the 'Open Hardware Repository'.

²⁰³ As may be found listed at http://freedomdefined.org/Licenses#List_of_licenses (Last visited 26/01/15).

²⁰⁴ "Copyleft is a general method for making a program or an artwork free, and requiring all modified and extended versions of the programme or the artwork to be free as well." www.freecreations.org/faq.html (Last visited 26/01/15).

²⁰⁵ "Creative Commons is a nonprofit organisation that enables the sharing and use of creativity and knowledge through free legal tools." creativecommons.org/about (Last visited 26/01/15).

²⁰⁶ http://freedomdefined.org/Licenses#CC0_Public_Domain_Dedication (Last visited 26/01/15).

²⁰⁷ www.ohwr.org/projects/cernohl/wiki (Last visited 26/01/15).

- Creative Commons Attribution.

It is one of the most permissive Creative Commons licenses, though unlike CC-0 it does not release a work into the public domain. This license stops just short of doing that.

- Creative Commons Attribution ShareAlike.

It can be described as a slightly less permissive Creative Commons license.

- Design Science License.

A copyleft style license developed to promote the progress of science and art through reform of the environment. It is no longer maintained.²⁰⁸

- FreeBSD Documentation License.

The FreeBSD is an advanced computer operating system. This is its license. It has been used as a model for other non-copyleft licenses.²⁰⁹

- Free Art License.

Also known as *License Art Libre*, FAL or LAL. It was created as a copyleft license for creative works, regardless of their types and ways of expression.²¹⁰

- GNU Free Documentation License.

According to Richard Stallman, it is “meant as a way to enlist commercial publishers in funding free documentation without surrendering any vital liberty.”²¹¹ This license allows for *invariant sections*, preventing the modification of parts of the licensed product for functional or artistic reasons.

- GNU General Public License.

It is considered by many to be the most used free software license and the first to implement the concept of copyleft. In spite of being created to protect free software it has also been used for other kinds of works.

- Lizenz für Freie Inhalte.

A license used only by neppstar, a German free music and video portal.

²⁰⁸ www.gnu.org/licenses/dsl.html (Last visited 26/01/15).

²⁰⁹ www.freebsd.org (Last visited 26/01/15).

²¹⁰ artlibre.org/lal/en (Last visited 26/01/15).

²¹¹ www.gnu.org/licenses/why-gfdl.html (Last visited 26/01/15).

- MirOS license.

This license was designed to mirror the BSD/MIT licenses in a European context. It differs in that it is not focused as a license for code. It uses the term ‘work’ to include a wide variety of possible products. It is a copycenter license, not a copyleft license. This means one may do as one pleases with the licensed product as long as credit is given where due.

- MIT License.

It is the simplest BSD-like license, only two paragraphs long.²¹²

- Open Publication License.

It is one of the first open-content licenses. It predates GFLD and copyleft. It replaced the older Open Content License in 1999. It is no longer promoted; Creative Commons superseded it as a superior legal instrument.

- Open Source Hardware.

It is also known as OSHW. It is considered as one of the best licenses for hardware design.²¹³

Wikipedia is copyrighted automatically under the ‘Berne Convention’.²¹⁴ It is licensed by ‘Creative Commons Attribution-Sharealike 3.0 Unported License’ (CC-BY-SA) and the ‘GNU Free Documentation License’ (GFDL). Both licenses are used because some texts have been imported by CC-BY-SA, disallowing its use under a GFDL license. These texts are footnoted with the relevant information. Some of the differences and similarities between the two licenses are the following.

Similarities:

- Both are copyleft licenses.
- Both demand attribution.
- Both disallow access control.

²¹²opensource.org/licenses/MIT (Last visited 26/01/15).

²¹³ [Clothbot.com/wiki/Open-Source_Hardware](https://clothbot.com/wiki/Open-Source_Hardware) (Last visited 04/09/14).

²¹⁴ The Berne Convention for the Protection of Literary and Artistic Works is an international agreement governing copyright. It was first accepted in Berne Switzerland in 1886. A great majority of countries recognizes it. It demands signatories to recognise the works of authors from other signatory countries as it would its own nationals.

Differences:

- CC-BY-SA is a generic license not specialised in any one kind of work. GFDL is specialised in documentation.
- GFDL has ‘practical modifiability’, whereas CC-BY-SA does not. This means GFDL specifies the ways in which the licensed product may be altered.
- GFDL specifies related rights, whereas CC-BY-SA does not.
- CC-BY-SA has national variations and adaptations. GFDL uses the same version for every context.

Wikipedia respects, enforces, and supports free knowledge by using these licenses. The default license used, GFDL, is widely used and allows copies of *Wikipedia* to be made as long as attribution is given and the same license is used.

Copyright and economic limitations to sharing knowledge are not the only limit to Free Knowledge. There are also political limits. As was mentioned above, some governments have felt the need to curtail *Wikipedia*. Some of the countries suspected of doing so are the following.

- China.
- France.
- Iran.
- Pakistan.
- Russia.
- Saudi Arabia.
- Syria.
- Thailand.
- Tunisia.
- United Kingdom.
- Uzbekistan.

In the next few paragraphs we will examine some of the more notable examples of political censorship of *Wikipedia* that have been well established and written about.

China blocked the Chinese *Wikipedia* from Beijing internet-users on 2 June 2004, the fifteenth anniversary of the Tiananmen Square Protests of 1989. It was quickly restored on 21 June after a plea by Shi Zao, a Chinese-version *Wikipedia* user. In Shi’s letter to the censoring bodies he explained that though *Wikipedia* discussed sensitive issues, blocking the site would make creating neutral objective articles more difficult,

and that *Wikipedia* created a space where people across China could gather and share knowledge with members of the Chinese diaspora.

Nevertheless, the site was blocked again later that year, though the block lasted only four days- 23-27September 2004- and was erratic and not comprehensive. Though a written appeal was prepared, the ban was lifted before it could be sent. The exact reasons for the ban have never been discovered. In 2005 the site was blocked again on 19 October. In 2006 a message was posted alleging the site was harbouring anti-Chinese activities under the guise of neutrality.²¹⁵ During October and November 2006 the ban was slowly and partially lifted. Officially the government lifted the ban on July 3rd 2008.

In spite of this, to date, different parts of *Wikipedia* are still hard to access in different parts of China. The reasoning behind the blocks seem to have to do with articles not perfectly reflecting the government line in key articles such as ‘Tiananmen Square’ and ‘Taiwan’. China officially sanctions a practice of self-censorship of *Wikipedia*, whereas Chinese wikipedians believe an objective sourced perspective should be enough to appease the government. In 2013 Jimmy Wales claimed *Wikipedia* would not tolerate censorship. Shen Yi, an Internet researcher at Fudan University in Shanghai refuted “*Wikipedia* is tough against the Chinese government, it may not necessarily be so grand when faced with US government or European justice systems.”²¹⁶

Censorship in France is much smaller in scale, but seems to have taken a personalistic and intimidatory route that reflects a poor understanding of how *Wikipedia* in particular or the internet in general, works. The French interior intelligence agency – ‘Direction Centrale du Renseignement Intérieur’ (DCRI)- attempted to remove the article on the ‘Pierre-sur-Haute’ military radio station. It pressured Rème Mathis, a *Wikipedia* administrator level user into doing so.²¹⁷ Allegedly, the administrator was summoned to DCRI offices and forced to delete the article in situ. Later, the article was restored by another user.²¹⁸ Judicial sources claim the article’s deletion was part of anti-terrorist actions due to “compromised nuclear firing orders chain of transmis-

²¹⁵ Dan, Philip “Reference Tool on Web Finds Fans, Censors.” *The Washington Post* (Beijing, 20/02/06).

²¹⁶ Jimmy Wales “Wikipedia would rather give up business in China than tolerate ‘5 seconds of Censorship’” *Global Times* (13/08/13).

²¹⁷ Willsher, Kim “French secret service accused of censorship over Wikipedia page” *The Guardian*. (07/04/13).

²¹⁸ “French homeland intelligence threatens a volunteer sysop to delete a Wikipedia article” (*Press release*). *Wikimedia France*. (06/04/13).

“La DRCI accusée d’avoir illégalement forcé la suppression d’un article de Wikipédia” *Le Monde* (06/04/13).

sion,²¹⁹ that is, the possibility that the article was revealing military secrets concerning nuclear security. ‘Télévision Loire 7’, owners of the report on which the article was based and from which most of the information was extracted, were not contacted by the DCRI, in spite of the documentary in question being available online. It is believed this is because the documentary was filmed and broadcast with the full cooperation of the French armed forces.²²⁰ It is not clear why the content was considered adequate for a documentary but dangerous for an encyclopaedia.

Iran has been accused by University of Pennsylvania researchers of blocking articles of the Persian *Wikipedia*.²²¹ Out of 800000 Persian language *Wikipedia* articles, 963 were found to be blocked by the Iranian government. According to ‘Reporters Without Borders’ access to the Kurdish and English versions of *Wikipedia* has also been limited intermittently at times.²²²

Pakistan blocked the whole *Wikipedia.org* domain during seven hours in 2006 due to one article containing information pertaining to controversial cartoons depicting Mohammad.²²³ In 2010 the English version was blocked for several days, during the controversial ‘Everybody Draw Mohammed Day.’²²⁴

In 2012 the Russian *Wikimedia* chapter confronted the Russian government following internet censorship laws officially aimed at prohibiting content such as child pornography. Russian wikipedians claim past history justifies fears that the laws will over-extend their official functions. In 2013 the Russian government ‘Federal Service of Communications, Information Technology and Mass Media’ blacklisted *Wikipedia* over articles concerning cannabis smoking.²²⁵

²¹⁹ CP; Huet, Anne-Claire “Le retrait de l’article Wikipedia demandé dans le cadre d’une enquête préliminaire” *La Chaîne Info* (08/04/13).

²²⁰ Poncet, Gueric. “Wikipedia et DCRI: la chaîne local “s’attend” à être censurée” *Le Point* (10/04/14).

²²¹ Anderson, Colin; Nazeri, Nima “Citation Filtered: Iran’s Censorship of Wikipedia” *Center for Global Communication Studies (University of Pennsylvania)*. (07/11/13).

²²² “Iran: New York Times website unblocked, Youtube still inaccessible” *Reporters without borders for press freedom* (07/12/06).

²²³ “Websites blocked, PTA tells SC: Blasphemous material” *Dawn*.(14/03/06).

²²⁴ Ali, Basit “Youtube, Wikipedia, Flickr blocked in Pakistan after Facebook” www.basitali.com (20/05/10) <http://www.basitali.com/2010/05/youtube-wikipedia-flickr-blocked-in-pakistan-after-facebook.html> (Last visited 26/01/15).

“Pakistan blocks Access to Youtube in internet crackdown”. *BBC News* (20/05/10).

²²⁵ “Russian media regulator confirms Wikipedia blacklisted” *Russia Beyond The Headlines. Interfax* (05/04/13).

Allegedly, in 2006 Saudi Arabia blocked *Wikipedia*. This block is believed to have been caused by *Wikipedia*'s content being deemed sexual and politically sensitive. According to *Wikipedia* at least 138 articles from the English and Arab versions continue to be censored by the 'Communication and Information Technology Commission' of Saudi Arabia.

In 2008 and continuing into 2009 the Arabic version of *Wikipedia* was blocked in Syria. Nevertheless other language editions remained accessible.²²⁶

The article on King Bhumibol Adulyadej has been blocked by most Thai ISPs since October 2008.²²⁷ This is probably due to lèse majesté concerns.

Wikipedia and 'Wikimedia Foundation' websites were not accessible from Tunisia for several days in 2006.²²⁸ It is not known whether this was a structural or a censorship problem.

In 2008 the Internet Watch Foundation added the *Wikipedia* article 'Virgin Killer', concerning the Scorpions studio album of the same name to its internet blacklist. This was due to the album cover being considered child pornography. The UK government mandated ISP level content filtering system known as 'Cleanfeed' therefore blocked many ISPs from viewing the article. When the problem was noticed, *Wikipedia* users contacted the Internet Watch Foundation, explaining why the article should not be blacklisted. Three days later the Internet Watch Foundation reversed this decision.²²⁹

Uzbekistan blocked the entire *Wikipedia* in 2007 and again in 2008.²³⁰ In 2012 the Uzbek *Wikipedia* was blocked. Uzbek-language pages were redirected to *msn.com*.²³¹ The country is well known for its online censorship.

The cases above suggest that the main causes of government censorship can be divided into:

²²⁶ "Arabic Wikipedia Disappears from the internet in Syria" *Menassat* (19/05/08).

²²⁷This has been confirmed to me by Cod Satrusayang, a Thai colleague.

²²⁸ Sami Ben Gharbia "Tunisia Censoring Wikipedia?" *Global Voices* (27/11/06).

²²⁹ Internet Watch Foundation "IWF statement regarding Wikipedia webpage". *Iwf.org.uk* (09/12/08). <http://archive.today/uyOE> (Last visited 26/01/15).

²³⁰ Ria Novosti "Uzbekistan Blocks Its Wikipedia" *en.ria.ru* (Moscow 17/02/12). <http://archive.today/WoDQn> (Last visited 26/01/15).

²³¹RFE/RL's Uzbek Service "Wikipedia Articles in Uzbek Blocked" *Radio Free Europe/Radio Liberty* (16/02/12).

-Official lines: Governments may not agree with the veracity of the account, or accounts of political or historical episodes described in *Wikipedia*.

-Military secrets: Governments may believe military secrets are being revealed by *Wikipedia*.

-Moral Qualms: Governments may believe topics or images appearing on *Wikipedia* are immoral, or conducive to immoral acts.

Political censorship of *Wikipedia* by governments are a real danger to the continuation of its mission. Thankfully this threat is posed only by a handful of countries, and often in half hearted ways. Though access to the project is made difficult for people in those countries, the encyclopaedia remains accessible to the vast majority of internet-users. The international- even supra-national- nature of the encyclopaedia means that only a concerted effort by a great number of countries could pose a real threat. At the moment, if one country censors the project, users from other countries or users from the offending country redirecting their internet access to make it seem as if they are accessing from other countries, can retaliate. Even *Wikipedia* physical servers are not all located in a single country, though most of them are in the USA. Additionally, unlike the French *Encyclopédie* in the eighteenth century, attempts to censor *Wikipedia* are difficult to justify in public debate due to a changed attitude to such actions, and, as we have seen, are even more difficult to enforce.

In a completely different form of attempted censorship, politicians and celebrities have been known to tamper with their articles, as have brands with articles concerning their products. This constitutes a clear case of conflict of interest, and is frowned upon by *Wikipedia*. Other possible ways of tampering with *Wikipedia*, if subtle, may go undetected. Nevertheless, constant supervision by editors, often with vastly different opinions on any given subject, and the need for sources has generally been sufficient to ensure that *Wikipedia* is not biased in favour of those who would use it with economic or political aims in mind, though it is biased in other ways.²³²

Wikipedia faces important problems. Even though in its mission statement it is clear that it supports Free Knowledge, and it is technically and economically capable of doing so, external influences are able to subvert these goals, at least temporarily. *Wikipedia* being blocked is a problem that can often be overcome by users. There are many computer programmes that allow users to circumvent these blocks. The more insidious problem is that of biased opinions being sneaked into *Wikipedia*, or unbiased articles being deleted for selfish reasons. This will be further discussed in section 2.2.1.3.

²³² See section 2.2.1.3., p. 77.

2.2.1.2- Wisdom of the crowd.

One of the ideas that seems to be behind the success of *Wikipedia*, and part of its driving principle is the idea of ‘Wisdom of the Crowds’, also known as ‘Collective Wisdom’ and related to ‘Collective Intelligence’. The basic concept behind this idea is that a group of people, especially a diverse group, can solve a problem more precisely than any of the individual members in it alone. This is due to the fact that any one member of the crowd will be biased in one way or another, while in a diverse group of people these biases will cancel each other out. Another way of putting it would be to say that in a large group, people can correct one another’s errors.

One of the first scholars to develop this idea, albeit mathematically, and in relation to democratic votes, was the Enlightenment thinker Marie Jean Antoine Nicolas Caritat, Marquis of Condorcet. The mathematical argument can be briefly explained in the following way; If the average voter has a higher than random chance of choosing what favours the outcome they desire, and most voters desire what is better for the common good, then large numbers of voters will, statistically, be certain of choosing what is desirable to further the cause of common good.

Many other advocates of this idea, and at least as many detractors, have given reasons for and against similar concepts. Famously by Francis Galton, who in 1906, was surprised by the fact that the averaged guesses of a crowd concerning the weight of an ox, were closer to the mark than the guesses of individual experts. Much more recently James Surowiecky defended the idea thoroughly.²³³ Francis Galton’s experiment is Surowiecky’s departure point, and his concluding statements are that, in spite of an almost intuitive sense of mistrust most of us have concerning the judgements of large numbers of people, the Wisdom of Crowds is an empirically demonstrable phenomenon.

Though *Wikipedia* is not an electoral system, as in Condorcet’s version of Wisdom of the Crowds, it does give every participant a say. Any change can be undone by another user (with a small number of exceptions, mentioned previously). Therefore, if most editors have a higher than average chance of being right about what they write and most editors act in the best interest of the encyclopaedia, *Wikipedia* will, statistically, be very likely to have correct information.

²³³ Surowiecky, *Wisdom of the Crowds*.

Editors do seem to act in *Wikipedia*'s best interest. This has to do with two factors. The fact that writing on *Wikipedia* is a voluntary act, and the way in which it is rewarded. This will be further discussed in section 2.2.2.2.

However there are some obvious pitfalls. It is possible that not all editors have a higher than average chance of being right, or even that most editors do not. One possible cause for this would be 'systemic bias'. There might be something which is generally believed which happens not to be true. Another possible problem would be editors acting in their own best interest and not that of *Wikipedia*.

There is a strong case for believing systemic bias does indeed exist in *Wikipedia*. The forms it mostly takes are 'Gender Bias', and 'Eurocentric' or 'Global North Bias'. These forms of bias will be thoroughly examined in sections 2.2.2.1. and 2.2.2.2.

The existence of bias is not necessarily something completely negative. Indeed, bias may be essential to argumentation, and reaching correct conclusions. Another even earlier proponent of similar ideas offers us some reasons why this might be. John Locke believed truth is best served when society allows ideas to be discussed freely, and erroneous beliefs to be publicly discredited. Error and biases can be eliminated when they can be publicly confronted with the truth.

In a similar line, modern psychologists have developed a theory according to which our biases are a product of our argumentative abilities.²³⁴ The most interesting aspect of their thesis is that humans evolved to argue and persuade others, sometimes at the expense of the truth. This is the origin of bias. In conjunction to this, we developed a defence against others' arguments. We are skilled at discovering faults in the arguments of others. By arguing for our position and against the ideas of others we are able to do exactly what Locke had in mind. By arguing with those who have a different opinion we can— after much effort— overcome our own biased arguments.

Therefore, these ideas are not merely fancies of Enlightenment thinkers. The idea has been readapted to our times, with more specific concepts used to describe it and using experimental evidence to give credibility to the idea. In the following paragraphs it will be shown that it is hard to rebut the idea that groups of people can surpass the cognitive achievements of individuals,²³⁵ and even be more creative.²³⁶

²³⁴ Hugo Mercier, Dan Sperber "Why do humans reason? Arguments for an argumentative theory" *Behavioral and Brain Sciences* (2011) 34, pp. 57-111 [hereafter Mercier, Sperber, *Why do humans reason?*].

²³⁵ David Moshman, Molly Geil "Collaborative Reasoning: Evidence for Collective Rationality" *Thinking and Reasoning* 4:3 (1998), pp. 231-248.

The very basis for and main function of human reasoning is demonstrably the act of arguing in groups. Communication is a highly desirable activity, by which any living creature can gain information vital for survival. To receive the benefits of communication, generally, one must receive the truth. Nevertheless, when one is passing on information it may be advantageous to withhold the truth. Not only are there liars, but there may also be communicants who falsely believe they are transmitting the truth. Both situations can make communication useless, even dangerous. To avoid being subject to these undesirable situations we must be prepared and able to detect lies when communicating. This has been called ‘epistemic vigilance’.²³⁷

When we receive new information we tend to check its veracity by, for example, examining the source of the information- there are sources we trust, and sources we do not trust-, or by checking coherence. When checking coherence what we do is compare the new information given to us to the old information we already have. If the information is compatible, we do not have a strong reason to reject this information. If the new information is not compatible with the information we already had, we have no option but to reject the new information, or reject our previous beliefs. I will not go into this process in any detail, but the central idea is that due to the epistemic vigilance we naturally exert as members of our species, individuals will often not be believed when speaking, especially when we transmit surprising or new information.

When we are not believed, our information will generally be challenged, that is, we will be asked to justify our positions. The person being informed will want a reason to change his previous beliefs rather than reject the new information. One possible reason may be- simply- one’s authority. Perhaps the information-supplier is an expert on the subject at hand, or the recipient of the information may never have received false information from the source. The other possibility is asking the addressee to evaluate a series of arguments concluding in the veracity of the original claim, that is, trying to convince the other that our information is true. We are therefore forced to produce “arguments for one’s claims and [encourage] the addressee to examine, evaluate, and accept these arguments.”²³⁸ Because of the greater importance in human

Dan Jones “The argumentative ape: Why we’re wired to persuade” *New Scientist* (28/05/12).

²³⁶ Ronald S. Burt “Structural Holes and Good Ideas” *American Journal of Sociology*, Vol. 110, No 2 (September 2004), 349-399 [hereafter Burt, *Structural Holes*].

Zella King “Genius networks: Link to a more creative social circle” *New Scientist* (29/05/12) .

²³⁷ Sperber *et al.* “Epistemic Vigilance” *Mind and Language Volume 25, Issue 4* (September 2010), pp. 359-393.

²³⁸ Mercier, Sperber, *Why do humans reason?* p. 66.

communication of proving and providing evidence for one's claims, than of finding flaws with one's own arguments- after all, the person we communicate with will either agree with us, in which case no argumentation is needed, or disagree with us, in which case they will provide criticism themselves- we are better at confirming and finding reasonable justification for our own ideas than at being self-critical. This has been called the 'confirmation bias'.

Confirmation bias has often been viewed as a problem. When analysing a situation alone, or in a group of like-minded people it is indeed a problem. When "all group members share an opinion [...] arguments will not be critically examined, let alone refuted, [...] the result should be a strengthening of the opinions held by the group."²³⁹ But when a diverse group of people are all trying to understand the same event or problem, confirmation bias is not just dispelled, it contributes to finding correct solutions and interpretations. Every participant is better at finding reasonable justification for his own point of view than for any other. Therefore, it would be a waste of time for him to justify other opinions. It is much more efficient for someone else who does have that opinion to do so and then for someone else to critically evaluate those arguments. This is called 'division of cognitive labour'.²⁴⁰ The importance of critical argumentation within a group is even more important when one takes into account the difficulties of overcoming confirmation bias without external aid. Critical thinking skills on an individual basis do little to dispel the effects of confirmation bias.²⁴¹

These authors do not claim that individuals are unable to overcome their biases, or to reason adequately, but that doing so is an uncommon occurrence. Furthermore it is very hard to detect one's own biases. Therefore, those who work alone under the pretence of objectivity may be surprised to find others are able to find flaws with their arguments, and come up with objections that they would never have thought of alone. Even when an individual does so, "it would be a mistake [...] to treat their highly visible, almost freakish, contributions as paradigmatic examples of human reasoning."²⁴² Indeed these occurrences are often a case of 'epistemic luck'²⁴³ at work. If a thinker has

²³⁹ Mercier, Sperber, *Why do humans reason?* p. 63.

²⁴⁰ Mercier, Sperber, *Why do humans reason?* p. 65.

²⁴¹ Ron Ritchhart, David N. Perkins "Learning to think: The Challenges of Teaching Thinking" in *The Cambridge handbook of thinking and reasoning*, ed. Keith J. Holyoak, Robert G. Morrison. (Cambridge University Press, 2005).

Daniel T. Willingham "Critical Thinking: Why is it so hard to teach? *Arts Education Policy Review* 109 (4), pp. 21-32 (2008).

²⁴² Mercier, Sperber, *Why do humans reason?* p. 73.

²⁴³ Duncan Pritchard, *Epistemic Luck*, (Norfolk, Oxford University Press, 2005).

been lucky enough to start out with correct intuitions, different forms of bias can stop her from wasting time looking for rebuttals, allowing her to concentrate on the task of proving her intuitions correct. Nevertheless these lucky few do not have the key of knowledge in their pocket, “for one Darwin, how many Paleys?”²⁴⁴ It is not the individual who gives his arguments credibility, but his peers and critics who try, and fail, to prove him wrong. This interpretation will surely ring true to ‘Falsationists’, who believe a position which cannot conceivably be attacked is not rationally meaningful.

Therefore, once we establish that reason and knowledge are generally the fruits of argument, we may also declare “argumentation is uniquely effective in overcoming disagreements that are likely to occur, in particular in relatively equalitarian groups.”²⁴⁵

One such relatively equalitarian group is *Wikipedia*. Many of the factors that we have discussed are at play within it. Each article has a ‘Talk’ page attached. Within these pages, often, though not always, there will be ongoing discussions about the content of the article. Arguments will be given for polemic points in each article. Decisions will be made by groups of editors. Not only that, but any information on *Wikipedia* may be evaluated by any number of people with any number of opinions. Someone desiring to change the available information must argue their case, or make changes no-one is likely to attack. The desire for truth is firmly established in the rules within which *Wikipedia* works, and is only limited by the existence of sources to confirm empirical data. Anything outside that must be argued. Points of view must be examined. This idea may help us understand the *Wikipedia* pillar and rule ‘NPOV’. A neutral point of view is that which can be reached after a thorough discussion. It could be argued that this is one of the main favourable points of *Wikipedia*. In a traditional encyclopaedia any article will be examined only by the author, and one or several editors. They will all probably have a similar lifestyle, similar ideas and therefore similar biases. This is not necessarily true of *Wikipedia*. To the degree to which it is true, to the degree to which divergent opinions are left out of *Wikipedia*, the content of it will be open to different kinds of bias. We will examine this question further in sections 2.2.2.1 and 2.2.2.2.

Another, different idea that also seems to empower the wikipedian emphasis on ‘Wisdom of the Crowd’ is the idea of ‘structural holes’, also called ‘le vide’ by Jean Re-

²⁴⁴ Mercier, Sperber, *Why do humans reason?* p. 73.

²⁴⁵ Mercier, Sperber, *Why do humans reason?* p. 60.

né Fourtou, CEO of the French petrochemical ‘Rhône-Poulenc’.²⁴⁶ Both these terms refer to the fact that the most creative individuals in an organization are those who bridge hierarchies, those who have links to a large number of different sub-sets of people within the organisation. The idea is not new. John Stuart Mill has been quoted as writing that “it is hardly possible to overrate the value [...] of placing human beings in contact with persons dissimilar to themselves, and with modes of thought and action unlike those with which they are familiar [...] Such communication has always been, and is peculiarly in the present age, one of the primary sources of progress.”²⁴⁷

Wikipedia is a hierarchical organisation, but thanks to the hierarchy being weak, it can in practical terms be considered one big structural hole. Anybody can, if they desire to do so, talk to anyone else. People from all over the world can- in theory- debate the content of articles with anyone else, therefore increasing creativity in the organisation as a whole.

Before discussing this diversity, the dangers of ‘Group Think’ will be discussed. Group Think is the dark shadow of the Wisdom of the Crowds. In all the examples previously described, veracity and creativity are increased by discussions within a group. The conditions for this to occur are good-will, and especially, diversity. When this diversity does not exist, both truth and creativity are in danger. In these cases confirmation bias leads groups to strengthen their common opinions, making it harder for divergent opinions to challenge the accepted truth. Confirmation bias in these settings is equivalent to systemic bias. If these opinions happen to be true, we are before a case of epistemic luck. Otherwise, it can lead a group of people to marginalise and aggressively oppose total or partial truths when an outsider does present it to the group. If that is happening in *Wikipedia*, rather than slowly becoming a surer source of knowledge with time, it is likely to become a long list of unchallenged assumptions. This does not seem to be the case, but as has already been mentioned problems with diversity will be examined in sections 2.2.2.1. and 2.2.2.2.

To conclude this section on the concept of Wisdom of the Crowds, it might be interesting to examine who is writing *Wikipedia*. It has sometimes been claimed-in particular by Jimmy Wales- that though *Wikipedia* can be written by anyone, only a handful of editors do most of the work.²⁴⁸ If this idea were true it would completely invalidate the ideas developed in this section. Fortunately, this idea has been examined and

²⁴⁶ Burt, *Structural Holes* p. 350.

²⁴⁷ John Stuart Mill, [1848] 1987, p 581. Quotation extracted from Burt, *Structural Holes* p. 350.

²⁴⁸ Jimmy Wales, *Wikipedia, Emergence, and The Wisdom of Crowds*.
<http://mail.wikipedia.org/pipermail/wikipedia-l/2005-May/039397.html> (2005).

found to not be exactly true. At one point in the past a core group of users existed which contributed disproportionately to *Wikipedia*, nevertheless this has changed.²⁴⁹ Research seems to confirm that it is the quantity of editors, and Wisdom of the Crowds, which allow *Wikipedia* to compete with encyclopaedias written by experts,²⁵⁰ though admittedly, the way the crowd is organised, specifically the technological tools which help editors create and monitor content are part of the process as well.²⁵¹

Wikipedia may be fruit of the Wisdom of the Crowd, but this crowd has technologies at its disposal that no other crowd has had before, allowing an enormous amount of people to interact and be guided in a productive and relatively frictionless way.

2.2.1.3- Vandalism, Deletionism and Inclusionism.

As we have seen previously, *Wikipedia* intends to be a trusted encyclopaedia. In the section on Free Knowledge we discovered that it also means to be a free encyclopaedia, and that occasionally there are those who take advantage of that to further their own interests. This is but one of the kinds of vandalism *Wikipedia* is threatened by. In this section we will examine what kinds of vandalism *Wikipedia* is threatened by, and how it reacts to them. After that we will examine a related conflict, that between deletionists and inclusionists. Both groups are important as they help keep *Wikipedia* free from vandalism and bias, yet they have opposing agendas. This phenomenon will be examined as a result of the division of cognitive labour.

According to *Wikipedia*, “**Vandalism** is any addition, removal, or change of content, in a *deliberate* attempt to compromise the integrity of Wikipedia. Examples of typical vandalism are adding irrelevant obscenities and crude humour to a page, illegitimately blanking pages, and inserting obvious nonsense into a page. Abusive creation or usage of user accounts and IP addresses may also constitute vandalism.”²⁵² There are many different forms vandalism can take. I have classified them in three categories based on motivation. ‘Pure vandalism’, ‘profit vandalism’ and ‘false vandalism’.²⁵³

²⁴⁹Niederer and van Dijk, *Wisdom of the Crowd or Technicity of Content*, p. 5.

Kittur *et al.* *Power of the Few*, p. 8.

²⁵⁰Arazy *et al.*, *Wisdom of the crowds*, p. 5.

²⁵¹Niederer and van Dijk, *Wisdom of the Crowd or Technicity of Content*, 15-16.

²⁵² <http://en.wikipedia.org/wiki/Wikipedia:Vandalism> (Last visited 26/01/15).

²⁵³ *Wikipedia* has a different classification of vandalism, as do other authors examining vandalism. It is of little use for this study due to a difference in objectives. *Wikipedia*’s list is designed to help editors

Pure vandalism is the use of *Wikipedia* editing tools to add blatantly absurd or erroneous facts for no particular reason. It is generally done for no more reason than it being possible to do it, or with humorous intent. Its scale is generally small; It is almost always done from anonymous accounts upon big or important articles and with little subtlety. These attacks are therefore almost always easy to reverse, as the changes are easily detected due to their visibility and the obviousness of the mistake. *Wikipedia* vandalism detecting tools allow more subtle attacks of this kind to also be detected relatively quickly in the majority of cases.

Some acts of vandalism, profit vandalism, are committed in order to gain something. Generally what is trying to be gained is a better image on the internet. Big business has been suspect of paying editors to make articles about their products friendlier,²⁵⁴ and religious and political organisations- notoriously Scientology-²⁵⁵ have changed information about their organisations they did not wish to see publicly disseminated. Individuals have also tampered with articles concerning themselves. Famous individuals have altered already extant articles to boost their ego and to ameliorate their public image. Non-famous individuals, have created articles about themselves, or others for whom there are no references and who are obviously not of any interest to the general public.

Gaining a different kind of profit we may include scholars trying to test *Wikipedia*'s capacity to reverse vandalism.²⁵⁶ Pierre Gourdain asked students to vandalise articles on purpose (simulating Pure Vandalism)- much to regular *Wikipedia* editors' disgruntlement- in order to determine *Wikipedia*'s capacity to detect and reverse vandalism.

I have denominated those cases in which someone creates false or unhelpful content on *Wikipedia* unwittingly while trying to create correct and helpful content false vandalism. *Wikipedia* has a code of conduct which many users do not bother to read, and is edited using a word processor which demands the user employ a limited- yet

detect vandalism, distinguish it from a normal use of Wikipedia and eliminate it. Lists by other authors such as Viegas and Priedhorsky study the effects of vandalism and not the reasons why it exists.

http://en.wikipedia.org/wiki/Wikipedia:Vandalism#Types_of_vandalism (Last visited 26/01/15).

Priedhorsky *et al.*, Creating, destroying and restoring value in Wikipedia, p. 8.

Viegas *et al.*, Studying cooperation, 578-579.

²⁵⁴ <http://en.wikipedia.org/wiki/Wikipedia:FAQ/Organizations> (Last visited 26/01/15).

In fact there is no problem in being paid by an organisation to change Wikipedia articles, as long as it is done following Wikipedia guidelines. Were it not tolerated, there would be no way to enforce the rule.

²⁵⁵ http://en.wikipedia.org/wiki/Scientology_controversies#Scientology_and_Wikipedia (Last visited 26/01/15).

²⁵⁶ Gourdain, Revolución Wikipedia.

necessary- amount of code. Ignorance of either of these two things may lead to the creation of content which will be dealt with like spam in spite of good intent. Possible errors include:

- Format errors due to ignorance of coding or style guidelines.

Most *Wikipedia* articles follow an easily recognisable pattern of font sizes, use of bold, underlining and cursive, text and image placement... A new editor can very easily commit errors when recreating this style, due to the need to learn wiki code, or even due to ignorance of the need to follow this style. Often, specially if the new editor asks for help or if the content is of interest, these kinds of errors will not be treated as vandalism and will simply be corrected by more experienced editors.

- Misuse of citations or sourcing.

Sourcing is essential to *Wikipedia's* functioning. Any information which is not correctly sourced may justifiably be eliminated if any doubt is cast upon its validity. Additionally there are formatting rules regarding where and how sources and citations should be indicated. Much as in academic papers, citations or information extracted from sources will be followed by sub indexed numbers leading- in the case in *Wikipedia*, directly linking- to a section at the end of the article where all the information regarding the sources should be available.

Another possible error regarding sourcing is the lack of sources when writing articles. It has happened that experts with first hand knowledge on a subject add content to an article only to find it is deleted due to a lack of sources being cited. These editors often get angry at *Wikipedia*, because they do not understand that the anonymous nature of *Wikipedia* means that no first hand knowledge can be accepted without sources to back it up. There is no difference between the credibility of information about the ISS written by a cosmonaut describing his experience and a high-school student pretending to do so, because *Wikipedia* has no mechanisms in place to determine whether an editor is who he claims to be. The decision has been taken to take no note of ones off-line persona when deciding whether to accept information as credible or not.²⁵⁷

²⁵⁷ This decision was greatly influenced by the Essay controversy. See section 2.1.2., pp. 50-51

- Creation of useless content.

The guidelines for relevant content are very vague and *Wikipedia* rules are in favour of being bold. This means that a lot of superfluous content is created. What one editor considers fascinating might be considered uninteresting by another. Some kinds of information have been generally considered unsuitable for an encyclopaedia- for example, song lyrics, technical know-how, definitions of words or detailed explanations of how to make, fix or do things-. If a new editor attempts to introduce this kind of information into the encyclopaedia he will be asked to share his content elsewhere. There are other kinds of information for which there is no clear consensus.

This takes us to the deletionist/inclusionist debate.²⁵⁸

Deletionism is a belief held by *Wikipedia* editors that *Wikipedia* has become bloated and needs to be trimmed. Editors espousing this belief call themselves deletionists, have founded the ‘Association of Deletionist Wikipedians’ and will generally either actively delete what they consider superfluous articles or support those who do.

Inclusionism is a reaction to Deletionism. Those calling themselves inclusionists have founded the ‘Association of Inclusionist Wikipedians’. It is the belief of inclusionists that deletionists are to some degree a destructive force to be opposed within *Wikipedia*. The degree to which this view is espoused varies greatly, from those who value the work of deletionists highly, but nevertheless believe they are in need of some controls, to those who believe that no, or very little, content should ever be deleted. Inclusionists will often reinstate content deleted by deletionists, or at the very least engage deletionists in debate over the need or not to erase articles or parts of articles.

The greatest cause of conflict between those who espouse these opposing sets of beliefs is the definition of ‘notable’- deciding what is relevant or not to an encyclopaedia. For deletionists anything which is not good enough to stay should go; “Promotional use of *Wikipedia*, trivia, articles of no general interest, lack of suitable source material for high quality coverage, [being] too short or otherwise unacceptably poor quality”²⁵⁹ are all good enough reasons to delete an article from a deletionist’s point of view. Inclusionists, on the other hand, desire to keep any article which is not harmful.

²⁵⁸ Besiki Stivia, Michael B. Twidale, Linda C. Smith and Les Gasser “Information Quality Work Organisation in Wikipedia” *Journal of the American Society for Information Science and Technology*, 59 (6)pp. 983-1001 (2008).

²⁵⁹ http://en.wikipedia.org/wiki/Deletionism_and_inclusionism_in_Wikipedia (Last visited 26/01/15).

Substandard articles should be allowed to persist, so that work can be performed on them until they become good articles.

Officially *Wikipedia* does not favour one stance over the other. In 2010 a statement was issued in the content policy article ‘What Wikipedia is not’²⁶⁰ in which one can read “There is no practical limit to the number of topics it can cover [but] there is an important distinction between what *can* be done, and what *should* be done.” This is generally seen as acknowledging that there is no particular material need for Deletionism, but that debate should exist between deletionists and inclusionists as to what fits best in *Wikipedia* as an encyclopaedia.

Often the interaction between deletionists and inclusionists can be very productive. An agenda dominated by only deletionists might turn *Wikipedia* into an excessively bleak encyclopaedia with little of the outstanding variety of content which makes it so different from more traditional encyclopaedias. An agenda dominated by inclusionists would turn *Wikipedia* into a disorganised jumble of information. The interaction of both has helped information be better organised.

Thanks to this conflict articles have been joined when they offered similar information, and have been separated when they offered sufficiently different perspectives. Articles have been deleted when they were redundant or did not comply with *Wikipedia* rules, but have been reinstated or rewritten when they sparked enough interest. As mentioned in the opening paragraph of this section, we observe cognitive labour division taking place naturally as a result of differing ideas of what *Wikipedia* should be. Those who believe it should be a fast and reliable guide to essential concepts take on the task of making central and important articles better, of eliminating unnecessary content, and of coming up with arguments in favour of their actions. Those who believe *Wikipedia* should be a compilation of all human knowledge, of all information someone at some time may need for whatever reason, try and save articles- or at least their content- and come up with arguments to defend their position.

Nevertheless, a lot of seemingly wasted effort goes into deletion debates, identification as a deletionist or inclusionist can sidetrack issues concerning contribution to articles, leads to community fracture, and disenchantment with *Wikipedia*. For these reasons middle grounds are sought by some. An ‘Association of Mergist Wikipedians’ has been created by editors who believe merging articles is an way to keep both inclusionists and deletionists happy while increasing quality and quantity of material on

²⁶⁰ http://en.wikipedia.org/wiki/Wikipedia:What_Wikipedia_is_not (Last visited 26/01/15).

Wikipedia. A website called '*Deletionpedia*'²⁶¹ collects all deleted articles so they are not totally lost, fulfilling inclusionist wishes while not provoking deletionists by having those articles on *Wikipedia*.

2.2.2- Philosophy on *Wikipedia*.

An important aspect of epistemology is the sociological ramifications of knowledge. How do the social forms in which humanity are divided affect the way in which knowledge is created, transmitted and perceived. The examination of knowledge in *Wikipedia* is no different. The following two sections concern the way knowledge is transmitted in *Wikipedia* along sociological lines. In a first section the role of gender within *Wikipedia* will be examined. In a second section more general sociological issues, mostly related to language, culture and geography, will be studied.

2.2.2.1- Feminist Epistemology of *Wikipedia*.

One of the most interesting questions one might ask about *Wikipedia* is whether it is gender biased, in what way and whether this has any epistemological significance. The way we will go about attempting to answer this question will be:

- An examination of what forms of bias we might expect to encounter in something like *Wikipedia*.
- An examination of the actual content of *Wikipedia* and a listing of reasons why- or why not- this gender bias exists, as well as why- or why not- it has epistemological significance.

Within this second section, four aspects will be examined:

- Whether the language used is sexist. This is still a somewhat polemic issue. Some assert that to artificially change language so as to avert historically

²⁶¹ http://deletionpedia.org/en/Main_Page (Last visited 26/01/15).

gender biased constructions is a naive way of fighting sexism in society, and a misuse of language. Others claim that the language we use perpetuates gender differences, and that changing language is a part of altering the misrepresentation of gender in society. By studying the kind of language used within *Wikipedia*, and whether this use is regulated or not we might be able to see whether or not *Wikipedia* adheres to one or the other school of thought, and deduce the reasons for this choice.

- What sources are used in relation to the gender of their authors. Even though generally more is published by male academics, in great part through sheer strength of numbers, it is interesting to compare the ratio of male to female authors being cited in *Wikipedia* in relation to the academic world. This will allow us to see whether *Wikipedia* exacerbates male predominance in academia, merely reflects it, or even actively acts against it.
- Preponderance of female content. It is interesting to know whether female biographies are treated any differently from male biographies, and if exclusively female biological functions are less thoroughly written about than male biological functions. If there were no gender bias in *Wikipedia* we would expect the quality of content to be independent from the gender of topics. An examination of the degree to which articles about gender issues are found, and their quality in *Wikipedia* in relation to other discrimination issues might also offer clues as to the attitudes to be found within the *Wikipedia* community.
- Statistics on the gender of *Wikipedia* editors. This will be examined, even though- due to the anonymity editors may choose to keep- these statistics may not be perfectly representative of the population of *Wikipedia*.

Does the language generally used by contributors to *Wikipedia* stick with traditional uses, sometimes considered gender biased, or do editors try to use gender neutral terms? If we examine articles which describe terms which have often been subject to gender bias, such as 'scientist',²⁶² or 'nurse' -the article's name is 'nursing',²⁶³ one finds that all the terms are gender neutral. An important effort seems to have been made to ensure that none of the terms used could be accused of generating gender

²⁶² <http://en.wikipedia.org/wiki/Scientist> (Last visited 26/01/15).

²⁶³ <http://en.wikipedia.org/wiki/Nurse> (Last visited 26/01/15).

bias. We can find what might seem like an exception in the article ‘soldier’²⁶⁴ where we can find the words ‘infantryman’, ‘infantrymen’, or ‘artillerymen’, and links to ‘seaman’ and ‘airman’. All these terms have been described as loaded. The apparent problem in all these cases stems from the gender biased expressions commonly used by those— mostly— American and Commonwealth military bodies. *Wikipedia* is forced to use the same expressions to describe people working in these organisations. It seems that in these cases in particular *Wikipedia* uses biased terminology so as to not distort reality. A distortion of reality would take place if *Wikipedia* editors refused to use gender biased language, even when this language is necessary to describe reality.

In any case, it is interesting to note that *Wikipedia*’s ‘Manual of Style’ has no section concerned with Gender Bias in language. The general rule which states that all articles must avoid any kind of bias seems to be sufficient for most editors, at least as far as using un-biased language in important articles goes.

Discovering which sources in each article are written by women or men, or a team including both, is not easy. The section at the bottom of any *Wikipedia* article concerned with the details of and links to sources does not always give complete information. Even in the cases where it does, names sometimes may not be indicative of gender, or we may be confronted with initials rather than with names. This may happen even if we search the original article. It is often possible to search for more details about the source author’s gender, for example in university webpages, but the truth is that it is not always an easy task. Therefore the results of examining this question reflect only a cursory look at the most clearly indicated sources in some of the most important and central articles on *Wikipedia*.

	Biology	Physics	History	Gender
Masculine Authors	58	44	47	43
Feminine Authors	12	4	10	47
Unknown/Irrelevant	18	19	5	25
Sources with at least one masculine author	48	43	41	40
Sources with at least one feminine author	10	4	10	57

In these articles we find— in those cases in which we can determine the gender of the original source— that the majority of the sources used are masculine. The article on gender is an exception. In the academic world it is usual for female authors to

²⁶⁴ <http://en.wikipedia.org/wiki/Soldier> (Last visited 26/01/15).

make up 20.4% of the total in history, 26.7% of molecular and cell biology,²⁶⁵ and though numbers on the published work gender gap in physics have not been researched, the percentage of PhDs (30%), and professorships (10%) awarded to females gives us an idea of the existing gap.²⁶⁶ The studies are not available on Gender Studies academic publishing, but due to the nature of the discipline, one can imagine that they are much more gender balanced. A gender gap for published work in a specialised aspect of biology of 26.7 % makes *Wikipedia's* percentage of 17% in the article biology seem a little inadequate. The same happens with Physics -we have estimated 10-30 %, to *Wikipedia's* 8%- and History is 20.4 % to *Wikipedia's* 18%. On the other hand the 52% ratio in *Wikipedia* for Gender, is more balanced target, which it seems other disciplines should aspire to.

The obvious gender gap in scientific writing ineludibly affects *Wikipedia*. However, the surprising fact is that *Wikipedia* seems to be even more conservative, and to have a wider gap than the academic world. As we shall see in the next section, *Wikipedia* seems to be very slowly following trends in the academic world, rather than taking the initiative.

As to whether *Wikipedia* includes articles about women in a similar proportion to articles about men, the short answer would be no. In different biographical sources the percentage of female biographies generally varies between 15 % and 30 %. The older the source, the more likely the proportion of female entries will be lower. *Wikipedia* roughly mirrors the available sources. Additionally, there does not seem to be any correlation between article length and gender. This might lead one to believe that there is no gender bias in this aspect of *Wikipedia*, were it not for the fact that the amount of missing articles -those which are named but not yet written- is disproportionately female. When compared to the *Encyclopaedia Britannica*, it was found that in absolute terms *Wikipedia* has many more female biographies. This is, however, merely due to the sheer volume of articles in *Wikipedia*. The number of female biographies

²⁶⁵ <http://chronicle.com/article/Woman-as-Academic-Authors/135192> (Last visited 26/01/15).

²⁶⁶ Amunga J.K., Amadalo M.M., Musera G. "Disparities in the physics academic achievement and enrolment in secondary schools in Western Province: Implications for strategy renewal" *Problems of Education in the 21st Century*, 31, pp. 18-32 (July 2011).

Available at

http://www.academia.edu/1417853/DISPARITIES_IN_THE_PHYSICS_ACADEMIC_ACHIEVEMENT (Last visited 26/01/15).

Gwyneth Dickey Zakaib "Science Gender Gap Probed" *Nature* 270, p. 153 (07/02/11) Available at <http://www.nature.com/news/2011/110207/full/470153a.html> (Last visited 26/01/15).

Wikipedia misses proportionate to the number of male articles missed, is larger than the corresponding proportion in the *Encyclopaedia Britannica*.²⁶⁷

We can take from this that once a biographical article is deemed notable in *Wikipedia*, the same effort is put into it irrespective of gender. Nevertheless it seems that belonging to the female gender makes it more difficult to attract the attention of *Wikipedia* editors. The problem is not only restricted to *Wikipedia*, but has its roots deeply engrained in biographical history, therefore affecting most biographical sources available today. Nevertheless, *Wikipedia*- by dint of having such a vast number of articles- may have given notability to a greater number of women than any single encyclopaedia has before. If the historical trend is anything to go by, we can imagine that with time the proportion of biographies written about notable women in *Wikipedia* will increase.

The volume of articles on *Wikipedia* suggests that we ought to find plenty of information on gender issues. They are most definitely relevant to modern day culture, especially to the Global North sphere of influence that *Wikipedia* is mainly a product of.²⁶⁸

An examination of *Wikipedia* reveals the online encyclopaedia recognizes the existence a gender gap within itself, and that it is problematic. The meta-page 'gender gap' is an attempt to explain the problem and close the gap.²⁶⁹ The issue was rendered visible by a 2010 survey.²⁷⁰ The data from this survey will illuminate some aspects of representation on *Wikipedia*, in spite of possible bias due to the non-random nature of participation in online surveys.

The gender distribution of wikipedians is greatly skewed. Many more males participate in the project than females, according to the aforementioned survey. The share of female wikipedians decreases continuously with growing age, from 31.7% in the youngest to 20.6% in the oldest cohort, whereas the average share of women amongst all wikipedians is 24.9%. That only about a quarter of wikipedians are tasked with the duty of representing half the population of the world indicates that some-

²⁶⁷ Joseph M. Reagle, Lauren Rhue "Gender Bias in Wikipedia and Britannica", *Communications Studies Faculty Publications, Northeastern University, Paper 1* (January 2011) Available at http://iris.lib.neu.edu/comm_studies_fac_pubs/1/ (Last visited 26/01/15).

²⁶⁸ See section 2.2.2.2., pp. 102-103.

²⁶⁹ http://meta.wikimedia.org/wiki/Research:Gender_gap (Last visited 26/01/15).

²⁷⁰ Glott, Ghosh, *Survey Data: Age and Gender*.

thing is not normal. According to female wikipedians themselves²⁷¹ the reasons they do not contribute are:

- The editing interface is not very friendly
- They are too busy
- Lack of self confidence
- Conflict-aversion
- Attempts to enforce hegemonic viewpoints
- Misogyny of other editors
- Off-putting sexual culture in *Wikipedia*
- Being addressed as male can be off-putting
- *Wikipedia* does not have a welcoming tone and does not allow social relationships in the same measure as other social sites.

These complaints describe one basic problem: the opposition between parts of *Wikipedia* editor culture and common female habits.

Wikipedia culture has historically been male and ‘techy’.²⁷² Female contributors are necessarily not one thing and often not the other. We have already mentioned that there is an important gender gap in the sciences, and that gap certainly exists in engineering, and especially in the computer sciences. *Wikipedians* from these backgrounds can often lash out against women, or at the very least unconsciously belittle them, and their contributions. The NOPV policy is sometimes used to reiterate hegemonic views and male perspectives. Notoriously, rape-scenes in movies will often be described as ‘sex-scenes’, allegedly because ‘rape’ is not a neutral word, but has negative connotations.

The manner in which conflict is resolved in *Wikipedia* often involves long debates some of which can become verbally violent until neutral mediators are invited to become involved. This hostility can drive *Wikipedia* editors into forming opposing ‘cliques’, further exacerbating the situation. Whereas males are often brought up to be more accepting of this kind of conflict, females are more likely to feel comfortable with conciliatory attitudes. Females tend towards finding an agreement about what constitutes a good article, whereas males are likelier to try and impose their own

²⁷¹ Gardner, *Nine Reasons*.

²⁷² A term used to refer to people who are very interested in technological progress and its results, sometimes to the exclusion of other interests. People who can be described this way are predominantly male, due to an interest in technology having been seen and promoted as something un-feminine for a very long time.

view. A great number of *Wikipedia*'s editors are able to discuss these issues in a friendly way, but undoubtedly this callous side to *Wikipedia* can still be a problem in spite of efforts to stem it.

The epistemological significance of the aspects mentioned in this section is that there is a paucity of perspectives. The lack of female points of view results in *Wikipedia*'s description of the world being less rich, complex and developed than it could be. This problem will be further expanded upon by examining other limiting sociological factors to *Wikipedia*'s epistemological perspective.

2.2.2.2- Sociopolitical aspects of *Wikipedia*.

Gender issues are but a subsection of problematics that have to do with the specificities of who writes in *Wikipedia*, and why. Many reasons have been proposed to explain why people write in *Wikipedia*. I shall examine this question from an economic and political point of view, which will inform a more extended inspection of the sociological patterns within *Wikipedia*, including any commonalities that can be found amongst editors of *Wikipedia*.

From an economic point of view there are mainly²⁷³ two things being traded in *Wikipedia*: knowledge and currency. Currency is needed to support the servers and to pay those people who are employed to help *Wikipedia* stay online from a physical and legal point of view. It is gained through donations. In spite of the importance of currency, knowledge is the main concern of *Wikipedia*. Editors are constantly bringing knowledge in, refining it, or making it more accessible. Readers are constantly extracting it. The two economies could not be more different from one another.

Currency is a scarce product within *Wikipedia*. It is administered by the 'Wikimedia Foundation's Board of Trustees', in particular Sue Gardner,²⁷⁴ and there is a lot of con-

²⁷³ It could be argued that prestige is a third commodity being traded. This idea will be discussed further on. See section 2.2.2.2., p. 105.

²⁷⁴ Profiles: 'Sue Gardner' *Forbes* Available at <http://www.forbes.com/profile/sue-gardner/> (Last visited 26/01/15).

cern over how it is spent.²⁷⁵ There are many campaigns within *Wikipedia* asking for donations,ⁱ and according to some, the amounts received never seem to be quite enough, whilst according to others, they are badly spent. In the capitalist economic sphere- of which *Wikipedia* is a part- practically anything can be exchanged for currency, and the bigger the internet encyclopaedia project is the more currency is needed to pay for physical servers, lawyers, court cases, etcetera²⁷⁶ (See Graph 3ⁱⁱ).²⁷⁷

Knowledge, on the other hand, is certainly not scarce in *Wikipedia*²⁷⁸ This has not generally been the case in other contexts in the past. The information economy has usually functioned with information as a scarce product.

Originally this was due to a true scarcity. At first, text did not even exist, and information resided within the memories of individuals. These individuals were often revered for their knowledge. They often had apprentices working for them-exchanging work for knowledge- or students who paid them -exchanging currency for knowledge-. ‘Copying’ information from one mind to another-*learning* as it is usually called- is a long and messy process, especially when exact copies are desired. Even so, not all information transmitted in this way is scarce. There is common knowledge, which is transmitted to everyone within a community from an early age.

Another way to overcome this scarcity is by ensuring the sharing of knowledge. This was attempted with the foundation of great schools. Nevertheless, once knowledge is imparted and memorized by the receiver, there is nothing to stop that person from sharing that knowledge with others. For this reason, even within this historical context, artificial barriers to the transmission of knowledge were sometimes imposed. Within secret societies, for example, the transmission of knowledge to outsiders was severely punished. To a lesser degree we might consider sophist teachers, academies and similar methods of learning are examples of barriers to the transmission of knowledge, even though they supposedly exist in order to solve the problem of scarcity of knowledge. By turning the transmission of oral knowledge into a career and a service that must be paid for, that knowledge is given an economic value. This makes

²⁷⁵ Andre Orlovsky “Wikipedia doesn’t need your money – so why does it keep pestering you?” *theregister.co.uk* (20/12/12) Available at

http://www.theregister.co.uk/2012/12/20/cash_rich_wikipedia_chugging/ (Last visited 26/01/15).

²⁷⁶ http://upload.wikimedia.org/wikipedia/foundation/e/e0/2014-15_Wikimedia_Foundation_Plan.pdf (Last visited 26/01/15).

²⁷⁷ Wikimediafoundation.org/wiki/Financial_reports (Last visited 26/01/15).

²⁷⁸ Sylvain Firer-Blaess, *Wikipedia Governance, Mode of Production, Ethics*, (academia.edu, July 2008), pp. 28. [hereafter Firer-Blaess, *Wikipedia Governance*].

students reluctant to share that knowledge freely because they feel they are giving away something with economic value. This, therefore, limits the accessibility of knowledge, which is already a scarce product naturally due to the difficulty of flawlessly transmitting extensive amounts of knowledge within the historical context of oral communication.

With the arrival of writing as a cultural and educational phenomenon things changed. For a long time it was used primarily in administration, and only secondarily- if at all- for other uses. Knowledge was still naturally scarce. On one hand because copying written documents is a lengthy affair, but also because this form of artificial memory made new generations less eager to memorize, blunting their capacity to remember²⁷⁹ and making oral transmission less effective than it had been. Moreover, access to written sources, now as then, is not always easy. Libraries might be in private hands, not willing to let anyone access them. Nearby libraries might not have a copy of the written source one seeks. Libraries might not allow the copying of the text, or might demand strict conditions to allow copying in writing to happen.

The development of the printing press changed everything in a slow, but radical way. While the number of presses was small, the effect was minimal. As the number grew, the speed at which texts could be copied was multiplied. Books such as the Bible- the contents of which were under the custody of the Church- became easily available. This helped many people question the need for custodians of this knowledge. Many other texts became more easily available, many of which also helped readers question the status quo. This allows us to link the printing press both to the expansion of the Protestant and Reformed churches and to the Scientific Revolution, and to show the immense cultural effects of the gradual loss of the natural scarcity of knowledge.

Indeed initially, printers could print any book which was not forbidden by state or church. This was not problematic for older books. New authors, however, who hoped to make money by printing their books, found that people buying books would more readily buy cheaper copies from 'pirate' printers. These printers did not pay the authors, but simply made copies of the original texts. Eventually this led to copyright laws,²⁸⁰ protecting both authors and- especially- those printers with the right to print

²⁷⁹Socrates against writing, see R. Hackforth (trans. and ed.) *Plato's Phaedrus* (Cambridge: Cambridge University Press, 1972) pp. 274b-275b [hereafter, Plato, *Phaedrus*].

²⁸⁰Copyright is a system by which each time a text is copied, the writer of that text is owed compensation, generally in monetary form. See Clifford Siskin, William Warner *This is Enlightenment: An Invitation*

copyrighted texts from the competition of other, less reputable printers. In this way an artificial scarcity was imposed on printed books as a form of transmitting knowledge. After the introduction of copyright laws, the price of texts could be controlled because copyright printers were given the monopoly over particular texts and, therefore, competition was limited. The only competition left was that between different books, or between legal and pirated copies of the same book. This results in a greater likelihood of higher prices and a greater scarcity of knowledge than would otherwise have occurred without copyright laws.²⁸¹

Let us ignore the next few developments in information technology²⁸² and direct our attention to the internet. Here we find an infrastructure which, once established and paid for, technically offers a non-scarce environment for the distribution of knowledge. Unlike any other previous technology any scarcity that exists within it is therefore artificial. Disregarding- for the moment- censorship and information overload,²⁸³ copyright and those technologies deployed to enforce it are the main reason for scarcity of information on the internet. In opposition, we can find companies and programs dedicated to pirating copyrighted information. This is done in several different ways: illegally by ignoring copyright, finding legal loopholes, or copying copyrighted material the owners of the copyright can no longer make a profit out of and therefore do not care about or enforce. Apart from those who defend and those who resist copyright, there is a third group of people who do not believe laws and concepts created in a pre-internet world work well within the internet. The first organisation we can recognise as espousing these beliefs is the Free Software Foundation.²⁸⁴ This and subsequent organisations, and individuals espousing the free software ideology, helped create and distribute the idea of free licenses.²⁸⁵

As seen above, *Wikipedia* does not function with traditional copyright.²⁸⁶ The copy laws it adheres to are called *GNU Free Documentation License* (GFDL), and *Creative Commons Attribution-Sharealike 3.0 Unported License* (CC-BY-SA).²⁸⁷ The content of *Wikipedia* is written by volunteer editors, meaning the labour is free. Copying the information is

in the Form of an Argument in C. Siskin, W. Warner (eds.), *This is Enlightenment*, (Chicago and London: The University of Chicago Press, 2010) pp. 14-15. [hereafter Siskin, Warner, *This is Enlightenment*].

²⁸¹See section 2.2.1.1., pp. 58-59.

²⁸² Such as photography, telegraph, radio, cinema, telephone and television.

²⁸³See section 2.2.1.1., pp. 65-69.

²⁸⁴See section 2.2.1.1., p. 61.

See www.fsf.org (Last visited 26/01/15).

²⁸⁵Such as the *GNU General Public License*, *Copyleft* and others.

²⁸⁶ Indeed great effort is taken to not use anything copyrighted.

²⁸⁷en.wikipedia.org/wiki/Wikipedia:Copyrights (Last visited 26/01/15).

also practically cost free due to the enormous servers being used, the fact that users of *Wikipedia* have internet connections and computers anyway, and the fact that any information copied is still available for others to copy. Therefore, information and in a stricter sense knowledge are non-scarce products in *Wikipedia*.

The mode of production of *Wikipedia* is therefore, though existing within a capitalist superstructure, not capitalist itself. It has been called ‘Collaborative Intelligence’ or ‘Collaborative Production’.²⁸⁸ This form of production is, for now, an hard-to-calculate percentage of the total world economy. Though undoubtedly small, it is growing.²⁸⁹

To offer an economic analysis of the productive forces of *Wikipedia* it will be useful to divide them into the ‘means of production’ and ‘labour forces’.

We can almost equate the means of production of *Wikipedia* with the internet, if we include the means by which people access the internet. It might, nevertheless, be useful to further subdivide these means of production so as to have a clearer idea of which parts have which uses, and the ownership of these parts.

In first place we could mention the personal computers, tablets and smart phones with which users access *Wikipedia*. They are rapidly becoming conventional goods for a large part of the world’s population. Instant access to the internet is generally possible, though the cost is not always affordable for long amounts of time to everyone. Almost any kind of electronic device which can access the internet can access *Wikipedia*, indeed steps have been taken by the ‘Wikimedia Foundation’ to ensure this is so.²⁹⁰ The costs of these machines could be said to be null; Even if *Wikipedia* made no use of them, people would still own them.

The software used is also part of the means of production. This software was the result of collaborative intelligence productions, and therefore had little cost, none in classic economic terms. *Wikipedia* ran ‘UseModWiki’ originally, until January 2002

²⁸⁸ Firer-Blaess, *Wikipedia Governance*, p. 41.

²⁸⁹ It is a difficult task to assign an economic value to Collaborative Production, often the results of it -for example *free software*- are neither bought nor sold, but simply used. The amount of times this is done is hard to determine and the economic value is therefore difficult to calculate, especially when copyrighted alternatives do not exist or are seldom used. Nevertheless the growing tendency is easily observable. Big and growing Internet companies such as Steam and Google use a lot of free software, and it is being increasingly used in business and public administration. Crowdfunding, which often incorporates aspects of collaborative production, is also growing as a way of financing projects, which themselves are often forms of collaborative production.

²⁹⁰ https://wikimediafoundation.org/wiki/Wikipedia_Zero (Last visited 26/01/15).

when it was switched to a PHP script that was again changed for 'MediaWiki' in July of the same year. This software was produced by an employee of *Wikipedia* and therefore constituted a slightly greater cost.²⁹¹ Nevertheless the cost is minute. Servers, which are bought or rented,ⁱⁱⁱ ²⁹² are also relatively cheap.²⁹³

Internet infrastructure is pre-existent and is maintained and upgraded constantly. Internet and telephone providers make a business of selling access to this infrastructure as well as investing to increase it locally. Stockbrokers invest in newer, faster international communications which allow them to access information fractions of a second before their competitors.

Anyone who has ever collaborated on *Wikipedia* forms part of its labour force. The following section, examining *Wikipedia* from a sociological point of view will inform us on those contributors. After which we will continue examining *Wikipedia* from an economic point of view.

From a sociological point of view there are two main points of interest.

- Who collaborates with *Wikipedia*?
- Why do these people collaborate with *Wikipedia*?

To examine the first part of the question we must remember there are two ways of adding to the project: helping to write and organise the encyclopaedia, and helping to sustain its finances. Let us begin by examining this first aspect.

We may study what data there is for a group of anonymous internet users, by researching data from surveys,²⁹⁴ *Wikipedia* itself, *Alexa*,²⁹⁵ and essays using these sources. There is a possibility this information might be biased, but other ways of accessing the information- for example, sampling the population of reunions of wikipedians- is most definitely biased. *Wikipedia* is accessed from all over the world, but only a reduced number of the more wealthy or geographically close population of wikipedians will be able to attend such meetings.

²⁹¹[En.wikipedia.org/wiki/Wikipedia:MediaWiki](http://en.wikipedia.org/wiki/Wikipedia:MediaWiki) (Last visited 26/01/15).

²⁹²http://en.wikipedia.org/wiki/Wikipedia_servers#Hardware_operations_and_support (Last visited 26/01/15).

²⁹³<http://tinyurl.com/WikiEng12-13> (Last visited 26/01/15).

²⁹⁴Glott, Ghosh, *Survey Data: Age and Gender*.

²⁹⁵<http://www.alexa.com> (Last visited 26/01/15).

With respect to the ages given in surveys, we find the population is divided into quartiles of similar sizes.

- 10-17 year olds - 27.4 %
- 18-21 year olds - 24.5%
- 22-29 year olds - 24.2 %
- 30-85 year olds - 24 %

Taking these figures, we can see that 76 % of the *Wikipedia* population is younger than 30. This is understandable if we take into account it is a fairly new technological achievement. Many of the older users will have started using computers- and certainly *Wikipedia*- at a relatively late time in life, after becoming accustomed to other technologies.

This last quartile is further divided into four smaller segments.

- 30-33 year olds - 26.9 %
- 34-39 year olds - 24.9 %
- 40-49 year olds - 26.4 %
- 50-85 year olds - 21.7 %

A similar pattern emerges again. In spite of the younger quartiles having a lesser range- 3 years for the youngest against 35 years for the oldest- they are larger in total numbers. 78.3 % of the oldest population is younger than 50. As a percentage of the total population, only 5.2 % of the population is to be found in the 35 year bracket comprising 50 to 85 year olds. This seems to confirm the idea that it is the younger generations who become more easily enthusiastic about the relative novelty that is *Wikipedia*.

Another aspect we can examine is that of educational levels of achievement. Given the distribution of the age groups, we would expect very small numbers of very highly educated people, and larger numbers of high school students and undergraduates. The survey divides the field into six categories corresponding to the highest educational degree of respondents.

- Primary education - 11.8%
- Secondary education - 36.0 %
- Undergraduate Tertiary education - 25.5 %
- Tertiary education-Masters - 17.6 %

- Tertiary education – PhD - 3.0 %
- Other - 6.2 %

Given the distribution expected, we can easily say wikipedians are generally slightly better educated than the general population. To confirm this idea, and to examine in more detail we can cross-examine these results in relation to age groups.

10-17 year olds, considered underage by most countries, are proportionally likelier to be in the Primary and Secondary education groups. Those who have finished Primary education are 38.7 % of the total population of the survey, and those who have finished Secondary education are 48.0 %. Very few of the respondents in this age group have undergraduate levels of education, only 2.3 %. Unsurprisingly, none at all have Masters, or PhDs. A relatively large number, 11%, have responded ‘Other’, suggesting many respondents have not yet completed primary education (they may be very young), or come from educational backgrounds that cannot be adequately classified within this framework.

18-21 year olds have mostly finished Secondary education (56.3%), though 5.3 % have only accomplished Primary education. A large minority (26.8%) responded ‘Tertiary education undergraduate’. Only 5.6 % of the respondents from this age group have a Masters Degree, and none have a PhD. 6% of respondents answered ‘Other’.

22-29 year olds are, we must recall, the largest group who responded. Most of them (39%) are Tertiary education undergraduates although 21.9% responded Secondary education, and only 1.7% responded Primary education. A large number of the respondents in this age group (31.6%) have a Masters Degree, and this is the first age group in which we can find people with a PhD, although it accounts for only 2.2% of the respondents. 3.2% responded ‘Other’.

The last group, and that which includes the widest age range, consists of the 30-85 year olds. Only 3.2% have accomplished no more than Primary education. Those who have no more than Secondary education account for 19.4% of respondents. Almost tied in this group we find undergraduates (31.2%) and Masters (31.4%). We also find a relatively large number of PhDs, at 10%. There are also 4.9% of respondents answering ‘Other’.

Many of the numbers we discover here merely confirm what would seem like common sense. The youngest respondents have not had time to finish Postgraduate programs. Nevertheless, it is interesting to note the high numbers of users both in

general, and specifically in the two older age brackets with undergraduate or post-graduate qualifications. Specifically the 10% ratio of PhD holders in the 30-85 year bracket is very interesting. It seems to confirm the idea that wikipedians are disproportionately well educated compared to the general population.

Nevertheless, by looking at the numbers corresponding to 'Primary education' and 'Other' we realise there are still a number of wikipedians who have not gone far in official education schemes or who have been differently educated. We can guess that some of these results are due either to age, or to cultural differences, but the fact that they exist at all is a testament to how widely *Wikipedia* is used. It shows that people of many different educational backgrounds use *Wikipedia*.

Wikipedians are disproportionately single. One could imagine that once people have responsibilities such as life-partners or children, they would find it more difficult to continue contributing to the project. An analysis of the percentages of wikipedians with such responsibilities should give us some perspective as to whether these fears are reasonable.

In total 35% of female wikipedians and 33.1% of male wikipedians have life partners, and 13.7% of females and 15.1% of males have children. However, these relatively low numbers could merely be an expression of the youth of the wikipedian population. If we examine the population by age groups, we find that those in the last one -30-85- are twice as likely to have a life partner as the total survey population (66.8% for females, 67.7% for males). People in this age group are also much more likely to have children (54.9% for females, 50.3% for males). The older the population of wikipedians under study, the likelier they are to have life partners and children. This means that collaborating on *Wikipedia* is compatible with partnership and a family life. As the disproportionately young wikipedians start pairing up and having children, there appears to be no reason why they should abandon the project. We find something similar when we examine employment status.

If contributing to *Wikipedia* were an internet occupation which got in the way of real-world responsibilities, we would expect the employment status of wikipedians to gravitate towards the unemployed, the retired, the part-time employed, those unable to work because of disability and other non-working types. In other words, we would expect those who have the greatest amount of free time to contribute the most to *Wikipedia*. However, that is not what we find. The unemployed account for only 2.9% of wikipedians; retired people account for a mere 1.3%; those unable to work because of disability a meagre 0.7%; and other non-working types 1.7%. In total these add up to

6.6 percent. Including stay-at-home parents -0.7%- and the part-time employed -4.9%- only raises the total to 12.2%. This is clearly far from constituting a majority.

Those in full-time employment account for 30.2% of respondents. Others with busy schedules full of responsibilities are the self-employed,²⁹⁶ and freelancers or contractors²⁹⁷ who account for 2.8% and 5% respectively. In total, those who we might consider have full-time paying jobs (working either for themselves or for others) add up to 38%. If we add 12.2% to 38%, it equals 50.2%. This still leaves 49.8%, which corresponds to the number of students who responded.

Whether students contributing to *Wikipedia* are very busy or not is a very hard question to answer. As we saw previously, we are not merely dealing with students at undergraduate level. 11.8 % of respondents claimed to have achieved Primary education, but no further. Although most of these will be students in Secondary education programs, some of them may already be working part-time. This tendency to join the workforce will be more prevalent at higher levels of education. What's more, it is obvious that some students spend more time studying than others. The group of respondents corresponding to students is not only a large, but also a varied group with widely differing amounts of free time.

Contributing to *Wikipedia* and navigating through it is not incompatible with educational attainment. In fact, it can be argued that it actually helps students develop the skills needed to learn and write more successfully.

As stated above, 38% of respondents with paying jobs at their own or others' businesses, a large part of whom must have important responsibilities, nevertheless take time off from their busy schedules to work on *Wikipedia*. If we concentrate on the older parts of the population, the 22-29 year olds, and the 30-85 year olds we find that the fully employed constitute 49.6% and 58.6% of the population, with the self-employed and freelancers ranging from 2.9% to 11.3%.

This means that in those groups where age makes it less likely respondents will not be studying, different forms of full-time employment are preponderant, confirming the idea that work-related responsibilities do not necessarily prevent people from contributing to *Wikipedia*. Therefore we can surmise that having a busy work life is compatible with being a *Wikipedia* editor.

²⁹⁶ Defined in this questionnaire as those who own a firm with employees.

²⁹⁷ Defined in this questionnaire as those who work alone, without employees.

Previously we have been examining general human traits in the *Wikipedia* respondent population. Next we will examine the results given when asked about traits exclusive to *Wikipedia* users: user access levels, types of contributors, language edition use and geolocation.

According to the data from the questionnaires, most *Wikipedia* contributors were registered users - 62.8%. 2.8% of this total were registered users with a greater access level, specifically: 2.3% administrators, 0.3% bureaucrats and 0.2% stewards. The remaining 37.3% of respondents consisted of unregistered users. These unregistered users were mostly young.

- 10-17 year olds - 43.5 %
- 18-21 year olds - 42.9%
- 22-29 year olds - 37.0 %
- 30-85 year olds - 27.7 %

In the registered user group, as well as in the administrator group the tendency is the reverse, there are larger percentages of older users.

- 10-17 year olds - 55.2% registered users, 1% administrators
- 30-85 year olds - 67.8% registered users, 3.7% administrators

This tells us that although younger users are likelier to contribute to *Wikipedia*, they are less likely to register to do so, or once registered to gain further access levels.

Activity types are divided as follows: Readers, Ex-contributors, Contributors and Other. Readers are by far the most abundant type, averaging at about 70 % over all age groups and both sexes. This is very likely to be because reading is not costly either in time or effort. Those willing to use *Wikipedia* merely to satiate their curiosity are always going to be greater in number than those willing to spend some time making it better by contributing to it. The proportion of those responding 'Other' is negligible, and those claiming to be ex-contributors is also small, averaging at little more than 2.5 % overall. The proportion of contributors over all ages and both sexes is a little less than 30 %. The proportion goes up for older respondents up to the age of 49, yet reverses in the oldest cohort. It appears we can confirm that older readers are more willing to take on the responsibility of contributing, perhaps feeling more confident in their knowledge. This contrasts with the fact that overall there are more respondents of a younger age, and therefore more young contributors. Nevertheless the fact

remains that amongst those older people that do use *Wikipedia* there is a greater will to contribute.

The proportion of female contributors is vastly inferior to that of male contributors. Male contributors average out at little more than 30 %. Female contributors do so at little more than 10 %. This confirms what has previously been discussed about gender bias in *Wikipedia*.

The last two factors we shall examine in this section are language use and nationality of respondents. The information from the survey will be contrasted with the latest information from *Wikipedia*.

With regard to language use, the percentage of survey respondents from each language version shows that the vast majority of respondents took part from *Wikipedia* in the following four languages.

- Russian - 26%
- English - 25%
- German - 13%
- Spanish - 12%

In smaller numbers were those who responded from the following language versions.

- Dutch - 5%
- Portuguese - 4%
- Japanese - 3%
- Traditional Chinese - 2%
- French - 2%
- Italian - 2%
- Simplified Chinese - 2%
- Polish - 2%
- Czech - 1%
- Arabic - 1%

In even smaller numbers were a scattering of respondents from the Thai, Vietnamese, Catalan, Indonesian, Tamil, Greek, Esperanto and Afrikaans versions of *Wikipedia*. These proportions, however, do not correspond to what appears in *Alexa's* monitoring

of internet traffic.²⁹⁸ The actual traffic observed in the largest language versions of *Wikipedia* is the following.

- English - 56%
- Spanish - 9%
- Japanese - 8%
- Russian - 6%
- German - 5%
- French - 4%
- Italian - 3%

Another indicator showing the relative importance of different language versions is the number of articles published. The language versions of *Wikipedia* with more than a million articles are, in diminishing order, English, Dutch, German, Swedish, French, Italian, Russian, Spanish and Polish.^{iv}

Clearly, the Russian language version of *Wikipedia* was grossly overrepresented in the survey compared to both the amount of traffic and the number of articles in Russian *Wikipedia*. The survey findings for the English version of *Wikipedia*, on the other hand, correlated more closely to its actual importance in terms of traffic and number of articles. Other language versions were represented in a way which was reasonably similar to their general use.

By examining data about *Wikipedia* user nationality in relation to language version use, we can examine the cultural spheres of influence of differing *Wikipedia* versions in different countries.

With regard to the nationality of users, it is unsurprising that English *Wikipedia* is so dominant. Not only was the English version the first to exist, but also a vast number of people worldwide live in countries where English is spoken as a first or second language. Therefore, we would expect to see many English-speaking countries amongst those where *Wikipedia* is accessed the most. The UN University survey seems to confirm this by revealing a large number of respondents from English speaking states. The USA -11%-, Great Britain -3%-, Canada -2%- and India -1%- account for most of these respondents.

²⁹⁸See <http://www.alexa.com/siteinfo/wikipedia.org?range=5y&size=large&y=t> (Last visited 26/01/15).
See <http://tinyurl.com/Wikisbynart> (Last visited 26/01/15).

The data also shows -as would be expected due to the Russian language version anomaly- a large number of respondents from Russia -18 %- . However, there is a larger percentage of Russian version respondents -26 %- than of Russian respondents -18%- . This means that there must be people writing in Russian from outside Russia. This is confirmed by the presence of Ukrainians -4%- , and other respondents from Russian speaking countries, though all with a presence below 1%.

Similarly, the number of respondents from Germany -12%- is smaller than the number of respondents writing German, so some German writers are writing from outside Germany. Obviously, this includes Austria -1%- , but perhaps also a small number of respondents write from countries bordering Germany, where German is a minority language, such as the Netherlands -4%- , Poland -2%- , France -1%- or Belgium -1%- .

The number of respondents writing on the Spanish version of *Wikipedia* may be accounted for by the figures from Spain -3%- , Mexico -3%- , Argentina -2%- and Chile -1%- . But we should not discount the USA, where there is a large, and growing number of Spanish speakers.

As mentioned above in the case of Russian, the comparison of this data with the actual traffic data of *Wikipedia* can reveal important inconsistencies.

The distribution of articles according to language version²⁹⁹ is as follows.

• English -	14 %
• Dutch -	6%
• German -	6%
• Swedish -	5%
• French -	5%
• Italian -	4%
• Russian -	4%
• Spanish -	4%
• Polish -	3%
• Waray-Waray ³⁰⁰	3%

²⁹⁹<http://tinyurl.com/Wikisbynart> (Last visited 26/01/15).

³⁰⁰The fifth most spoken language in the Philippines.

There are also 277 other language editions. These constitute more than 50% of articles in *Wikipedia*.

Concerning the country of origin, the largest percentage of visitors navigate from the USA as the following table shows.

• USA -	21%
• India -	8%
• Japan -	6%
• Germany -	6%
• Russia -	4%
• UK -	4%
• France -	4%
• Italy -	3%
• Spain -	2%
• Mexico -	2%

Russian, we emphasise, does not seem to be nearly as important in reality as it was in the survey. English is the most important language and the USA the most important origin for visitors to the site. Remarkably, however, there is an enormous preponderance of minor languages being used to contribute to *Wikipedia*, albeit each one to a small extent. Indeed, the number of languages -and the number of articles in each language- is set to increase as *Wikipedia* sets up programs making access more easily available in the poorer and less well represented regions of the world.³⁰¹

In spite of this, it is still undeniable that a greater proportion of people from the European cultural sphere of influence write than from African, Asian or First People cultural backgrounds. This is reflected by the overrepresentation of rich European countries with a low population (and their languages) in relation to poorer non-European countries with large populations.

Of the top ten most used languages (according to both the numbers given to us by the UN university survey and *Alexa*) there is a clear preponderance of languages using Latin or Cyrillic alphabets. The countries where a majority of wikipedians are based also generally have a strong European cultural influence. Even in countries without a

³⁰¹Wikimedia Foundation *Wikimedia Foundation 2013-2014 Annual plan* (Wikimedia Foundation 2013) p. 19 Available at http://upload.wikimedia.org/wikipedia/foundation/7/75/2013-2014_WMF_Plan_As_Published.pdf (Last visited 26/01/15).

major European cultural influence, European languages are dominant.³⁰² The only exceptions to this are Chinese in China and Taiwan, Japanese in Japan, Korean in South Korea, Vietnamese in Vietnam and Arabic in Syria. Everywhere else European language portals are used by a greater number of *Wikipedia* users.

In Africa, English is the favoured language in most countries -even in some countries with a Francophone tradition- although the French portal is the most widely used in Morocco, Algeria, Tunisia and Senegal. The only other language used by a majority of people in countries in Africa is German in Namibia and The Gambia.

In a great part of South and Central America English is used. The exceptions are the use of the Portuguese portal in Brazil, Italian in San José, French in French Guiana, German in Bolivia and Uruguay, and Spanish in Venezuela, Paraguay, Chile and Argentina.

The whole of the North American landmass, as well as all major countries in Oceania and South Asia write principally in the English *Wikipedia*. Asian and Middle Eastern exceptions have already been noted. Russia, and neighbouring Georgia, Kazakhstan, Ukraine, and Belarus write on the Russian *Wikipedia*.

Most European countries write in their official dominant languages, except for:

- Greece and Albania, which write in English.
- Former Yugoslav countries, typically writing in French.
- Surprisingly, Spain. The most used language version of *Wikipedia* in Spain is not the most spoken language- Spanish- but Catalan, the regional language of the North-Eastern region, Catalonia.

It would be possible to call this a Eurocentric bias, and this bias undeniably exists, but it might perhaps be more correct to talk of an over-representation of the Global North and an under-representation of the Global South. “The most apparent asymmetry is perhaps between the Global North and South, although many countries provide a modest exception to this norm.”³⁰³

This data if unified can give us a good idea, not only of who is constructing and sharing knowledge in *Wikipedia*, but of what this means for knowledge itself. Those

³⁰² Graham *et al.*, *Uneven Geographies*. p. 10.

³⁰³ Graham *et al.*, *Uneven Geographies*, p. 10.

writing on *Wikipedia* are doing so from privileged settings. Many of them are young students, at a graduate level, mostly from the Global North.

When articles are geographically located, what we call geotagged,³⁰⁴ we find that most wikipedians write about local topics. Due to the preponderance of people writing from rich countries in North America, Europe and North Asia, the southern half of the world is not as heavily featured as it should be.

This partly explains why there is far more information about topics related to Europe, and the Global North, than to the Global South. However, it does not explain why there are proportionally many more people contributing in those countries. Part of the reason for this has to do with the other two factors contributing to the total number of geographically located articles: total population, and broadband connection, “Over three quarters of the variation in geotagged articles was explained by the population of the country, the number of fixed broadband connections and the number of edits emanating from that country.”³⁰⁵

Nevertheless when comparing the growth in articles to the growth of these factors we find that not everything adds up. There are conflicts. “More people in front of a broad-band connected computer does not immediately translate into a proportionate increase in local articles.”³⁰⁶ The factor missing is intrinsically cultural and indicative of the way knowledge functions in *Wikipedia*. Because the original starting place of *Wikipedia* is the English speaking world, the cultural background within it is intrinsically Occidental and European. Cultures with good internet connections, a large educated population of young students with free time, and a strong academic tradition have made the project their own. All the more so since they are likely to already have strong cultural links to *Wikipedia*’s original English-speaking cultural background. Securing a large initial population of wikipedians is important, as they will create cultural content and knowledge relevant to users of *Wikipedia*. A proportion of these users will go on to become new editors creating a virtuous circle of edits. Countries in which broadband connection and or population is low are unlikely to reach the critical mass which leads to ever more articles concerning local knowledge.

Moreover, even when knowledge is generated in smaller-language editions of *Wikipedia*, an interesting effect takes place. “It is not the Global North that vanishes

³⁰⁴ Many articles, or parts within them, can be geotagged. Geographical position relevant to the article is given according to latitude and longitude.

³⁰⁵ Graham *et al.*, *Uneven Geographies*, p. 15.

³⁰⁶ Graham *et al.*, *Uneven Geographies*, p. 17.

from the map. It is rather other parts of the South that become absent.”³⁰⁷ This is doubly troubling for a project which ultimately aims to create a ‘sum of all knowledge’.³⁰⁸ Local knowledge is not being created, or translated into the variety of languages which enriches *Wikipedia* and makes it interesting to anyone outside the Eurocentric world. Instead, it is the already visible North’s interpretations and perspectives, which are being spread. This is undeniably a form of cultural imperialism, albeit certainly unintentional.

Other constraints of a different nature also exist. Connectivity is not enough. People will not log onto the internet only to use or contribute to *Wikipedia*. Other sites must exist and be used in a region and language to generate interest in *Wikipedia*. It is part of ‘a broader information landscape’, and the efficiency of the internet- which might limit its use to essentials such as emails and checking the weather- limits the use of *Wikipedia*. Another constraint is the lack of local ‘chapters’ or organised groups of local *Wikipedia* editors, who are very important as a way to organise and generate interest in the creation of local content. Another important constraint is the ‘principle of increasing informational poverty’; “A broader base of traditional source material [...] is needed for the generation of any *Wikipedia* article, but [...] the presence of content itself is a generative factor behind the production of further content.”³⁰⁹

To this we may add a final constraint which makes the incorporation of non-Eurocentric views very difficult: the structural inability of *Wikipedia* to “incorporate fundamental epistemological diversity.”³¹⁰ The way in which *Wikipedia* is fundamentally organised, that is to say, the encyclopaedic tradition of organising knowledge upon which it is founded fails to capture the interest of non-Europeanised cultures because of alternate ways of understanding, generating and classifying knowledge. Knowledge on *Wikipedia* always derives from legitimised sources. The form this legitimacy takes is publication, when possible by recognised academic authorities on any given subject. Oral traditions, therefore, have no legitimate access to *Wikipedia*, except when they are published, most often by occidental researchers.

To conclude this section we should take into account that *Wikipedia* is aware of the problem of underrepresentation. Nevertheless the problem persists. Due to some of the facts mentioned it is likely to persist for a long time. We mentioned many factors

³⁰⁷Graham *et al.*, *Uneven Geographies*, p. 17.

³⁰⁸ http://en.wikipedia.org/wiki/Wikipedia:Ten_things_you_may_not_know_about_Wikipedia (Last visited 26/01/15).

³⁰⁹Graham *et al.*, *Uneven Geographies*, p. 20.

³¹⁰Graham *et al.*, *Uneven Geographies*, p. 20.

Wikipedia can control, such as making connectivity easier in underrepresented regions or supporting chapters of under-represented languages. There are other factors it has no control over. It cannot include un-sourced knowledge without allowing original research. It cannot allow original research and maintain anonymity simultaneously. It cannot abandon anonymity without becoming a different project. Therefore *Wikipedia* can- at best- reflect the state of sourced knowledge, but not overcome the problems it causes.

These constraints limit the opportunity to write. To do so, one must have the infrastructure, the time, relevant knowledge, and motivation. As we have seen, part of that motivation has to do with recognising *Wikipedia* as part of one's own cultural context, but that is more a basis for motivation than motivation itself. Prestige and altruism are generally recognised as being the greatest motivators for collaborating within *Wikipedia*. These two things are linked.

Prestige is important because those who contribute to *Wikipedia* are acting selflessly, indeed the only 'official' payments editors receive are in the form of higher powers within the *Wikipedia* bureaucracy and a series of digital rewards which are symbolic of the esteem of the *Wikipedia* community for services rendered. They are the equivalent of medals in the military, but without any kind of economic value. The discreet systems which have been used have changed with time. It all started with image editors, and especially those with the status of administrator who would spontaneously give one another gifts for work well done. These derived into 'medals' and 'barnstars' -organised and recognised awards for standardised achievements- although personalised gifts survive to this day.³¹¹

We have already gone over how the hierarchy of *Wikipedia* functions, and how one gains new powers.³¹² It is a fact that many editors strive to perfect *Wikipedia*, at least in part, to achieve status. This social pressure within the community helps foster the creation and persistence of motivation. Wiki-projects also act as catalysers for rewards and help direct and motivate effort in those directions where it is deemed most necessary by members of the community.

Having examined the social nature of the labour forces of *Wikipedia*, we will now turn to the economic aspects of these forces. In an economic sense, we can say that workers mostly own the means of production. They generally, or at least *de facto* own

³¹¹ Ortega, *El Potlach Digital*. p. 110.

³¹²See section 2.1.3., pp. 54-55.

the means of production.³¹³ The hardware generally belongs to users or is freely used by them. Internet connections are paid by them, or can be used freely. The servers are owned or rented by *Wikimedia*, functioning for the public good as a non-profit organisation. As a result these servers are in practice the property of all editors and users.

Nevertheless there are limitations to the idea that the workers own the means of production within this organisation. *Wikipedia* employs people to fulfil different functions which are believed to require full-time work. The work they do is highly skilled and well paid, but- unlike the large community of volunteer editors- these workers cannot merely do as they desire with their time. Though they work for the community they do not necessarily consider themselves part of the volunteer community, consequently they may feel they do not own the means of production. Nevertheless, considering *Wikipedia's* employees are often selected amongst the volunteer editors, it can be assumed they generally consider themselves as part of the community that owns *Wikipedia*.

Division of labour exists in *Wikipedia*. Amongst the volunteer editors, functions are divided according to skill and will. An editor who desires to do something and can do it moderately well will not be stopped, and might even be encouraged. Those who do not function well at a task may be reprimanded by other users, and- if excessively counter-productive and persistent- thrown out of the community. In the past IPs have been blocked to prevent bad editing, which is generally editing with malicious or propagandistic intent.³¹⁴

Editors who work well- as has been mentioned before- will gain new rights that may help them edit better and faster. All users- in theory- have a say in governing *Wikipedia* and assigning responsibilities and powers to other users, including the administrative strata at the top. In reality- however- only a small number of wikipedians worry about any one topic of debate.

To conclude this section we must answer a final question. Given its economic and social setting, how does *Wikipedia* fare as an organisation compared to other social structures?

Wikipedia is a hierarchic and directly democratic organisation with aspects of both political anarchy and economic communalism, working within the limitations of glob-

³¹³ Firer-Blaess, *Wikipedia Governance*, p. 39.

³¹⁴ And therefore vandalism, see section 2.2.1.3., pp. 76-79.

alised capitalism. Within it, the currency economy is generally in service to a communised information economy. This can be seen clearly when examining the fact that *Wikipedia* does all it can to keep advertisements out of its functioning. The worry is that the input of money from external companies might corrupt *Wikipedia*. Once a currency economy takes prevalence, the knowledge economy might suffer. After all, a company advertising its product on *Wikipedia* might take away funding if *Wikipedia* reports true but damaging information about the company. If enough money was injected, perhaps some editors might consider allowing the removal of the damaging information. Truth and knowledge would have an exchange rate.

In the current system, currency is used to run the system within the global economic system. In spite of this the currency-powered economic system is separate from the knowledge economy, except for the fact that editors have a say in how currency is spent.

A knowledge economy can function in very different ways from other kinds of economy thanks to something which was mentioned at the beginning of this section - the fact that knowledge, in *Wikipedia*, is a non-scarce product. When knowledge is shared, the amount each person has is not reduced.

As a conclusion to the two last sections, I shall briefly condense how sociological factors affect knowledge in *Wikipedia*. Knowledge is mediated by many of the usual problems, generally found in contemporary media. Gender representation is skewed, and poverty causes underrepresentation. In both cases an effort is being made to solve the problem, though clear-cut solutions cannot easily be found. Other, more specific trends are the preponderance of the young and the preponderance of the educated. Specific technical and social features of *Wikipedia* help explain this. *Wikipedia* has, in relatively little time become the go-to reference oeuvre for many, because of the ease and speed with which one may seek information. Older readers generally developed different consultation habits, prior to *Wikipedia*'s existence. Conversely, few people under 30 search anywhere other than *Wikipedia* or *Google* for fast, simple reference. This means an enormous exposure of *Wikipedia* to this age group, which many readers over 30 simply have not grown up with.

Contributors to *Wikipedia* are likely to have some level of academic achievement. This is for two main reasons. First, the desire to contribute to *Wikipedia* shows some level of interest in writing, fact-checking, or grammar. Such interest is likely to lead to both collaboration with *Wikipedia* and to further education. Secondly, *Wikipedia* editors demand certain standards for the information posted. Everything should be refer-

enced and well written. Someone who is not acquainted with these concepts will either have to learn fast, or will abandon the project out of frustration. Another factor is that editors also demand specific kinds of reference: peer-reviewed academic sources. Other sources are often tolerated, but do not carry the same argumentative weight within *Wikipedia*.

Of course, this has a consequence on the effects on gender and poverty mentioned above. The natural tendency in *Wikipedia*, in spite of its openness, is for an increasingly elitist viewpoint. Fortunately, many editors are aware of this and, as has already been referenced, efforts are being made to reverse the tendency. The ease with which knowledge is accumulated on *Wikipedia* makes it less probable any advances will be lost, but if there are no written sources for an article it is likely to never be written, or be deleted if it is. Without radical changes, *Wikipedia* will continue to merely reflect the socio-cultural dominance of the Global North and the Anglophonic cultural and academic sphere.

2.2.3- Philosophical interpretations of *Wikipedia*.

The two following sections will offer two different examinations of *Wikipedia* from philosophical points of view. These examinations will be centred on particular aspects of the encyclopaedias.

The first section examines *Wikipedia* from a ‘Hermeneutical’ point of view. The section will expand on the previously examined biased nature of *Wikipedia*, and apply concepts from philosophical hermeneutics such as ‘prejudice’, ‘transformation’ and ‘interpretation’ to the problematic aspects of that bias within *Wikipedia*.

The second section will relate Feyerabend’s ‘Philosophy of Science’, to *Wikipedia*’s manner of constructing an encyclopaedia. The comparison of Feyerabend’s ‘Epistemological Anarchism’ to *Wikipedia*’s fifth pillar is of particular interest, but the section will expand to capture a greater variety of ideas.

2.2.3.1- Hermeneutics and interpretation in *Wikipedia*.

Hermeneutics is a long tradition within European philosophy. It derives from 19th Century text exegesis. The main idea which we can find behind all proponents of Hermeneutic philosophy is that reality must be interpreted. The nature of the reality to be interpreted has changed as the ambitions of proponents of hermeneutics grew; Initially only scripture was interpreted in this way, but eventually so was existence itself.

The philosopher who's thought will be of greatest interest to us in relating hermeneutics to *Wikipedia* is Hans-Georg Gadamer. This is because of a problem we have already detected within *Wikipedia* which Gadamer's thought may help us understand better. *Wikipedia* has a Western and Global North bias.³¹⁵ Gadamer proposes that such forms of bias, for which he uses the term 'prejudice', are inevitable and necessary.

According to Gadamer we are all immersed in some tradition or other. According to where we were born, who we have learned from, what things are considered right or wrong in our social context, etc... we will be able to tackle problems and understand concepts in one way or another. It is impossible to correctly understand anything completely foreign to our own context, and it is impossible to have no context. According to this interpretation, *Wikipedia* would also have a context and follow a tradition. What we find within it- every article and talk page- reflects that fact. The value placed upon printed text and peer-reviewed documents when referencing articles is explained as honouring the academic tradition from which many editors write. The idea that *Wikipedia* should not have advertising and should be free from any political or economic control derives from a long tradition of political liberalism and the shorter tradition of internet forums in which those limitations did not exist. The fact *Wikipedia* exists at all is determined by a conscious desire to continue the encyclopaedic tradition. *Wikipedia* exists within those traditions and cannot truly examine them in an objective manner, nor is there need to within Gadamer's framework.

Yet, if Gadamer's theory of prejudice is an adequate explanation of *Wikipedia*'s state, what does that mean for *Wikipedia*'s future. Is the problem of the Global North bias a false problem? Are efforts in place to make *Wikipedia* more accessible to users from cultures -until now- alien to *Wikipedia* useless?

³¹⁵ See section 2.2.2.2., pp. 103-104.

Answering the second question from this perspective is relatively simple. It is not necessarily useless. The vector through which culture is transmitted is language. Indeed, according to Gadamer, language is the essence of understanding. In *Wikipedia* we have the circumstance of multiple language versions. Each language version is different and, as one would expect according to Gadamer, reflects traditions responding to that language. The German language version of *Wikipedia* is strict with its content, and has permanent versions of some articles. It is less flexible, yet more authoritative than other language versions. The Spanish language version is not nearly as strict, and has had problems keeping united in the past. This is due to resolution of conflicts with dialogue taking a second place to bold, but brash moves- such as creating a separate encyclopaedia. This has caused problems in both scale and quality of the encyclopaedia compared to other- smaller- language communities. Different language communities place emphasis on different aspects of *Wikipedia*, interpret its core principles in different- often opposite- ways. Contents of *Wikipedia* vary accordingly.

The first question is not as easily answered. A possible answer is yes. It is a false problem. There is less information in *Wikipedia* about the Global South because *Wikipedia* is a creation of the Global North, mostly written by people from the Global North in languages used by people from the Global North for people from the Global North. To artificially endeavour to have the same level of detail for topics far from the ordinary interest of the majority of the Global North is a thankless task which rolls against the weight of tradition. To incorporate perspectives alien to that tradition is a travesty of both *Wikipedia* and those traditions. An oral tradition is no longer an oral tradition when it is captured in writing. *Wikipedia* does not include original research, and capturing oral traditions is obviously original research. To admit these cultures into *Wikipedia* they would have to be studied by anthropologists or journalists and be reported in reputable journals or newspapers. At that point they would have already been transformed and be part of the academic or liberal traditions in which *Wikipedia* is situated.

Nevertheless, there are important ways in which Gadamer's hermeneutics, in spite of helping to explain parts of *Wikipedia*, are not representative of *Wikipedia*. A consequence of Gadamer's theories is that the scientific method can no longer be considered a privileged way to gain knowledge. It is just a tradition amongst others, whereas hermeneutics is universal in scope. The scientific method is in need of language to express meaning, and is in debt to tradition. Hermeneutic claims to study meaning and tradition. To do this it inevitably uses both natural language and its own traditions, but claims to overcome these limitations by use of the hermeneutic circle.

Wikipedia does not work hermeneutically. The traditions it feeds on are mostly scientific. Though editors are not allowed to research and add empirical information to *Wikipedia* directly, they are asked to search for primary or secondary sources. These are accepted- when there is nothing contradictory in different sources- or debated- when there is. Resolution of conflicts is mediated by reason. Peer-reviewed and newer studies will take prevalence over non-peer reviewed and older information. Tradition is not normally consciously invoked as a reason to add or delete content. *Wikipedia* aims to describe, not to interpret. In spite of this, the question will often arise within talk pages of what is the best way to describe the subject of an article. Inevitably what goes on during these discussions are interpretations. The resulting description will be the result of those interpretations which gain dominance in the dialogues within the talk page.

Habermas, who in many ways opposed Gadamer's theories, can help us understand aspects of *Wikipedia* Gadamer cannot. Gadamer's emphasis was on interpretation. Habermas' emphasis is on transformation. *Wikipedia* finds itself within a tradition, and cannot exist outside of it. Yet Habermas' theories would suggest *Wikipedia* should push the boundaries of these limitations and overcome tradition. Habermas believes tradition is the main cause of error. Within tradition we find unchangeable dogmas, and principles, protected by ideology as existing within the meanings given to words in natural language. The only way of overcoming knowledge is overcoming tradition. The only way of overcoming tradition is overcoming the flawed, prejudiced, inexact and multiple meanings of words and expressions in natural language. This is done by using the simpler, monologic language of science, in which words and expressions have exact meanings. Using this kind of language, in conjunction with reason - considered universal by Habermas- one can overcome tradition and enact radical changes.

This is exactly the language *Wikipedia* aims to use. *Wikipedia* tries to be exact in its meanings, and clear in its use of language. Even though articles can often be unclear, inexactitudes of this sort will often be solved when an editor notices them.

Is *Wikipedia* following and using tradition, as Gadamer's theories suggest it should, or using scientific language to fight tradition, as Habermas' theories suggest it should? Whereas- as we have already indicated- *Wikipedia* is steeped in traditions- encyclopaedic, scientific, liberal- it is not a hermeneutic encyclopaedia. It does not aim to interpret, but merely to describe. There is nothing similar to a hermeneutic circle within *Wikipedia*, though there are simple discussions over interpretation of reality in the talk pages. The language used is an imitation of scientific language. Edi-

tors aim at creating exact and monologic language in articles. Multiple meanings, poetry, analogies... these are all things which will not be tolerated in a good article.

Furthermore, *Wikipedia* is not merely a constructive force. It has created novelties in a way that has been destructive to those traditions it derives from. *Wikipedia* has been a direct cause for the end of traditional encyclopaedias, and has badly hurt the concept of traditionally written encyclopaedias as well as the idea that only recognised experts can write an encyclopaedia. It is in a very real sense revolutionary. It has taken the power to shape reality through encyclopaedias away from a self appointed elite and given it to a wide group of people. Something is no longer included in an encyclopaedia because a group of academics appointed by an editor believe it should be, but because of an ample consensus amongst all interested parties. Indeed the emancipatory potential of *Wikipedia* as a real life approach to Habermas' theory of 'rational discourse' has been discussed before by others.³¹⁶

As a result, apart from the contents one would normally find in an encyclopaedia- validating the criteria of academics and editors of more classic encyclopaedias- we also find an enormous array of facts and information about popular culture which would not normally be found in a traditional encyclopaedia.

Another problem which hermeneutics might help us with is that of mutually exclusive beliefs. *Wikipedia* claims to be "a summary of all human knowledge in the form of an online encyclopedia,"³¹⁷ yet there are human beliefs which are mutually exclusive. There are two variations of this problem. The problem with including contradictory theories within *Wikipedia* without appearing biased, and the problem of including knowledge and ideas that contradict *Wikipedia's* functional beliefs.

The first problem is easily solved. As we have seen, *Wikipedia* is biased. If we compare the article 'evolution' and 'creationism' we can easily find important differences which indicates *Wikipedia* considers one of the two theories to be closer to the truth. For example; The first paragraph of both articles.

³¹⁶Sylvain Firer-Blaess, "Wikipedia: Example for the Future Electronic Democracy? Decision, discipline and Discourse in the Collaborative Encyclopaedia" *Studies in Social and Political Thought*, Vol. 19 (2011).

S. Hansen, N.Berente and K. Lyytinen "Wikipedia as Rational Discourse: An Illustration of the Emancipatory Potential of Information Systems" Proceedings of the 40th *Hawaii International Conference on System Science* (2007).

³¹⁷ http://en.wikipedia.org/wiki/Wikipedia#Coverage_of_topics_and_systemic_bias (Last visited 26/01/15).

“**Evolution** is the change in the inherited characteristics of biological populations over successive generations. Evolutionary processes give rise to diversity at every level of biological organisation, including species, individual organisms and molecules such as DNA and proteins.”³¹⁸

“**Creationism** is the belief that the Universe and living organisms originate from ‘specific acts of divine creation’. For young Earth creationists, this includes a literalistic reading of the Book of Genesis and the rejection of evolution. As science developed during the 18th century and forward, various views aimed at reconciling the Abrahamic and Genesis creation narratives with science developed in Western societies. Those holding that species had been created separately (such as Philip Gosse in 1857) were generally called ‘advocates of creation’ but were also called ‘creationists’, as in private correspondence between Charles Darwin and his friends. As the creation–evolution controversy developed over time, the term ‘anti-evolutionists’ became common. In 1929 in the United States, the term ‘creationism’ first became associated with Christian fundamentalists, specifically with their rejection of human evolution and belief in a young Earth—although this usage was contested by other groups, such as old Earth creationists and evolutionary creationists, who hold different concepts of creation, such as the acceptance of the age of the Earth and biological evolution as understood by the scientific community.”³¹⁹

The first paragraph is written with the intention of stating a fact whereas the second paragraph has the intention of stating a belief. The first paragraph describes something in its own terms, the second does so in relation to a contradictory belief system. It is obvious that the editors of both articles believe truth lies closer to the idea of evolution than to the idea of creation. It is arguable that this is justifiable bias. Indeed those who give the words bias and prejudice a negative connotation might consider it is not bias at all- it is ‘looking at the facts straight’ or ‘being reasonable’. As we have already seen, prejudice is not necessarily something bad. It is necessary for understanding. In any case, which of both theories is closer to the truth is irrelevant. If *Wikipedia* aims to reflect all human knowledge it must do so from a wide variety of perspectives so that cultural traditions different from those from which *Wikipedia* editors come can be correctly understood. By writing articles on traditions different from those traditions editors come from -from a Global North academic perspective- one necessarily alters the way that knowledge can be comprehended by the reader. Therefore one does not transmit the full extent and richness of that knowledge in its natu-

³¹⁸ <http://en.wikipedia.org/wiki/Evolution> (Last visited 26/01/15).

³¹⁹ <http://en.wikipedia.org/wiki/Creationism> (Last visited 26/01/15).

ral state. This is not a criticism of the way *Wikipedia* writes articles. It would be impossible to write from outside one's own tradition or from every tradition simultaneously. One cannot truly understand and therefore explain Creationism, the Norse Mythos or any other belief without believing it. One can come close, but one cannot capture its essence. There are many beliefs one cannot hold simultaneously, therefore there are necessarily going to be a set articles corresponding to a set of beliefs, indeed a great number of articles, which are going to be written about from outside their tradition. To be a summary of *all* human knowledge from a first hand perspective is impossible.

It could be argued that, due to the eclectic nature of *Wikipedia*– the fact that anyone can write on it– the previous point would be void. A creationist could write about creationism, and an expert in evolution could write about evolution. This however, is misunderstanding how *Wikipedia* works. The process described in this paragraph is not the way articles are written on *Wikipedia*. On *Wikipedia* many people generally collaborate on any single article. Indeed, by their action or inaction– by allowing the article to continue existing as it does, altering it, or deleting it– all users are party to the article. Any, and all articles that remain extant in *Wikipedia* for any reasonable period of time without disappearing must be acceptable to the *Wikipedia* community. An article written from without the general scientific and global northern traditions shared by this community will not last for long. Reasoning in favour of those articles may well have a starting point that is unacceptable to other editors.

The second problem is related to the previous one. There are cultural traditions which are opposed not only to other content within *Wikipedia*, but to *Wikipedia*'s core values. These ideas are going to be very difficult to include within *Wikipedia*. This includes any knowledge for which there are no recorded sources, cultural traditions which are not shown or discussed to people outside their own cultural traditions, and knowledge lost to time. All of these surely count as human knowledge, but inclusion in *Wikipedia* is difficult or impossible. The difficulty of including oral traditions in *Wikipedia* has already been discussed, but it is obvious that knowledge hidden from the general public, or lost to time is never going to make it to an article until, and if, it is revealed. To claim to summarise all human knowledge– given these crucial gaps– is to pretend to have achieved the impossible.

Hermeneutics allows us to examine the limits of what can exist within *Wikipedia*, and these limits are defined by *Wikipedia*'s tradition and the cultural heritage of the editors working in it. Ultimately everything must pass by the filter posed by the need for sources, severely limiting content from cultures which do not document them-

selves, are documented by others, or document themselves in ways alien to the Global North.

2.2.3.2- *Wikipedia* and Epistemological Anarchism.

In this section we compare *Wikipedia* to Feyerabend's way of understanding knowledge. Four issues that are common to Feyerabend and *Wikipedia* are studied:

- 'Epistemological Anarchism'.
- 'Pluralist Methodology'.
- The problem with 'Natural Interpretations'.
- The problem of 'Incommensurability'.

Feyerabend's Epistemological Anarchism, also known as Epistemological Dadaism, consists in the following: no set of rules we might design to regulate or describe the way science works can do it adequately. Any possible rule has been broken, or might be justifiably broken as long as the scientist breaking it considers it beneficial to his enquiries. If- in spite of this- we found the necessity to specify a rule or principle, the only one we might correctly postulate is the idea that 'anything goes'.³²⁰

This principle is similar to one found amongst *Wikipedia*'s 'five pillars'.³²¹ According to the fifth pillar *Wikipedia* has no permanent rules. The reasoning behind this is that it is considered useless and absurd to set a limit to what future *Wikipedia* users might do within it. This is due to the fact that:

- Unpredictable things might have to be done within *Wikipedia* to keep it in working order.

³²⁰ Paul K. Feyerabend, "Against Method: Outline of an Anarchistic Theory of Knowledge", in *Analysis of Theories and Methods of Physics and Psychology: Minnesota Studies in the Philosophy of Science*, Michael Radner & Stephen Winokur (eds.), (University of Minnesota Press, 1970), p. 22 [hereafter Feyerabend, *Against Method*].

³²¹ The five pillars of *Wikipedia* are the following: - *Wikipedia* is an encyclopedia. - *Wikipedia* has a neutral point of view. - *Wikipedia* is free content that anyone can edit and distribute. - *Wikipedians* should interact in a respectful and civil manner. - *Wikipedia* does not have firm rules. See section 2.1.3., pp. 52-53.

- The judgement of those in the future need not be any worse than ours in the present.

It is obvious that there are similarities between Feyerabend's theory and *Wikipedia* on this point. Feyerabend believes that artificially limiting a scientist's action-range is not the most efficient or realistic way of gaining new knowledge.³²² Imagination and freedom are two of scientists' most useful tools.³²³ *Wikipedia* keeps the amount of restrictions to a user's actions down to a minimum for reasons that are similar to those espoused by Feyerabend. It is believed that editors will work at their best when they do so in absence of restrictions other than those imposed on them by the medium they are working on and interactions with other users.³²⁴

Even so, there are notable differences between the encyclopaedia and the philosopher of science. Whereas Feyerabend writes about the human capacity for obtaining knowledge, *Wikipedia* applies its rules to a specific project. When examining Feyerabend's ideas we are faced with a rhetorical principle that is offered ironically to those needy for order and regulations in the field of epistemology- a field in which Feyerabend does not recognize any absolute regulations. If we consider *Wikipedia*, we are confronted with a real rule included in a code of conduct used by a large amount of people every day. Admittedly, it is a rule that serves as a reminder of the limitations and temporality of any form of regulation. In spite of these differences it is of great interest to discover how and up to which point the *Wikipedia* rule recognizes the limitations that Feyerabend describes.

The complete fifth rule is the following:

Wikipedia does not have firm rules. *Rules on Wikipedia are not fixed in stone, and the spirit of the rule trumps the letter of the rule. Be bold in updating articles and do not worry about making mistakes. Your efforts do not need to be perfect; prior versions are saved, so no damage is irreparable.*

If we click the link that appears in the first part of this rule, we find a page that tells us to ignore any rule that prevents us from improving or maintaining *Wikipedia*. Again, this is almost identical to what Feyerabend tells us scientists ought to do concerning science.³²⁵

³²² Feyerabend, *Against Method*, p. 22.

³²³ Feyerabend, *Against Method*, pp. 19, 20, 21.

³²⁴ Feyerabend, *Against Method*, p. 21.

³²⁵ Feyerabend, *Against Method*, p. 22.

Pluralist Methodology is not an idea of Feyerabend's own design, but was taken by him from John Stuart Mill's writings. It was first defended by Mill in *On Liberty*³²⁶ under the name of intellectual freedom- and since- by both Feyerabend³²⁷ and *Wikipedia*, amongst many others. In this context what we understand by pluralism is the idea that a variety of ways of understanding the world can -and should- coexist. Mill, Feyerabend and *Wikipedia*- amongst others- all agree that this pluralism is helpful to those seeking to gain, and transmit knowledge. This is mainly due to two things.³²⁸

- The increased possibility for new original theories to appear when a variety of ideas is tolerated.³²⁹
- The possibility for patently false theories to be refuted by better theories, when both can be freely confronted.³³⁰

There is a second argument that Mill uses to defend Pluralism. He believes that the debate that occurs between those proposing differing theories is favourable to the individual's personal development, regardless of whether or not the debate brings them nearer to the truth.³³¹ Feyerabend seems to be specially predisposed to accept this second line of argument.³³²

It is Feyerabend's belief that refuted ideas must not be forgotten or put aside. In this he goes against his colleague Popper and those that pursue falsificationist definitions of science. The fact that incomplete, falsified theories patched up with *ad hoc* arguments are regularly used in successful scientific endeavours is a point in favour of Feyerabend's posture.

That is not to say that falsificationists are against Mill's pluralism. They are for it, but Feyerabend takes Pluralism further than falsificationists can. A falsificationist believes that once a theory has enough evidence against it, or if it is not falsable, no

³²⁶ John Stuart Mill, *On Liberty*, 1859. Edited by Batoche Books, Kitchener, Ontario, 2001. [hereafter Mill, *On Liberty*].

Available at <http://socserv2.socsci.mcmaster.ca/econ/ugcm/3ll3/mill/liberty.pdf> (Last visited 26/01/15).

³²⁷ Feyerabend, *Against Method*, p. 22.

³²⁸ These are the two main reasons in which both thinkers and encyclopaedia coincide. For more information on these ideas in relation to Wikipedia see 2.2.1.2., p. 71.

³²⁹ Mill, *On Liberty*, pp. 25-27.

³³⁰ Mill, *On Liberty*, pp. 18-24.

³³¹ Mill, *On Liberty*, p. 52.

³³² Feyerabend, *Against Method*, pp. 27-28.

amount of Pluralism justifies it not being abandoned. Feyerabend does not accept this. A theory is not abandoned, nor should it be, for merely logical or empirical reasons. It shall be abandoned when it is no longer useful to anyone, and even then, there will be cases when so doing will prove to have been an error. A theory that is not useful now might be useful in the future for any number of reasons; Perhaps simply as an aid to an individual scientist's imagination. If it can be said that Feyerabend prescribes a methodology, Pluralism is part of it in much the same way as it is in Mill, and in a greater way than it is in Falsificationism.

Wikipedia is not as pluralist as it might seem to be. It tries to be pluralist in as much as it offers a diversity of points of view on each subject. Indeed, it aims to offer every relevant point of view,³³³ but does not in fact do so. To understand why the objectives and the accomplishments of *Wikipedia* differ on this, it might be useful to remember the aforementioned confrontation between Feyerabend and Popper's points of view on the pros and cons of offering this diversity of perspectives.

The main difference pointed out is that- in the realm of science- Popper would argue that there are logical ways in which we can distinguish valid theories from invalid theories, whereas Feyerabend would argue that there are no logical ways to do this, only pragmatic ways to do it. According to Popper the way to discard a theory is by falsifying it- that is- finding a piece of evidence that should not exist according to the theory. It is Feyerabend's opinion that many theories have been falsified, but continue existing by turning the event into an exception, or by creating additional postulates for the theory that allow for the event falsifying the theory. Though the problem is much more complex, this is enough to illustrate a problem within *Wikipedia*. To any feasible way of limiting the content of *Wikipedia*, there will be a possible counter-argument suggesting the content should stay if somebody wants it to. There are two possible solutions to this problem, one originating from Feyerabend the other from Popper.

³³³ The whole text of Wikipedia's second pillar is as follows:

Wikipedia has a neutral point of view. We strive for articles that advocate no single point of view. Sometimes this requires representing multiple points of view, presenting each point of view accurately and in context, and not presenting any point of view as "the truth" or "the best view". All articles must strive for verifiable accuracy: unreferenced material may be removed, so please provide references. Editors' personal experiences, interpretations, or opinions do not belong here. That means citing verifiable, authoritative sources, especially on controversial topics and when the subject is a living person. When conflict arises over neutrality, discuss details on the talk page, and follow dispute resolution.

According to Feyerabend a theory will be used as long as it is still useful; Similarly content in *Wikipedia* will only survive as long as it is deemed useful by someone- or indeed- enough people to counter those who believe it is useless.³³⁴

In spite of Popper arguing that- in science- falsified theories should be abandoned, in the political sphere he believed that even false ideas should be allowed to exist; Though this does not imply he believed they should be free from criticism. The only kind of beliefs that should not be tolerated- in Popper's opinion- are those condoning intolerance. This tenet would also be useful in *Wikipedia*, and- indeed- all articles are generally carefully worded so as to not be intolerant. This is a consequence of the NPOV policy, which calls for 'every mayor point of view' to be given 'due weight with respect to their prominence in an impartial tone'.³³⁵

An important thing to take into account is that the *Wikipedia* NPOV policy is actually quite successful at making the contents of articles rigorous and helpful. It is an adequate guideline to those desiring to contribute to the project, and to stop minority opinion from being presented as generally accepted fact. The problem is that this is presented in the guidelines as being a neutral point of view, and a presentation of relevant points of view. Yet, this does not seem to be what has been achieved. Rather, what has been created is a new non-neutral point of view. A point of view that may seem un-biased to those of us who believe academic rigour and the presentation of different perspectives on things brings us nearer to the truth, but that would certainly not seem neutral to many other people. Examples of those who consider *Wikipedia* as not neutral might be the creators and editors of '*Conservapedia*',³³⁶ or the Chinese government. *Conservapedia* considers *Wikipedia* to be excessively *liberal*, in the sense given to this word by American media. The Chinese government considers *Wikipedia* is biased because it does not recognise the official government line on different issues.³³⁷

Wikipedia tries to offer an objective point of view, yet fails. Feyerabend can help us understand why this is so by offering a demolishing attack to the idea of objectivity. He does not believe that there is a single correct way of observing, and much less of interpreting and theoretically rebuilding reality. Feyerabend would not consider *Wikipedia*'s objectives as realistic. He would not consider it feasible for *Wikipedia*- or

³³⁴ See section 2.2.1.3., pp. 79-80.

³³⁵ http://en.wikipedia.org/wiki/Wikipedia:Five_pillars (Last visited 26/01/15).

³³⁶ *Conservapedia* is an encyclopaedia in opposition to *Wikipedia* created by Andy Schlafly to offer an alternative to *Wikipedia* without what he perceived as *liberal* bias.

³³⁷ See section 2.2.1.1., pp 65-66.

any other encyclopaedia- to describe all the knowledge of humanity in an objective manner, in spite of any claims to pluralism. This is due to the problem of naturalistic interpretations, which seem to be necessary for objectivity to exist in descriptions, but which Feyerabend denies. He claims there is no natural way of interpreting phenomena.

Our ways of deciphering the world depend on our theoretical starting point. If we insert a stick in water we might think it bends, if we believe our eyes, but if our theoretical knowledge of the world incorporates, for example, a theory of light refraction we might suppose the stick's apparent change of shape is but an illusion.

Throughout history, encyclopaedias and other compilations have strived to offer truth- or at least- rigorously obtained information. Their supposed rigour has been justified in many different ways of understanding reality. For Pliny the Elder, the written word of Latin and Greek authors, as well as his own experience, fully justified the claims in his *Historia Naturalis*. Medieval encyclopaedists had to adjust the content of their works³³⁸ so as to not contradict the sacred texts of their religion. During the Enlightenment great importance was given to limits imposed by- not just religion- but by reason and empirical experience; For example in Diderot's *Encyclopédie*. This tendency continued during the eighteenth, nineteenth, and twentieth centuries, and into our own, with a growing importance being given to those experiences and ideas being offered by *experts* in each field. In the twenty-first century things change a little, in great part due to the new internet culture and *Wikipedia*.

Classic encyclopaedias appear to ignore the development of postmodern philosophy; There is little difference between encyclopaedias from the early and late twentieth century. Though there were changes in the way objective knowledge, naturalistic interpretation and other concepts were understood, they had very little effect on the way encyclopaedias were written or designed.

Wikipedia, on the other hand, is radically different from previous encyclopaedias. Though it tries to be faithful to the encyclopaedic ideals of the eighteenth century, it is poles apart from other encyclopaedias that follow these ideals. There is a contradiction within *Wikipedia*; A contradiction between the century old ideals it tries to emulate and the new ways of understanding knowledge it is a reflection of. *Wikipedia* sets

³³⁸ For example, Isidorus Hispalensis' *Etymologiae*, the encyclopaedia of the Brethren of Purity from Basra, the byzantine *Suda*, Bartholomeus Anglicanus' *De proprietatibus rerum*, or Vincentius Bellovacensis' *Speculum Maius*. See sections 1.1.3, pp. 26-27, and 1.1.4., p. 28.

itself as a duty to be composed of objective articles- these would depend on having access to an objective reality- yet it seems to support the idea that there may be a variety of equally valid points of view of a phenomenon- which seems to imply reality is subjective.

Wikipedia has- as has repeatedly been mentioned- a Neutral Point of View policy³³⁹ in which it recognizes that more than one point of view may explain a phenomenon; It is said that every '*relevant*'³⁴⁰ point of view should be found in an article. The contradiction is almost- but not quite- resolved by the use of this term, *relevant*. What is meant by this word is those points of view for which there are:

- Written source-materials, not counting unpublished original investigation.
- Independent reliable secondary sources.
- Reasons to believe the content is of general interest.³⁴¹

Therefore what is meant when using the *NPOV* policy is a point of view that can be defended using published texts as sources. If possible these should be peer-reviewed, but might simply be reasonably trust-worthy or easily verifiable by access to secondary or even primary sources when these are accessible and not likely to cause controversy. A source may not even be required if the claims made are not likely to be challenged.³⁴²

This means that *Wikipedia's* point of view is not so much neutral, or objective, but rather what might be defined as academic. In spite of famously being accused of anti-elitism *Wikipedia's* sources are mostly derived from texts written by experts in each field. The anti-elitism it is famous for can be reduced to the fact that an editor's identity is normally not verifiable, and- mainly for this reason- no one may justify what they write on *Wikipedia* on the authority their identity gives, unless he can provide the right kind of source material also. In any case their identity outside *Wikipedia* is absolutely irrelevant.³⁴³

³³⁹ See section 2.1.3, pp. 52-53.

³⁴⁰ <http://en.wikipedia.org/wiki/Wikipedia:Notability> (Last visited 26/01/15).

³⁴¹ See section 2.2.1.3., pp. 79-80.

³⁴² For example. References to the Bible or a movie need not reference academic studies of those cultural objects but might directly reference the holy book, or the film. If an article were to suggest that the Eiffel tower was in France it is probable that no reference would be demanded as this is general knowledge.

³⁴³ This has not always been so. For information on this and the Essay controversy see section 2.1.2., pp. 50-51.

Incommensurability is another concept which is useful when examining *Wikipedia*. What Feyerabend understands by incommensurability is the belief that if two theories differ in the way evidence is valued, there can be no true understanding between them. For example a modern geologist and a young Earth believer may find very little common ground. One bases his theories in the study of rocks and modern physics and chemistry, the other on a supposedly unerring religious text. To the geologist, the book is- at most- a metaphorical account; To the believer, the rocks and their morphology constitute proof of miracles and divine will. Newtonian and Relativistic physicists might share the words 'time' and 'space', but a short discussion about the nature of the universe will show them that the underlying concepts are not shared, and that- therefore- there is no way- short of one physicist being converted to the other's conception of the universe- for them to agree on a world view. According to Feyerabend they cannot agree because they do not share the same language. What they mean when using words like 'Natural Law', or 'physical' is different, and what is more, the only way they could agree to use the language in the same way is by changing their theories.

We can find further examples of this in *Wikipedia*. There are sometimes inconsistencies in articles that supposedly treat 'equivalent' material. This is sometimes solved by making two different articles about what might traditionally be called the same subject matter; For example, 'The Theory of Evolution' and 'Objections to Evolution'. There is incommensurability between these two takes on Darwin's theory, so the only way of not having inconsistent articles, whilst at the same time allowing for different points of view to have their place on *Wikipedia* is to treat *different perspectives* on the 'same' phenomena as *different articles*. Both articles are about evolution yet 'evolution' in one article is simply a well established scientific theory, while in the other it is a cause of controversy with religion.

Even so, it is usual for the less 'scientific' of two perspectives to have an almost token appearance- if any- often due to a lack of rigorous academic sources for it. This reflects another contradiction within *Wikipedia*. Whereas there seems to be a true desire within *Wikipedia* to give every point of view a chance- amongst other reasons, because those supporting that point of view may well be collaborating on the project- those claims that are made without making trust-worthy sources- which mainly means academic sources- available are often eliminated or modulated. This means that articles will often end up appearing to derive from a completely academic point of view. For example, see the article on 'Feyerabend' in the appendix.^v

This article tells us about his academic life and information of biographical interest, it leaves out most of what must have made his life worth living. It tells us nothing of the smells and flavours he enjoyed or loathed, little of the people he loved or despised outside academia. It does not, indeed cannot tell us much of what Feyerabend would have considered central to his self. Not only this but much that could be said about Feyerabend, perhaps by asking those who knew him, would not be considered notable. And yet *Wikipedia* claims to have every point of view included in it. 'Every relevant POV'. Any other point of view is not relevant. What appeared to be a post-modern multi-cultural way of working turns out to condemn to non-existence any point of view which is not recorded in a written source, or obvious to any internet user within a relatively narrow cultural background, as not-relevant. In spite of this, what is done, is done with the intention of creating a better encyclopaedia. Any apparent rules only go so far as they are useful to construct the encyclopaedia. This is something Feyerabend could no doubt agree with. After all, Feyerabend does not believe a lack of rules or openness are obligatorily necessary. They are good only in so far as they serve our needs.

Chapter 3- Effects of *Wikipedia*.

This chapter concerns the effects of *Wikipedia* upon its cultural surroundings. Three aspects of this effect will be examined. The effect of *Wikipedia* on the internet, on society and on academia. The encyclopaedia's effect on all three cultural spheres is distinct and notable.

3.1- On the Internet.

Wikipedia has radically changed the internet. Not only has it become an essential tool for many *Wikipedia* users, but it has also become an essential tool for content creators all across the web, and it has spawned a staggering amount of similar sites copying its basic model.

Wikipedia use has grown over the years. In the month of May 2014, 468740000 users visited the page online; Numbers are similar month after month with the trend being one of slow growth.³⁴⁴ *Wikipedia* is generally ranked sixth or seventh site with the most traffic by *Alexa*.³⁴⁵ 40 to 60 % of users reach *Wikipedia* from search engines, the most used one being *Google*.

Many people also use *Wikipedia* in social interactions. 2.1% of unique visits to the site are immediately preceded by use of *Facebook*, making *Facebook* the 5th most visited sight before visiting *Wikipedia*, after four local *Google* servers. -.com, .co.in., .de and .co.uk-. *YouTube* is in the 9th position, surrounded by more local *Google* servers -.fr, .es, com.tr and .it-.

It is undeniably being used by large sectors of internet population to check facts. The fact that the most generally visited site immediately before visiting *Wikipedia* are variations on *Google*, shows that this search engine very often leads users to *Wikipedia*. In fact, *Google* uses information from *Wikipedia* to inform search engine users of the basic facts about whatever it is they are searching, whenever the search term is equivalent to a *Wikipedia* article. Information from *Wikipedia* is also used in a wide va-

³⁴⁴ <http://reportcard.wmflabs.org/> (Last visited 26/01/15).

³⁴⁵ <http://www.alexa.com/siteinfo/wikipedia.org> (Last visited 26/01/15).

riety of other web pages- apart from *Google*- to inform users about a variety of facts. Some of these web pages are *chemspider*,³⁴⁶ *Google maps*,³⁴⁷ *Wikipedia for Schools*,³⁴⁸ *Wikipedia Vision*,³⁴⁹ *xkcd*,³⁵⁰ *Answers.com*,³⁵¹ *NationMaster*,³⁵² *TheFreeDictionary.com*,³⁵³ *Bing*,³⁵⁴ *Pipilika*,³⁵⁵ *Walla!*,³⁵⁶ *World News Network*,³⁵⁷ *Facebook*,³⁵⁸ *Reference.com*³⁵⁹ and *Sportlobster*.³⁶⁰

The uses given to the information are varied. On *Facebook*, *Sportlobster* and other social networking sites, users might share information from *Wikipedia* with their friends and colleagues to inform them, or to win, or end arguments. Other sites, such as *Wikipedia for Schools*, *TheFreeDisctionary.com*, *Answers.com.*, *World News Network* or *Reference.com* use information from *Wikipedia* to acquire content. Services such as *Google maps*, *Wikipedia vision* or *Nation Master* use data from *Wikipedia* to make their own web pages more informative, and organise *Wikipedia*'s data differently. *Xkcd* is a web-comic which often features complicated scientific concepts as part of its jokes. To help the user understand these jokes- or sometimes even as part of the joke- the author will reference and use links to *Wikipedia* or academic articles explaining ideas or concepts used. All of these uses are only possible because *Wikipedia* exists as an extensive, reliable, open and free source of knowledge and data.

Before *Wikipedia* there was no go-to place on the internet for facts. One might use chat services, or forum boards to ask other internet users for information, but this haphazard way of searching for information was complicated, slow, and very possibly fruitless if one did not know where to find the right internet users. *Wikipedia* has changed that. Over the years it has become a well established repository of knowledge. One no longer has to search the internet for general knowledge as it is all to be found in one place. Though one still has to approach *Wikipedia* with a certain scepti-

³⁴⁶ <http://www.chemspider.com/> (Last visited 26/01/15).

³⁴⁷ <https://www.google.com/maps> (Last visited 26/01/15).

³⁴⁸ <http://schools-wikipedia.org/> (Last visited 26/01/15).

³⁴⁹ <http://www.lkozma.net/wpv/index.html> (Last visited 26/01/15).

³⁵⁰ <http://xkcd.com/> (Last visited 26/01/15).

³⁵¹ <http://www.answers.com/> (Last visited 26/01/15).

³⁵² <http://www.nationmaster.com/> (Last visited 26/01/15).

³⁵³ <http://www.thefreelibrary.com/> ((Last visited 26/01/15).

³⁵⁴ <http://www.bing.com/> (Last visited 26/01/15).

³⁵⁵ <http://www.pipilika.com/> (Last visited 26/01/15).

³⁵⁶ <http://www.walla.co.il/> (Last visited 26/01/15).

³⁵⁷ <http://wn.com/> (Last visited 26/01/15).

³⁵⁸ <https://www.facebook.com/> (Last visited 26/01/15).

³⁵⁹ <http://www.reference.com/> (Last visited 26/01/15).

³⁶⁰ <http://www.sportlobster.com/> (Last visited 26/01/15).

cism- as it is not impossible that the article in question has been recently vandalized- that is increasingly a smaller and smaller risk, as systems set in place to ensure that does not happen- or is reverted after very little time- become more and more sophisticated, and possible vandals are increasingly being detected and blocked.

Possibly, the greatest effect upon the internet is the popularization of both the wiki code and the *Wikipedia* format of organizing information. Not only has this effect been notable in the forks and derivative works to *Wikipedia* that have appeared over the years, but it has also been a crucial influence in the appearance of a wide array of user-created specialized encyclopaedias. Almost any subject which might feasibly warrant interest by the smallest community of internet users has some kind of online encyclopaedia devoted to it. By making the Wiki style programming language popular, and by making user-created and managed sites seem like feasible enterprises, *Wikipedia* has changed the way internet content is created. Though commercial marketing is still a very big part of how the internet works, and of how it has become an important part of the world economy, *Wikipedia* and those projects it has inspired have allowed many enterprises and ideas which might not have been economically feasible, or might have not been financed, to have been created by using a work-force of online volunteers. Examples of web pages following the *Wikipedia* format are easy to come by: *Cordobapedia*,³⁶¹ *Bulbapedia*,³⁶² *Wikipilipinas*,³⁶³ *Chemwiki*,³⁶⁴ *Filmaffinity*³⁶⁵ or even *Wikia*-³⁶⁶ founded and managed for profit by Jimmy Wales- which allows users to create informal encyclopaedias about anything they are passionate about and which might not normally be considered worthy of detailed attention on the more general *Wikipedia*.

The use of free, or cheap internet labour has also been a boon to projects like ‘Mechanical Turk’.³⁶⁷ Mechanical Turk is a marketplace for crowd sourced internet labour. It is owned by ‘Amazon web services’, and was originally created by Peter Cohen for use within *Wikipedia* finding duplicate web pages describing *Amazon* products.

³⁶¹ An encyclopaedia about Córdoba, Spain. <http://cordobapedia.wikanda.es/wiki/Portada> (Last visited 26/01/15).

³⁶² An encyclopaedia concerning the Pokémon video-game series. http://bulbapedia.bulbagarden.net/wiki/Main_Page (Last visited 26/01/15).

³⁶³ An encyclopaedia about the Philippines. <http://www.wikipilipinas.org/> (Last visited 26/01/15).

³⁶⁴ A dynamic Chemistry textbook. <http://chemwiki.ucdavis.edu/> (Last visited 26/01/15).

³⁶⁵ A film review service. <http://www.filmaffinity.com/es/main.html> (Last visited 26/01/15).

³⁶⁶ <http://www.wikia.com/Wikia> (Last visited 26/01/15).

³⁶⁷ <https://www.mturk.com/mturk/welcome> (Last visited 26/01/15).

The use of internet donations- in a way pioneered by *Wikipedia*- to create interesting projects has skyrocketed with the invention of 'Crowdfunding'. Crowdfunding is a process by which an entrepreneur receives money for a project from a group of members of the public. It is a form of investment which forgoes banks as intermediaries. A well known early pre-internet example of something similar is the well known fundraising organised for the construction of the 'Statue of Liberty', most iconic of which was Joseph Pulitzer's plea for donations, promising to publish the name of every donor in his newspapers. The internet has allowed for this concept to become massive in extent and volume. Many webpages channel donations towards different projects, which offer different kinds of awards which are very often prestige based. This concept has led to the creation of web pages such as *Indiegogo* and *Kickstarter*, amongst many others.³⁶⁸

3.2- On Society.

To some extent, *Wikipedia* can be said to be helping drive a greater wedge between those with access to technological advances and those who do not. *Wikipedia* may be putting a vast collection of human knowledge at almost anyone's disposition, but to be included in that group one must have an internet connection. The internet and an army of volunteer labourers have driven costs to the ground, and yet if one does not have a minimum infrastructure one cannot access this encyclopaedia. In the more developed parts of the world even if one does not own the infrastructure one normally has access to it. Most libraries have computers available to the public with a connection to the internet. This is not true in many rural areas and in regions with poor public infrastructure.

To be fair, if we compare the social situation of *Wikipedia* with almost any previous encyclopaedia in the past, access is incredibly easy and egalitarian. The *Encyclopédie* would originally only have been available by subscription. This subscription would have been expensive, greatly reducing the number of people with access to it. With no widely available public libraries ownership, or collaboration with private owners, would have been the only way to access the contents. Sometime after publication pirated copies of the encyclopaedia would start being made available at a reduced, but

³⁶⁸ http://en.wikipedia.org/wiki/Comparison_of_crowd_funding_services (Last visited 26/01/15).

still high, cost.³⁶⁹ The cost would have become smaller and smaller as time went by and cheaper editions were printed. In spite of this, many people would not be able to afford even the cheapest book, never mind an extensive collection of volumes. Furthermore there would have been another important limitation- the inability to read the text. There are two reasons one might not read a text. Not knowing how to read, or not knowing how to read a particular language.

In the eighteenth century, rates of alphabetisation were lower than they are now. Over the nineteenth and twentieth centuries those rates have grown fast and yet are not universal because of biological and socio-economic reasons. In the eighteenth century few French people could read French, and fewer still could do so outside France. In spite of French being the language of culture, science and power at the time- a 'lingua franca'- extremely few people could read it outside the European zones of influence.³⁷⁰

Today, not only are rates of alphabetization better, but the top encyclopaedia - *Wikipedia*- is multilingual. As we have seen there are not as many articles in any other language as there are in English- today's lingua franca- but the number of articles in each language, and the number of languages included are both growing. Not only this, but computerised translation services have become good enough that most translations to and from a large variety of languages are understandable as long as one is provided with a minimum of common sense- allowing one to detect obvious errors in translation.

The gulf between different traditions and cultures grows smaller as the ways to share those traditions and cultures grow wider and become more varied. Nevertheless, those cultures which have become familiar with these technological means will find it easier to spread, and will do so faster. An interesting case in point is the rise of Baidu in China, and its predicted spread throughout the developing world as it fills a niche Anglo-centric *Google* has been unable to.³⁷¹

³⁶⁹ Robert Darnton "The Encyclopédie Wars of Prerevolutionary France" in *The American Historical Review*, Vol. 78, No 5, pp. 1331-1352 (December 1973) p. 1334.

³⁷⁰ Rates of literacy varied wildly from region to region though were universally lower than today, especially if we consider that statistics from the time-period are derived from marriage registers and count men able to sign their name as literate. This doesn't take into account the capacity to read longer texts as might be found in an encyclopaedia, or the fact that not all French subjects spoke French as a first language before the centralizing effects of the revolution. See John Markoff "Literacy and Revolt: Some Empirical Notes on 1789 in France" in *American Journal of Sociology*, Vol. 92, No 2, pp. 323-349 (September 1989), p. 331.

³⁷¹ "Baidu will battle Google for hearts and minds" *New Scientist* 2979 (25/06/14), p. 5.

Geography has a part to play in both the kind of content available on *Wikipedia* and the relevancy of this content to users. This has already been established in section 2.2.2.2. Nevertheless- as we have just revealed-, *Wikipedia* is not the cause of the gulf between the haves and have-nots of the cultural landscape. Though *Wikipedia* certainly perpetuates the problem to the extent mentioned, previous encyclopaedias have done so in a greater extent both because of greater limitations in content and greater limitations in distribution. In spite of *Wikipedia*'s limitations, it has the most varied content of any encyclopaedia ever, and the widest distribution ever. Not only that, but it is still growing both in content and in range of distribution.

Another effect *Wikipedia* is having- in an effect compounded by the generalization of the use of smart-phones and other portable devices which can constantly access the internet- is that anyone- at any time- can check facts. There was a time- not that long ago- when a simple discussion amongst friends could only be ended with a convincing argument, by consultation with a trusted third party who was coincidentally nearby, or by taking ones time consulting those books which might provide an answer to the point being discussed. Both the second and the third ways of ending the argument are incredibly dependent on where the argument is taking place, and very often arguments would end in a stale-mate, to be resolved at a next meeting after consultation with books or more knowledgeable people. Today it is very simple to check facts on the internet with a smart-phone- doubly so if one uses *Wikipedia*, where facts are organised in an easy-to-check way. Though there are still many which might scoff *Wikipedia*- especially if the facts presented by it do not gel well with their argument- it is simple enough to follow existing links to sources, which will generally afford confirmation to what is written in the online encyclopaedia. Though this is an amazing way to resolve conflicts and to stop time-wasting, it is imaginable that this fast access to facts might be harmful to our ability to debate. One might be think of Socrates' reaction to writing and draw a parallel.³⁷²

In any case, on a more positive note, the fact is that *Wikipedia*, along with other internet encyclopaedias inspired by it- or within the *Wikimedia* network- offer any user a vast array of knowledge of all kinds. Anyone with access to the internet and a grasp of written English- or any other extensively used language- can learn almost anything he might wish to about any subject. Whether or not *Wikipedia* as such survives for a millennia or disappears next week, it will have started a trend for rapidly available information on every subject which will be very difficult to dispel.

³⁷² Plato, *Phaedrus*, pp. 274b-275b.

3.3- On Academia.

Academia is often very dismissive of *Wikipedia*. It is dismissive of volunteer based cultural products in general. This makes sense at first glance because it seems that if we have a large group of people doing scholars' work for free, the future job prospects for scholars are dire indeed. This is not to say that many of the criticisms directed to these kind of projects- in particular *Wikipedia*- are not fair, but many of the possible benefits are dismissed out of hand, if they are even contemplated.

It has been claimed that *Wikipedia* is inherently unreliable. Indeed it has been argued that- at the epistemological level- the fact that important facts can be changed into falsehoods at a whim means that none of the content can be trusted.³⁷³ In spite of this- pragmatically and empirically- *Wikipedia* has proven to be as trustworthy as the *Encyclopaedia Britannica*.³⁷⁴ This seems like a contradiction. The reasons why both statements can be true simultaneously are the following. It is true that errors can enter *Wikipedia* at any moment. Nevertheless, these errors are short-lived.³⁷⁵ This means that in spite of theoretical incertitude, at the practical level *Wikipedia* is usable and useful.

On the other hand, the trust-worthiness of traditional encyclopaedias has often been exaggerated. This is no accident of history, but a deliberate effect of more than two hundred years of encyclopaedia salesmanship. No encyclopaedia salesman is going to claim the encyclopaedia he is selling is full of small errors. No encyclopaedia writer will claim his views on the subject he is writing about may be incomplete and profoundly biased. No encyclopaedia editor will write a small addendum to the encyclopaedia admitting that he is not an expert on everything, and that there may be mistakes in the published work of which he is not aware.

Encyclopaedia salesmen may admit to imperfections in encyclopaedias but- normally- only in those others are selling. These encyclopaedias will generally be accused of being less exact and having insufficient content. If the competing encyclopaedias are more voluminous, it will be claimed they are excessively cumbersome and

³⁷³ P.D. Magnus "Epistemology and the Wikipedia" Presented at the *North American Computing and Philosophy Conference* in Troy, New York (August 2006) p.6 Available at <http://hdl.handle.net/1951/42589> (Last visited 26/01/15).

³⁷⁴ Fallis, *Toward an Epistemology of Wikipedia*. pp. 13-14.

³⁷⁵ Fallis, *Toward an Epistemology of Wikipedia*. p. 13.

See section 2.2.1.3., pp. 76-79.

filled with unimportant trivia. Encyclopaedia salesmen may also admit that the encyclopaedias they sold previously are now dated, so as to sell new corrections to the collection, or new editions of the encyclopaedia.

These salesmen, and everybody concerned with the industry did their utmost to promote the idea that encyclopaedias are flawless, or at least very exact. The idea that you can trust information found in an encyclopaedia was slowly implanted, as-to be fair- encyclopaedias became more thorough and exact. Nevertheless they have always had one flaw. They become dated. New information supersedes the old, and- as people die, new discoveries made or new nomenclature used- the encyclopaedias become dated and less trustworthy. Errors due to changed facts or perspectives are inevitably added to those errors caused by biased accounts and mistakes of understanding. This is not necessarily a flaw from the perspective of encyclopaedia publishers- indeed, it was an essential part of the sales system- until recently. Obsolescence allowed new editions to be sold to the same customers who had purchased the old editions. Today, the competition from *Wikipedia*- which is continually updating, and which is free- turns this into a dangerous competitive disadvantage. Encyclopaedias written by employed experts cannot afford to continually update.

In spite of all this it would be an error to use *Wikipedia* in exactly the same way as any other encyclopaedia and expect to be informed in exactly the same way. *Wikipedia* has important differences, not the least of which is the fact that most of its content can be edited at any time by anyone. Even though artificially induced errors within it- vandalism- are usually corrected fast³⁷⁶ it is inevitable that the possibility of them existing must be taken into account when using *Wikipedia* as an academic resource.

Encyclopaedias in general are used in very specialised ways by academics doing research. They have generally been considered tertiary sources- primary sources being first-hand original work and secondary sources being based upon primary sources-. Encyclopaedias are therefore inadequate as sources in primary research, unless the subject matter of the research is the encyclopaedia itself. An encyclopaedias use is normally limited to the introduction of a researcher to a new topic, after which- if the topic researched is of interest- the researcher must continue with the use of secondary and primary sources.

³⁷⁶ Fallis, *Toward an Epistemology of Wikipedia*. p. 13.

See section 2.2.1.3., pp. 76-79.

Wikipedia is particularly suited to this use. A large amount of texts concerning the subject are usually cited at the end of an article, either as sources or as further reading. This means that a more detailed search for sources can be postponed until the reading suggested by *Wikipedia* has been done, and one has a better idea about the subject and about the accuracy of the facts on *Wikipedia*. What's more, very often the texts suggested by *Wikipedia* will be available online, speeding up initial research even more.

Another way in which encyclopaedias in general- *Wikipedia* in particular- can be used is as the object of study. Again, *Wikipedia* is particularly well suited to this as it keeps an extensive and open catalogue of its editors actions, whereas other encyclopaedias are not run as openly. Both from historical and sociological points of view information exists about *Wikipedia* that has not been available to the public about any other encyclopaedia. Not only that but the information is updated in real-time as *Wikipedia* is being developed. Ironically, the one piece of information most researchers of other encyclopaedia's could generally count on having- the names of most of the writers and editors participating in the creation of the encyclopaedia- is the one piece of information those researching *Wikipedia* must do without. This is due to the greater- almost universal- use of pseudonyms on *Wikipedia* compared to other encyclopaedias. There are anonymously written articles in the French *Encyclopédie*, for example, but they are not as numerous. Pseudonyms are almost universally used in *Wikipedia*, whereas anonymous articles in the *Encyclopédie* were an exception, generally with the intent of keeping authors writing about contentious issues out of trouble.

The last way *Wikipedia* may be useful to a researcher- and a way in which other encyclopaedias are often not as helpful- is as a source of audiovisual documentation. *Wikipedia*'s sister sites have enormous archives, many of the contents of which have been donated by museums, libraries and other research institutions.³⁷⁷ '*Wikipedia Commons*' is a source for free-license images, sounds and videos, '*Wikibooks*' has textbooks and other kinds of text, '*Wikiversity*' has teaching programs and educational material, and '*Wikisource*' has transcripts of manuscripts.

Wikipedia may also be used by academics as part of the teaching curriculum. Pierre Gourdain³⁷⁸ proposed the idea of having students contribute to *Wikipedia* as part of

³⁷⁷ A list of GLAM projects in which this kind of exchange takes place is available at <http://en.wikipedia.org/wiki/Wikipedia:GLAM/Projects> (Last visited 26/01/15).

³⁷⁸ Gourdain, *Revolución Wikipedia*.

their curriculum. This has since been officialised in initiatives such as ‘*Wikipedia* school and university projects’, in which these sort of activities are labelled ‘*Wikipedia* assignments’.

The use of such activities is advantageous in many ways. The primary use is to confront students with differing opinions- that of other *Wikipedia* editors- which will make it necessary for those students to corroborate their opinions, find suitable sources, and accept or change the work of others in ways that make articles more accurate and comprehensible. As long as the teacher controlling the project has issued every student with accounts and a user name- or has requested students create one themselves with user names known to the teacher- it is a simple task to use the *Wikipedia* infrastructure to keep track of the work each student has done- as well as when and where- even if that work is later deleted or altered. This form of work has the additional advantages of controlling the occasional problem of students copying content from *Wikipedia* in essays, and of having other *Wikipedia* editors help correct students’ problems with *Wikipedia* article writing. These problems are often also relevant to academia, for example, sourcing correctly and writing in comprehensible ways.

One final way in which *Wikipedia* is a useful tool for academia is in the way it can help to spread knowledge. As already mentioned *Wikipedia* sister sites receive audio-visual information from libraries and museums. This is coordinated by ‘*GLAM*’ (Galleries, Libraries, Archives and Museums) within *Wikimedia*- a subsection of editors heavily interested in helping institutions make the most of *Wikimedia*’s internet presence to make their contents known to the world. *GLAM* is most importantly represented by ‘resident wikipedians’, people who use their positions within cultural institutions to work on articles related to those institutions, organise workshops collectively working on those articles, or organising the digitisation of archives and their upload to the internet through *Wikipedia*. The open and free nature of these uploads- as has already been mentioned- may be of great use to researchers as they can be used freely for research.

It has also already been mentioned that there are occasional problems with students copying content from *Wikipedia*. This is a problem which can generally be solved by those techniques normally used to curb plagiarism. Another possible problem is direct citation from *Wikipedia*. This is normally considered unacceptable, as should be the case with citations from other encyclopaedias.

In any case students are likely to be using *Wikipedia* alongside other more traditional sources.³⁷⁹ Most students are aware of its uses- its speed and accessibility- and limitations -its imperfect credibility and inappropriateness as a citable source-, but it is important that professors be able to ensure that students know how to use the different tools at their disposal.

Wikipedia's greatest assets in this respect is its extent- there is information about nearly anything- and its availability- it can be accessed from almost anywhere-. Key things to remember when using *Wikipedia* are:

- Check the sources to any article.
- If it is possible check different language versions of the same article. The information is not always the same, and some language versions of an article may be better than others.
- Pay attention to whether an article has been classified as good or featured, or on the other hand incomplete, lacking sources or in any other way deficient. This is normally clearly indicated.
- *Wikipedia* is just an encyclopaedia. It should be used to prepare research, but not be part of the research itself.

If these recommendations are followed, *Wikipedia* can be an incredibly useful tool for researchers.

³⁷⁹ Head and Eisenberg, How College students use Wikipedia, p 13-14.

Conclusions.

The initial question we asked is whether *Wikipedia* reflects the way knowledge is used and understood by people today. Depending on how we understand that question, the answer may vary. If we understand that a positive answer implies a unitary theory of knowledge for all of humanity, then the answer is no. As we have seen throughout this thesis, especially in sections 2.2.2.2. and 2.2.3.1., *Wikipedia* is part of a specific tradition, and those who write on it are mostly from similar backgrounds.

There are many ways of understanding knowledge which are not represented (and sometimes not even described) on *Wikipedia*. Though *Wikipedia* editors are making special efforts to diversify representation of the Global South on *Wikipedia*, the truth is that *Wikipedia*'s way of functioning limits this capacity. Anything that cannot be sourced to paper or digital documents of some sort- or seems obvious to its majority of Global North editors and readers- simply cannot stay on *Wikipedia* for very long.

Furthermore, many of the representational systems by which people make sense of the world today are mutually exclusive. This is a well known fact, and is behind problems such as the evolution vs. Creationism debate in the United States. There are some ways of understanding the world that exclude considering other ways of understanding the world.

In this sense, *Wikipedia* cannot be a reflection of the way people use and understand knowledge, because it derives from its own tradition, which has its differences with others, and because many of the different systems through which people understand and use knowledge today are incompatible. There is not a unitary way of understanding knowledge, therefore *Wikipedia* cannot reflect it.

Nevertheless, it is said of other encyclopaedias in the past, that they were a reflection of their time. As we saw in section 1.2.2., the encyclopaedias of the Enlightenment- specially the *Encyclopédie*- are considered reflections of the thought of the time, in the case of the latter, the culmination of an era. This does not mean that in eighteenth century Europe there was a single way of understanding knowledge, it does not even mean there was one dominant way of representing the world. What it does mean is that these encyclopaedias represent what was newest, freshest, most exciting, and most intellectually challenging at that time. It represents what was special about that

time. It represents the *zeitgeist*³⁸⁰ of that time. If we ask the question about encyclopaedia in this sense, it is reasonable to answer yes; *Wikipedia* is a representation of the early twenty-first century way of understanding and of using knowledge.

This is not necessarily immediately obvious. After all, those who wrote the *Encyclopédie* were either the great philosophers of that time, or closely acquainted with them, either through the ‘salons philosophiques’, by mail, or by their oeuvre. They were all part of the Republic of Letters. Those who write on *Wikipedia* are not the great philosophers of our time. Indeed they are anonymous and do not write original content on *Wikipedia*. The difference is enormous. This is because the difference between the Enlightenment and our times is enormous.

The Enlightenment was a time when discovery and novelty were exciting and relatively hard to come by, and were therefore celebrated. This novelty- nevertheless- came with a large measure of incertitude. It was necessary for authoritative names to be attached to the information to make it more plausible. Figures of authority sanctioning knowledge was what readers were used to.

Today discovery and novelty have become commonplace. It takes something very unusual to produce widespread excitement. The comprehensive use of textbooks in schools for the last hundred years, and the fact that the knowledge within them is- ironically- not sanctioned by the authority of the author, but by society- at least from the students’ perspective- may go some way towards explaining why people today do not look at the author’s name as a validation of a text. Today’s reader is going to accept the authority of a text or not depending on the text’s contents and the ease with which it can be assimilated to previous knowledge.

This is further exacerbated by internet culture. On the internet anything can be a lie.^{vi} One cannot trust a given author, because that name might also be a lie. On most web pages one must analyse content and derive the value of it on its own merits. Experience -either one’s own or that of others- allows one to come to trust certain web pages, but that trust generally comes from time spent reading and analysing content, or from confirmation of author identification, generally through a widely known institution.

³⁸⁰ *Zeitgeist*, or *spirit of the times* is a concept describing the intellectual atmosphere of a period. It refers to those parts of cultural life which are widely shared by a group of people at a particular time and space. This is the sense in which it is being used here.

It is not surprising then that *Wikipedia* users are anonymous, and that they back up their articles with references to other texts which are generally more trustworthy than those generally found on internet. It is not surprising that *Wikipedia* users have worked together to build an institution to support what they do, and to give the articles some verisimilitude. If one claims a fact is true because it was read on the internet, it is much less likely to be taken seriously than if one claims it was read on *Wikipedia*. Similarly those sources *Wikipedia* uses are generally much more trust-inducing than *Wikipedia* itself.

In any case *Wikipedia* is the go-to place for knowledge for most internet users, and internet is the go-to place for knowledge for most people with access to the it. Our world is increasingly being shaped by the internet and those places and objects through which it can be accessed. It is becoming increasingly common for people to have constant access on their portable devices. In popular debate, facts can be checked immediately, by browsing the internet, very often using *Wikipedia*, or *Wikipedia* via-Google.

In this sense, I believe *Wikipedia* does reflect the state of knowledge today. *Wikipedia* represents today's zeitgeist.

Other questions raised in the section on objectives include:

- How knowledge is organised in the internet.

We have answered this question in as much as we have followed the evolution of the internet, and examined the problems that led to the appearance of *Wikipedia*. *Wikipedia* has established itself as a repository of well ordered facts in the labyrinth of truths, lies and half-lies that is the internet.

- How and why epistemological theories have been used by the general public and the effect of *Wikipedia* upon Epistemology.

By examining ideas such as Free Knowledge, Knowledge of the Crowds, Feminist Epistemology, Social Epistemology, Hermeneutics and Epistemological Anarchism in relation to *Wikipedia* we have been able to see how these ideas affect and are in turn affected by the general public using *Wikipedia*. *Wikipedia* seems not to follow exactly the same epistemological rules that other, earlier encyclopaedias have. Most importantly, the reality of the policy of allowing almost anyone to change almost any article means that in spite of a fairly good record there is always the possibility that the security

measures for the article one is consulting have failed. When reading *Wikipedia* one must take into account the possibility that the authors are wrong- as in any other form of information-, and that they may have been temporarily hijacked- unlike in other encyclopaedias. On the positive side, knowledge on *Wikipedia* is not being treated as a merchandise, so one has to worry less about the author being biased due to economic pressures.

- How knowledge is judged to be knowledge, to be relevant, or of interest.

On *Wikipedia* knowledge follows many of the criteria used by earlier encyclopaedism. With the great difference that space on the encyclopaedia is no longer an issue. Whereas older encyclopaedias were often of a serious- even solemn- nature *Wikipedia* can afford to include any amount of trivia. This does not mean serious academic disciplines are ignored- indeed special projects are started to ensure articles on important topics are well written- but that non-serious topics can also be included. In fact- because people writing about popular culture and other themes often considered trivial are absolutely engrossed by them- one can find excellent articles about topics impossible to find in traditional academia with excellent references to journalistic sources, or even to primary sources. The idea is, traditional topics are of interest because an innumerable number of people over the centuries have considered them of interest. Non-traditional topics are of interest as long as they have a following within the *Wikipedia* community which is stronger than its opponents. The Deletionist-Inclusionist dynamic examined above is one of the main dynamics governing this.

- The effect of *Wikipedia* on the internet, on society and on the world at large.

Wikipedia has allowed the internet to be a more useful, informative tool. An internet encyclopaedia seems to have been a necessary occurrence. Indeed , as we have seen, *Wikipedia* was not the only project along these lines to appear. In spite of this, it is undeniable *Wikipedia* is the most successful. Part of the reason for this is the fact it is free and employs free and plentiful labour to function, but other encyclopaedias have also attempted to do the same thing. The reason for its success has to do, in part, with being the first to achieve the critical mass of participants and articles needed to keep the project growing, and its use of technology simple enough for a large number of non-specialised users. *Wikipedia* works thanks to a community of users, and the technological tools that allow them to communicate and work together easily.

Wikipedia has allowed common people to have any fact at their fingertips in a fast and comfortable way. It has allowed students to use the internet as a tool for study

and essays in an easy and fast manner. The potential benefits of a multi-lingual free online encyclopaedia are enormous, and *Wikipedia's* role in turning this concept into a reality is impressive. It is impossible not to compare it to the *Encyclopédie*. Both were much greater encyclopaedias than other contemporary encyclopaedias. Both were created by much greater numbers of people than were usual for a single project at that time. Both were controversial, and successfully overcame traditional obstacles to the free circulation of knowledge. Both addressed the problem of information overload by ordering knowledge.

To conclude, I would ask that the reader take into account that *Wikipedia* was not created professionally. There is no Diderot, Chambers, or Smellie to admire for the encyclopaedia. *Wikipedia* was created by a mob of internet users attracted by the concept of Free Knowledge and of an internet encyclopaedia. A great number of people have donated their time and money to the projects. To paraphrase Abraham Lincoln's Gettysburg Address; *Wikipedia* is an encyclopaedia "of the people, by the people, for the people." It has been called an experiment in democracy, or in anarchy, but the *Wikipedia* article denying this claim is right to do so. It is an experiment in applying twenty-first century concepts and technology to the task of creating an encyclopaedia, and it is a successful experiment.

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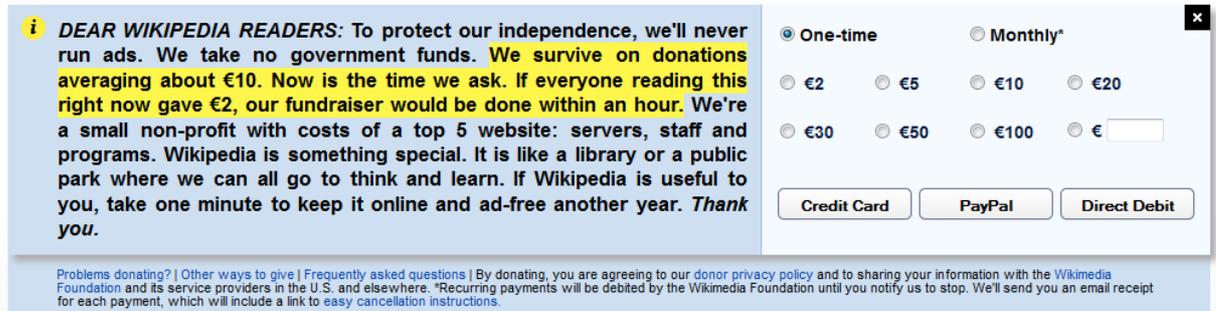
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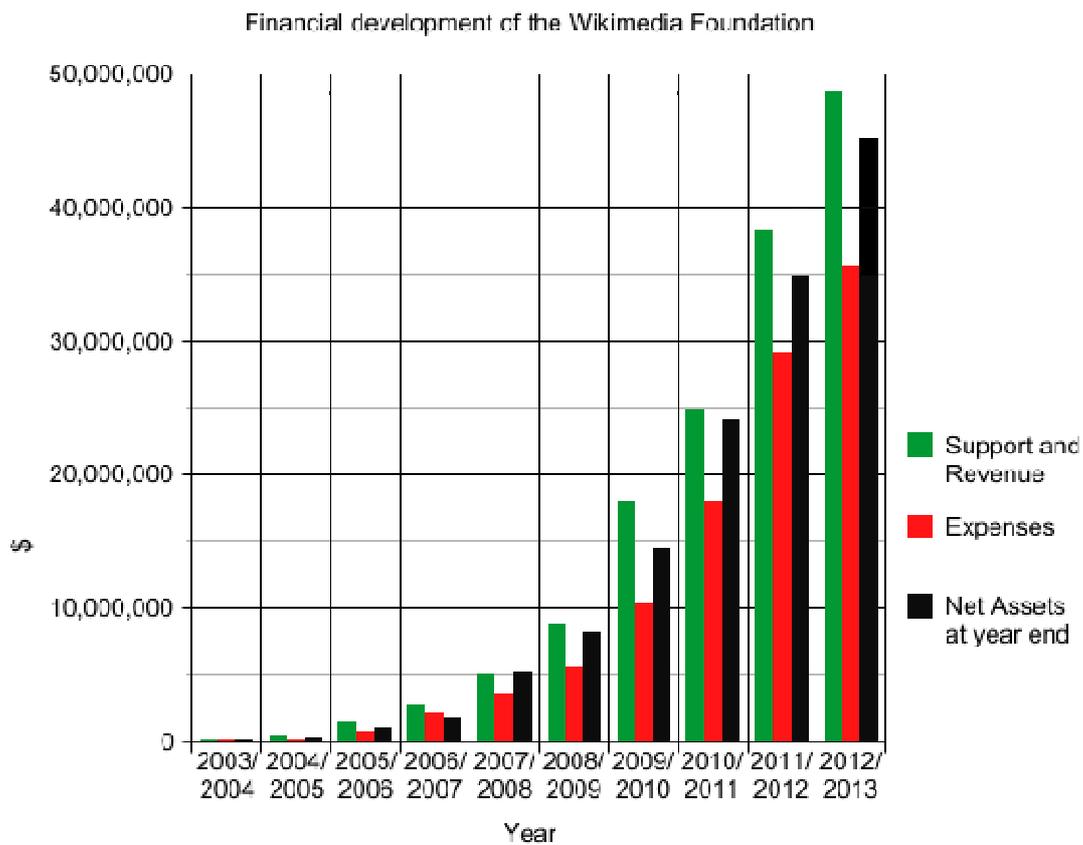
Annex.

i

Fundraiser



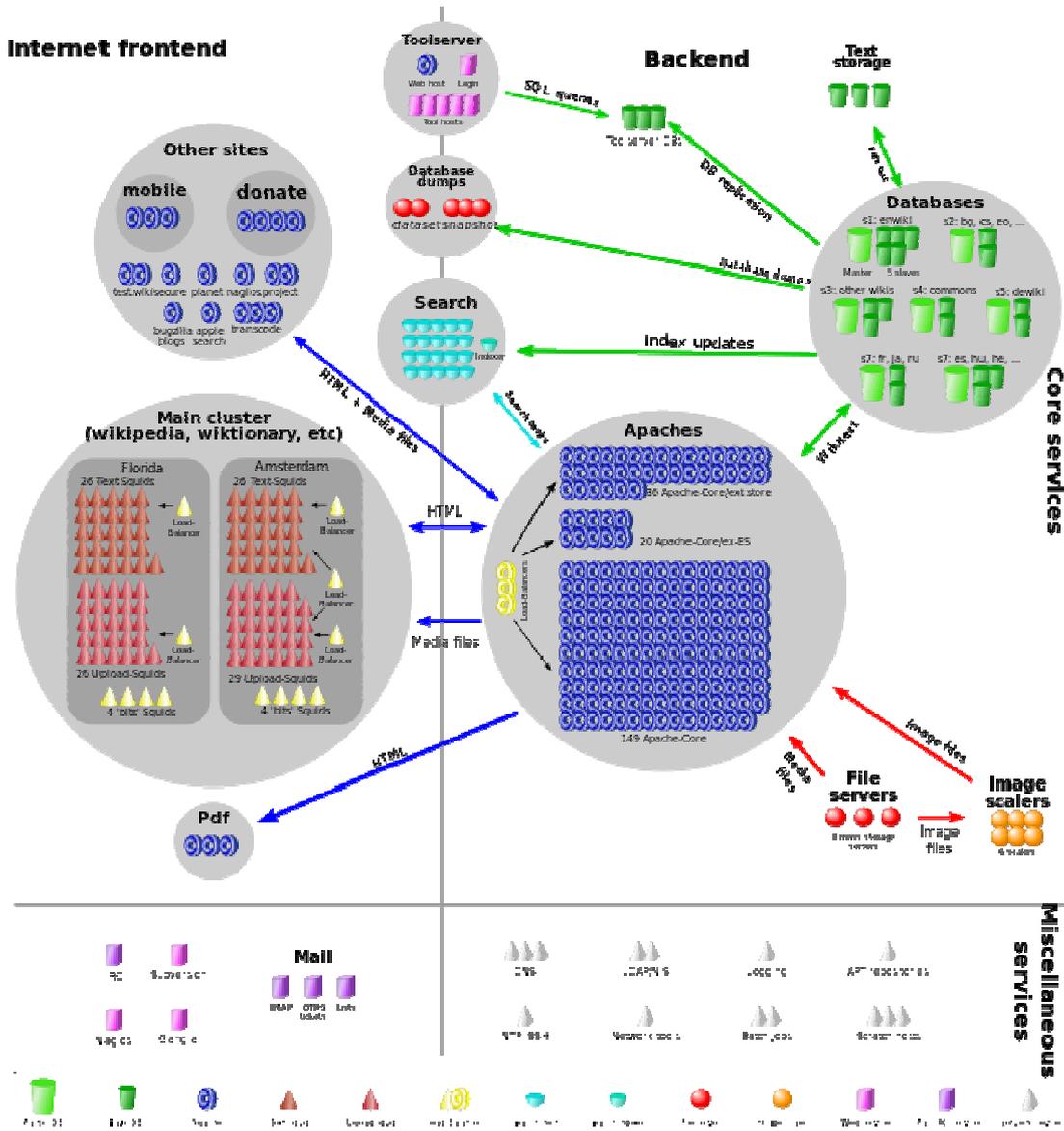
ii Graph of Wikipedia’s economic growth 2003 2013



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v Article 'Paul Feyerabend' from Wikipedia

Article taken from Wikipedia 12-11-2014

Paul Feyerabend

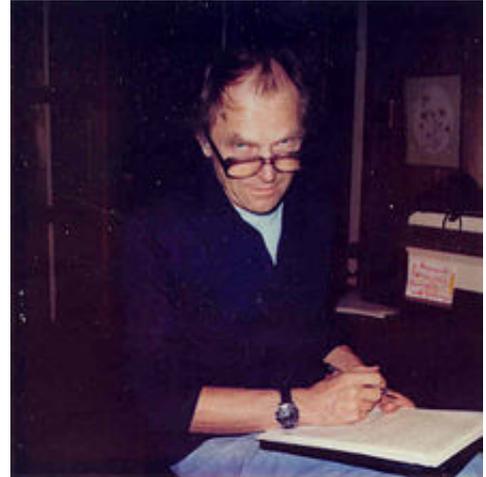
From Wikipedia, the free encyclopedia

Paul Karl Feyerabend (German: [ˈfaɪɐ̯, aːbɛnt]; January 13, 1924 – February 11, 1994) was an Austrian-born philosopher of science best known for his work as a professor of philosophy at the University of California, Berkeley, where he worked for three decades (1958–1989). He lived at various times in England, the United States, New Zealand, Italy, Germany, and finally Switzerland. His major works include *Against Method* (published in 1975), *Science in a Free Society* (published in 1978) and *Farewell to Reason* (a collection of papers published in 1987). Feyerabend became famous for his purportedly anarchistic view of science and his rejection of the existence of universal methodological rules.^[1] He is an influential figure in the philosophy of science, and also in the sociology of scientific knowledge.

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Paul Feyerabend



Born	January 13, 1924 Vienna, Austria
Died	February 11, 1994 (aged 70) Genolier, Vaud, Switzerland
Era	20th-century philosophy
Region	Western Philosophy
School	Epistemological Anarchism
Main interests	Philosophy of science, Critiquing Falsificationism, Epistemology, Politics
Notable ideas	Epistemological anarchism
Influences	
Influenced	

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Biography

Early life

Paul Feyerabend was born in 1924 in Vienna, where he attended primary and high school. In this period he got into the habit of frequent reading, developed an interest in theatre, and started singing lessons. After graduating from high school in April 1942 he was drafted into the German Arbeitsdienst. After basic training in Pirmasens, Germany, he was assigned to a unit in Queuern en Bas, near Brest (France). Feyerabend described the work he did during that period as monotonous: "we moved around in the countryside, dug ditches, and filled them up again." After a short leave he joined the army and volunteered for officer school. In his autobiography he writes that he hoped the war would be over by the time he had finished his education as an officer. This turned out not to be the case. From December 1943 on, he served as an officer on the northern part of the Eastern Front, was decorated with an Iron cross, and attained the rank of lieutenant. When the German army started its retreat from the advancing Red Army, Feyerabend was hit by three bullets while directing traffic. One bullet hit him in the spine. As a consequence he needed to walk with a stick for the rest of his life and frequently experienced severe pain. He spent the rest of the war recovering from his wounds.

Post–WWII and university

When the war was over, Feyerabend first got a temporary job in Apolda where he wrote pieces for the theatre. He was influenced by the Marxist playwright Bertolt Brecht and was invited by Brecht to be his assistant at the East Berlin State Opera but turned down the offer. Feyerabend took various classes at the Weimar Academy, and returned to Vienna to study history and sociology. He became dissatisfied, however, and soon transferred to physics, where he met Felix Ehrenhaft, a physicist whose experiments would influence his later views on the nature of science. Feyerabend changed the subject of his study to philosophy and submitted his final thesis on observation sentences. In his autobiography, he described his philosophical views during this time as "staunchly empiricist". In 1948 he visited the first meeting of the international summer seminar of the Austrian College Society in Alpbach. There Feyerabend first met Karl Popper, who had a "positive" (early Popper), as well as "negative" (later Popper) effect on him. In 1949 he was a founding member of the Kraft Circle. In 1951, Feyerabend was granted a British Council scholarship to study under Wittgenstein. However, Wittgenstein died before Feyerabend moved to England. Feyerabend then chose Popper as his supervisor instead, and went to study at the London School of Economics in 1952. In his autobiography, Feyerabend explains that during this time, he was influenced by Popper: "I had fallen for [Popper's ideas]". After that, Feyerabend returned to Vienna and was involved in various projects; a translation of Karl Popper's *Open Society and its Enemies*, hunting down manuscripts Popper had left in Vienna, a report on the development of the humanities in Austria, and several articles for an encyclopedia.

Academia

In 1955, Feyerabend received his first academic appointment at the University of Bristol, where he gave lectures about the philosophy of science. Later in his life he worked as a professor (or equivalent) at Berkeley, Auckland, Sussex, Yale, London, Berlin and ETH Zurich. During this time, he developed a critical view of science, which he later described as 'anarchistic' or 'dadaistic' to illustrate his rejection of the dogmatic use of rules, a position incompatible with the contemporary rationalistic culture in the philosophy of science. At the London School of Economics, Feyerabend met a colleague of K.R. Popper, Imre Lakatos with whom he planned to write a dialogue volume in which Lakatos would defend a rationalist view of science and Feyerabend

would attack it. This planned joint publication was put to an end by Lakatos's sudden death in 1974. *Against Method* became a famous criticism of current philosophical views of science and provoked many reactions. In his autobiography, he reveals that the energy in his writings came at great cost to himself:

The depression stayed with me for over a year; it was like an animal, a well-defined, spatially localizable thing. I would wake up, open my eyes, listen – Is it here or isn't? No sign of it. Perhaps it's asleep. Perhaps it will leave me alone today. Carefully, very carefully, I get out of bed. All is quiet. I go to the kitchen, start breakfast. Not a sound. TV – *Good Morning America* –, David What's-his-name, a guy I can't stand. I eat and watch the guests. Slowly the food fills my stomach and gives me strength. Now a quick excursion to the bathroom, and out for my morning walk – and here she is, my faithful depression: "Did you think you could leave without me?"

—From his autobiography, *Killing Time*



Feyerabend later in life

Feyerabend moved to the University of California, Berkeley in California in 1958 and became a U.S. citizen. Following (visiting) professorships (or their equivalent) at University College London, Berlin, and Yale, he taught at the University of Auckland, New Zealand in 1972 and 1974, always returning to California. He later enjoyed alternating between posts at ETH Zurich and Berkeley through the 1980s but left Berkeley for good in October 1989, first to Italy, then finally to Zurich. After his retirement in 1991, Feyerabend continued to publish frequent papers and worked on his autobiography. After a short period of suffering from a brain tumor, he died in 1994 at the Genolier Clinic, overlooking Lake Geneva,

Switzerland.

Thought

Philosophy of science

Nature of scientific method

In his books *Against Method* and *Science in a Free Society* Feyerabend defended the idea that there are no methodological rules which are always used by scientists. He objected to any single prescriptive scientific method on the grounds that any such method would limit the activities of scientists, and hence restrict scientific progress. In his view, science would benefit most from a "dose" of theoretical anarchism. He also thought that theoretical anarchism was desirable because it was more *humanitarian* than other systems of organization, by not imposing rigid rules on scientists.

For is it not possible that science as we know it today, or a "search for the truth" in the style of traditional philosophy, will create a monster? Is it not possible that an objective approach that frowns upon personal connections between the entities examined will harm people, turn them into miserable, unfriendly, self-righteous mechanisms without charm or humour? "Is it not possible," asks Kierkegaard, "that my activity as an objective [or critico-rational] observer of nature will weaken my strength as a human being?" I suspect the answer to many of these questions is affirmative and I believe that a reform of the sciences that makes them more anarchic and more subjective (in Kierkegaard's sense) is urgently needed. *Against Method*. p. 154.

Feyerabend's position was originally seen as radical in the philosophy of science, because it implies that philosophy can neither succeed in providing a general description of science, nor in devising a method for differentiating products of science from non-scientific entities like myths. (Feyerabend's position also implies that philosophical guidelines should be ignored by scientists, if they are to aim for progress.)

To support his position that methodological rules generally do not contribute to scientific success, Feyerabend provides counterexamples to the claim that (good) science operates according to a certain fixed method. He took some examples of episodes in science that are generally regarded as indisputable instances of progress (e.g. the Copernican revolution), and showed that all common prescriptive rules of science are violated in such circumstances. Moreover, he claimed that applying such rules in these historical situations would actually have prevented scientific revolution.

One of the criteria for evaluating scientific theories that Feyerabend attacks is the *consistency criterion*. He points out that to insist that new theories be consistent with old theories gives an unreasonable advantage to the older theory. He makes the logical point that being compatible with a defunct older theory does not increase the validity or truth of a new theory over an alternative covering the same content. That is, if one had to choose between two theories of equal explanatory power, to choose the one that is compatible with an older, falsified theory is to make an aesthetic, rather than a rational choice. The familiarity of such a theory might also make it more appealing to scientists, since they will not have to disregard as many cherished prejudices. Hence, that theory can be said to have "an unfair advantage".

Feyerabend was also critical of falsificationism. He argued that no interesting theory is ever consistent with *all* the relevant facts. This would rule out using a naïve falsificationist rule which says that scientific theories should be rejected if they do not agree with known facts. Feyerabend uses several examples, but "renormalization" in quantum mechanics provides an example of his intentionally provocative style: "This procedure consists in crossing out the results of certain calculations and replacing them by a description of what is actually observed. Thus one admits, implicitly, that the theory is in trouble while formulating it in a manner suggesting that a new principle has been discovered"*Against Method*. p. 61. Such jokes are not intended as a criticism of the practice of scientists. Feyerabend is not advocating that scientists do not make use of renormalization or other ad hoc methods. Instead, he is arguing that such methods are essential to the progress of science for several reasons. One of these reasons is that progress in science is uneven. For instance, in the time of Galileo, optical theory could not account for phenomena that were observed by means of telescopes. So, astronomers who used telescopic observation had to use ad hoc rules until they could justify their assumptions by means of optical theory.

Feyerabend was critical of any guideline that aimed to judge the quality of scientific theories by comparing them to known facts. He thought that previous theory might influence natural interpretations of observed phenomena. Scientists necessarily make implicit assumptions when comparing scientific theories to facts that they observe. Such assumptions need to be changed in order to make the new theory compatible with observations. The main example of the influence of natural interpretations that Feyerabend provided was the *tower argument*. The tower argument was one of the main objections against the theory of a moving earth. Aristotelians assumed that the fact that a stone which is dropped from a tower lands directly beneath it shows that the earth is stationary. They thought that, if the earth moved while the stone was falling, the stone would have been "left behind". Objects would fall diagonally instead of vertically. Since this does not happen, Aristotelians thought that it was evident that the earth did not move. If one uses ancient theories of impulse and relative motion, the Copernican theory indeed appears to be falsified by the fact that objects fall vertically on earth. This observation required a new interpretation to make it compatible with Copernican theory. Galileo was able to make such a change about the nature of impulse and relative motion. Before such theories were articulated, Galileo had to make use of ad hoc methods and proceed counterinductively. So, "ad hoc" hypotheses actually have a positive function: they temporarily make a new theory compatible with facts until the theory to be defended can be supported by other theories.

Feyerabend commented on the Galileo affair as follows:

The church at the time of Galileo was much more faithful to reason than Galileo himself, and also took into consideration the ethical and social consequences of Galileo's doctrine. Its verdict against Galileo was rational and just, and revisionism can be legitimized solely for motives of political opportunism.^{[2][3][4]}

Together these remarks sanction the introduction of theories that are inconsistent with well-established facts. Furthermore, a pluralistic methodology that involves making comparisons between any theories at all forces defendants to improve the articulation of each theory. In this way, scientific pluralism improves the critical power of science. Pope Benedict XVI has cited Feyerabend to this effect.^[5]

According to Feyerabend, new theories came to be accepted not because of their accord with scientific method, but because their supporters made use of any trick – rational, rhetorical or ribald – in order to advance their cause. Without a fixed ideology, or the introduction of religious tendencies, the only approach which does not inhibit progress (using whichever definition one sees fit) is "anything goes": "anything goes' is not a 'principle' I hold... but the terrified exclamation of a rationalist who takes a closer look at history." (Feyerabend, 1975).

Feyerabend considered the possibility of incommensurability, but he was hesitant in his application of the concept. He wrote that "it is hardly ever possible to give an explicit definition of [incommensurability]" *Against Method*. p. 225., because it involves covert classifications and major conceptual changes. He also was critical of attempts to capture incommensurability in a logical framework, since he thought of incommensurability as a phenomenon outside the domain of logic. In the second appendix of *Against Method* (p. 114), Feyerabend states, "I never said... that *any two* rival theories are incommensurable... What I *did* say was that *certain* rival theories, so-called 'universal' theories, or 'non-instantial' theories, *if interpreted in a certain way*, could not be compared easily." Incommensurability did not concern Feyerabend greatly, because he believed that even when theories *are* commensurable (i.e. can be compared), the outcome of the comparison should not necessarily rule out either theory. To rephrase: when theories are incommensurable, they cannot rule each other out, and when theories are commensurable, they cannot rule each other out. Assessments of (in)commensurability, therefore, don't have much effect in Feyerabend's system, and can be more or less passed over in silence.

In *Against Method* Feyerabend claimed that Imre Lakatos's philosophy of research programmes is actually "anarchism in disguise", because it does not issue orders to scientists. Feyerabend playfully dedicated *Against Method* to "Imre Lakatos: Friend, and fellow-anarchist". One interpretation is that Lakatos's philosophy of mathematics and science was based on creative transformations of Hegelian historiographic ideas, many associated with Lakatos's teacher in Hungary Georg Lukács. Feyerabend's debate with Lakatos on scientific method recapitulates the debate of Lukács and (Feyerabend's would-be mentor) Brecht, over aesthetics several decades earlier.

It should be borne in mind that while Feyerabend described himself as an 'epistemological anarchist', he explicitly disavowed being a 'political anarchist',^[6] and this perspective on Feyerabend has been shared by other authors offering anarchist critiques of science.^{[7][8]} However, it has been argued by some that political anarchism is tacitly embedded in Feyerabend's assessment of the proper role of science and its practice within society.^[9]

The decline of the physicist-philosopher

Feyerabend was critical of the lack of knowledge of philosophy shown by the generation of physicists that emerged after World War II:

The withdrawal of philosophy into a "professional" shell of its own has had disastrous consequences. The younger generation of physicists, the Feynmans, the Schwingers, etc., may be very bright; they may be more intelligent than their predecessors, than Bohr, Einstein, Schrödinger, Boltzmann, Mach and so on. But they are uncivilized savages, they lack in philosophical depth – and this is the fault of the very same idea of professionalism which you are now defending.^[10]

On the other hand, Feyerabend was himself heavily criticized for his misrepresentation of the practices, methods and goals of some of the above-mentioned scientists, esp. Mach and Einstein.^[11]

Role of science in society

Feyerabend described science as being essentially anarchistic, obsessed with its own mythology, and as making claims to truth well beyond its actual capacity. He was especially indignant about the condescending attitudes of many scientists towards alternative traditions. For example, he thought that negative opinions about astrology and the effectivity of rain dances were not justified by scientific research, and dismissed the predominantly negative attitudes of scientists towards such phenomena as elitist or racist. In his opinion, science has become a repressing ideology, even though it arguably started as a liberating movement. Feyerabend thought that a pluralistic society should be protected from being influenced too much by science, just as it is protected from other ideologies.

Starting from the argument that a historical universal scientific method does not exist, Feyerabend argues that science does not deserve its privileged status in western society. Since scientific points of view do not arise from using a universal method which guarantees high quality conclusions, he thought that there is no justification for valuing scientific claims over claims by other ideologies like religions. Feyerabend also argued that scientific accomplishments such as the moon landings are no compelling reason to give science a special status. In his opinion, it is not fair to use scientific assumptions about which problems are worth solving in order to judge the merit of other ideologies. Additionally, success by scientists has traditionally involved non-scientific elements, such as inspiration from mythical or religious sources.

Based on these arguments, Feyerabend defended the idea that science should be separated from the state in the same way that religion and state are separated in a modern secular society (*Against Method* (3rd ed.). p. 160.). He envisioned a "free society" in which "all traditions have equal rights and equal access to the centres of power" (*Science in a Free Society*. p. 9.). For example, parents should be able to determine the ideological context of their children's education, instead of having limited options because of scientific standards. According to Feyerabend, science should also be subjected to democratic control: not only should the subjects that are investigated by scientists be determined by popular election, scientific assumptions and conclusions should also be supervised by committees of lay people. He thought that citizens should use their own principles when making decisions about these matters. He rejected the view that science is especially "rational" on the grounds that there is no single common "rational" ingredient that unites all the sciences but excludes other modes of thought (*Against Method* (3rd ed.). p. 246.).

Philosophy of mind

Along with a number of mid-20th century philosophers (most notably, Wilfred Sellars, W.V.O. Quine, and Richard Rorty), Feyerabend was influential in the development of eliminative materialism, a radical position in the philosophy of mind that holds that our ordinary, common-sense understanding of the mind (what materialist monists call "folk psychology") is false. It is succinctly described by a modern proponent, Paul Churchland, as follows:

"Eliminative materialism is the thesis that our commonsense conception of psychological phenomena

constitutes a radically false theory, a theory so fundamentally defective that both the principles and the ontology of that theory will eventually be displaced, rather than smoothly reduced, by completed neuroscience."^[12]

In three short papers published in the early sixties,^{[13][14][15]} Feyerabend sought to defend materialism against the supposition that the mind cannot be a physical thing. Feyerabend suggested that our commonsense understanding of the mind was incommensurable with the (materialistic) scientific view, but that nevertheless we ought to prefer the materialistic one on general methodological grounds.

This view of the mind/body problem is widely considered one of Feyerabend's most important legacies. Even though Feyerabend himself seems to have given it up in the late 1970s, it was taken up by Richard Rorty and, more recently, by Patricia Churchland and Paul Churchland. In fact, as Keeley observes,^[16] "PMC [Paul Churchland] has spent much of his career carrying the Feyerabend mantle forward" (p. 13).

Other works

Some of Feyerabend's work concerns the way in which people's perception of reality is influenced by various rules. In his last book, unfinished when he died, he talks of how our sense of reality is shaped and limited. *Conquest of Abundance: A Tale of Abstraction versus the Richness of Being* bemoans the propensity we have of institutionalizing these limitations.

The last philosophy book that Feyerabend finished is *The Tyranny of Science* (written 1993, published May 13, 2011). In it Feyerabend challenges what he sees in his view as some modern myths about science, e.g., he believes that the statement 'science is successful' is a myth. He argues that some very basic assumptions about science are simply false and that substantial parts of scientific ideology were created on the basis of superficial generalizations that led to absurd misconceptions about the nature of human life. He claims that far from solving the pressing problems of our age, scientific theorizing glorifies ephemeral generalities at the cost of confronting the real particulars that make life meaningful.

Popular influence

The book *On the Warrior's Path* quotes Feyerabend, highlighting the similarities between his epistemology and Bruce Lee's worldview.^[17]

Quotations

- ...And it is of course not true that we have to follow the truth. Human life is guided by many ideas. Truth is one of them. Freedom and mental independence are others. If Truth, as conceived by some ideologists, conflicts with freedom, then we have a choice. We may abandon freedom. But we may also abandon Truth.^[18]
- ...when sophistication loses content then the only way of keeping in touch with reality is to be crude and superficial. This is what I intend to be.^[18]

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See also

- Anarchism
- Citizen science
- Criticism of science

- Democratization of knowledge
- Epistemological rupture
- Positivism and scientism
- Relativism
- Subjectivism
- Thomas Kuhn

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External links

- Paul Feyerabend (<http://plato.stanford.edu/entries/feyerabend>) entry in the *Stanford Encyclopedia of Philosophy*
- The Works of Paul K. Feyerabend (<http://www.collodel.org/feyerabend/>) Chronological and annotated bibliographies, with hyperlinks to digital libraries and Web sources (compiled by Dr. Matteo Collodel)
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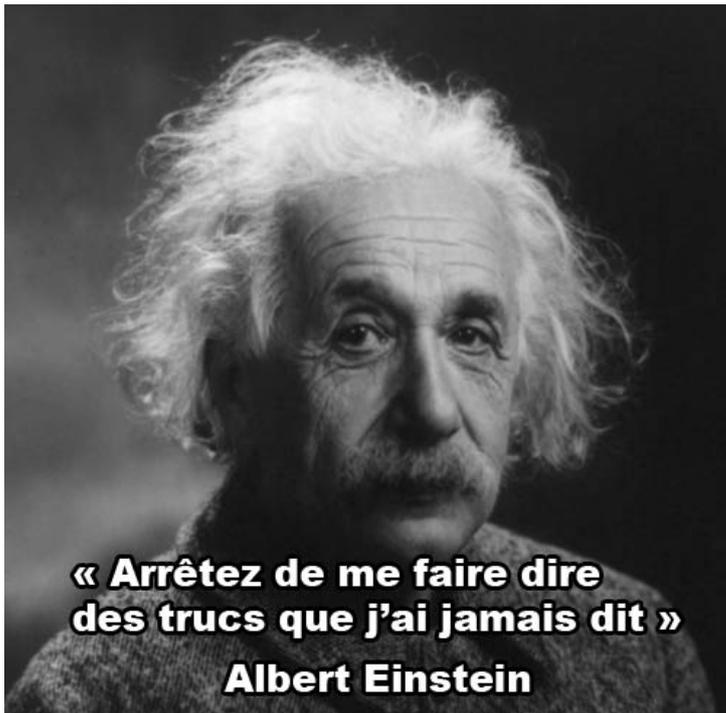
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^{vi} Examples of internet culture making fun of those who trust internet content blindly.





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Internet is that you can never know if
they are genuine."*

Abraham Lincoln

