

Sandbox Culture

A Study of the Application of Free and Open Source
Software Licensing Ideas to Art and Cultural Production

Aymeric Mansoux

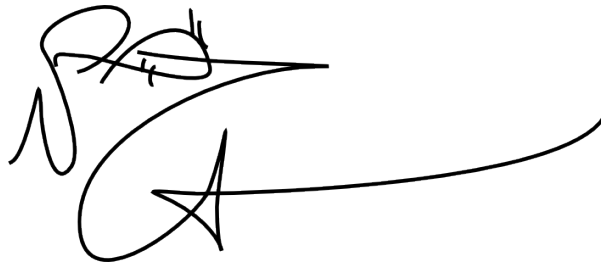
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I, Aymeric Mansoux, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Date: February 19, 2017

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke extending to the right.

Signed:

Abstract

In partial response to the inability of intellectual property laws to adapt to data-sharing over computer networks, several initiatives have proposed techno-legal alternatives to encourage the free circulation and transformation of digital works. These alternatives have shaped part of contemporary digital culture for more than three decades and are today often associated with the “free culture” movement. The different strands of this movement are essentially derived from a narrower concept of software freedom developed in the nineteen-eighties, and which is enforced within free and open source software communities. This principle was the first significant effort to articulate a reusable techno-legal template to work around the limitations of intellectual property laws. It also offered a vision of network culture where community participation and sharing was structural.

From alternate tools and workflow systems, artist-run servers, network publishing experiments, open data and design lobbies, cooperative and collaborative frameworks, but also novel copyright licensing used by both non-profit organisations and for-profit corporations, the impact on cultural production of practices developed in relation to the ideas of

free and open source software has been both influential and broadly applied. However, if it is true that free and open source software has indeed succeeded in becoming a theoretical and practical model for the transformation of art and culture, the question remains at which ways it has provided such a model, how it has been effectively appropriated across different groups and contexts and in what ways these overlap or differ.

Using the image of the sandbox, where code becomes a constituent device for different communities to experience varying ideologies and practices, this dissertation aims to map the consequent levels of divergence in interpreting and appropriating the free and open source technolegal template. This thesis identifies the paradoxes, conflicts, and contradictions within free culture discourse. It explores the tensions between the wish to provide a theoretical universal definition of cultural freedom, and the disorderly reality of its practice and interpretation. However, despite the different layers of cultural diffusion, appropriation, misunderstanding and miscommunication that together form the fabric of free culture, this dissertation argues that, even though feared, fought, and criticised, these issues are not signs of dysfunctionality but are instead the evidence of cultural diversity within free culture. This dissertation will also demonstrate that conflicts between and within these sandboxes create a democratic process that permits the constant transformation of the free and open source discourse, and is therefore something that should be embraced and neither resisted nor substituted for a universal approach to cultural production.

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In memory of Christine Mansoux

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Des bisoux, Des bisoux, Des bisoux, Des bisoux,
Des bisoux, Des bisoux, Des bisoux.*

– Philippe Katerine, *Des Bisoux*

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Introduction

What Is Free Culture?

According to the website *freeculture.org*, developed by a “non-partisan group of students and young people who are working to get their peers involved in the free culture movement,”¹ the term free culture was originally coined by American law professor Lawrence Lessig in his 2004 book *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*.² Lessig’s book is an elaborate collection of anecdotes, that together form a critique of the increasing discrepancy between, on the one hand, the way people use technology to share, create, and transform media, and on the other hand, the laws that regulate and control such activities. He puts an emphasis on digital media files such as music and films, and notably exemplifies in his analysis the role and context of piracy in the development of the media industry. Lessig

¹ Students for Free Culture, “About,” 2006, <http://wiki.freeculture.org/About>.

² Students for Free Culture, “Free Culture,” 2005, http://wiki.freeculture.org/What_is_free_culture%3F.

warns the reader of the increasingly negative impact of legal rights such as copyright on culture, on creativity, and more precisely: on the ability to create and share new productions of different artistic, musical, or literary creations. In particular, the laws that regulate the intellectual property aspect of material production have become inadequate to the production and consumption infrastructure of the Internet.

As British sociologist Dick Hebdige explained in his seminal 1979 book *Subculture: The Meaning of Style*, culture is a particularly ambiguous word that has been redefined several times, sometimes with contradictions, and that as a whole could be used both to describe processes as well as products, and relations within the whole way of life as well as standards for excellence.³ However, the idea of culture that Lessig refers to bears no ambiguity, and can be best associated to a specific category once defined by Welsh cultural theoretician Raymond Williams, namely “works and practices of intellectual and especially artistic activity,”⁴ where “culture is music, literature, painting and sculpture, theatre and film,”⁵ albeit taking into account their digital materialisation. However, even if Lessig refers to the circulation of digital works and cultural expressions on the Internet, the free culture he refers to is not a gratis culture. In his words, the concept of cultural freedom is tightly linked to liberal traditions, and in the preface of his essay he connects the notion of free culture with the ideas of free speech, free markets, free trade, free enterprise, free will,

³ See Dick Hebdige, *Subculture: The Meaning of Style* (1979; repr., London: Routledge, 2002), 5–19, From Culture to Hegemony.

⁴ Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (1976; repr., New York: Oxford University Press, 1985), 90.

⁵ *Ibid.*, 90.

and free elections,⁶ to both honour the lineage this term aims to be associated with, and also to note about the linguistic misunderstanding that a term such as *free* could create. For him, free has nothing to do with gratuitousness and the lack of property.

A free culture supports and protects creators and innovators. It does this directly by granting intellectual property rights. But it does so indirectly by limiting the reach of those rights, to guarantee that follow-on creators and innovators remain as free as possible from the control of the past. A free culture is not a culture without property, just as a free market is not a market in which everything is free.⁷

After the publication of the book, those who have embraced the idea of free culture, like the contributors of the freeculture.org website, admitted that since then the original notion might have been changed or expanded.⁸ As a matter of fact, the website does not offer one unique definition, but instead points to internal and external resources that could potentially further inform the reader about how free culture could materialise, what its manifesto could be, and how difficult it is to define it more clearly.⁹ Free culture could therefore be claimed by potentially anyone sympathetic to what was sketched by Lessig. In the end, because of such a loose framework, free culture came to be understood as a social

⁶ Lawrence Lessig, *Free Culture: How Big Media Uses Technology and the Law to Lock down Culture and Control Creativity* (New York: Penguin Press, 2004), XIV.

⁷ *Ibid.*, XIV.

⁸ Students for Free Culture, "Free Culture."

⁹ See Students for Free Culture, "What Does a Free Culture Look Like?" 2004, http://wiki.freeculture.org/What_does_a_free_culture_look_like%3F; Students for Free Culture, "Free Culture Manifesto," 2005, http://wiki.freeculture.org/Free_Culture_Manifesto; Students for Free Culture, "A Seemingly Simple Question," 2005, http://wiki.freeculture.org/A_seemingly_simple_question.

movement by some while others described it as a subculture.¹⁰

In fact, if Lessig was the first to publish a book on the concept of free culture, the debate on cultural freedom and cultural activism in the age of networked collaboration and digital works was much older. Free culture in that sense was the logical next step to what was already anticipated in the late nineties with the early analysis of copyright regulations over the Internet,¹¹ but was also the first attempt to rationalise an infrastructure in the lineage of the mid-nineties notion of collective intelligence existing over digital networks.¹² Indeed, digital cultural freedom resonates strongly with the idea that access to knowledge and information should be facilitated, in order to create communal ownership for new idealised networked societies,¹³ in which free culture could be both the mechanical apparatus for the exchange of information, but also a binding element for different groups interested in these issues. So even though free culture relates to a narrow definition of culture, it must also be understood in terms of wider societal concerns such as the “general process of intellectual, spiritual and aesthetic development.”¹⁴ This allowed free culture to broaden its cultural scope beyond the exchange and transformation of digital works. By existing at these two levels, free culture, in its broad

¹⁰ See Mayo Fuster Morell, “Governance of Online Creation Communities: Provision of Infrastructure for the Building of Digital Commons” (PhD thesis, European University Institute, 2010), 27.

¹¹ James Boyle, “A Politics of Intellectual Property: Environmentalism for the Net,” *Duke Law Journal* 47 (1997): 87–116.

¹² Pierre Lévy, *L’intelligence Collective. Pour Une Anthropologie Du Cyberspace* (Paris: La Découverte, 1994); Pierre Lévy, *World Philosophie : Le Marché, Le Cyberspace, La Conscience* (Paris: Editions Odile Jacob, 2000).

¹³ Manuel Castells, *The Rise of the Network Society, the Information Age: Economy, Society and Culture Vol. I* (1996; repr., Oxford: Blackwell, 2009).

¹⁴ Williams, *Keywords*, 90.

critique of intellectual property laws, became part, with varying interpretations, of the discourse of several social and political activist efforts.¹⁵ Lessig would eventually describe free cultural efforts as inspired by the notion of *cultural environmentalism*,¹⁶ a term originally coined by Scottish professor of law James Boyle, to illustrate how the model of environmentalist movements raising awareness of ecological disasters, could be transposed to cultural activism's raising awareness of cultural disasters, and in particular the enclosure of the public domain.¹⁷

In essence, what the free culture generalisation implies is that culture is currently not free, it needs to be liberated from those who use intellectual property laws to control it for their own benefits, and at the same time limit its circulation as well as transformation. To be more precise—and this will be more thoroughly explained in this dissertation—regardless of the long-term intention, this liberation is in practice more of an attempt to balance more fairly the control over the production and publication of cultural products, rather than oppose entirely copyright and other intellectual property laws. This balancing is achieved by working around the very intellectual property laws identified as being the source of the problem, and use them in order to reclaim the way works can be distributed, used, published, and transformed. Because of the emphasis made by free

¹⁵ This has been visible notably in the rise of the Pirate Party, see Patrick Burkart, *Pirate Politics: The New Information Policy Contests* (Cambridge: The MIT Press, 2014), and recent discussions on the articulations of political agendas supporting commons-oriented economy and society, see Vasilis Kostakis and Michael Bauwens, *Network Society and Future Scenarios for a Collaborative Economy* (London: Palgrave Macmillan, 2014), where the question of free culture and the commons have joined other issues and evolved beyond the issue of file sharing.

¹⁶ Lawrence Lessig, "Foreword," *Law and Contemporary Problems* 70 (2007): 1–3.

¹⁷ Boyle, "A Politics of Intellectual Property."

culture on the legal vessel, it means that in this context there are no differences made between free cultural works themselves: a work of art is no different from a beer recipe. It is up to the practitioner to contextualise their struggle using generic tools, which are the instructions that I was referring to earlier: the licenses. Licenses are legal documents distributed with the free work or cultural expression, and these licenses specify what can be done and under which conditions.¹⁸

Free culture offers, in effect, a rather paradoxical form of cultural freedom: to develop new constraining techno-legal frameworks so as to liberate cultural production from other constraining techno-legal frameworks. If this proposal may seem curious at first, scholar Christine Harold notes however that more radical forms of cultural activism, such as anti-copyright for instance, are not necessarily a good thing. She uses two notable analogies, the first is from American activist David Bollier who argues that the creative process needs an “open white space,”¹⁹ and the second is from Canadian composer John Oswald who states that “if creativity is a field, copyright is the fence.”²⁰ From this point Christine Harold proceeds to argue that fences are not always strict boundaries, they can be straddled or crossed, reconfigured and be transformed as part of a democratic process.²¹ In that sense, she argues that these fences are not as antithetical to liberated cultural processes as some

¹⁸ I will return regularly through the course of this thesis in order to explain what these documents are and how they operate.

¹⁹ Christine Harold, *OurSpace : Resisting the Corporate Control of Culture* (Minneapolis: University of Minnesota Press, 2007), 154.

²⁰ *Ibid.*, 154.

²¹ *Ibid.*, 154.

artists and activists might affirm.²² Furthermore, Harold explains that such “blockages and constraints have always been inextricably linked to invention” and that “the pirating strategy of ‘theft’, however unwittingly, perpetuates the very notion of property that it rejects.”²³ If Harold also adds that efforts like Creative Commons—a key project in free culture that will be discussed several times in this thesis—takes regulations and markets very seriously,²⁴ what her fencing counter-argument shows is that licenses can be a strategic social democratic tools to claim back lost, or protect new, cultural territories.

In fact, the free cultural strategy of playing with fences, was heavily appropriated from free and open source software licensing. Free and open source software—a collaborative and cooperative mode of software production in which source code is shared—has variously been described as a technological revolution,²⁵ and as a paradigm shift.²⁶ Its cultural significance beyond the realm of software was noted in 2008 by American scholar Christopher Kelty, who employed the term *modulation*²⁷ to explain how free and open source practices could be transposed to other fields. However, signs of such modulation, or cultural diffusion, started to be visible and articulated very precisely a decade earlier in the late

²² Ibid., 153.

²³ Ibid., 153.

²⁴ Ibid., 145.

²⁵ Tim O’Reilly, “Open Source Paradigm Shift,” in *Perspectives on Free and Open Source Software*, ed. Joseph Feller (Cambridge: MIT Press, 2005).

²⁶ To refer to the concept of scientific revolution, originally articulated by Thomas Kuhn, *The Structure of Scientific Revolutions* (1962; repr., Chicago: University of Chicago Press, 2012).

²⁷ Christopher Kelty, *Two Bits: The Cultural Significance of Free Software* (Durham: Duke University Press, 2008).

nineties, and at a time where the term free culture was also yet to be introduced, a time I will refer to as the proto-free culture era. Such early modulations made it so that free culture today is in fact not a speculative mode of production but the tip of an iceberg, made of all sorts of cultural activism that manifest in the broadest ways possible: from agriculture,²⁸ to terrorism,²⁹ and also physical spiritual practices.³⁰

Discussions around the influence of free and open source software on art and culture, and more particularly art and culture that involve the use of technology, often revolve around the role of the artist in a networked community,³¹ and their relationship with existing free and open source software communities.³² But other aspects need to be investigated, from the engineering advantage of free and open source software both as exceptional artistic tools,³³ to the relationship between a proto-free or free cultural license and the work that carries it. The latter in particular, has been given a lot of attention in this research, and connecting the intention of an author with the choice of a license³⁴ will help us understand

²⁸ Keith Aoki, “‘Free Seeds, Not Free Beer’: Participatory Plant Breeding, Open Source Seeds, and Acknowledging User Innovation in Agriculture,” *Fordham Law Review* 77 (2009): 2275–2310.

²⁹ The AQ Chef and Terr0rist, “Open Source Jihad,” *Inspire* Summer 1431 (2010): 31–44.

³⁰ Open Source Yoga Unity, “What Are We Doing?” 2005, <http://web.archive.org/web/20051023183314/http://www.yogaunity.org/learn/whatwedo.shtml>.

³¹ Ruth Catlow and Marc Garrett, “Do It with Others (DIWO): Contributory Media in the Furtherfield Neighbourhood,” in *A Handbook for Coding Cultures*, ed. Francesca Da Rimini (Lilyfield: dLux MediaArts Inc., 2007).

³² See Chun Lee, “Art Unlimited: An Investigation into Contemporary Digital Arts and the Free Software Movement” (PhD thesis, MiddleSex University, 2008).

³³ See Marloes de Valk, “Tools to Fight Boredom: FLOSS and GNU/Linux for Artists Working in the Field of Generative Music and Software Art,” *Contemporary Music Review* 28 (2009): 89–101; Martin Howse, “You’ve Got Pluggability,” *Tux Deluxe*, 2007, <http://web.archive.org/web/20080518065851/http://tuxdeluxe.org/node/254>.

³⁴ Lawrence Liang, *Guide to Open Content Licenses V1.2* (Rotterdam: Piet Zwart Institute, Institute for Postgraduate Studies; Research, Willem de Kooning Academy,

what happens when free and open source strategies are applied to art and culture production.

Research Question

The impact on cultural production and on practices developed in relation to the ideas of free and open source software has been both influential and broadly applied, and for this reason such cultural practices operate essentially at the tail of the free and open source cultural diffusion. The consequence of this is that these different free and open source licensing ideas and their materialisation, might not share so much with the systems from which they appear to be derived, let alone the fact that such germinal systems are more complicated than they appear to be. The choice of a free culture license in particular, is not straightforward. There is clear distinction to be made between practitioners consciously constraining their practice around a novel techno-legal system, and those who are pressured under the same system, and that they may have neither chosen to adopt, or have overlooked or misunderstood. The strength of the free culture proposal to simplify and generalise cultural mechanisms as a shared techno-legal process may also be its biggest weakness. Once the illusion of a lingua franca, that is to say using legal definitions of cultural movements and objects encoded as licenses, is eroded by a deeper analysis of the intentions of free culture practices, all sorts of dialects may

2005), 57.

appear, for which the free cultural jargon can only approximate some ideas and make compromises. In that sense free culture may not liberate its practitioners but subjugate them to a particular cultural hegemony, or at the other end of the spectrum, open up possibilities for alternative rules and control over cultural production for those who can understand existing and create new techno-legal templates.

Put simply, even though all art and cultural activism inspired by free and open source software practices, can be quickly placed under the umbrella of free culture, the goal of this research is to demonstrate that art and culture, connected to the ideas of free and open source software, has been affected in ways that were both unforeseen and different from what they were believed to do. By looking at how free and open source ideas have been effectively applied across different groups and contexts, and how these application overlap or differ, the question I ask is, in which practical and theoretical ways has free and open source software licensing provided a model of transformation for art and cultural production?

Methodology

I cannot stress enough the importance of the context and scale in which cultural production occurs in this research, and why this aspect will be regularly highlighted throughout the whole thesis. To give a brief example: contributors to free software can be presented as members of one united front in which its participants are bound together by the same

ideology.³⁵ The very existence of a free software *movement* further reinforces this sense of common direction, and this approach is useful to introduce such an effort in broad terms. However this comes with highly problematic strings attached. The infamous historical schism between free software and open source software, or the difference between copy-left and copyfree licenses provide some of the many examples, which exemplify that things are not so simple once looked at more closely. Such details can be easily overshadowed and bring confusion, when associated with the popularity of an encompassing acronym such as Free and Open Source Software (FOSS), or Free/Libre and Open Source Software (FLOSS). While both of these acronyms clearly attempt to go beyond internal conflicts and aim at consolidating the different parties, so as to engage with greater sets of concerns, like free versus proprietary and open versus closed, nonetheless in this simplified view, the freeness and openness of objects become arguably more vague. What such simplifications gain in information compression is counter-balanced by a loss of its most significant details.

To be sure, the discussion on the difference between free software and open source software has been exhausted already, however in this research I will show that what is often cited as an example of discourse discrepancy³⁶ is but one of myriad ideological differences that must be addressed. Things can get particularly murky when the cultural diffusion of

³⁵ I will come back in more detail in Chapter 2 on the usage of this term within free and open source discourse, and also within this thesis.

³⁶ For instance in Brett Gaylor, *RiP!: A Remix Manifesto*, Film (Montreal: EyeSteelFilm, 2008).

such simplified principles then triggers new things, like the term free culture, which is both a further generalisation and simplification of previous software-centric ideas of freedom and openness. As a result, although the possibility of free and open source appropriation is undeniably a proof of success, it remains questionable if the resulting different appropriations actually mean the same thing when attached to different disciplines, or when introduced by different groups. If I am interested here, in both culture as communication,³⁷ and communication as culture,³⁸ what this journey into the open mist of free culture could very well highlight is in fact, an ode to culture as miscommunication and miscommunication as culture.

Without close reading and comparison between what a practice is believed to do, how it is articulated ideologically, how it manifests and materialises itself, and finally how such manifestation and materialisation is perceived, there is a risk of providing an incomplete picture. Because of that, to investigate the transformative model of free and open source practices as a whole, one requires a ceaseless analysis of its discourse, yet one that can only be achieved via an ongoing change of scope, from the micro scale to the macro scale and back, so as to limit as much as possible any misinterpretation and inductive generalisation. This difficulty has so far prevented a comprehensive discussion of the political, artistic, and technological aspects of free culture. Previous efforts to do so

³⁷ See Edward T. Hall, *The Silent Language* (1959; repr., New York: Anchor Books, 1990).

³⁸ See James W. Carey, *Communication as Culture: Essays on Media and Society* (1989; repr., London: Routledge, 2009).

have been limited to advocacy,³⁹ discourse analysis disconnected from practice,⁴⁰ a focus on free and open source software communities that might not be always representative of their free cultural neighbours,⁴¹ or framed from the perspective of a particular ideology.⁴² To be sure, and connecting back to the notions of context and scale introduced in this section, I am not claiming to provide here a research that is a “total view, and which is able to move effortlessly between scales.”⁴³ I do however have a particularly involved position of participant observer in this research, that comes from being closely involved in free and open source inspired art and culture communities for many years, through the production of works of free software art, the curating and organisation of exhibitions, festivals and conferences, as well as the development of several free and open source software projects,⁴⁴ and co-editor of the first anthology on free software and art practices.⁴⁵ This position gives me a rare opportunity to try to provide a more holistic approach. That being

³⁹ Lessig, *Free Culture*; Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven: Yale University Press, 2006).

⁴⁰ David M. Berry, *Copy, Rip, Burn: The Politics of Copyleft and Open Source* (London: Pluto Press, 2008).

⁴¹ Gabriella Coleman, *Coding Freedom: The Ethics and Aesthetics of Hacking* (Princeton: Princeton University Press, 2013); Kelty, *Two Bits*.

⁴² Eben Moglen, “Anarchism Triumphant: Free Software and the Death of Copyright,” *First Monday* Volume 4 Number 8 (1999), <http://firstmonday.org/ojs/index.php/fm/article/view/684/594>; Tiziana Terranova, “Free Labor: Producing Culture for the Digital Economy,” *Social Text* 63 (Volume 18, Number 2) (2000): 33–58.

⁴³ Anna McCarthy, “From the Ordinary to the Concrete: Cultural Studies and the Politics of Scale,” in *Questions of Method in Cultural Studies*, ed. Mimi White and James Schwoch (Hoboken: Blackwell Publishing, 2006).

⁴⁴ For a discussion about these works and projects in relation to free culture see Raquel Rennó, “Digital Art and Free Culture: Interview with Aymeric Mansoux,” in *Tropixel: Arte, Ciência, Tecnologia E Sociedade*, ed. Karla Brunet and Raquel Rennó (Salvador: Editora da Universidade Federal da Bahia, 2015).

⁴⁵ Aymeric Mansoux and Marloes de Valk, *FLOSS+Art* (Poitiers: GOTO, 2008).

said, this thesis is not practice-based or auto-ethnographic, and in this text I will only very rarely and only anecdotally refer to projects I have been involved with. My unusual position helped me however to arrange semi-structured interviews with practitioners whose work and ideas on free culture represented the most exemplary proof of diversity. These interviews occurred by email and face-to-face encounters, with discussions sometimes spread over several years. The semi-structured interviews were used in this thesis either to illustrate or argument an idea, or as a very specific case-study, in which case I will dedicate a whole section to them.

In parallel to linking case studies with discourse analysis, I will be using several theoretical frameworks. The purpose of doing so is twofold. First, this was needed to explore more precisely a particular aspect of what was being discussed at a particular time, for example, the work from French semiotician Roland Barthes⁴⁶ will be useful as a basis to discuss the artistic appropriation of the free cultural discourse, but not so relevant for other parts of the research. Second, some artists interviewed during this research articulated their practice in relation to existing theoretical concepts, this was the case for instance with Basque noise musician Mattin, who found inspiration in the writing from German critic Walter Benjamin.⁴⁷ In that case, it is useful to partially remain within

⁴⁶ Roland Barthes, *L'Obvie et l'Obtus: Essais Critiques III* (Paris: Seuil, 1982); Roland Barthes, *Le Bruissement de La Langue* (1984; repr., Paris: Éditions Points, 2015).

⁴⁷ Walter Benjamin, "The Author as Producer," in *The Work of Art in the Age of Its Technological Reproducibility, and Other Writings on Media*, ed. Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin (Cambridge: Belknap Press of Harvard University Press, 2008); Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility: Second Version," in *The Work of Art in the Age of Its Technological*

the same theoretical framework when discussing the artist's work. Next to that, I am very much indebted towards the concepts of *Gemeinschaft* and *Gesellschaft*⁴⁸, the *iron cage*,⁴⁹ from German Sociologists Ferdinand Tönnies and Max Weber, respectively, that inspired me to explain how free software was essentially a constitutive template to emulate communities, and propose the term of sandbox culture to describe free cultural mechanisms, where software and legal code become a dual liberating and constraining constituent device for different communities to experience varying ideologies and practices. I also hope that the notion of cultural sandboxing can contribute a new way to approach and discuss post-subcultural dynamics, that cannot be easily analysed with existing static subcultural models⁵⁰ in the context of groups that mixes operating systems with social systems. Throughout my writing, I will also frequently refer to the notions of *radical democracy*⁵¹ coined by Argentinian and Belgian political theorists Ernesto Laclau and Chantal Mouffe. In particular, Mouffe's later re-articulation of radical democracy as *agonistic pluralism*,⁵² will be a crucial theoretical tool used in this thesis to

Reproducibility, and Other Writings on Media, ed. Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin (Cambridge: Belknap Press of Harvard University Press, 2008).

⁴⁸ Ferdinand Tönnies, *Community and Civil Society* (1887; repr., Cambridge: Cambridge University Press, 2001).

⁴⁹ Max Weber, *The Protestant Ethic and the Spirit of Capitalism* (1905; repr., London: Routledge, 2005).

⁵⁰ Geoff Stahl, "Tastefully Renovating Subcultural Theory: Making Space for a New Model," in *The Post-Subcultures Reader*, ed. David Muggleton and Rupert Weinzierl (Oxford: Berg Publishers, 2003).

⁵¹ Ernesto Laclau and Chantal Mouffe, *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics* (1985; repr., London: Verso, 2014).

⁵² Chantal Mouffe, "For an Agonistic Model of Democracy (2000)," in *Chantal Mouffe: Hegemony, Radical Democracy, and the Political*, ed. James Martin (London: Routledge, 2013).

critically analyse liberal democratic dynamics within proto-free and free culture communities. Last but not least, in this dissertation the use of the term culture will often vary. For instance, *free culture* may be presented as Lessig's general ideas on culture production, but it can also loosely refer more broadly to art and cultural production that offer alternative to existing copyright frameworks, or on the contrary, *free culture* may be very specific to a particular set of licenses. Finally free culture is not necessarily a synonym of the free and open source software culture, or the cultural practices surrounding a particular group. One of the goals of this dissertation will be to provide a thorough mapping of the different usage of the term and similar ambivalent ones, the use of the word culture will therefore be always contextualised to clarify its meaning, and to define the modes it addresses.

Limit of the Research

The scope of this research is essentially centred on North-American and European art and cultural production, with some exceptions and relevance notably for Latin American countries. As a consequence, reference to intellectual property laws, practices of sharing and copying, as well notions of freedom and politics, must be understood strictly within these boundaries. If some aspects can be still relevant beyond this scope, their generalisation might be very risky without considering other factors. For instance the usage of free and open source technology in Africa, Western and Northern Asia would need to be put in perspective with both

postcolonial analysis, the rise of fab labs, and the lack of ethnic and culture diversity in hackerspace communities.⁵³ Similarly, if free and open source software practices found their way to Eastern Asia, as novel artistic tools,⁵⁴ or communities,⁵⁵ it would be difficult to treat art and culture activism without first looking at the specific relation between art and technology in this region of the world, as well as discuss forms of technological openness that are specific to these places, like the shanzhai *open BOM* culture, where the list of materials and component assemblies are shared and improved across different manufacturers, following word-of-mouth rules that are policed by the manufacturing communities themselves.⁵⁶ Finally, the relevance of free and open source principles and practices, as well as their possible transposition to non-software works and cultural expressions, must always be contextualised in relation to the intellectual property frameworks they attempt to work around. Their usage and value cannot be decoupled from the way such frameworks are defined and enforced.⁵⁷

⁵³ Johannes Grenzfurthner and Frank Apunkt Schneider, “Hacking the Spaces,” 2009, <http://www.monochrom.at/hacking-the-spaces/>.

⁵⁴ Seichiro Matsumura, *Pd Recipe Book —Pure Data* ではじめるサウンドプログラミング (Tokyo: Bienuenushinsha, 2012).

⁵⁵ Yahsin Huang, “Openlab Taipei: Connecting the Maker Community,” *Medium*, 2015, [\url{https://medium.com/@yahsinhuangtw/openlab-taipei-connecting-the-maker-community-611ee54acd9c}](https://medium.com/@yahsinhuangtw/openlab-taipei-connecting-the-maker-community-611ee54acd9c).

⁵⁶ Andrew Huang, “Tech Trend: Shanzhai,” 2009, <https://www.bunniestudios.com/blog/?p=284>.

⁵⁷ Shahee Ilyas, “F/LOSS and the Computer Culture of the Maldives,” in *FLOSS+Art*, ed. Aymeric Mansoux and Marloes de Valk (London: OpenMute, 2008).

Structure of the Argument

This thesis is constituted of eight chapters that are organised in three different parts, named after American computer programmer Richard M. Stallman's famous attempt to contextualise software freedom in his own terms:⁵⁸ free as in speech.⁵⁹ Between each chapters and parts, small sections presented as *interludes* are provided to give the reader an overview of what was recently discussed, announce what will come up next, and reflect as an aside on some of the ideas discussed so far. Generally speaking these bridging sections will also help situate the progress of the argument, and how the material analysed relates to the thesis question.

I chose to divide the thesis in three parts in order to address three sub-questions needed to break down the main research question (in which practical and theoretical ways free and open source software licensing has provided a model of transformation for art and cultural production): what does make free and open source software relevant to cultural production; what are the relationships between free culture, free art and free software; and what kind of techno-legal and social systems does free and open source practice create.

Part one, *Free as in... Culture*, will answer what makes free and open source software relevant to cultural production, with the help of the following two chapters: Chapter 1 *Paradigm Maintenance and User Freedom*

⁵⁸ I will come back to this contextualisation, and explain it in more detail several times in this thesis.

⁵⁹ Richard M. Stallman, "What Is Free Software?" 2001, <https://web.archive.org/web/20010516230210/http://www.gnu.org/philosophy/free-sw.html>.

that will question what is truly revolutionary about free software practices; and Chapter 2 *In Search of Pluralism*, that will explain how the free software techno-legal template contributed to shaping both the proto-free and free culture eras of culture activism.⁶⁰

In part two, *Free as in... Art*, I will discuss the relationships between free culture, free art and free software. This more precise illustration of how cultural appropriation operates within free culture will be addressed in three chapters: Chapter 3 *Art Libre*, which as the name indicates will trace the history of Free Art and its license; Chapter 4 *The Practice of Free-range Free Culture*, where I will discuss the practice and works of some specific artists and designers; and Chapter 5 *Free Cultural Misunderstandings*, in which notorious misunderstandings in the free culture discourse will be discussed, in particular the term copyleft and the commercial exploitation of free works and cultural expressions.

Finally in part three, *Free as in... Trapped*, I will formulate the kind of techno-legal and social systems that free and open source practices create. I will do so in three chapters: Chapter 6 *The (Almost) Endless Possibilities of the Free Culture Template*, that will notably explore the limit of transposing software freedom to cultural freedom; in Chapter 7 *From Techno-legal Templates to Sandbox Culture*, I will show the mix between operating systems and social systems is an essential aspect of the free cultural techno-legal template; in the last chapter, Chapter 8 *The Mechanics of Sandbox Culture*, I will develop further the sandbox analogy as an

⁶⁰ In this chapter I am proposing the term *proto-free* to describe ideologies and practices related to free culture ideologies and practices before their articulation as such.

attempt to provide a model that shows how the paradoxes and conflicts found in free cultural discourses are not just misunderstandings, but are in fact what help sustain these novel forms of production and organisation.

Prologue

It's just past midnight. It's cold. The air is humid and heavy and smells like stale beer, in an old World War II bunker built by Russian prisoners during the German occupation in Bergen, Norway. On a stage, in one of the biggest rooms of the underground concrete structure, two men, one bald and another wearing beard and hat, ignore the small audience that has gathered with hesitation around the mess of vinyl, electronics, cables and computers, all of which form an altar at which the two masters of ceremonies are occupied. Behind them, a video image is projected: green text scrolls on a black background, the visual layout reminiscent of the popular depiction of computer hacking in nineties films. Slightly farther away from this enigmatic scene, other human forms gather in small groups, around dark and sticky wooden tables, or sit alone on the dark and sticky floor, or on the chairs that just happen to have been scattered randomly in the space. Everything is quiet. The surrounding humanoids do not look at the stage. Their attention is focussed on their laptop screens. The machines, some of which have seen better days, are covered with myriad stickers, with each stratum testifying of a particular era and its associated style, together forming a constantly changing

peacock tail for the otherwise dark clothed men and women attending. And in the darkness of the bunker, their already pale looking faces illuminated by the cold and blueish light of the computer displays, forms a council of floating head spectres, a peculiar gathering of radically isolated yet fully connected beings, who only look at each other, when their chat software stops working. All of a sudden, a sharp and intense sound, or was it a punch, freezes the room. In the tiny moment of sonic vacuum that follows, looks of disbelief, confusion and fear create a brief moment of communion orchestrated by the two noise performers. Adrenaline and cortisol is released into the systems of all assembled: fight or flight? No time to think, their fully alerted animal instinct predicts that another bursting charge is about to be delivered, and, like threatened rodents, the fastest promptly take off to the closest holes formed in the dimly lit corridors of the bunker, quickly shouting possible future rallying points to each other—apparently the hotel lobby near the harbour has free WiFi—leaving behind only the afterimage of the quickly vacillating tail of a laptop power chord, abruptly pulled from the wall sockets. The very few left behind, are holding strong to their beer bottles, now absorbing one sound shock after the other, standing firmly in front of this messy Unix command line noise mass, hypnotised by the mixed analogue and digital system peacefully and quietly operated by the two men on stage, and whose soft, almost unnoticeable manipulations are contrasted with the brutally tangible manifestation of this human-machine dialogue, thanks to a merciless amplification.

Meanwhile, on the other side of the globe, in San Francisco, California, USA, a smaller group are quietly gathered in a room. The walls are

painted matte white with a few salmon pink horizontal stripes at the bottom, some wavy turquoise patterns rise towards the ceiling, in an attempt to add a Mediterranean tone to the already quite warm studio, artificially heated to forty degrees celcius, precisely. Another particular artificially generated feature is the humidity level, which is also precisely set at forty percent, thus making the atmosphere resonate with some mystical depth and potential secret meaning, that such a peculiar configuration would imply. The more prosaic consequences of this apparatus are however of a lesser spiritual nature: it is just annoyingly hot and humid in there. Fighting against the stuffiness of such a surreal setup, and the very real odors from the still but sweating bodies, a few sticks of incense bought at the local Asian supermarket stand proud, slowly burning, and adding an extra thickness to the already dense misty atmosphere. On a small bench, a brandless music and radio player combo rests on top of a piece of cloth, decorated with generic embroidery and beads. Both were bought at the same Asian supermarket. Next to these items, there is a well aligned pile of compact discs, the covers of which, if they would be hung up on a wall, would form a series of suspiciously happy looking portraits of cheerful people posing with their favourite exotic instruments, interrupted every now and then, by the odd photography of equally suspiciously beautiful landscapes from improbable holiday destinations. The instructors, a woman and a man, both middle aged, looking fit and tanned, wait for their cue, the end of one of their favourite tracks in this carefully crafted playlist: Track 7 *The Elder Connections of Mindful Tibet*, performed by a Canadian New Age artist on a synthesizer that sounds something like a Peruvian pan flute, but not quite. When the piece finally ends with a

surprisingly long reverberation mixed with samples of tinkling bells, it is the signal that they need to make their students aware of the change of pose, the final in a series of twenty six, a closing stance called *Kapalbhati in Vajrasana*, which is the Sanskrit name for blowing in firm posture. The moves they just finished are in fact one of the asana sequences that Indian yoga teacher Bikram Choudhury had attempted to copyright earlier this year and forced several yoga teacher groups to defend in court their now rogue practice as *open source yoga*. While quietly whispering the words of a language that they do not speak or understand, and as the next music track slowly fades in—this time a multi-layered composition of mostly monotonal instruments—the group starts an unsynchronised choreography, with each one of the perspiring participants slowly moving from the one position to the next. In this last effort of communion and selfless gratitude, signs of relief can be seen on the face of many, now rewarded by the physical effort and the subsequent release of β -Endorphin. The motion is made more colorful by the visual patchwork constituted by all the fancy patterns of the leggings, bought at online eco-friendly and fair-trade yoga shops, forming another multitude of peacock tails in front of equally vivid non-slip mats, also purchased from ethical and fair retailers.

At this exact moment, a few hundreds people marching with petits fours and sparkling wine in hand, enter the underbelly of the Museum of London, United Kingdom, booked for the night to provide a space for an important evening dinner. Guided by several well-mannered helpers, the chatty column of people moves from one room to another, passing archaeological artefacts, interactive and multimedia science related instal-

lations, and several large panels with big titles, photos, and much smaller texts. These were created and strategically placed to provide some contextual references and landmarks, so as to testify, in the form of an entertaining and educational tour, of the epic greatness of human civilisation. Tonight, the visiting sample of such greatness look particularly chic and smart, with properly selected apparel, accessories and perfume. Most of them are holding a little piece of glossy cardboard, on which is printed their seating position and table number. Indeed, if having the privilege to attend a dinner in some of the most impressive rooms of the museum might sound like an eccentric delight, the true motive of this exclusive gala is business networking. In the same way that the informational posters have been so particularly placed in the venue, its attendants have also been carefully placed in advance, strategically grouped around a multitude of small round tables, organised by themes, sectors, or affinities, in the hope to foster exchange and provide a catalyst for fruitful synergy, the outcomes of which, who knows, might lead to the need to produce more museum signage and vitrines in the future. Some of the early birds from this défilé are quick to take a seat and very keen to start a more active participation in this event. Indeed, while part of those coming to the gala dinner tonight had either paid a generous sum to be present or had been invited specifically to support the cause, for the rest of the group however, this peculiar social situation is the conclusion of a long day of presentations and panels. During the morning and afternoon conference, they were exposed to other kinds of peacock tails, in the form of colourful charts, of all different shapes and forms, and employed to represent and visualise pretty much anything possible. One of the main narratives of

the day was how transparency is a way to create trust in business, and how it can also be used to make many things more efficient. Furthermore, the makers of such charts were excited to share how the capturing, calculated publishing and processing of information, digital data to be more concise, was a paradigm shift that would affect every possible field from economics to politics, and, of course, the arts, which are represented here by a few selected works and artists illustrating the coming age of a new data-driven open culture. The head still buzzing with new visions from an efficient democracy in which tomorrow's leaders will have access to the pulse of nations, markets, and literally anything that can be captured and sampled by machines, they were now all ready to make the useful connections to turn this dream into reality. With introductions tuned and optimised for maximum productivity, the clever signposting of intention, and cunning use of specific keywords, the members of this elite of data openness, representatives of private and public sector, NGOs, universities, as well as various organisations, would have been ready to start their hunt for new business cards, if it were not for the sudden interruption from a man on a podium, who was about to deliver a speech. The man in his early sixties, can hardly contain his excitement about what happened today, what is happening now, and what he is sure will definitely happen tomorrow. All around him, several LED displays are blasting numbers: red, yellow, and blue percentages, statistics about births, death, stock markets, social networks usage, weather reports, and others that are barely readable due to the speed of the scrolling. When his address is over, the crowd responds with a standing ovation. The starters are served, finally.

Part 1: Free as in... Culture

In this first part, I counter two points that have been taken for granted with free and open source software production, and the subsequent rise of free culture. The first point is the idea that free and open source software is primarily the opposition to closed source, proprietary, software and standards, and this for reasons that can be articulated on the grounds of either ethics or economics. The second point is the notion that all the things derived from free and open source software are simple variations on the same theme, and are bound together in a common struggle with a shared intention or agenda, from which every participating group can benefit. These two elements have led to misunderstandings, or to be more precise, have prevented an acknowledgement of the tension between different attempts to normalise and rationalise free culture and the richness of its practices and contexts. In particular, I want to falsify first the notion of free and open source software as a paradigm shift, by showing another side of this revolutionary dimension in the fabrication of virtual communities which emulate endangered and speculative practices, and second, demonstrate that the culture of free and open *things* is in fact a struggle, but not against an external hegemony, but a struggle within itself which is symptomatic of liberal democratic and post-political systems. Each of these arguments will be expressed in two chapters: Chapter 1 *Paradigm Maintenance and User Freedom*, and Chapter 2 *In Search of Pluralism*.

At first, the content of these two first chapters might appear like an introductory textbook on computer programming, and a history of the Unix operating system and free software. It is true that I find it important that some fundamental concepts and key historical elements are first covered in this thesis, in order to fully grasp some of the notions that I

will develop in the following parts and chapters. However, such a crash course is more than a partial survey and summing-up of the literature on the early days of computational culture and software freedom. For instance, if I will cover some element of the Unix history, or revisit the schism between free and open source software under the new light of source code interpretation, I will skip the era of Unix wars, the infamous tensions between Microsoft and free and open source software supporters, the introduction of the Linux kernel, and an important part of the late eighties and nineties as these are irrelevant to the points that I will be making. As American scholar Christopher Kelty put it, my selection is in fact a collection of *useful narratives*¹ that I need to defuse the revolutionary dimension of free and open source software, and give a better sense of the techno-legal constitution of those communities which use and write software

While doing so, I will argue that free software is indeed connected to a long history of programming practices, and that if there is something revolutionary about this notion, it is not so much in its fight against closed and proprietary software, but in the creation of a model, a template of sorts, to confine, protect, and in fact *emulate* practices in such a fashion that it can be appropriated by other groups and individuals. Alongside this, I will stress that the role and openness of source code should not be understood only from a technical or legal perspective. I will argue that source code interpretation is as much open to software compilers and interpreters as it is to human beings. The programmatic dimension of free

¹ See Kelty, *Two Bits*.

software cannot therefore be limited to software production, but need to be also examined from the perspective of community rules and specific visions of society, as the clash between free and open source software has demonstrated.

To build my argument I will first start to question in Chapter 1 the archetypical subcultural hero rhetoric of the free software tale, then I will show how the dual openness of source code creates a dual interpretation by machines and humans from which questions of ethics and economics arise. Following that I will remind that the development of the computer industry has been relied extensively on this dual openness, diffusing its prototyping and engineering culture to the rest of society, I will then explain that the instrumental and questionable role of user generated content and participation in the development of software products is not a recent issue but is in fact as old as the computer industry. I will argue that the most interesting aspect of the appearance of free software has been its ability to prototype a framework relying on a definitions and a few licenses, in order to protect or amplify some aspect of this legacy. However, in the process this form of emulation has opened the door to others to also use such a strategy to put forth their own ideology. This aspect will be discussed in Chapter 2, in particular how the definition-license template became attractive outside of the realm of software, suddenly expanding free software to afford several attempts to generalise it under different forms, such as *open content*, *free knowledge*, and eventually *free culture*. However, I will show that this process of cultural diffusion is the stage of two opposing forces—a sort of cultural entropy challenged by various efforts to contain and define culture freedom more precisely—

that are reminiscent of liberal democracy dynamics. Finally, using open design and the makers movement, I will discuss what becomes of the counter-hegemonic potential of free culture, the pluralism and the wide diversity of ideologies that appropriated the free software template, once cultural freedom becomes defined and generalised for all sorts of works and cultural expressions.

Chapter 1

Paradigm Maintenance and User Freedom

1.1 Questioning the Revolution

As with many folk tales, the archetypical free software stories often begin,¹ with the presentation of its protagonist within the landscape in which their quest will unfold. Similar to the first narrative function from the Morphology of the Folktale,² such tales start with the *absentation*³ of the hero, as he leaves the growing proprietary operating systems of an expanding computer industry which is becoming increasingly reliant on

¹ Neal Stephenson, *In the Beginning...was the Command Line* (1999; repr., New York: HarperCollins e-books, 2007), 34.

² Vladimir J. Propp, *Morphology of the Folktale* (1928; repr., Austin: University of Texas Press, 2010).

³ *Ibid.*, 26.

intellectual property laws: from copyrights, to patents, trademarks, trade secrets, and industrial design rights. Very much at the opposite of these *just working* and *plug and play* software environments—championed in the context of such tales by American multinational corporations like Apple and Microsoft—the userland⁴ our hero seeks seem to be less driven by technological consumerism. Most importantly, it is articulated around a strange concept: the freedom of the user. In fact, according to the myths, the claim of our visionary hero is that there exists, somewhere, a ground of liberation where people share their work and their tools. They could be helping each other, building together creative and productive software frameworks and be active members of many autonomous, partly-federated and decentralised, technological user groups that would form one united community and fuel this extraordinary collective effort. The project’s purpose is grandiose and the founder of this new world aims to build a better society, one Unix command at a time.

This man is American computer programmer Richard M. Stallman. The call to join his quest, the 1985 GNU Manifesto,⁵ will be read and discussed in many computer journals, newsgroups and bulletin boards. The document promises nothing less than a prophetic paradise for computer programmers. Moreover, Stallman’s writing is a commitment to create a whole new society based on the development of something called free

⁴ In reference to the Unix centric term that designates the virtual memory space outside of the kernel, and generally occupied by user mode programs and libraries running in an operating system. See Eric S. Raymond and Guy L. Steele, “THE JARGON FILE, VERSION 2.2.1,” 1990, <http://catb.org/jargon/oldversions/jarg221.txt>.

⁵ Richard M. Stallman, “The GNU Manifesto,” *Dr. Dobb’s Journal of Software Tools* Volume 10, Number 3 (1985): 30–35.

software, and the society he envisions is defined by post-scarcity economics, a concept that describes “economic and political systems where goods are freely distributed according to egalitarian principles,”⁶ and which historical antecedents can be found in various economic theories of the first half of the twentieth century, from mutualism to automation and robotics, and further adopted in both left and right-wing literature.⁷ However, Stallman’s approach is not driven solely by economics or technological positivism, it is guided by ethical motives:

I consider that the golden rule requires that if I like a program I must share it with other people who like it. Software sellers want to divide the users and conquer them, making each user agree not to share with others. I refuse to break solidarity with other users in this way. I cannot in good conscience sign a non-disclosure agreement or a software license agreement. [...] So that I can continue to use computers without dishonour, I have decided to put together a sufficient body of free software so that I will be able to get along without any software that is not free. [...] In the long run, making programs free is a step toward the post-scarcity world, where nobody will have to work very hard just to make a living. People will be free to devote themselves to activities that are fun, such as programming, after spending the necessary ten hours a week on required tasks such as legislation, family counselling, robot repair, and asteroid prospecting. There will be no need to be able to make a living from programming⁸

It is on such premises, that the birth of the free software movement is often presented. Beginning from a one person stand, a singular position which became a universal matter, as testified by the innumerable free and

⁶ Michael Peters, “Introduction: Knowledge Goods, the Primacy of Ideas and the Economics of Abundance,” in *Creativity and the Global Knowledge Economy*, ed. Simon Marginson Michael Peters and Peter Murphy (New York: Peter Lang, 2009), 11.

⁷ For a broad genealogical overview of the term see *ibid.*, 11–12.

⁸ Stallman, “The GNU Manifesto.”

open *things* that emerged from the mid-nineties—some of which I will discuss in Chapter 2—and remain a given in software production to this day. This transformation has made American publisher and open source evangelist Tim O’Reilly, associate this process with American physicist Thomas Kuhn’s concept of the paradigm shift,⁹ where the scientific world view of the many will eventually be changed by the means of gradual conversion.¹⁰ For instance, in the 2001 documentary *Revolution OS*, such a shift is exemplified with the tension between Microsoft Windows and the GNU/Linux operating systems, and how the supporters of the latter are presented as active participants of a revolution that impacts both the software industry and computational culture in general.¹¹

This narration is in fact emblematic of the free and open source stories, combining the thematic of revolutionary science with a loose interpretation of social revolution, by the means of a near Hollywoodian variation of the fight between David and Goliath, which fits particularly well with the hero rhetoric of subcultural theory,¹² and provides the reason free and open source software has often been designated as such.¹³ If such accounts have been instrumental in fuelling the opposition between the cultural diktat of the nineties computer industry, and the desire for a more

⁹ See O’Reilly, “Open Source Paradigm Shift.”

¹⁰ Kuhn, *The Structure of Scientific Revolutions*, 151–57.

¹¹ See J.T.S. Moore, *Revolution OS: Hackers, Programmers & Rebels UNITE!*, Film (US: Wonderview Productions, 2002).

¹² Stahl, “Tastefully Renovating Subcultural Theory.”

¹³ See Marianne van den Boomen and Mirko Tobias Schäfer, “Will the Revolution Be Open-Sourced? How Open Source Travels Through Society,” in *How Open Is the Future? Economic, Social & Cultural Scenarios Inspired by Free & Open-Source Software*, ed. Marleen Wynants and Jan Cornelis (Brussels: VUB Brussels University Press, 2005), 31–68.

diverse and independent computational culture, and if it is also undeniable that different practices emerged and were inspired by this struggle,¹⁴ it is however a very crude simplification.

The GNU Manifesto and free software have become emblematic and instrumental in the “explosion in variations”¹⁵ of the word *open*, a model to be followed not just for software but for pretty much everything and in which “openness breeds more openness.”¹⁶ In this case the gradual conversion mechanism of the scientific revolution has been reduced to a fashionable adjective to put next to virtually anything, and it is worth asking whether or not free and open source software offered a new single world view, or triggered instead a plethora of new world views. This makes general analysis particularly difficult. For instance, the marketing of open source by O’Reilly has been recently criticised by Belarusian writer Evgeny Morozov.¹⁷ However, by giving too much importance to the publisher in his critique, Morozov ended up making an approximative generalisation from only one particular aspect of the free and open source software history. His focus on dismantling what he refers to as the open source *meme-engineering*, distracts him from seeing that the revolutionary dimension of free software, a perspective that he supports, is equally questionable and prone to be dismantled as well. Even though Morozov succeeds in taking apart the image constructed by O’Reilly, he

¹⁴ This aspect will be one of the central points in the second part of the thesis.

¹⁵ Jeffrey Pomerantz and Robin Peek, “Fifty Shades of Open,” *First Monday* 21, no. 5 (2016).

¹⁶ *Ibid.*

¹⁷ Evgeny Morozov, “The Meme Hustler: Tim O’Reilly’s Crazy Talk,” *The Baffler*, 2013, <https://thebaffler.com/salvos/the-meme-hustler>.

leaves Stallman's image in line with that of the origin myth, in which Stallman is presented as a leader of a radical social movement, offering an alternative to proprietary Unix and Windows operating systems.

This narrative has been constructed over the years as much by free software supporters as by their opponents, as I will show on several occasions throughout this thesis. Free software is in fact not a *creatio ex nihilo*, and Stallman and historians of computer science have always been very clear about this when explaining that software was always free,¹⁸ an aspect often overlooked but crucial in the first part of this thesis, and this is why I will often use the term *emulation* to describe free software practices. However, before unpacking what I mean by this, it is necessary to first explain the freedom Stallman is referring to, as well as the *users' freedom*, often cited in the free software discourses.¹⁹

1.2 Source Code and the Individuation of the Programmer

So, what exactly is this *users' freedom* about and how does it relate to the production and distribution of software? To tackle these questions, I first want to decouple the idea of liberating users from understanding how software is written. Once some trivial technical knowledge of pro-

¹⁸ Joaquín Seoane Pascual Jesús M. González-Barahona and Gregorio Robles, *Introduction to Free Software* (Barcelona: Fundació per a la Universitat Oberta de Catalunya, 2009), 2.1 Free Software before Free Software.

¹⁹ Free Software Foundation, "What Is Free Software," 2016, <https://www.gnu.org/philosophy/free-sw.en.html>.

gramming and source code is explained, free software is in fact a rather simple idea to comprehend. Source code specifically is an essential aspect of software production. Understanding how it is written and published allows us to see very concretely how regulating its access can impact users: from total alienation and control, to the empowering liberation of Stallman's manifesto.²⁰

As a program part, source code, and to be more precise the source files, is the collection of computer instructions written using some human readable computer language, such as C or Python. Source files can be compiled, like C, which means that the source code is translated by a compiler into machine code, that can be executed manually to perform some tasks as a standalone program, or as part of a larger software.²¹ Some files can also be interpreted, like with Python code, in which case the source code is both translated and executed on the fly by a piece of software called an *interpreter*, by alternating reading of the source files and performing the requested computation.²² As the name implies, source code is where everything starts. As I will trivially demonstrate below, its role in the production of software is technically essential, and its access therefore allows unrestricted modification of its function, whether it is about adding, removing features, or simply fixing faults.

²⁰ The importance of source code is also a prerequisite to test later on, in the third part of this thesis, the limits of a generalised free culture, especially in cultural expression where source code is either irrelevant, undefined, or metaphorical.

²¹ See Samuel P. Harbison III and Guy L. Steele Jr., *C: A Reference Manual* (1984; repr., Prentice Hall, 2002), Introduction.

²² See Allan Downey, *Think Python: How to Think Like a Computer Scientist* (2012; repr., Sebastopol: O'Reilly, 2016), Chapter 1.

To give a concrete example, let's consider the following piece of plain text written by user Ada, and stored in the source file `software.c`:

```
#include <stdio.h>

int main(void)
{
    printf("There is software.\n");
}
```

This text is the source code of a very simple program written in a programming language called C. It does not do much for now because it is described in this particular human readable language, and not as machine language. The latter is the set of instructions that can be executed by a computer's central processing unit (CPU), the object code, that can eventually become an executable program. To translate the text above into such a file, and as mentioned previously, Ada needs another program, a compiler, such as the GNU Compiler Collection (GCC). On a Unix-like system, this operation can be performed by typing the following command on the computer terminal:²³

```
gcc software.c -o software
```

Upon pressing the *Enter* key, the compiler is called and then translates `software.c` into `software`. If there are no errors in the source code, this command line operation should yield nothing at all, and there should

²³ The terminal is nowadays a software application, once born as hardware device, and which provides a means to interact with the operating system in a textual way.

now be two files in the folder from which it was executed: `software.c`, the original C source file from Ada, and a new file named `software`, the translation of the source code into object code. This object code is a software itself,²⁴ in this case an executable computer program that can be run by Ada from the terminal, like this:

```
./software
```

The result of this execution, as hinted by the venerable `printf` C function in the source code, is the sudden display on the terminal of the string of text `There is software`. At this point, the source file could very well be discarded or deleted. It does not matter for the software, which will still be running as long as the user has the object code file.²⁵

In a way, software is born by bringing its source file to the altar of compilation, and this transitional characteristic is the reason why media theorist Wendy Chun describes source code as a spectral thing, a re-source that only becomes source through its destruction.²⁶ However, limiting source code to a mere re-source is problematic. Once the dimension of distributed and cooperative writing is taken into account, this view is in fact incomplete. Indeed, the spectrality of source code becomes increasingly questionable once the distribution and publishing of these files

²⁴ For a brief genealogy of the term, see Matthew Fuller, *Software Studies : A Lexicon* (Cambridge: MIT Press, 2008), Introduction, the Stuff of Software.

²⁵ This is true as long as the software and hardware environments, and the libraries the software is linked to, are unchanged. Of course. I hope programmers, and those working on the conservation of computational culture, will forgive me for an approximation made in order to keep things relatively simple in this example.

²⁶ Wendy Hui Kyong Chun, *Programmed Visions: Software and Memory* (Cambridge: MIT Press, 2011), 24–25.

comes about. Going back to the example, let's assume that Ada's program is so useful, that she decides to share it with other users on the same platform. To do so, Ada has two options. She can either distribute the source file, in which case the other users will have to compile it themselves, or she can just give the executable program, so that users only have to run the software.

First, let's see what happens if she distributes the source file `software.c`. In our hypothetical userland, she gives the source code to user Friedrich. But Friedrich is partly dissatisfied with what he reads in the file and decides to slightly modify it before the compilation:

```
#include <stdio.h>

int
main(void)
{
    printf("There is no software.\n");
}
```

In order to create the executable code, he then runs a similar command to the one typed by Ada, however this time using a different C compiler:

```
clang software.c -o software
```

The output is like GCC in the sense that two files are now present, `software.c` and `software`, with the difference that if Friedrich runs his `software`, it will now print on the terminal display the following text: `There is no software.`

Practically speaking, and simplifying a bit, we can say that the software that has been created here has now two branches: Ada's version and Friedrich's version. Each presents a particular viewpoint, thinking, state of development, implementation, or feature, that is meaningful for its user. Programming is not just problem solving and computer scientists have early on described it as a literary practice²⁷ where the thoughts, algorithmic vision, and sensibility of the programmer author, turns source code into a medium to express more than efficient problem solving.²⁸ If, according to American computer scientist Joseph Weizenbaum, compulsive programmers are absorbed in a self reflective conversation with their computers, where they build worlds of their own making and in which the machine challenges their power,²⁹ source code is therefore much more than an undead spectre: it is the vessel of the computer as a *psychopomp*.³⁰ Thus compilation is in fact a rite of passage, that connects the programmer's Ego and their Self, and which fragments of the latter are now captured as software, as part of a process

²⁷ Donald Ervin Knuth, *Literate Programming* (Stanford: CSLI, 1992), Computer Programming as an Art.

²⁸ For a more thorough discussion of this matter, see Geoff Cox and Alex McLean, *Speaking Code : Coding as Aesthetic and Political Expression* (Cambridge: MIT Press, 2013), 7–11.

²⁹ Joseph Weizenbaum, *Computer Power and Human Reason: From Judgment to Calculation* (San Francisco: W.H. Freeman, 1976), 119.

³⁰ I use here the term psychopomp, both in a mythological and Jungian sense, see Carl Gustav Jung, *Aion: Researches into the Phenomenology of the Self* (New York: Pantheon Books, 1959). After all, it is common to anthropomorphise computers, or consider them as anima and animus, which is why I believe they can perfectly fulfil their psychopompus role in the technologically alienating society. I will explain in Chapter 2 how the process of individuation is particularly visible in the field of open design.

of individuation.³¹

Even though the compilation of executable code as a by-product of compilation and interpretation is a task that may be completed, the writing of source code files is something that has the potential to never be finished. In fact, and from the perspective of semiotics,³² despite the apparent closedness of the deterministic translation layers present in programming, I can see two fundamental levels of openness in source code as a literary work. First, the source code is an open text for the different software readers which will interpret it more or less differently, leading to the production of different binaries. Different C compilers, no matter how simple the source code is, will indeed produce different object code, therefore introducing internal changes in the executable program. As a result, the programs produced will perform slightly differently depending on the parsing and translation of the source files.³³ Second, the source code is an open text for the different human readers who will interpret

³¹ In that regard, today's concerns about a singular software and algorithmic driven dystopia can be best described as the disruption of the process of individuation of the software user, by the (en)coded social imaginary of programmers and those employing them.

³² And more particularly in connection to Umberto Eco, *The Open Work* (Cambridge: Harvard University Press, 1989).

³³ A risky but useful analogy nonetheless, can be made with the translation of an essay, from one source language to another, and for which the meaning must be of course preserved. It is easy to assume that different translators will produce different wording and introduce their own subtleties, yet hopefully the resulting essays should in theory convey the same meaning to the readers, and not betray the original intention of the translated author. Similarly, different C compilers will translate source code into object code with their own assemblage of instructions, while still producing, it is hoped, the same expected functionality for the user. The differences between GCC and Clang cited here are obviously both negligible and irrelevant with the source code examples that I give here. The impact of these deviations belong to discussions on the benchmarking of compilation time and execution performance, critical for the making of large software suites or cycle intensive computations, and well outside of the scope of this text.

differently its significance, value, aesthetics.

If the immediate consequence of this difference of interpretations between humans and machines, can contribute in the most trivial way to the manifestation of software malfunctions, but also allows for source code obfuscation³⁴ and deceptive executions,³⁵ it also shows that source files and their interpretation are central in this process of individuation. For instance, for my explanations of compilation I have purposefully used two different C compilers, the source code of which are in fact available under different free software licenses. GCC uses a copyleft license and Clang relies on permissive licensing, that can be on some occasion associated to copyleft or copycenter licensing. I will not enter into the details of these forms of licensing just yet, for now I will just mention that these are fundamentally opposed approaches to free and open source software licensing. When Friedrich selects Clang instead of GCC, it might not just be for the different interpretation and parsing quality of the compiler, it could simply be guided by an ethical or economical belief which leads him to avoid copyleft software, regardless of the license of the software he is compiling and writing. By picking up a specific software compiler here, the choice is not based on the compiler executable code, but on the imaginary provided by the compiler source code and its legal function. The resulting compiled software can never be disconnected from this process, it inherits a permanent coloration from both its objective and subjective

³⁴ See Simon Cooper Leo Broukhis and Landon Curt Noll, “The International Obfuscated C Code Contest,” 2016, <http://www.ioccc.org/>.

³⁵ See Scott Craver, “The Underhanded C Contest,” 2016, <http://www.underhanded-c.org>.

interpretations.³⁶

1.3 Engineering Freedom and User Groups

Previously, I made the point that free software was presented as the trigger that led towards an explosion of variations of the word open. However as I have shown with the dual openness of source code and the issue of interpretation, it is not so much that free software per se is at the origin of such divergences, but more that it made visible a pre-existing source code *différance*.³⁷ Similarly, and as I will develop in this section, the much chanted cooperative mechanism of free and open source software,³⁸ finds its roots in the very birth of the computer industry, against which free and open source software have been presented as alternatives.³⁹ The idea of an active contribution to a shared body of technical knowledge is indeed nothing new. It is the direct legacy of academic research and engineering traditions, where the access and contribution to existing knowledge have to be facilitated in one way or another, so as to ease innovation and improve efficiency, a process well known with manufacturing blue

³⁶ This issue can be quickly exemplified with the case of the FreeBSD operating system deprecating GCC in favour of Clang. See The FreeBSD wiki contributors, “GPL Software in the Base System,” 2017, <https://wiki.freebsd.org/GPLinBase>; Eric S. Raymond, “Re: Clang Vs Free Software,” 23 January 2014, <https://gcc.gnu.org/ml/gcc/2014-01/msg00209.html>; Richard M. Stallman, “Re: Clang Vs Free Software,” 24 January 2014, <https://gcc.gnu.org/ml/gcc/2014-01/msg00247.html>.

³⁷ In reference to Jacques Derrida, *Marges de La Philosophie* (Paris: Éditions de Minuit, 1972), *La Différance*.

³⁸ Notably articulated in Yochai Benkler, *The Penguin and the Leviathan: The Triumph of Cooperation over Self-Interest* (New York: Crown Business, 2011).

³⁹ Stephenson, *In the Beginning...was the Command Line*.

prints.⁴⁰ In particular, the second form of openness combined with writing access, means that source code is constantly *open* for changes. It has the potential to be a human driven evolutionary assemblage of text,⁴¹ that can through time be modified and enhanced,⁴² to always improve the previous version, to always aim for something final and superior, yet always superseded by better solutions and alternatives: a never ending prototyping quest.

This collaborative and cooperative prototyping culture has in fact been subservient to the development of the computer industry in the middle of the twentieth century. At the time, mainframe computer customers needed to develop their own tools in order to write programs. This naturally led to duplicate efforts as some of the steps and assemblers developed in the process were similar enough across the different customers applications. The reason why computer hardware manufacturers, such as IBM, were able to expand their business in the nineteen fifties, was specifically connected with the attempt to promote collaboration and cooperation between customers, and also with the corporation building the machines.⁴³

⁴⁰ Mark A. Lemley and David W. O'Brien, "Encouraging Software Reuse," *Stanford Law Review* 49, no. 2 (1997): 255–304.

⁴¹ See Diomidis Spinellis, "A Repository with 44 Years of Unix Evolution," *MSR '15: Proceedings of the 12th Working Conference on Mining Software Repositories*, 2015, 462–65.

⁴² I'll purposefully keep the quines, the emerging properties of cellular automata, as well as self-documenting and self-generating software outside of the discussion, as they are more exceptions than generalised rules on the production of software. At least it is still the case today in our humble *pre-singularity* times, where the evolutionary nature of software still heavily depends on a metaphorical form of commensalism with human beings.

⁴³ See Atsushi Akera, "Voluntarism and the Fruits of Collaboration: The IBM User Group, Share," *Technology and Culture* 42, no. 4 (2001): 710–36.

It is of course outside the scope of this research to provide an extensive history of computation. However, I must mention that the advance described here has been essentially accelerated by the introduction of general purpose computation and programming.⁴⁴ Unlike the first generation computers which were literally wired to solve one specific set of problems, with the programming of general purpose computers it also became possible to share these programs with others, and arrange the programs to work with other programs. From this point on, new kinds of software emerged and were named from this growth, most notably the

⁴⁴ Such reflection on general purpose computation is best illustrated in the 1936 paper on the *Entscheidungsproblem* by British mathematician Alan Turing (Alan Mathison Turing, “On Computable Numbers : With an Application to the Entscheidungsproblem,” *Proceedings of the London Mathematical Society* 42 (1936): 230–65), and followed in 1945 in a draft report from Austrian-Hungarian born American mathematician John von Neumann (John von Neumann, “First Draft of a Report on the Edvac,” Report (University of Pennsylvania, 1945)). By introducing the idea of general purpose computation and facilitating the storing of programs running on the former, computation would no longer be perceived as the result of extensive and dedicated electronic engineering, but by a combination of two, possibly three parts: the hardware, the data, and the programs, which would be much later on be referred to as software. The case of what will be eventually known as the von Neumann architecture is often portrayed popularly as seminal work in the development of the personal computer (see Howard Rheingold, *Tools for Thought: The History and Future of Mind-Expanding Technology* (Cambridge: MIT Press, 2000), Chapter 4). However, at the time of the draft’s circulation, the whole field of computing already pointed towards the design of general purpose computers. For instance the 1944 relay based IBM Automatic Sequence Controlled Calculator (ASCC), also known as Mark I, conceptualised by computer pioneer Howard Aiken, built by IBM engineers, and used by von Neumann himself during the Manhattan project, led to the Harvard architecture that differed from the von Neumann architecture in the way data and instruction did not share the same memory space. For a detailed historical overview of the now forgotten work of Aiken during the era of the first general purpose computers, see I. Bernard Cohen, *Howard Aiken: Portrait of a Computer Pioneer* (Cambridge: MIT Press, 1999). Today’s computers are effectively variations and mixes of both Harvard and von Neumann architectures. As for the concept of programming discussed here, it is essentially the latest iteration of a long legacy of rationalist computational culture that can be traced back to Leibniz’s symbolic logic. See Florian Cramer, *Words Made Flesh: Code, Culture, Imagination* (Rotterdam: Piet Zwart Institute, Institute for Postgraduate Studies; Research, Willem de Kooning Academy, 2005); Martin Davis, *Engines of Logic : Mathematicians and the Origin of the Computer* (New York: Norton, 2000)

programs that help manage other programs like the operating system and its utilities. The so-called user-friendliness of desktop metaphors that is taken for granted today with popular OS such as Windows and MacOS,⁴⁵ as much as the so-called transparency and ubiquity of the user interface (UI) and experience (UX) of tomorrow's latest pervasive and smart calm technology,⁴⁶ was in fact non-existent in the early days of programming. An operating system then merely represented the most barebones environment and framework to make more programs.

Now where to find programmers? This was the last problem the rising computer industry had to solve in order to facilitate a wider adoption of their prototyping and solutionist culture. So in practice, the creation of communities of code sharing computer users provided a very pragmatic answer to the problem faced by this industry, namely the need to educate as quickly as possible the growing numbers of operators of this early mass-produced novel canvas of computational wonders. Said differently, the industry needed its clientèle to become programmers and participate in the shared exploration of software and general computation. Therefore, in a time where no customer support existed, and where university curricula on programming were in their infancy,⁴⁷ the creation of a col-

⁴⁵ Wendy Hui Kyong Chun, *Control and Freedom : Power and Paranoia in the Age of Fiber Optics* (Cambridge: MIT Press, 2006), 22–23.

⁴⁶ See Amber Case, *Calm Technology: Principles and Patterns for Non-Intrusive Design* (Sebastopol: O'Reilly, 2015); Mark Weiser and John Seely Brown, "Designing Calm Technology," *POWERGRID JOURNAL* 1 (1996).

⁴⁷ Professor of the history of science I. Bernard Cohen credits Howard Aiken, from the Mark I fame, for being the first to start an academic program about computation at Harvard in 1947, a "one-year program leading to a Master of Science degree in applied mathematics with special reference to computing machinery". See Cohen, *Howard Aiken*, 186.

laborative learning and semi autonomous problem solving groups was the best way to disseminate, acquire, and improve knowledge about general purpose computation, as shown with the very appropriately named SHARE user group.⁴⁸ The latter, created in 1955, was backed up by IBM,⁴⁹ which benefited directly from strongly encouraging the customers of its 701 and 704 systems to meet, share their problems and solutions, while financially supporting the user group infrastructure.⁵⁰ In parallel with the emergence of these corporate sponsored communities of users, another important change hit computer science, and added yet another social dimension to the use and sharing of computer software: time-sharing.

Introduced in the late nineteen fifties, time-sharing enables the sharing of computation time amongst several users, so that one person does not have to wait for someone else's calculation to complete on a main-frame computer before starting their own.⁵¹ In the nineteen sixties, and combined with the increasing exchange and writing of programs within specialised user groups, this idea became both central and instrumental in taking computation outside of its academic communities, aiming to finally make relevant its existence for society as a whole.

In the context of the 1963 Defense Advanced Research Projects Agency

⁴⁸ Edmund Humenberger Carlo Daffara Jesús M. González-Barahona and Ben Laurie., "Free Software/Open Source: Information Society Opportunities for Europe?" Report (Working group on Libre Software, 2000), 38.

⁴⁹ Akera, "Voluntarism and the Fruits of Collaboration."

⁵⁰ Peter H. Salus, *The Daemon, the Gnu, and the Penguin : How Free and Open Source Software Is Changing the World* (2004; repr., US: Reed Media Services, 2008), Ancient History.

⁵¹ Katie Hafner and Matthew Lyon, *Where Wizards Stay up Late: The Origins of the Internet* (1996; repr., New York: Touchstone, 1998), 25.

(DARPA) funded project on Multiple-Access Computer, or Machine Aided Cognitions (MAC), Italian-American computer scientist Robert M. Fano explained the underlying principles of what he would describe as the computer utility approach:⁵²

The principal aim is to develop and investigate experimentally a new way in which computers can aid more effectively people in their creative work, in their thinking, in any field, from research, to engineering design, management, education, and so forth [...].

[T]he user does not have to instruct the computer on how to do everything that he wants to get done, but only the parts that are very special and very new to the problem which is concerned at that time. Many facilities are already available and stored within the system, so that in a sense each individual has available, literally at his finger tips, the work of many people that have preceded him. In a very real sense, the computer system, that we are just barely beginning to develop, will contain what amounts to a library. A library that is available to every user of the system.⁵³

The breakthrough of the library was in fact dual. Firstly, the libraries of software understood as a collection of executable programs, and secondly, the early sixties computer concept that is the software library—a particular software component the functionalities of which can be accessible by executable programs—therefore allowing the development of applications reusing and sharing the same pool of system and user libraries.

If you look again at Ada or Friedrich’s source code in section 1.2, the function `printf` used to display text on their terminals is not a magical word. It is part of the core input and output functions of the C standard

⁵² See Robert M. Fano, “The MAC System: The Computer Utility Approach,” *IEEE Spectrum* January (1965): 56–64.

⁵³ Mornski, *Robert Fano Explains Scientific Computing (1964)*, Online video (San Bruno: YouTube, 2009), <http://www.youtube.com/watch?v=sjnmckVnLi0>.

library, and the declaration of the former is provided by the `stdio.h` standard header file, hence the need for Ada and Friedrich to `#include` the latter at the beginning of their source code, so that the compiler can find it. In essence, the thought of a software library is close to the concept in which users are sharing and recombining several existing software for their own needs.⁵⁴ The difference here is that modularity is echoed at a much lower level.

These two forms of library are nowadays taken for granted in multi-tasking and multi-users environments, regardless of the operating system, closed source or open source. But in the nineteen seventies, this transformation contributed to the slow extinction of the large mainframe dinosaurs, in favour of more versatile, smaller and generic computers, for

⁵⁴ To give an analogy, with some strings attached given the issue of material goods scarcity, using several libraries and bits of existing source code to make a new program, could be seen as similar to using existing techniques, already available kitchen appliances, as well as raw and processed ingredients, in order to make a new apple pie instead of attempting to make one truly from scratch. But this notion of doing something *from scratch* is of course deceptively relative to the environment in which things are made. Similar to astrophysicist Carl Sagan's famous tongue-in-cheek comment about the latter—"if you wish to make an apple pie from scratch, you must first invent the universe" (in Carl Sagan, *Cosmos* (New York: Random House, 1980), p. 218)—the general purpose computer, its operating system, and existing utilities and libraries, offer a fantastic head start in the making of new programs and the sharing of files. For instance, in terms of openness and from the viewpoint of interoperability, one of the software that I used to write this thesis, namely pandoc, is able to export my text to several other markup languages and file formats that can be read by other applications closed source or not, thanks to a family of libraries that are able to implement open standards without the need to share code. Similarly, but at another level, given the plethora of software libraries available today to provide out of the box all sorts of functionalities, from drawing the Graphical User Interface (GUI) to spell checking, network file access and file system support across several types of computer architectures, I could also have programmed my own exporting software *from scratch* and only focused on specific features and interactions, not already present in the hundreds of software libraries at my disposal on a free software operating system, or I could have decided to procrastinate the writing of this dissertation even further and instead write the software *from scratch* yet using an already available programming language and its compiler or interpreter. Etc.

which interoperability and the portability of software were essential survival traits. In this race, a clear winner quickly emerged to dominate the late seventies universities, corporations and government agencies: Unix.⁵⁵

1.4 UNIX Connects the Dots, People and Pipelines

Unix was born from the 1964 Multiplexed Information and Computing Service (MULTICS) project, one of the earliest time-sharing mainframe operating systems. Put simply, the aim of the project was to turn computation into a productive and efficient technology. As American software developer and open source software advocate Eric S. Raymond described some years later, the purpose of MULTICS was to hide the complexity of the operating system from users and programmers, “so that more real work could get done.”⁵⁶ The project was the outcome of a cooperation between the Massachusetts Institute of Technology (MIT), General Electric, Project MAC, and Bell Telephone Laboratories (Bell Labs). But in 1969, Bell Labs stopped its involvement, dissatisfied with the progress made so far, leaving its employees involved at loose ends. Still, these employees, computer engineers and programmers Doug McIlroy, Dennis Ritchie

⁵⁵ Christos J. P. Moschovitis, *History of the Internet: A Chronology, 1843 to the Present* (Santa Barbara: ABC-CLIO, 1999).

⁵⁶ Eric S. Raymond, “A Brief History of Hackerdom,” in *Open Sources: Voices from the Open Source Revolution*, ed. Sam Ockman Chris Dibona and Mark Stone (Sebastopol: O’Reilly, 1999), 29.

and Ken Thompson, were eager to explore further some of the MULTICS ideas, and proceeded to do so within the constraint of a smaller budget, and as a consequence were compelled to use smaller and simpler computers.⁵⁷

So despite the fact that the original name of Unix⁵⁸ was the Uniplexed Operating and Computing System (UNICS), which can easily be read as a mocking reference to the much larger MULTICS operating system,⁵⁹ the 1970 UNICS operating system was in fact not as reactionary as it may seem. Its ethos as a simplified design mostly came from the more limited technical environment available at Bell Labs, combined with the desire to build “neat small things, instead of grandiose ones.”⁶⁰ But this trait soon became a major advantage. The operating system gained popularity for technically implementing the idea of an ever expanding toolbox, a cornucopia of prototypes, workflows, usage, yet to be discovered in the many extensions and permutations of its original design. The modular nature of the operating system, as envisioned with Project MAC and its notions of library and the computer utility, turned out to be the flagship of Unix which soon became the best Lego bricks set available to lower the accessibility threshold of computer programming.⁶¹ If the idea of software li-

⁵⁷ Salus, *The Daemon, the Gnu, and the Penguin*, UNIX.

⁵⁸ Nobody seems to remember who spelled it like this and why it was changed. See Aleksey Dolya, “Interview with Brian Kernighan,” *Linux Journal*, 2003, <https://www.linuxjournal.com/article/7035>; Peter H. Salus, *A Quarter Century of UNIX* (Reading: Addison-Wesley, 1994), 9.

⁵⁹ Eric S. Raymond, *The Art of UNIX Programming* (Boston: Addison-Wesley, 2004), 31.

⁶⁰ Quote from author of the C programming language, and important UNIX contributor, American computer scientist Dennis Ritchie, in Salus, *The Daemon, the Gnu, and the Penguin*, 15.

⁶¹ The analogy between Lego bricks and Unix-like systems, and eventually free and open source software, is quite popular. It seems to stem from the early nineteen

braries and libraries of software, that grew from the sudden opportunities provided by time-sharing and the necessary creation of user groups, is not a Unix invention, what made it stand out nonetheless was the simple implementation and inter-operability of such concepts.

[Unix] attack the accidental difficulties that result from using individual programs together, by providing integrated libraries, unified file formats, and pipes and filters. As a result, conceptual structures that in principle could always call, feed, and use one another can indeed easily do so in practice. This breakthrough in turn stimulated the development of whole toolbenches, since each new tool could be applied to any programs that used the standard formats.⁶²

What is striking here is how the idea of standing on the shoulders of giants, is equally present in the way source code can be assembled and modified from different parts, and the way the resulting binaries can be combined with each other. This approach eventually sparks what would latter be coined as the Unix philosophy:

Although that philosophy can't be written down in a single sentence, at its heart is the idea that the power of a system comes more from the relationships among programs than from the programs themselves. Many UNIX programs do quite trivial things in isolation, but, combined with other programs, become general and useful tools.⁶³

nineties which saw increasing references of the toy in scientific literature, to describe modular and reusable technical components. In the case of Unix, it was used notably in Thomas Scoville, "The Elements of Style: UNIX as Literature," *Performance Computing* September (1998), <http://web.archive.org/web/19990203202734/http://www.performancecomputing.com/features/9809of1.shtml>.

⁶² Frederick P. Brooks Jr., "No Silver Bullet: Essence and Accidents of Software Engineering," *IEEE Computer* 20, no. 4 (1987): 15.

⁶³ Brian W. Kernighan and Rob Pike, *The Unix Programming Environment* (Englewood Cliffs: Prentice-Hall, 1984), viii.

Central in this philosophy, the Unix pipe, represented with the vertical bar glyph |, enables interprocess communication, so that several programs can be connected to each others to create not just new functionality, but offer to the user the possibility of coding their own environment⁶⁴ in a text driven environment of writerly computation.⁶⁵ For instance:

```
lynx -dump -nolist http://ur1.ca/lzt7 | \  
dadadodo -c 20 - | \  
espeak -s 120 -v mb-en1 --stdin | \  
mbrola -e /usr/share/mbrola/voices/en1 - - | \  
ices2 netradio.xml
```

This particular pipeline is made of five different programs, that were not created to work together but can nevertheless be combined because they all comply with the Unix pipeline mechanism. What does it do? It downloads⁶⁶ a 2010 BBC web article⁶⁷ on the lack of great works of art using the Internet as medium, and renders the HTML page and its 54 slightly upset comments into plain text (lynx), then it passes it to a Markov chain based processing software to generate some relatively grammatically correct text cut-ups (dadadodo). The resulting prose is turned into speech (espeak and mbrola), and the synthesized voice stream

⁶⁴ Martin Howse, “The Unix Way,” *Tux Deluxe*, 2007, <http://web.archive.org/web/20070420025204/http://www.tuxdeluxe.org/node/147>.

⁶⁵ See Florian Cramer, “EXE.CUT[UP]ABLE Statements: The Insistence of Code,” in *Code: The Language of Our Time*, ed. Gerfried Stocker and Christine Schöpf (Ostfildern-Ruit: Hatje Cantz, 2003).

⁶⁶ For readability purpose, the example above uses a shortened URL.

⁶⁷ Will Gompertz, “40 Wild Birds Play a Gibson Les Paul Guitar,” 2010, http://www.bbc.co.uk/blogs/thereporters/willgompertz/2010/02/40_wild_birds_play_a_gibson_le.html.

is sent to pre-existing audio broadcasting server (ices2), creating an instant British Broadcasting Cacophony net radio of sorts, accessible by anyone on the Internet.

Next to the way programs can be arranged with each other, the isomorphic relationship between the combination of source code and the combination of the resulting binaries is further echoed in the way programmers and users work with each other with the aid of the very same tools that emerged from early forms of collaborative and cooperative organisation: from the creation of a library for users to the emergence of networked libraries of librarians. From the perspective of technological determinism, Unix itself will be instrumental in shaping these self-similar forms of technological and social organisation. An illustration of this is the introduction of Unix-to-Unix Copy (UUCP) programs and protocols in the 1979 seventh edition of Unix. Immediately upon release of this new set of tools, two graduate students from Duke University, Tom Truscott and Jim Ellis directly exploited the Lego brick versatility of Unix, by implementing a news system at the cross road of emails and bulletin boards, using a combination of pre-existing simple programs.⁶⁸ The software was made accessible across a network of Unix computers, transforming radically communication across Unix users and connecting them to foster the development of software. By the summer of 1980, eight nodes were connected: Duke University, University of North Carolina at Chapel Hill, Reed College, University of Oklahoma, two machines at Bell Labs Murray Hill, and the University of California at Berkeley. The network, named

⁶⁸ Said differently, it was a shell script.

Usenet, quickly expanded to become an unrestricted and not-for-profit public platform, reaching six hundred nodes by 1983,⁶⁹ and joining the assemblage of different and not always compatible computer networks that co-existed during the pre-Internet era of computer networked communication.⁷⁰ Usenet became the embodiment of a type of informal co-operative software development, bridging the corporate and university Unix programming communities, where property rights and restrictions on the reuse of software were mostly seen as irrelevant.⁷¹

So far, while no ideas like free or open source software were expressed, their practice were nonetheless already embodied in the early days of computation, and were in fact as I have shown, instrumental in its further expansion. According to O'Reilly, early Usenet was the Napster of shared code.⁷² As a matter of fact, the birth of the Internet, more particularly its commercial industry, was triggered by the need to sustain the infrastructure of the fully collaborative UUCP and Usenet infrastructure.⁷³ Today, the technological legacy of Unix is overwhelming. It has paved the way for a large family of operating systems found in servers, network devices, video game consoles, desktop and laptop computers, and of course smart phones, tablets and all sorts of digital gadgets. Yet,

⁶⁹ For a more detailed historical account see Michael Hauben and Ronda Hauben, *Netizens: On the History and Impact of Usenet and the Internet* (Los Alamitos: IEEE Computer Society Press, 1997).

⁷⁰ John S. Quaterman and Josiah C. Hoskins, "Notable Computer Networks," *Communications of the ACM* 29, no. 10 (1986): 932–71.

⁷¹ Josh Lerner and Jean Tirole, "Economic Perspectives on Open Source," in *Perspectives on Free and Open Source Software*, ed. Scott A. Hissam Joseph Feller Brian Fitzgerald and Karim R. Lakhani (Cambridge: MIT Press, 2005).

⁷² O'Reilly, "Open Source Paradigm Shift."

⁷³ *Ibid.*

Figure 1.1: UNIX license plate

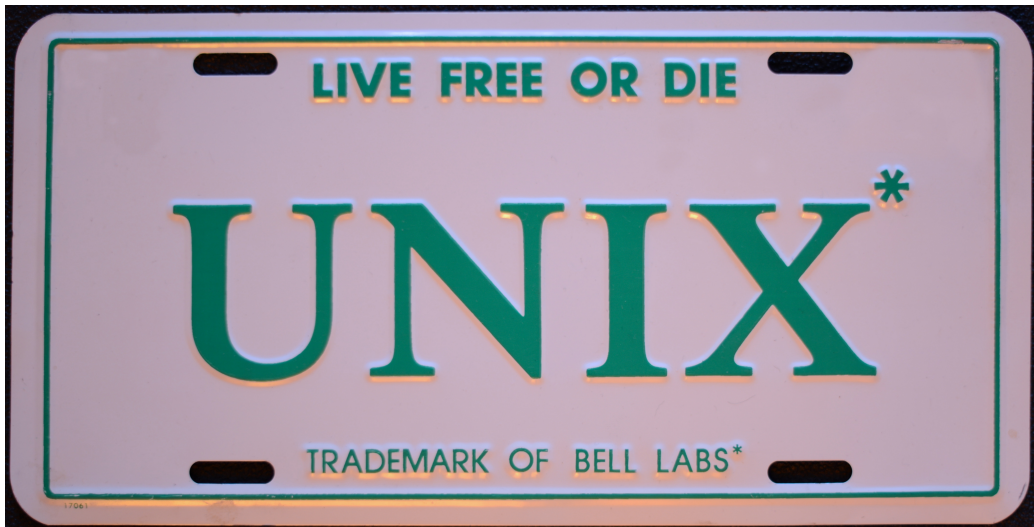


Photo: Armando P. Stettner, CC BY-SA 3.0, 2013

what is nonetheless most peculiar about Unix was this idea of programming freedom, independence and users community. This aspect was already explicit in the early days of the introduction of the system, where a conscious community oriented direction was set in motion by its original authors: “a system around which a fellowship could form.”⁷⁴ This ethos of fellowship, is best exemplified with the early eighties vanity license plate (Figure 1.1) that was used throughout the history of Unix-like products, and that combined the United States of America New Hampshire motto with the name of the operating system: “LIVE FREE OR DIE - UNIX”.⁷⁵

1.5 The Growing Unix Fellowship

As with Ada and Friedrich’s software, Unix and most of its programs were eventually written in C,⁷⁶ a general programming language developed by American computer scientist Dennis Ritchie, and which specificity is in its ability to not be tied to any operating system or machine,⁷⁷ thus allowing Unix and other C programs to be easily ported to all sorts of different hardware. Unlike previous generation mainframe operating systems,

⁷⁴ Dennis M. Ritchie, “The Evolution of the Unix Time-Sharing System,” in *Language Design and Programming Methodology : Proceedings of a Symposium Held at Sydney, Australia, 10-11 September 1979*, ed. Jeffrey M. Tobias (New York: Springer-Verlag, 1980), 25.

⁷⁵ The Open Group, “The History of the UNIX® License Plate,” 2017, <http://www.unix.org/license-plate.html>.

⁷⁶ For a more detailed report on the gradual transition from assembly to C, see Malcolm Douglas McIlroy, “A Research UNIX Reader: Annotated Excerpts from the Programmer’s Manual, 1971-1986,” technical report (AT&T Bell Laboratories, 1987).

⁷⁷ Brian W. Kernighan and Dennis M. Ritchie, *The C Programming Language* (Englewood Cliffs: Prentice Hall, 1988), Introduction.

with C, software becomes more easily uncoupled from the hardware. If the later was already made possible given the situation created by the 1969 unbundling case with IBM,⁷⁸ in which the computer manufacturer was forced to sell the software part of his product separately to avoid a monopoly position, this precedent only becomes truly relevant to software development now that software portability was a technical given.⁷⁹

The adaptability of Unix and the availability of its source code, turned out to be ideal as a learning environment for graduate and undergraduate students who could start to tinker with and enhance the code.⁸⁰ The reading of the source code written by other users and system operators, then became part of the learning process. Source code was and still is the primary documentation of software production, and is best exemplified with the Star Wars film inspired abbreviation UTSL “use the source, Luke,”⁸¹ which was often expressed in developer user groups whenever someone was trying to figure out something with an unfamiliar software or situation. But more than a manual, and connecting back to the process of individuation, source code is influential in the development of programmer practice. As computer scientist Donald Knuth simply puts it, reading source code is the mandatory step towards technological appropriation, creativity and innovation: “[t]he more you learn to read other people’s

⁷⁸ Burton Grad, “A Personal Recollection: IBM’s Unbundling of Software and Services,” *IEEE Annals of the History of Computing* 24, no. 1 (2002): 64–71.

⁷⁹ Juris Reinfelds, “The First Port of UNIX,” Report (University of Wollongong. Department of Computing Science, 1988).

⁸⁰ Steven Weber, *The Success of Open Source* (Cambridge: Harvard University Press, 2004).

⁸¹ See UTSL entry in Eric S. Raymond and Guy L. Steele, “THE JARGON FILE, VERSION 2.9.6,” 1991, <http://catb.org/jargon/oldversions/jarg296.txt>.

stuff, the more able you are to invent your own in the future.”⁸²

But Unix technical prowess aside, the cooperative productivity and educational value of accessing source files could be said for any software. So why did Unix end up as an historical landmark of such principles? As it turned out, Unix was more than just engineering freedom. Due to AT&T’s legal monopoly status in running the USA long-distance phone service, Unix could not be sold as a product, neither was the corporation allowed to provide support for the software; however upon a simple request and for a nominal fee, the source code could be acquired by anyone.⁸³

Under a 1958 consent decree in settlement of an antitrust case, AT&T (the parent organization of Bell Labs) had been forbidden from entering the computer business. Unix could not, therefore, be turned into a product; indeed, under the terms of the consent decree, Bell Labs was required to license its non telephone technology to anyone who asked. Ken Thompson quietly began answering requests by shipping out tapes and disk packs — each, according to legend, with a note signed “love, ken.”⁸⁴

At a time when the computer industry was still very immature, the slow democratisation of the computer utility approach, envisioned by Fano in the sixties, materialised itself in an experimental way. In the process, it is notable that some of these experiments operated along similar dynamics as those of the nineteen sixties counterculture movement,

⁸² Quote from interview in Peter Seibel, *Coders at Work: Reflections on the Craft of Programming* (New York: Apress, 2009), 601.

⁸³ Warren Toomey, “The Strange Birth and Long Life of Unix,” *IEEE Spectrum*, 2011, <http://spectrum.ieee.org/computing/software/the-strange-birth-and-long-life-of-unix/>.

⁸⁴ Raymond, *The Art of UNIX Programming*.

where the climate of dissent and anti-establishmentism favoured individual expression and independence in the context of communication technology that had the potential to transform cultural production.⁸⁵ While not being something that can be generalised and applied to the whole computational culture of the nineteen sixties, important projects in the field of networking and futurist mind expanding technology overlapped with the counterculture movement. Other late nineteen fifties and sixties projects like the Augmentation Research Center (ARC), initiated by American electrical engineer Douglas Engelbart, have been described as being inhabited with part engineering culture and part counterculture.⁸⁶ In particular, in the team of people helping Engelbart produce the canonical 1968 *The Mother of All Demos*—a famous live demonstration and vision of what would characterise today's personal computers and networks—was American writer Stewart Brand, who was already working on his *Whole Earth Catalog* where concepts from cybernetics, ecology, do-it-yourself (DIY), self-sufficiency, alternative education and tools, including computers, were all mixed in the form of a countercultural product review catalog. While not specific to Unix, I find it important to note such a cultural landscape as it is very much in this context of social experimentation, alternative tools and DIY practices that the development of Unix was facilitated. It was in this context that the early dispersing of Unix copies started as an eccentric academic effort, largely ignored by big

⁸⁵ Piero Scaruffi, *A History of Silicon Valley, 1900-2015* (North Charleston: CreateSpace, 2015), 5. The Hippies (1961-68).

⁸⁶ See John Markoff, *What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry* (New York: Viking, 2005), 163.

computer manufacturers,⁸⁷ and the first Unix supporters were “delighted in playing with an operating system that not only offered them fascinating challenges at the leading edge of computer science, but also subverted all the technical assumptions and business practices that went with Big Computing.”⁸⁸ The 1975 user association Unix Users Group was instrumental in building such a computational counterculture. There, members of the group could exchange new software and fixes by sending and receiving back magnetic tapes,⁸⁹ and in that sense also actively encouraged a form of self-sufficiency.

All these elements greatly contributed to help Unix spread like wildfire, and at the same time helped strengthen a system ending up modified and maintained by a several user groups. One of the most notable byproducts was the 1977 Berkeley Software Distribution (BSD), a Unix derivative put together at the time by Berkeley graduate student Bill Joy,⁹⁰ and from which some ideas found their way back into the main official Unix releases. Following the legacy of sharing operating system and program source code in the early general purpose computer groups like SHARE, the group dynamics and exchanges occurring within the Unix scene⁹¹ can be best described as being proto free and open source software production.

⁸⁷ Scaruffi, *A History of Silicon Valley, 1900-2015*, 5. The Hippies (1961-68).

⁸⁸ Raymond, *The Art of UNIX Programming*, 58.

⁸⁹ Toomey, “The Strange Birth and Long Life of Unix.”

⁹⁰ Marshall Kirk McKusick, “Twenty Years of Berkeley Unix: From at&T-Owned to Freely Distributable,” in *Open Source: Voices from the Open Source Revolution*, ed. Sam Ockman Chris Dibona and Mark Stone (Sebastopol: O’Reilly, 1999).

⁹¹ Andrew Leonard, “BSD Unix: Power to the People, from the Code,” *Salon*, 2000, http://www.salon.com/2000/05/16/chapter_2_part_one/.

So, to return to my doubt as to whether or not the cooperative and collaborative models of free and open source software should be perceived as novel, it should now become clear that they are not. In fact the notion of *social software*,⁹² is not specific to free and open source software, but deeply rooted in the birth of software making. All that said, if the technological aspect of these collaborative and cooperative exchanges were already highly mature, their legal framework at the opposite end was completely underdeveloped. What could possibly go wrong in such a situation? As it turned out it is this particular situation that will come to endanger the proto free and open source software production model, and as I will explain in the next two sections, lead finally to the necessity felt by some programmers to define and protect these practices, to protect such social software.

1.6 Controlling Software Development

Earlier on, I mentioned that in order to distribute her software, user Ada had two possibilities: either providing the source files or only ship the compiled program. Now let's assume that another user of the system, let's call him Richard, is interested in using Friedrich's variation of Ada's software. However this time Friedrich decides to only give Richard the object code. With this, Richard is able to run the software but modifying it becomes rather problematic. If he decides to open it with a text editor

⁹² Matthew Fuller, *Behind the Blip: Essays on the Culture of Software* (Brooklyn: Autonomedia, 2003), 24–28.

he will be surprised to see something like the following:

```
%^L ^@h^@^@^@^@éàÿÿÿ% ^B^L ^@h^A^@^@^@éðÿÿÿ1íI<89>Ñ^H<89>âH<83>äðPTI
ÇÀÀ^E@^@HÇÁ0^E@^@HÇÇ^@^E@^@èçÿÿÿô<90><90>H<83>ì^HH<8b>^E<99>^K ^@H<8
5>Àt^BÿðH<83>Ä^HÃ<90><90><90><90><90><90><90><90><90><90><90><90><90><90>
>UH<89>âSH<83>ì^H<80>=°^K ^@^@uK»@^N^@H<8b>^E^K ^@H<81>ë8^N^@HÃû^
CH<83>ë^AH9ø$^f^O^_D^@^@H<83>Ä^AH<89>^E<85>^K ^@ÿ^TÅ8^N^@H<8b>^Ew^K
^@H9øràÆ^E^c^K ^@^AH<83>Ä^H[]Ãfff.^O^_<84>^@^@^@^@H<83>=p ^@^@UH
<89>ât^R_ ^@^@^@^@H<85>Àt^H]îH^N^@ÿà]Ã<90><90><90><90><90><90><90><90><9
0><90><90><90><90><90><90><90>UH<89>âH<83>ì^PH<8d><%^ ^F@^@ÇEü^@^@^@^@^@
@èÏpÿÿ<8b>Mü<89>Eø<89>ËH<83>Ä^P]Ã<90><90><90><90>H<89>l$ØL<89>d$âH<8
d>-ã^H ^@L<8d>%Û^H ^@L<89>l$èL<89>t$ðL<89>|$øH<89>\$ðH<83>ì8L)âA<89>
ýI<89>öHÁý^CI<89>×èSpÿÿH<85>ít^1Û^0^_@^@L<89>úL<89>öD<89>îAÿ^TÜH<83
>Ä^AH9ëuêH<8b>\$^HH<8b>l$^PL<8b>d$^XL<8b>l$ L<8b>t$(L<8b>|$ØH<83>Ä8Ä
^O^_<80>^@^@^@^@óÃ<90><90><90><90><90><90><90><90><90><90><90><90><90><9
0><90>UH<89>âSH<83>ì^HH<8b>^EH^H ^@H<83>øÿt^Y»(^N^@^O^_D^@^@H<83>ë^
HÿðH<8b>^CH<83>øÿuñH<83>Ä^H[]Ã<90><90>H<83>ì^HèÏpÿÿH<83>Ä^HÃ^@^@^@^@
^B^@There is no software.
%^@^@^@A^[@^C; (^@^@^@D^@^@^@-ÿÿÿD^@^@^@Ïpÿÿl^@^@^@üÿÿÿ<8c>^@^@^@<8c>ÿ
ÿÿ^@^@^@T^@^@^@^@^@^@AzR^@^Ax^P^A^[@^L^G^H<90>^A^@^@$^@^@^@^@^@^@
^@^@^@ÿÿÿ0^@^@^@^@^@N^PF^N^XJ^O^Kw^H<80>^@?^Z;*3$”^@^@^@^@^@^@^@^@D^@^@
^@Xpÿÿ, ^@^@^@^@A^N^P<86>^BC^M^F^@^@^@^@^@^@^@$^@^@^@ed^@^@^@hpÿÿ<89>^
^@^@^@^@Q<8c>^E<86>^F_ ^N@<83>^G<8f>^B<8e>^C<8d>^D^BX^N^H^@^@^@T^@^@^
@<8c>^@^@^@ðpÿÿ^B^@^@^@^@^@
```

This situation could be roughly described as similar to the transformation of annotated human music notation into a piano roll. With the sole access to the latter, it would be rather difficult to recreate the original music sheet, adding to that the loss of information that was not relevant for the creation of the roll and therefore impossible to access. So yes, one can see *there is no software* in this stream of randomly looking characters, but this is in fact the binary machine code of Friedrich’s *software* that Richard’s text editor desperately tries to translate into plain text, as it is the only thing it can interpret. Maybe another interpreter could help? To reverse the translation that was done by the compiler, Richard can use some tools.

For instance a disassembler, will effectively translate the object code into architecture dependent assembly language. Unlike C, assembly language is a human-readable representation of low-level machine instructions, and while this is one step friendlier than reading binary, or hexadecimal translated machine code, and of course much more readable than opening a compiled program with a text editor, it is still quite far from the comfort provided by C, which is why the later is called a high-level programming language as it provides an abstraction from computation, by the means of natural language. Below an extract from the more than five hundred lines of output produced from the command `objdump -sd software`, typed by Richard on his terminal:

```
[...]
Contents of section .rodata:
 400618 01000200 54686572 65206973 206e6f20 ....There is no
 400628 736f6674 77617265 2e0a00          software...
[...]
0000000000400500 <main>:
 400500:      55                push   %rbp
 400501:      48 89 e5          mov    %rsp,%rbp
 400504:      48 83 ec 10       sub    $0x10,%rsp
 400508:      48 8d 3c 25 1c 06 40 lea   0x40061c,%rdi
 40050f:      00
 400510:      c7 45 fc 00 00 00 00 movl  $0x0,-0x4(%rbp)
 400517:      b0 00            mov    $0x0,%al
 400519:      e8 d2 fe ff ff   callq 4003f0 <printf@plt>
 40051e:      8b 4d fc          mov    -0x4(%rbp),%ecx
 400521:      89 45 f8          mov    %eax,-0x8(%rbp)
 400524:      89 c8            mov    %ecx,%eax
 400526:      48 83 c4 10       add    $0x10,%rsp
 40052a:      5d                pop    %rbp
 40052b:      c3                retq
 40052c:      90                nop
 40052d:      90                nop
 40052e:      90                nop
 40052f:      90                nop
```

This sample is the most relevant as it displays the main entry point of the program and where to find the string of text that is displayed when the object code is executed. For such a trivial example, Richard could easily make a modified version of the software, by adjusting the content of the executable with a simple hexadecimal editor. However, making the program do something else, like writing the string of text to a file instead of displaying it on the terminal's shell, would require more extensive modifications of the binary. It would require to change the program functionality and not just editing a string of characters. In fact, such modifications become exponentially difficult, as the new desired features drift too far from the original software's purpose and features.⁹³ The question to be asked then, given the cooperative and technical advantage of distributing the source code of a software, why would one refuse to do so, literally deciding to distribute closed source software and therefore limiting the interpretation value of software?

As stated previously, Unix's popularity and easily obtainable licensed source code allowed for the modification and creation of other Unices. However the resulting Cambrian explosion of all sorts of Unices, research Unix, commercial Unix implementations, academic Unices and so forth,

⁹³ This issue, the process of which belongs to the practice of reverse engineering, is particularly visible in projects that attempt to improve an existing software for which original source code and documentation is not available, or is purposefully protected or obfuscated. For instance Vitaly Kiselev's research on the software powering a range of Panasonic digital cameras, has enabled the improvement in the quality from their recorded images and motion, but does not add entirely new and distinct features to the camera. These changes are much more difficult to make without the tools, files, and technical documentation to produce the software in the same way as the manufacturer did. See Personal View Talk, "GH2 Possible Improvements," 2011, <http://www.personal-view.com/talks/discussion/14/gh2-possible-improvements/>.

eventually led some to wonder who actually controlled and owned this particular source code. Already in the mid-seventies, the freeness of this operating system became more and more questionable. Starting first with the threat from AT&T to the Unix User Group, asking the group to stop using the Western Electric owned UNIX trademark, the community renamed itself USENIX.⁹⁴ The same year, Australian computer scientist John Lions published a commentary on the Version 6 of the UNIX operating system,⁹⁵ for use as teaching material. It quickly became a must-read book for anyone interested in Unix and operating systems in general, and was eventually distributed by Bell Labs itself. Even so, due to Western Electric's desire to limit the distribution of the source because of trade secret status in the kernel⁹⁶—combined with the change in the license of 1979 Version 7 of UNIX that started to forbid classroom use—the book became forbidden literature continuing to spread via samizdat.⁹⁷ The legal layer in which the code was wrapped also made it hard to merge the efforts of the different contributing groups, with the work from those at Bell Labs. At this point, update and fixes were propagating in a very secretive way:

[...] Lou Katz, the founding president of USENIX, received a phone call one day telling him that if he went down to a certain spot on Mountain Avenue (where Bell Labs was located) at 2 p.m., he would find something of interest. Sure enough, Katz found a magnetic tape with the bug fixes, which were rapidly in the hands of countless

⁹⁴ Greg Lehey, "President's Column," *The Journal AUUG Inc.*, 2003.

⁹⁵ John Lions, *A Commentary on the Sixth Edition of the UNIX Operating System* (Sydney: University of New South Wales, 1977).

⁹⁶ Raymond and Steele, "THE JARGON FILE, VERSION 2.2.1," Lions Book.

⁹⁷ Salus, *The Daemon, the Gnu, and the Penguin*, The Users.

users.⁹⁸

This particular Unix era is not very well documented, depending by which Unix historian these anecdotes are told, the narrative and the myth change slightly. But understandable romanticism aside, it does confirm that some unofficial back channels had been purposefully put in place at the time or in an *ad hoc* way, inside and outside of Bell Labs, to bypass entirely the legal limitations of Unix and the official corporate channels of distribution.

This tension reached a point of non-return in 1983 with the breakup of the Bell System freed AT&T from the 1956 anti-trust consent decree, that had so far forbidden it from using Unix as a commercial product. Despite coming from the same Bell Labs Research Unix root, the following licensing of the newly AT&T UNIX System V released the same year of the divestiture, accelerated the development of the commercial Unices, and dramatically increased the cultural gap with university efforts such as BSD.⁹⁹ In fact, By the mid-eighties, dramatic changes had occurred in the fast expanding world of computer business. The control over the copying, modification, and distribution of software became essential to ensure the large scale monetisation and capitalisation of executable code. This is why commercial closed source proprietary software, as a valid business model, grew in parallel with the standardisation and democratisation of computing infrastructures—due to the strong business decou-

⁹⁸ Toomey, “The Strange Birth and Long Life of Unix.”

⁹⁹ The rest of the so-called Unix wars that follow, and that will cripple many efforts to develop the operating system throughout the eighties and nineties, is outside of the scope of this text.

pling between software publishing and hardware manufacturing¹⁰⁰—and accelerated by a hobbyist computer scene that was operating outside of the academic walled garden of computer science.¹⁰¹

All that said, it is worth insisting that this was not specific to Unix systems. The same reversal was visible across the whole computer industry. And for instance, the once IBM supported SHARE group who used to work on the source of the tools and operating systems of their machine, were eventually denied access to the code in 1983 after the introduction of a new Object Code Only (OCO) policy. According to a SHARE memo celebrating with sarcasm the tenth anniversary of OCO, at the time of the announcement, the man who eventually became the Senior Vice President of IBM had “came to SHARE and said that [IBM] no longer needed customer creativity.”¹⁰² Today’s fragile relationship and labour transaction occurring between user generated content and online platforms or service providers¹⁰³ is nothing new, it is just history repeating itself.

¹⁰⁰ A transition point in that historical business decoupling is visible for instance in the way Commodore International, a famous eighties home computer manufacturer, licensed from another company, Microsoft, its ROM-resident BASIC for several of its machines, including the highly popular Commodore 64. Roberto Dillon, *Ready: A Commodore 64 Retrospective* (Singapore: Springer Singapore, 2015), 17. Of course, Microsoft was also selling licenses for its BASIC to other home computer manufacturers and end-users.

¹⁰¹ See Kevin Driscoll, “Professional Work for Nothing: Software Commercialization and ‘an Open Letter to Hobbyists,’” *Information & Culture* 50, no. 2 (2015): 257–83.

¹⁰² Melinda Varian, “PU/MELINDA to VMSHARE. Memorandum,” 1993.

¹⁰³ Trebor Scholz, *Digital Labor: The Internet as Playground and Factory* (London: Routledge, 2013).

1.7 Fratricide Software

Stallman, who joined the MIT Artificial Intelligence Laboratory in the early seventies, was a strong believer in what American journalist Steven Levy called the “hacker ethic,”¹⁰⁴ which originated from the sixties computer programming scene, and in which several principles were shared, namely that: information and technology should be freely accessible and unrestricted; hackers should be judged solely on their hacking skills, which is to say the technological elegance and crafting dimension of their work; and overall, computers can be used to improve society.¹⁰⁵ Within this subculture, and in regard to the brief historical overview of the early days of general purpose computing covered previously, sharing software was “as old as computers, just as the sharing of recipes is as old as cooking.”¹⁰⁶

Stallman was not from the same generation as the initial Unix authors, and not a Unix user himself, but he was however fully aware of the habitus of software production at the time, being himself introduced to it at a relatively young age with the practice of programming interleaved with his studies at Harvard and MIT, and eventually becoming his main occupation. And as much as Unix suffered from the intellectual property issues mentioned previously, it was not the only project to become legally constrained by the novel business model that was closed source software.

¹⁰⁴ Steven Levy, *Hackers: Heroes of the Computer Revolution* (1984; repr., Sebastopol: O’Reilly, 2010), The Hacker Ethic.

¹⁰⁵ Ibid.

¹⁰⁶ Richard M. Stallman, *Free Software, Free Society: Selected Essays of Richard M. Stallman* (Boston: Free Software Foundation, 2002), 17.

This was a global change felt across all the academic research fields for which computers had become tools of the trade. Software was no longer solely produced within technological limitations, but also within the legal constraints operating on top of, and overriding the former. But if what happens at the MIT AI Lab is also connected to this change in the computer industry landscape, it is mostly the story of its community of programmers who were torn apart in an epic tragedy that was the catalyst to the first expression of user freedom.

In brief, two companies, Symbolics and Lisp Machines Inc., emerged from the MIT AI Lab scene and were both centred around the production of proprietary Lisp machines, which were general purpose computers running the LISP computer programming language. The two efforts came out from the lab members themselves. One company, Symbolics was an archetypical computer business built around outside investment that hired many lab members full-time to work on their product, while the other, according to Stallman, was meant to be a “hacker” company keen to sustain and support the lab hacker culture by hiring the programmers part-time¹⁰⁷ and relying solely on economies of scale for the development of its capital and resources. Eventually both companies hired hackers from the lab, and the ex-MIT programmers from both systems kept on contributing to improve the AI Lab’s own Lisp machines. However at some point, in order to get rid of the competition—still according to Stallman—Symbolics demanded that the lab only use their machines

¹⁰⁷ Richard M. Stallman, “My Lisp Experiences and the Development of Gnu Emacs,” 2014, <https://www.gnu.org/gnu/rms-lisp.html>.

in order to keep using Symbolics software, and Stallman, who was at the time pretty much the only one left of this generation of hackers, and not hired by any of the companies, recalls:

This, in effect, meant that they demanded that we had to choose a side, and use either the MIT version of the system or the Symbolics version. Whichever choice we made determined which system our improvements went to. If we worked on and improved the Symbolics version, we would be supporting Symbolics alone. If we used and improved the MIT version of the system, we would be doing work available to both companies, but Symbolics saw that we would be supporting LMI because we would be helping them continue to exist. So we were not allowed to be neutral any more¹⁰⁸

The rest is history, at the beginning of 1982 and until the end of 1983, Stallman dedicated almost two years of his life replicating the improvements made by Symbolics, and sharing them with Lisp Machine Inc. American anthropologist Gabriella Coleman would later qualify Stallman's work during this period, as that of a "revenge programmer."¹⁰⁹ But this is not a simple revenge. Stallman felt that he was forced to take on this role of "punisher,"¹¹⁰ and admits that he did not care so much about the future of Lisp Machines Inc. either.¹¹¹ So, more than just a revenge, Stallman was essentially trying to maintain the illusion of a community, not letting go of what used to be the MIT AI lab culture and thereby becoming a human bridge between the trio Symbolics, Lisp Machines Inc., and the MIT AI Lab. The software he wrote was more an emergency band aid than a revenge.

¹⁰⁸ Ibid.

¹⁰⁹ Coleman, *Coding Freedom*, 68.

¹¹⁰ Stallman, "My Lisp Experiences and the Development of Gnu Emacs."

¹¹¹ Ibid.

In fact, I think that what this episode reveals essentially is the ethical foundation of what will become free software, a foundation born from this fratricide and proprietary war, and in which the strategy of not sharing software was *not* the main issue. It was just one of the weapons used in the attempt to control the MIT AI Lab territory, a war during which Stallman was only concerned with the collateral damage: the disappearance of his fellow programmers employed at these computer manufacturers and his increasing loneliness.¹¹² There was no *other* evil entity, but the self-inflicted shredding of a group of people unable to work together and unable to reconcile commercial interests within their academic walled garden.

These aspects however became quickly conflated, and to be sure, I mean that it is probably with Stallman that the moral attribute of software production becomes for the first time a cornerstone, where there was an attempt to make a distinction between two kinds of user groups generalised from the AI Lab event:¹¹³ the first kind are socially driven groups that emerge in a rather decentralised, and self-governing way, which rely on historical social traditions and legacies of computational culture, as USENIX was initially; and the second kind are groups in which users are mere customers consolidating an existing product, like the early

¹¹² Levy, *Hackers*, 448.

¹¹³ I say it is an attempt to make a distinction because I also think this is a convenient simplification, that would obviously permit Stallman to justify his tragic exodus and new mission in the years that followed. Similarly such a radical distinction between two kinds of groups only works within the rhetoric of the free and open source software subcultural hero. As I will also begin to explain in the following chapters, the categorisation of communities is not as simple in reality as it first seems.

days of the SHARE group.¹¹⁴

1.8 The Need to Define

Having failed to save the AI Lab of his generation, Stallman left the conflict of two Lisp machine manufacturers and MIT, and in 1983 announced, on both USENET and ARPANET, the creation of his Ark, the GNU project, a recursive acronym which stands for GNU's not Unix, a free Unix-like operating system with Lisp implementations as user programs:

Free Unix!

Starting this Thanksgiving I am going to write a complete Unix-compatible software system called GNU (for Gnu's Not Unix), and give it away free to everyone who can use it. Contributions of time, money, programs and equipment are greatly needed.

[...]

I consider that the golden rule requires that if I like a program I must share it with other people who like it. I cannot in good conscience sign a non-disclosure agreement or a software license agreement.

So that I can continue to use computers without violating my principles, I have decided to put together a sufficient body of free software so that I will be able to get along without any software that is not free.¹¹⁵

¹¹⁴ I mention early days, because throughout its history the SHARE group became more and more independent, starting most notably with the work on its own operating system, the SHARE OS (SOS), See Akera, "Voluntarism and the Fruits of Collaboration." But in the case of SHARE as the sense of community will surpass the role of customer, SHARE became somehow less and less relevant to IBM's own business agenda, as mentioned previously, with the introduction of the OCO policy.

¹¹⁵ Richard M. Stallman, "New Unix Implementation," September 27, 1983, <http://www.electrifieditors.net/grapevine/issues/83.txt>.

Finally abstracted from their originating stories, the notion of user groups and fellowship that were so far overlapping with consumerism and computer clientèle, with Stallman changed into ideas of self-sufficient user communities, as well as of tales of a neighbourhood oppressed by a bad *other* seeking to impose its rules upon the group:

This meant that the first step in using a computer was to promise not to help your neighbour. A cooperating community was forbidden. The rule made by the owners of proprietary software was, “If you share with your neighbour, you are a pirate. If you want any changes, beg us to make them.”¹¹⁶

Later, in March 1985, Stallman accentuated his call in the now famous GNU manifesto. In October of the same year, he founded and registered the Free Software Foundation (FSF) with the following purpose:

The corporation is formed for literary, educational, and charitable purposes with the special purposes of i) encouraging, fostering, and promoting the free exchange of computer software and information related to computers and other technology; ii) distributing and disseminating software and information related to computers and other technology; and iii) increasing the public’s access to computers and other high technology devices.¹¹⁷

The first attempt to define free software naturally also came from Stallman who, a year after the GNU Manifesto, published a text about the newly created FSF, which contained a brief articulation of what exactly can be considered as free software:

¹¹⁶ Stallman, *Free Software, Free Society*, 18.

¹¹⁷ Stallman, “The GNU Manifesto.”

The word “free” in our name does not refer to price; it refers to freedom. First, the freedom to copy a program and redistribute it to your neighbours, so that they can use it as well as you. Second, the freedom to change a program, so that you can control it instead of it controlling you; for this, the source code must be made available to you.¹¹⁸

What had been bootstrapped by the FSF and the early concept of free software then gradually became an inspiration for others. One of the most notable can be found in the creation of the popular Debian free software operating system.¹¹⁹ At the same time, in this new wave of free software projects, it is possible to start to see the effects of cultural diffusion of the core FSF ideas. Debian for instance, does not aim to implement the GNU OS or an OS that directly translates the concepts from Stallman, instead it further articulates the definition of free software, specifically its social dimension, that was sketched with Stallman’s community etiquette, subtly shifting from the idea of users to the concept of neighbours. So with the Debian operating system, the definition becomes embedded within a social contract. This contract was drafted and eventually announced by American computer programmer Bruce Perens in 1997, who was at the time project leader of Debian.¹²⁰ The Debian Free Software Guideline part of this social contract is based on 10 sections, that build upon Stallman’s definition published more than a decade earlier:

1. Free redistribution.

¹¹⁸ Richard M. Stallman, “What Is the Free Software Foundation?” *GNU’s Bulletin*, 1986.

¹¹⁹ Ian Murdock, “The Debian Manifesto,” 1994, <http://www.debian.org/doc/manuals/project-history/ap-manifesto.en.html>.

¹²⁰ Bruce Perens, “Debian’s ‘Social Contract’ with the Free Software Community,” July 4, 1997, <https://lists.debian.org/debian-announce/1997/msg00017.html>.

2. Inclusion of source code.
3. Allowing for modifications and derived works.
4. Integrity of the author's source code (as a compromise).
5. No discrimination against persons or groups.
6. No discrimination against fields of endeavour, like commercial use.
7. The license needs to apply to all to whom the program is redistributed.
8. License must not be specific to Debian, basically a reiteration of the previous point.
9. License must not contaminate other software.
10. The GPL, BSD, and Artistic licenses are examples of licenses considered free.¹²¹

This guideline is modified a few years later to serve as the Open Source definition,¹²² for the newly founded Open Source Initiative (OSI), following the 1998 call to embrace the term *open source* instead of free software.¹²³ It can be summed up as the following:

1. Free Redistribution
2. Inclusion of Source Code
3. Allowing for modifications and Derived Works
4. Integrity of The Author's Source Code
5. No Discrimination Against Persons or Groups
6. No Discrimination Against Fields of Endeavour, like commercial use
7. The license needs to apply to all to whom the program is redistributed.
8. License Must Not Be Specific to a Product
9. License Must Not Restrict Other Software
10. License Must Be Technology-Neutral¹²⁴

¹²¹ This is an extract of all the headlines from *ibid*.

¹²² Bruce Perens, "The Open Source Definition," in *Open Sources: Voices from the Open Source Revolution*, ed. Sam Ockman Chris Dibona and Mark Stone (Sebastopol: O'Reilly, 1999).

¹²³ Eric S. Raymond, "Goodbye, 'Free Software'; Hello, 'Open Source,'" 1998, <http://www.catb.org/esr/open-source.html>.

¹²⁴ This is an extract of all the headlines from Perens, "The Open Source Definition."

As with software source code that gets shared and modified to fit one user's specific need or interpretation, with the open source definition, it is possible to see that similar exchanges are now happening at the level of the articulation of such practices. Software freedom is no longer a concept that describes existing practices, it is also an idea evolving independently within an ever expanding territory where different agendas meet. When comparing the two definitions, the striking similarity whether in these shortened versions above or with the full texts, one can certainly wonder about the redundancy of such an effort. However, it becomes apparent that each project brings a different facet forward. Could it be that just like Debian's particular attention to the social context of free software, some others have found in this idea another trait that needs more promotion? In fact the change of some words is not innocent. For instance the clause 9 of both definition has seen a change in the word *contaminate* into *restrict*. The explanation for this clause remained however unchanged, and the purpose of this rule is to avoid licenses that would impose constraints on the other software it is bundled with inside the same collection or medium. Two things can be deducted from such a change: one, access to the source code is not enough to be free or open source software;¹²⁵ two, open source appears to be a tamed re-articulation of free software.

In fact this re-articulation finds its origin in a meeting held in 1998 fol-

¹²⁵ For instance the source code of the email client pine, released under a legal notice that demands particular commercial and distribution conditions that breaks the clause on contamination/restriction, is neither free software in the Debian sense, or open source software. See Pine Information Center, "Pine Legal Issues," 2007, <https://www.washington.edu/pine/faq/legal.html>.

lowing the release of the source code from Web browser Netscape Communicator 4.0¹²⁶ by Netscape Communications Corporation. For many, this event is a sign that open models of production can be relevant to business practices, and should therefore be advocated, supported, and actively promoted.¹²⁷ Even so, for the future founders of the OSI, words such as free and freedom were too ambiguous to be used effectively in a commercial context, hence the need to make a discursive move from free software to open source,¹²⁸ in which the questions of hacker ethics and free society are radically reformulated to fit the economic relevance of openness in the context of free market and laissez-faire, and as a consequence make the *social software* aspect of the FSF secondary to an affiliation with the political philosophy of libertarianism, occasionally made explicit by OSI members.¹²⁹ However this did not halt the FSF efforts, and throughout the years the free software definition evolved and, again, as with the writing of software code that is virtually never completed, new features were added. Today's version of the definition originates in its major update made in 2000, which contains four elements best known as the four essential freedoms of programs users:

The freedom to run the program, for any purpose (freedom 0).
The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.

¹²⁶ Open Source Initiative, "History of the OSI," 2012, <https://opensource.org/history>.

¹²⁷ See Boomen and Schäfer, "Will the Revolution Be Open-Sourced? How Open Source Travels Through Society."

¹²⁸ The term open source was coined by American nanotechnologist Christine Peterson during the 1998 meeting, as stated in Open Source Initiative, "History of the OSI".

¹²⁹ Michael Tiemann, "What I Learned from the Libertarians," 2007, <https://opensource.org/node/184>.

The freedom to redistribute copies so you can help your neighbour (freedom 2).

The freedom to improve the program, and release your improvements to the public, so that the whole community benefits. (freedom 3). Access to the source code is a precondition for this.¹³⁰

According to Bruce Perens, Stallman's update might have been motivated by the creation of the OSI, "as an alternative to the Open Source Definition", and he suggests that they probably existed prior to their online release.¹³¹ As a matter of fact they even existed as three freedoms in 1998,¹³² which are now numbered 1,2 and 3. Freedom 0 was added at a later stage in 1999.¹³³ Still, the difference between the two is more visible in the way they are interpreted by their respective supporters. With the historical schism, it is almost as if the merged pragmatic and the social dimension of the Unix user groups legacy was suddenly parted in an irreconcilable mode.

Nearly all open source software is free software; the two terms describe almost the same category of software. But they stand for views based on fundamentally different values. Open source is a development methodology; free software is a social movement. For the free software movement, free software is an ethical imperative, because only free software respects the users' freedom. By contrast, the philosophy of open source considers issues in terms of how to make software "better"—in a practical sense only. It says that non-free software is a suboptimal solution. For the free software move-

¹³⁰ Richard M. Stallman, "What Is Free Software?" 2000, <http://web.archive.org/web/20000302065400/http://www.gnu.org/philosophy/free-sw.html>.

¹³¹ Bruce Perens, "Re:1997 ?" 2009, <http://news.slashdot.org/comments.pl?sid=1129863&cid=26875815>.

¹³² Richard M. Stallman, "What Is Free Software?" 1998, <http://web.archive.org/web/19980126185518/http://www.gnu.org/philosophy/free-sw.html>.

¹³³ Richard M. Stallman, "What Is Free Software?" 1999, <http://web.archive.org/web/19990430060825/http://www.gnu.org/philosophy/free-sw.html>.

ment, however, non-free software is a social problem, and moving to free software is the solution.¹³⁴

Here, Stallman reduces open source to a development methodology, but fails to see he is applying the same approach to free software itself, by applying the prototyping and engineering culture of software production to the free software discourse, constantly improving the free software definitions, licenses, and texts as if they were products that improve with every new version.¹³⁵ For Raymond open source is essentially free software *without ideology*, and solely based on “economics and development processes and expected return.”¹³⁶ Being a member of the American Libertarian Party, the OSI founder is not quite a socialist or Marxist hacker, a point he often makes explicit in his writing, whenever he feels open source risks generalisation and reduction to political interpretations for which he has no particular sympathy.¹³⁷ His critique of free software’s *ideology* is nothing but a conservative tactic to frame Stallman as the leader of a fanatical and crazy project. However, if I consider ideology in the terms defined by British media theorist Dick Hebdige in *Subculture: The Meaning of Style*,¹³⁸ the schism between free software and open source

¹³⁴ Richard M. Stallman, “Why Open Source Misses the Point of Free Software,” 2007, <https://web.archive.org/web/20070210084243/http://www.gnu.org/philosophy/open-source-misses-the-point.html>.

¹³⁵ As an example, the 2007 article from which this text is quoted, has been continuously modified throughout the years, and still is at time of writing.

¹³⁶ Andrew Leonard, “Let My Software Go!” *Salon*, 1998, <https://www.salon.com/1998/03/30/feature947788266/>.

¹³⁷ See Eric S. Raymond, “A Response to Nikolai Bezroukov,” *First Monday* 4, no. 11 (1999), <http://firstmonday.org/ojs/index.php/fm/article/view/702/612>.

¹³⁸ Drawing most notably from Marx, Althusser and Barthes, Hebdige provides a broader approach to ideologies as the set of means and signs representing the interests of specific groups and classes. See Hebdige, *Subculture*, 11–15.

software is in fact nothing more than the manifestation of different ideologies, whose subjects could no longer live under the same roof, as it became clearer that their ruling ideas were not quite the same. Of course, this process is not necessarily obvious or conscious for all of those who lived through this split, in the sense that the implicit ideological assumptions of the free and open source software definitions are not immediately visible, if ever, leaving some to switch sides several times. This was for instance the case of Perens, who, even having drafted both the Debian and OSI definitions, would in 1999 leave the open source camp that he helped establish, precisely because of this increasing drifting away from what he believed were the original intentions of free software.¹³⁹

This is why I disagree with Kelty, who after having significantly summed up the difficulty of framing and using the term *movement* in reference to these two groups, concludes that they “share practice first, and ideologies second.”¹⁴⁰ But practice and ideology cannot be so easily decoupled. Of course, when free and open source software is analysed through the lens of subculture, it is logical to understand that source code is the commodity through which the subversion takes place in the form of an heroic liberation from its proprietary and restricted context within the increasingly mainstream computer industry. So in that sense, it is easy to mix up free software and open source software practices as one shared front. But this is not how it works, and what I think is more crucial here is that, liberated source code itself can also be opened

¹³⁹ Bruce Perens, “It’s Time to Talk About Free Software Again,” February 17, 1999, <https://lists.debian.org/debian-devel/1999/02/msg01641.html>.

¹⁴⁰ Kelty, *Two Bits*, 113.

to a double inflection.¹⁴¹ I wish to stress that the same piece of source code can be used differently as free software or open source software, even if the license is the same. This is made very explicit with the Linux kernel, licensed under the free software and open source software approved GPLv2, the main line of development of which is in the form of an open source project within a well established software industry,¹⁴² and, at the same time, also exists as a distinct free software project, GNU Linux-libre,¹⁴³ which offers an alternative version cleaned from all potential proprietary and closed source compromises made with said software industry, and is the recommended kernel for FSF approved GNU/Linux distributions.¹⁴⁴ Therefore, as I explained previously, what matters ultimately is the human interpretation of these particular instructions: free and open source software licensed source code is not only an element of resistance against an external hegemonic entity, it is a place holder for multiple forms of resistance acting against each other's potential rise to dominance, and in the free versus open source case, it is the expression of a liberal conflict to decide what should be prioritised:

¹⁴¹ Double inflection in the case of the historical split, but also in many more cases, as I will develop further in this thesis.

¹⁴² At time of writing, the latest report from the Linux Foundation states that since 2005, 1340 companies have contributed to the software, and currently 92,3% of contributions are from paid developers. See Jonathan Corbet and Greg Kroah-Hartman, "Linux Kernel Development: How Fast It Is Going, Who Is Doing It, What They Are Doing and Who Is Sponsoring the Work," research report (The Linux Foundation, 2016).

¹⁴³ Free Software Foundation Latin America, "GNU Linux-Libre Project," 2016, <https://www.fsfla.org/ikiwiki/selibre/linux-libre/>.

¹⁴⁴ I will return to this example in Chapter 3. It is also worth noting that even within the same camp several interpretations of a term or practice can co-exist, for instance with copyleft being perceived as strategy rather than a moral principle by free software supporters. See Bradley M. Kuhn, "GCC, Lvm, Copyleft, Companies, and Non-Profits," 2014, <http://ebb.org/bkuhn/blog/2014/01/26/llvm.html>.

ethics or economics. This dichotomy is not shared but echoed in their respective practices.

1.9 Software Licenses

Practically speaking, these parallel efforts from the FSF, Debian, and the OSI, operate as both a guideline for new, and a filter for, existing unilateral permissions specific to intellectual property: the software licenses. The emphasis on ethics and economics in free and open source software is more than a collection of beliefs, it is also a disciplinary and normalising process that needs to be coded and enforced. The software license works therefore as a permission given to the licensee to distribute the licensor's copyrighted work under specific terms.¹⁴⁵ To be sure, a free and open source software license is not a contract. During the twentieth century, licensing has been approached through the perspective of an exchange of promises, such as giving a copy of a copyrighted work in exchange for a fee and the respect of some obligations, but free and open source software licenses are in fact closer to historical property law licensing: they are unilateral permissions in which no obligations are reciprocally required by the licensor.¹⁴⁶ They rely on copyright law, not contract law, so if the licensee does not respect the term of the license, which are essentially terms of distribution, they can be expressed by the plaintiff as

¹⁴⁵ For the licenses that rely on copyright.

¹⁴⁶ Pamela Jones, "The GPL Is a License, Not a Contract," *LWN.net*, 2003, <https://lwn.net/Articles/61292/>.

the redistribution of copyrighted work without permission and not as a breach of contract.¹⁴⁷

According to Austrian computer scientist and technology historian Peter H. Salus, the first software license for Unix was written in 1977 when the operating system was ported to the Model 7/32 and Model 8/32 32-bit minicomputers developed by Interdata, Inc. Prior to that, Unix ran solely on the PDP-11/20 16-bit minicomputer sold by Digital Equipment Corporation (DEC). Mainframe operating systems ran only on the machines with which they were sold and the idea of decoupling hardware from software was far from obvious.¹⁴⁸ Of course as mentioned earlier, the 1969 IBM unbundling case made necessary the sale of software separately from the hardware. However, such necessity was transformed into a possibility for further commercial strategies only after programs became portable. Software licensing also brought a moment of deceptive recognition that source code was not some magical public property, but rather an actual privately owned object, the rules of access and use of which were defined in increasingly constricting terms. If, on the one hand, it is possible to reflect upon the evanescence of software¹⁴⁹ or its performativity,¹⁵⁰ the software industry eventually responded to the question of software as an immaterial cultural expression in a very crude and direct way. Under USA jurisdiction, software can be considered as an original human

¹⁴⁷ Ibid.

¹⁴⁸ Salus, *The Daemon, the Gnu, and the Penguin*, 102.

¹⁴⁹ Friedrich Kittler, "There Is No Software," *CTHEORY*, 1995, <http://www.ctheory.net/articles.aspx?id=74>.

¹⁵⁰ Adrian Mackenzie, "The Performativity of Code: Software and Cultures of Circulation," *Theory, Culture & Society* 22, no. 1 (2005): 71–92.

creation, which therefore can be copyrighted. It's as simple as that, and to simplify things further, this applies whether or not the software exists as object code or is available in a more human friendly medium and language. As a result, selling software becomes a problem as it could imply a copyright transfer, which is why as a workaround the computer industry started to license software.¹⁵¹

Free from legal restriction to enter the computer market, AT&T created the Unix Systems Laboratory and in 1988 a Unix license costed 100,000 USD, something affordable for corporations such as IBM and DEC, but not for university researchers and smaller groups that were therefore motivated to switch to BSD Unix. There was a catch however, even though BSD Unix was distributed with its own highly permissive licensing, the fact that it was built upon AT&T property meant that BSD users were supposed to *also* acquire the costly license from the corporation in order to use the system in complete legitimacy.¹⁵² As a response to this, BSD developers came up with the idea of separating their own contributions and modifications from AT&T's source files, and releasing the whole lot in 1989, as *Networking Release 1* under the generous terms of one of the early BSD-style license.¹⁵³ For the more affordable fee of 1,000 USD, one was given a tape with source files, and the rights to do pretty

¹⁵¹ Ira V. Heffan, "Copyleft: Licensing Collaborative Works in the Digital Age," *Stanford Law Review* 49, no. 6 (1997): 1487–1521, I. Software License Agreements.

¹⁵² Weber, *The Success of Open Source*, 39.

¹⁵³ Such strategies are still popular today, they allow the redistribution of modified copyrighted software. For instance groups and individuals from the ROM translation scene—communities focussed on making high quality fan translations of non localised video games—only distribute their work as patches to apply on top of the original software, so as to limit the visibility of an activity that is already questionable given the derivative nature of the work.

much anything with it, including turning the code into closed source proprietary software and copying everything without any royalties due, as long as credit to Berkeley was clearly given and original copyright notices in the source files remained intact.¹⁵⁴ From this point on, the BSD project would progressively attempt to get rid of AT&T's code, rewriting what was missing and accepting contributions which would turn BSD into more complete operating systems, as opposed to its early existence as a patch on top of AT&T's UNIX.

This led to a new wave of Unix-like systems that were released throughout the early nineties, with some of these standalone systems distributed as proprietary software.¹⁵⁵ As mentioned in Section 1.5 of this chapter, the original BSD development,¹⁵⁶ demonstrates the existence of proto free and open source software practices that combine in one project the traditional hacking context, the practice of collaborative code development and sharing, and provide a software licensing model so as to escape vendor control and instead favour freedom for the users. Given this situation and the apparent overlap in practices, it might seem strange that Stallman does not join the effort of the proto-free software BSD. As it turns out, once again, sharing practices is not everything. Next to the entanglement of BSD Unix in several licensing systems,¹⁵⁷ a crucial problem

¹⁵⁴ Ibid., 40.

¹⁵⁵ For an in-depth history on these early days of BSD Unix and the legal battle with AT&T that followed the distribution of proprietary Unix-like systems, see *ibid.*, The Early History of Open Source.

¹⁵⁶ As well as all its surrounding stories relating to the development of some of its user programs, such as *vi*. See Salus, *The Daemon, the Gnu, and the Penguin*, A Tale of Two Editors

¹⁵⁷ Stallman, *Free Software, Free Society*, Free Software: Freedom and Cooperation.

for Stallman is that since the Symbolics episode he saw a correlation between the free circulation and complete access to eventual source code changes, with the strength of a hacker community busy working on such source code. As a result, he must, under these circumstances, create a license which, unlike the BSD license, must enforce sharing, to force the creation of social software at all costs. This is why for Stallman a specific new license must be created and applied to a new Unix software, which is detached from its historical codebase. This is a history he does not seem to feel too attached to however, given that his interest in Unix was not particularly acute to begin with.¹⁵⁸

1.10 From Machine Instructions to Community Rules

If nowadays free and open source software groups are probably, as Coleman rightly points out, “the largest single association of amateur intellectual property and free speech legal scholars ever to have existed,”¹⁵⁹ it was not always the case. In fact, this too had to go through some heavy phases of prototyping, as the pre FSF software freedom that Stallman often refers to, can also be understood through the fact that hackers like himself did not think much of software as intellectual property, let alone had they any clue of how it actually worked. This was particularly vis-

¹⁵⁸ Stallman, “The GNU Manifesto,” Why GNU Will Be Compatible with Unix.

¹⁵⁹ Gabriella Coleman, “Code Is Speech: Legal Tinkering, Expertise, and Protest Among Free and Open Source Software Developers,” *Cultural Anthropology* 24, no. 3 (2009): 433.

ible in the very messy early years of the EMACS family of text editor programs, the bits and pieces of which were assembled and distributed in different ways. This situation led to several conflicts and discussions around the intellectual property nature of the software, and notably the rather casual exchange and appropriation of source code regardless of its copyright, or copyright laws for that matter.¹⁶⁰ If in the later years Stallman seems to be quite casual when retelling this episode, it was in fact a rather unpleasant process, that once again forced him to take action so that his notion of community could stand on solid legal ground. When he announced the GPL in 1988, it was in fact a fusion and generalisation of different individual licenses that he associated with each of the early GNU software components, a result of experiments with a series of prototypical licenses such as the GCC General Public License, and the GNU Emacs General Public License.

The copyleft used by the GNU project is made from a combination of a copyright notice and the GNU General Public License. The copyright notice is the usual kind. The General Public License is a copying license which basically says that you have the freedoms we want you to have and that you can't take these freedoms away from anyone else. (The actual document consists of several pages of rather complicated legalese that our lawyer said we needed.) A copy of the complete license is included in all GNU source code distributions and many manuals, and we will send you a printed copy on request.¹⁶¹

It makes sure that software freedom and openness are ensured once the software is published, and at the same time provides legal mechanisms

¹⁶⁰ Kelty, *Two Bits*, Writing Copyright Licenses.

¹⁶¹ Richard M. Stallman, "What Is Copyleft?" *GNU's Bulletin* 1, no. 6 (1988).

to discourage a break in the terms of the license. You may remember user Richard, from section 1.6 of this chapter, was bothered and annoyed by the fact that user Friedrich denied him access to the source file of his software—maybe because user Ada had licensed it to him under the permissive terms of the early BSD license—he now decides to rewrite said software from scratch, and adds a new feature that matters to him and would have been cumbersome to implement via reverse engineering. His new `software.c` source file looks like this:

```
/* software - my free software
 * (C) Copyright 2017 - Richard
 *
 * This program is free software: you can redistribute it and/or
 * modify it under the terms of the GNU General Public License
 * as published by the Free Software Foundation, either version 3
 * of the License, or (at your option) any later version.
 *
 * This program is distributed in the hope that it will be useful,
 * but WITHOUT ANY WARRANTY; without even the implied warranty of
 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
 * GNU General Public License for more details.
 *
 * You should have received a copy of the GNU General Public
 * License along with this program. If not,
 * see <http://www.gnu.org/licenses/>.
 */

#include <stdio.h>

int main(void)
{
    puts("There is no software.");
    puts("There is only free software.");
}
```

Here Richard avoids potential copyright infringement by implementing the software function differently from Friedrich's and Ana's original

source code. Alongside this, he marks his source code with a disclaimer explaining the type of software it is, and finally, includes another text file, the GPL, which are simply the legal distribution terms that implements the FSF software freedom. Any user deciding to publish this software in the future, must comply with its terms,¹⁶² namely that the distribution of the software must always be done with access to its source code, including any modifications made to the latter: the copyleft mechanism is born. In practice, with copyleft licenses, if Friedrich then decides to use Richard's software and modifies it before sharing the new version on his website, he must also provide the source code and must guarantee the same terms to the users of his version, unlike with permissive licenses that allow closed source and proprietary integration and distribution. It is very important to understand that the copyleft principle is absolutely not a mandatory characteristic of free software, but a property of *some* free software licenses.¹⁶³

But most importantly here, with such a marked file and unlike Chun's

¹⁶² See Aaron Williamson Bradley M. Kuhn and Karen M. Sandler, "A Practical Guide to GPL Compliance," White Paper (Software Freedom Law Center, 2008).

¹⁶³ Similarly, the FSF distinguishes GPL-compatible and GPL-incompatible licenses, to distinguish source code that can or cannot be merged with GPL licensed source files, and vice versa. To give an example, the initial 1998 4-clause BSD License is considered by the FSF to be a free software license but it is non-copyleft and incompatible with the GPL. But more recent evolutions of the BSD license, eventually became GPL compatible, like the FreeBSD license, despite still being a permissive non-copyleft license. So while the FSF strongly encourages the use of copyleft licenses, it also recognizes a whole range of licences. Notable other free software licenses are the Apache License, the CC0 license, the FreeBSD license, the BitTorrent Open Source License, the Mozilla Public License, the Microsoft Public License, the Do What the Fuck You Want To Public License. See Free Software Foundation, "Various Licenses and Comments About Them," 2016, <https://www.gnu.org/licenses/license-list.en.html>. The two aims of the definition are thus: first it establishes what in Stallman's terms software freedom means; and second, it is a test to validate whether or not a license can be called a free software license.

investigation of the notion of source code, where the latter is reduced to an intermediary spectre that only becomes the source of an action once it is turned into an executable,¹⁶⁴ software source code as exemplified with free software source code, does not even need to be executed to be performative. Chun admits that the English-based commands found in source code also means that it can be read by other people than programmers. She takes works from artists such as Mez Breeze and Graham Harwood to illustrate how this can be taken advantage of in an artistic context.¹⁶⁵ I could not agree more here, and this cross-readability, by machine and human parsers, has been most notably the root of the code poetry genre, where the principles of poetry and computer code are purposefully conflated.¹⁶⁶ However, Chun overlooks other aspects of source files and source code, and more particularly the comments, as paratextual place holders for other forms of human instructions and manipulation that have the power to change and control the contextual interpretation of software execution well outside the machine itself. A similar missed opportunity can be found in the writing of American writer and computer programmer Alexander R. Galloway, whose focus on the technological context of code,¹⁶⁷ overshadows the openness of the paratextual marks carried by the later and fails to notice the dominance of another protocol, albeit a more historical one: free software as a social *étiquette*. It is expressed here with Stallman's own understanding of the hacker ethics

¹⁶⁴ Chun, *Programmed Visions*, 24–25.

¹⁶⁵ See *ibid.*, 55–56.

¹⁶⁶ See Cramer, *Words Made Flesh*, 93–95.

¹⁶⁷ Alexander R. Galloway, *Protocol: How Control Exists After Decentralization* (Cambridge: MIT Press, 2004), 171.

as one of sharing communities, and such ethical social protocol can now be enforced via the simple act of source code distribution.

So far, I have purposefully delayed the introduction of the term community. Nowadays it is taken for granted from popular Internet culture and also academic literature that any social groups operating via computer mediated communication systems can be referred to as a community.¹⁶⁸ The term gained notable mainstream popularity with American writer Howard Rheingold's 1993 prophetic work on the concept of virtual communities.¹⁶⁹ From his own participation in several electronic chatting, interactive, and discussion platforms,¹⁷⁰ as well as building upon early nineties social science research,¹⁷¹ he draws an analogy between so-called real world communities and the social organisation of individuals who cluster around different technologically driven communication systems. Referring more particularly to fieldwork in The WELL from American sociologist Marc Smith,¹⁷² he uses the schema of collective goods to support his comparison. However, the idea of linking communication technology, commonness and community is not novel, and its history, promises and downfall have been extensively covered by American communication theorist James W. Carey in his 1989 work *Communication*

¹⁶⁸ See Steven G. Jones, *CyberSociety 2.0: Revisiting Computer-Mediated Communication and Community* (Thousand Oaks: Sage, 1998).

¹⁶⁹ Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier* (1993; repr., Cambridge: MIT Press, 2000).

¹⁷⁰ Such as the 1985 forum Whole Earth 'Electronic Link (The WELL), and also Internet Relay Chat (IRC) channels, and Multi-User Dungeons (MUDs).

¹⁷¹ In particular from Amy Bruckman, Marc Smith, and Elizabeth M. Reid. For detailed references, see *ibid.*, Bibliography.

¹⁷² Marc Smith, "Voices from the WELL: The Logic of the Virtual Commons" (Master's thesis, University of California, 1992).

as *Culture*, where he traced amongst other things the path that led to the mythos of the electronic revolution in which new forms of community would arise,¹⁷³ and similar connections can be found in BSD history which has been linked with the mid 60s Free Speech Movement.¹⁷⁴

By bridging social organisation with operating systems, and making the protocols of software access, compilation, execution, and distribution dual, free software source code challenges the notion of openness as a purely technological network oriented idea. Here, I am not being metaphorical, free software source code is a mix of human and machine semantics that target more than computer compilers, it also gives instructions to human interpreters by the means of its legal apparatus, it becomes a method to directly program the actors of the free society envisioned by Stallman with the help of intellectual property laws. Therefore Stallman's understanding of community is not only in the lineage of Carey's mythos, it is also a method by which to thoroughly structure these communities. Even before the Symbolics instalment, an important contribution was made by Stallman to the EMACS editor, next to his central role in its infancy and development,¹⁷⁵ was the notion of *EMACS Commune* articulated in late seventies documentation of the software, in which the project was presented as a sharing community operating according to some prototypical copyleft rules,¹⁷⁶ however not yet expressed in legal terms. When free software becomes more precisely

¹⁷³ Carey, *Communication as Culture*, The Mythos of the Electronic Revolution.

¹⁷⁴ Leonard, "BSD Unix."

¹⁷⁵ Sam Williams, *Free as in Freedom: Richard Stallman's Crusade for Free Software* (2002; repr., Farnham: O'Reilly, 2012), Chapter 6: The Emacs Commune.

¹⁷⁶ Levy, *Hackers*, 417.

formulated, the combination of a sort of civil rights organisation, like the FSF, proposing a software definition and matching licenses, like the GPL, is not only a legal framework, but also a toolkit for community rules, a sort of cybernetic law model for any virtual community with GNU and the FSF providing an exemplification of such methodology. So when different voices emerge from the early days of the free software versus open source schism, the overlap in licensing should not be misunderstood as the growth of a *social movement*. In effect, it is the beginning of a process of fragmentation of software freedom, into all sorts of diverging communities. This was particularly visible in the results and discussions that followed the first Free/Libre/Open Source Software (FLOSS) survey in 2002.¹⁷⁷ However, at the time, Stallman disagreed with some of the report findings, and in particular how it presented the existence of two communities, whereas he considered free and open source software to be two movements within one single community.¹⁷⁸ His request to rephrase and replace community with movement was ultimately declined.¹⁷⁹

If I look at free software from the perspective of the *Gemeinschaft* and *Gesellschaft* dichotomy, developed by German Sociologist Ferdinand Tönnies,¹⁸⁰ the sense of fellowship and bounding found in the early computer

¹⁷⁷ Rishab Aiyer Ghosh and Ruediger Glott, “Free/Libre and Open Source Software: Survey and Study,” research report (International Institute of Infonomics, 2002).

¹⁷⁸ Ibid., The Stallman-Ghosh-Glott mail exchange on the FLOSS survey: Two communities or two movements in one community?

¹⁷⁹ Ibid.

¹⁸⁰ In 1887, Tönnies provides a conceptual framework, in the form of an idealised generalisation, in which he suggests that social organisation can be split into two groups: the *Gemeinschaft*, which is the community where relationships between individuals are structured by traditional social conventions; and the *Gesellschaft*, which is the society where these relationships are instead fabricated to fulfil a particular plan. See Tönnies, *Community and Civil Society*.

hacking groups are the essential drive of a *Gemeinschaft*. But, the satisfaction of being part of a community, subjectively connected to the so-called hacker ethic, disappears with the increasing technical and social alienation brought about by the changes in the computer industry. From the resulting isolation rises a new strength, Stallman's will to rally other hackers around a new speculative or utopian agenda, a *Gesellschaft* in the form of a free society, the rules of which are put in place to emulate his lost *Gemeinschaft*,¹⁸¹ and therefore engage with a conflict against the other *Gesellschaften* he claims are responsible for this loss.¹⁸²

Even though Stallman once thought of himself in 1983 as being the "last of the true hackers,"¹⁸³ with free software he creates much more than a copyright hack,¹⁸⁴ becoming the first hacker to transcend the pejorative description of "computer bums,"¹⁸⁵ who in the seventies and in the eyes of Weizenbaum, were for the most part, skilful yet aimless technicians, who could not set long-term goals.¹⁸⁶ Stallman does not set GNU's and the FSF long-term goals as philanthropic activity. He is forced to. Something got in the way of his main occupation and he will try to solve it the same way he hacks software. But in the process, the system he puts in place to emulate and compensate his loss, becomes a guideline avail-

¹⁸¹ This effort was also prototyped with the *Emacs Commune* experiment, which is how Stallman drafted his first social contract, by embedding sharing terms in the source code from Emacs. See Williams, *Free as in Freedom*, Chapter 6: The Emacs Commune; Kelty, *Two Bits*, 189

¹⁸² In some of the next chapters, I will develop further the relationship between communities, societies, and licenses, and the consequence of such an emulation in the context of dual, and triple licensing.

¹⁸³ Levy, *Hackers*, 415.

¹⁸⁴ Kelty, *Two Bits*, 182.

¹⁸⁵ Williams, *Free as in Freedom*, 124.

¹⁸⁶ Weizenbaum, *Computer Power and Human Reason*, 118.

able for any lost, endangered, imaginary, nostalgic, novel, or speculative
Gemeinschaften.

Interlude

As shown in the previous chapter, free software is not so much of a revolutionary thing, which is to say it is not a paradigm shift in the way software is produced. Similarly, this seminal notion that software freedom is essentially the articulation of an opposition towards closed source and proprietary practices is only one side of the story. To be sure, it is not my intention to undermine the work of Stallman, but I do believe that the most interesting aspect of the free software story is that of the creation of a thorough techno-legal structure for virtual communities, that goes well beyond the question of online platforms as the term often implies. In that sense free software is the containment and protection of practices idealised by Stallman, they are emulations, because they enable genuine modes of organisation and production that are embellished by Stallman's own ethics and ideals, partly experienced and partly derived from the magical recovery¹ of the early computer programming communities, while being at the same time tightly contained in a construction

¹ In reference to John Clarke, "The Skinheads and the Magical Recovery of the Community," in *Resistance Through Rituals: Youth Subcultures in Post-War Britain*, ed. Stuart Hall and Tony Jefferson (1976; repr., London: Routledge, 2006).

made of software and legal code.

In the next chapter, Chapter 2, I will argue that the perception of free software as such a model, template even, is the reason it became widely adopted by groups whose interests could not be formulated and controlled within existing techno-legal frameworks. This is also why this process of diffusion quickly escaped the realm of software because what is being produced does not matter any more, as long as it can be expressed with the system definition-licenses inspired by free software. As a result the notion of culture itself will also become rationalised in the same techno-legal fashion. However, I will argue that what first appears to be an interesting model for pluralism in a system that mirrors the dynamics of liberal democracy, the broad diffusion of this system, will start to show its limits when its commonness is challenged by the conflict between the different ideologies that have appropriated the free software techno-legal methodology. In particular, I will explain that if such pluralism had been founded on a consensus about cultural freedom and openness, the fact that these were however interpreted differently meant that the free and open source family of things was closer to an *imagined community*² rather than a coherent whole, or single community, as Stallman believed so.³

To develop my argument I will first look at the early diffusion of the

² Benedict R O’G Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (1991; repr., London: Verso, 2006).

³ Ghosh and Glott, “Free/Libre and Open Source Software,” The Stallman-Ghosh-Glott mail exchange on the FLOSS survey: Two communities or two movements in one community?

free software model into non-software things, and how the process leads to a growing distance from matters that were so far specific to computational culture. I will frame this active diffusion and proliferation of new definitions and licenses as a positive sign of pluralistic activities, and make a connection with the concept of radical democracy.⁴ I will then discuss that even though the cultural diffusion of free software will eventually reach domains that seem unrelated, the nature of the template, most notably its origin in prototyping and engineering culture, will remain consistent and applied to every subject. Finally I will analyse the moment in which some of these definitions and licenses ended up more thoroughly categorised, filtered, aggregated and defined, and the consequence it has on pluralism and the wide diversity of ideologies that appropriated the free software template, more particularly looking at the field of open design and the makers movement as an illustration of my argument.

⁴ See Laclau and Mouffe, *Hegemony and Socialist Strategy*.

Chapter 2

In Search of Pluralism

2.1 Diffusion and Appropriation

The first attempts to apply the free software model into a non-software context, came naturally from fields where free software ideas had been circulated, namely computer science. One of the earliest example that I could find is the 1994 Free Music Philosophy (FMP), by musician and computational biologist Ram Samudrala, who then defined the project as following:

What is the Free Music Philosophy (FMP)?

It is an anarchistic grass-roots, but high tech, system of spreading music: the idea that creating, copying, and distributing music must be as unrestricted as breathing air, plucking a blade of grass, or basking in the rays of the sun.

What does it mean to use the term “Free Music”?

The idea is similar to the notion of Free Software, and like with Free Software, the word “free” refers to freedom, not price. Specifically,

Free Music means that any individual has the freedom of copying, distributing, and modifying music for personal, noncommercial purposes. Free Music does not mean that musicians cannot charge for records, tapes, CDs, or DATs.¹

As for the distribution terms, they are quite crude but partly mimic free software licensing, except for the commercial use:

Permission to copy, modify, and distribute the musical compositions and sound recordings on this album, provided this notice is included with every copy that is made, is given for noncommercial use. If you obtained this by making a copy, and if you find value in this music and wish to support it, please send a donation based on whatever you thought the music was worth to the address given on this notice.²

The other important example of such appropriation was with Michael Stutz, one of the first writers and journalists reporting on Linux and open source, who in the mid nineties published his entire website including his clip art gallery under the GPL,³ and was, also as early as 1994, the first to use the GPL outside the scope of software.⁴ He explained that anyone deserved the freedom provided by the copyleft license, and that it represented a “resource for all artists and scientists who work with digital information.”⁵ In his short 1997 electronic essay *Applying Copyleft To*

¹ Ram Samudrala, “The Free Music Philosophy,” 1994, <https://web.archive.org/web/19970101121210/http://www.ram.org/ramblings/philosophy/fmp.html>.

² Ibid.

³ Michael Stutz, “DESIGN SCIENCE LABS CLIP ART LIBRARY,” 1997, <https://web.archive.org/web/19970213052359/http://dsl.org/cal.html>.

⁴ Antoine Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?” (PhD thesis, Université Nice Sophia Antipolis. École Doctorale Lettres, Sciences Humaines et Sociales. Sciences de l’Information et de la Communication, 2011), 473.

⁵ Michael Stutz, “/Doc/Comp/Gnu/,” 1997, <https://web.archive.org/web/19970617151849/http://www.dsl.org/m/doc/comp/gnu/>.

Non-Software Information, he justified his choice by saying that “certain restrictions of copyright - such as distribution and modification - are not very useful to ‘cyberia,’ the ‘free, apolitical, democratic community’ that constitutes the internetworked digital world.”⁶ At the time he believed that the GPL provided the answer to the issue for software matters and noted that “it appears that the same License can be easily applied to non-software information.”⁷

But if the GPL seemed adequate at first, as the diffusion of free and open source software licensing progressed, the need for the licensing of other things than software became more prominent. So 1998 saw the birth of another effort to provide a more articulated licensing option for non-software works. In that year, with the help of Stallman and Raymond, David A. Wiley, who was at that time working on a doctoral degree in Instructional Psychology and Technology at the Brigham Young University, tweaked the GPL and released the *OpenContent License*. The incentive for Wiley to release this license stemmed from his personal desire to share his teaching material, so they can be reused by others, circulated for free, and also be properly attributed and responsibly modified.⁸ The idea to create a general license that made the bridge between the free software philosophy beyond software itself was a novelty, and was one step further from the first landmark established with the FMP terms

⁶ Michael Stutz, “Applying Copyleft to Non-Software Information,” 1997, <http://www.gnu.org/philosophy/nonsoftware-copyleft.en.html>.

⁷ Ibid.

⁸ Lev Grossman, “New Free License to Cover Content Online,” *Time*, 1998, <http://web.archive.org/web/20001010034324/http://www.time.com/time/digital/daily/0,2822,621,00.html>.

in 1994. Lev Grossman who interviewed Wiley for Time magazine concluded his column wondering whether or not free content, “open-source [sic]” novels and free concept albums would one day take over the world.

But Wiley’s effort were not isolated. In fact as early as 1998, each in their respective domains, artists, musicians, designers, activists, scientists, had started to write their own licenses, for works distributed most of the time on a border-less Internet, yet attached to localised concerns and jurisdictions. For instance the following licenses reflected on the ideas of freedom and openness within their own practice, often with a growing distance from the free and open source software context:

- the OpenContent License (1998);
- the Licence Publique Audiovisuelle (1998);
- the Licence Association des Bibliophiles Universels (1999);
- the Comprehensive Open Licence (1999);
- the Counter Copyright notice (1999);
- the Design Science License (1999);
- the Free Document Dissemination Licence (1999);
- the GNU Free Documentation License (1999);
- the IDGB Open Book Open Content License (1999);
- the Licence Publique Multimedia (1999);
- the Linux Documentation Project Copying License (1999);
- the Open Publication License (1999);
- the Open Directory License (1999);
- the Open Resources Magazine License (1999);
- the W3C Document Notice (1999);
- the Ethymonics Free Music Licence (2000);
- the Free Art License (2000);
- the Freedom CPU Charter (2000);
- the GNU Free Documentation License (2000);
- the Licence ludique générale (2000);
- the Licence pour Documents Libres (2000);
- the Licence Publique de Traduction (2000);
- the Open Game License (2000);
- the Trackers Public License (2000);
- the Common Documentation License (2001);
- the EFF Open Audio License (2001);

- the HyperNietzsche Licenses (2001);
- the Open Music Licenses (2001);
- the Simputer General Public License (2001);
- the Academic Free License (2002);
- the CopID notice (2002);
- the Mnémosyne Free Dissemination License (2002).⁹

The amount of novelty licenses created just within four years, shows the highly active cultural diffusion occurring at the time. Stutz, who defended the use of GPL for non-software, will also eventually abandon the emblematic FSF license and write his own Design and Science License in 1999.¹⁰ The peculiarity of all these endeavours, is in the fact that they are all driven by different understandings of what freedom and openness means in the context of culture and knowledge.¹¹ Even though it would be quite a daunting effort to precisely analyse each of these in order to understand these differences, in Chapter 3 I will take the 2000 Free Art License (FAL) as a case study, in order to show how the cultural depth and the ramification of the community template of free and open source software actually works when it is claimed by other groups, ideologies and practices. So essentially, all these licenses are efforts to claim a semantic territory, a particular definition of cultural freedom and the words that can be used to articulate it. Ultimately, this snowball effect demonstrates the victory of Stallman to transform how licensing is perceived:

⁹ For the full text of these licenses, as well as a short explanation about the selection, see Appendix: Selection of Proto-Free Culture Licenses.

¹⁰ See Michael Stutz, "Open Source Beyond Software," 2000, <https://web.archive.org/web/20000815061009/http://oreilly.linux.com/pub/a/linux/2000/08/01/LivingLinux.html>.

¹¹ Not to mention its commercial and non-commercial implication, which is another can of worms I will briefly open and then attempt to close in the second part of the thesis.

the inhibitory aspect of the license now becomes an expressive tool to empower and materialise various ideologies. As a result though, the sudden growth in cultural scope, urge the need to guide, make sense of, and help navigate within all these new free and open groups and efforts.¹²

As pointed out with early and later critiques of license proliferation,¹³ the noise created from all these subcultural groups is not necessarily a positive mechanism of semantic disorder.¹⁴ However, all these licenses become effectively new *language-games* with accidental *family resemblances*,¹⁵ and help enrich discussion around cultural freedom. Said differently, beyond the apparent common universality that seem to connect them under the umbrella of openness and freedom, they each have their distinctive features, as a result of adapting to their needs the free and source software template. So if such a pluralistic approach to cultural freedom and openness appears to mimic the dynamics of liberal democracy, its discursive mechanism as a whole does not belong however to the principle of aggregation, where voting is linked to free market economics by giving the ability to the individual to choose for societal matters,¹⁶ neither it fits with the principle of deliberation, that gives preference to

¹² For instance Lawrence Liang, *Guide to Open Content Licenses* (Rotterdam: Piet Zwart Institute, Institute for Postgraduate Studies; Research, Willem de Kooning Academy, 2005).

¹³ Laura Majerus (chair) and the members of the LP Committee, "Report of License Proliferation Committee," research report (Open Source Initiative, 2006), <https://web.archive.org/web/20070719020858/http://www.opensource.org/proliferation-report>.

¹⁴ Hebdige, *Subculture*, 90.

¹⁵ In reference to the concepts from Austrian-British philosopher Ludwig Wittgenstein. See Ludwig Wittgenstein, *Philosophical Investigations* (1953; repr., Oxford: Basil Blackwell, 1986).

¹⁶ Anthony Downs, *An Economic Theory of Democracy* (1957; repr., Boston: Addison Wesley, 2001); Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* (1950; repr., London: Routledge, 2005).

discussion and debate in the form of public discourse ethics.¹⁷

In fact, and I will return to this point several time throughout this thesis, this particular phenomena could be best explained under the model of radical democracy, coined by political theorists Ernesto Laclau and Chantal Mouffe,¹⁸ and more precisely the model of *agonistic pluralism*.¹⁹ By this, and rephrasing Mouffe's description in the context of this apparent balkanisation of licensing, I mean to say that through the lens of agonistic pluralism, the sudden proliferation of licenses is not a by-product of competition, but instead the emergence of identity politics within the not so diverse cultural context of free and open source communities. By rallying under several new licenses, these different groups have been able to cohabit, and as a whole, all these endeavours should therefore be understood as the interaction between several political adversaries, treating each other, and this is very important, as legitimate opponents on the common ground that is cultural liberty and equality, and yet disagreeing on the way to implement it.²⁰ What is more, and to be sure, such passionate disagreements cannot be resolved with deliberation and rationale discussion,²¹ and this is fine and indispensable, as according to this model, democratic systems depends on the multiplication of discourse, and the diversity of language-games and their matching organisations, collectives, institutions, which are illustrated in this sub-section

¹⁷ See Jürgen Habermas, *Between Facts and Norms: Contributions to a Discourse Theory of Law and Democracy* (Cambridge: MIT Press, 1996); John Rawls, *A Theory of Justice* (Cambridge: Harvard University Press, 1999).

¹⁸ Laclau and Mouffe, *Hegemony and Socialist Strategy*.

¹⁹ Mouffe, "For an Agonistic Model of Democracy (2000)."

²⁰ *Ibid.*, 203.

²¹ *Ibid.*, 203.

and later on in this thesis.

Under such a model, I want to stress that it becomes therefore questionable that critiques of license proliferation and incompatibility between these documents, are universally representative attempts to protect cultural freedom and openness as a whole. The same can be said more generally of the *copyright atomism* that results from the ever increasing proliferation, distribution, and fragmentation of copyright.²² Instead, these critiques should be best understood as the expression of threatened hegemonic forces.

2.2 Prototyping Free Culture

In 2002, an important change is about to happen. Even though both the impressive legal literacy acquired,²³ and the collective intelligence produced, by all the participants of the rapidly expanding field of all things free and open, has allowed for the writing of all sorts of licenses, the *real professionals* of the law are about to step into these communities of practices, thereby threatening not only the existence of such communities, but also the ability to establish common questions and reflect collectively about these.²⁴

²² See Molly Shaffer Van Houweling, "Author, Autonomy, and Atomism in Copyright Law," *Virginia Law Review* 96, no. 3 (2010).

²³ Coleman, "Code Is Speech," 433.

²⁴ Isabelle Stengers, *Au Temps Des Catastrophes: Résister À La Barbarie Qui Vient* (Paris: La Découverte, 2009), 119, p. 177.

The professional argument is that even though anyone is free to write their own license, it is a whole different story to make sure the license is actually a legally sound document, which could effectively be useful if ever challenged in relation to intellectual property laws. So in this logic and given the growing jungle of licenses, the documents that would come from the work and research of lawyers and law scholars should have in theory a better chance of receiving public attention. This is the claim and the bet taken in 2002 by the San Francisco based Creative Commons (CC) nonprofit organisation, which was started to provide a more generic approach to the issue of openness in culture. Unlike the free software model in which the GNU Manifesto, had set the ethical tone and direction for software freedoms and which eventually led to the creation of the GPL, CC further embraced the strategy of economics by providing, without substantial explanation, a collection of licenses to fit, according to them, every purpose. In regard to license proliferation to which such action clearly contributes, CC did not acknowledge any other effort but that of the FSF, and positioned itself as a complementary effort, not a competitive one, that would focus on scholarship, film, literature, music, photography, and other kinds of creative works,²⁵ basically all the domains in which free and open source software licenses, and derivatives, had been embraced since 1998.

There is of course a paradox in acknowledging on the one hand the pluralistic nature of licensing, and on the other hand ignoring four years of

²⁵ Creative Commons, "faq" 2002, <http://web.archive.org/web/20020518124323/http://www.creativecommons.org/faq/>.

the effective agonistic pluralism described earlier. As a result, the question of identifying and organising family resemblances across all these communities stopped being accidental, and became instead a necessary means of survival, for those who could not identify themselves with the aggregative model offered by CC. As a matter of fact, this meta discursivity operating on top of licenses, had already started in 2001 with the concept of Open Source Intelligence (OSI)—not to be misunderstood with the Open Source Initiative (OSI) mentioned previously—which connected the free and open source software collaborative framework in the broader context of net culture:

In the world of spies and spooks, Open Source Intelligence (OSI) signifies useful information gleaned from public sources, such as newspapers, phone books and price lists. We use the term differently. For us, OSI is the application of collaborative principles developed by the Open Source Software movement to the gathering and analysis of information. These principles include: peer review, reputation—rather than sanctions-based authority, the free sharing of products, and flexible levels of involvement and responsibility. [...] Projects like the Nettime e-mail list, Wikipedia and the NoLogo.org website each have distinct history that led them to develop different technical and social strategies, and to realize some or all of the open source collaborative principles.²⁶

The same year, the community behind the *Manifesto de Hipatia*, who would also go beyond the original scope of user freedom and cooperation to link the free software philosophy to social and political activism through the value of knowledge access:

²⁶ Felix Stalder and Jesse Hirsh, “Open Source Intelligence,” 2002, <https://web.archive.org/web/20021010023528/http://news.openflows.org/article.pl?sid=02/04/23/1518208>.

We propose the creation of a world-wide, popular, democratic organisation to promote the adoption of public policies combined with human and social behaviour that favour the free availability and sustainability of, and social access to, technology and knowledge; their use for the common good; and the viability of the economic model which creates them, in terms of the equality and inclusion of all human beings and all peoples of the world.²⁷

Eventually several initiatives offered their own proto-free culture definitions. For example, the 2003 “four kinds of free knowledge” by Spanish scholar Ismael Peña-López attempted to make a direct transposition between software freedom and knowledge:

- The freedom to use the knowledge, for any purpose (freedom 0).
- The freedom to study how the knowledge applies, and adapt it to your needs (freedom 1). Access to the source information is a precondition for this.
- The freedom to redistribute knowledge so you can help your neighbour (freedom 2).
- The freedom to improve the knowledge, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source information is a precondition for this.²⁸

Another effort focussed instead on the idea of openness: the Open Knowledge Definition (OKD). The later is one of the projects of the Open Knowledge Foundation (OKF), a nonprofit organisation founded in 2004 by Rufus Pollock, Martin Keegan, and Jo Walsh. It was created to promote “the openness of knowledge in all its forms, in the belief that greater ac-

²⁷ Mario Luiz Teza Teza et al., “Manifiesto de Hipatia,” 2001, http://www.hipatia.net/index.php?id=manifiesto_es.

²⁸ Ismael Peña-López, “The Four Kinds of Freedom of Free Knowledge,” 2003, <http://ictlogy.net/20031030-the-four-kinds-of-freedom-of-free-knowledge/>.

cess to information will have far-reaching social and economic benefits.”²⁹ Their approach was originally based on what they call *the three meanings of open*: legally open, socially open, and technologically open. Unlike other initiatives that proudly exhibited their wishful affiliation with the FSF, the OKF instead affiliated itself with the OSI and the Open Access movement. And, just like the other groups critical of proliferation, it is on a mission to set the record straight when it comes to openness:

The concept of openness has already started to spread rapidly beyond its original roots in academia and software. We already have ‘open access’ journals, open genetics, open geodata, open content etc. As the concept spreads so we are seeing a proliferation of licenses and a potential blurring of what is open and what is not.

In such circumstances it is important to preserve compatibility, guard against dilution of the concept, and provide a common thread to this multitude of activities across a variety of disciplines. The definition, by providing clear set of criteria for openness, is an essential tool in achieving these ends.³⁰

As might be expected, the OKF itself is thus directly derived from Perens’ Open Source definition. The first version, v0.1, was drafted in August 2005 and v1.0 was released in July 2006. For the OKF to decide if a work is open or not, the latter must respect the following definition:

1. Access
2. Redistribution
3. Re-Use
4. Absence of Technological Restriction

²⁹ Open Knowledge Foundation, “Home Page,” 2005, <http://web.archive.org/web/20050209143117/http://www.openknowledgefoundation.org/>.

³⁰ Open Knowledge Foundation, “About - Open Knowledge Definition,” 2006, <http://web.archive.org/web/20060819200710/http://okd.okfn.org/about>.

5. Attribution
6. Integrity
7. No Discrimination Against Persons or Groups
8. No Discrimination Against Fields of Endeavor
9. Distribution of License
10. License Must Not Be Specific to a Package
11. License Must Not Restrict the Distribution of Other Works³¹

At the time, the OKF definition, or OKD, “sets forth principles by which to judge whether a knowledge license is open” and “does not seek to provide or recommend specific licenses.”³² However they did mention that their wiki contained a license survey, and before the end of 2006 a new entry was added to the project website: “Conformant Licenses.”³³

Later on, in 2007, another adaptation of software freedom, the Free/Libre Knowledge definition, is released by the Free Knowledge Foundation (FKF), yet another group that clearly stands on a different ground from the one claimed by the OKF.

- (0) use the work for any purpose
- (1) study its mechanisms, to be able to modify and adapt it to their own needs
- (2) make and distribute copies, in whole or in part
- (3) enhance and/or extend the work and share the result.³⁴

³¹ Open Knowledge Foundation, “OpenKnowledgeDefinition - Open Knowledge Foundation Wiki,” 2006, <http://web.archive.org/web/20060517215509/http://okfn.org/wiki/OpenKnowledgeDefinition>.

³² Open Knowledge Foundation, “The Open Knowledge Foundation - Open Knowledge Definition - Home” (Open Knowledge Foundation, 2006), <http://web.archive.org/web/20060721021510/http://www.openknowledgefoundation.org/okd/>.

³³ In 2006, the licenses that could qualify as Open Knowledge licenses were: the GNU Free Documentation License, the Free Art License, the Creative Commons Attribution License, the Creative Commons Attribution Share-Alike and the Design Science License.

³⁴ Free Knowledge Foundation, “Libre Declaration,” 2007, <http://web.archive.org/web/20081120001221/http://www.libre.org/communities/philosophy/libre-declaration>.

Also worth mentioning was the definition from Willey in 2007, who had previously authored the OpenContent license. In this attempt, Wiley made a stronger distinction between rework and remix. It is also a twist on the four software freedoms, and in this case it has been renamed to the “4Rs Framework:”

Reuse – Use the work verbatim, just exactly as you found it
Revise – Alter or transform the work so that it better meets your needs
Remix – Combine the (verbatim or altered) work with other works to better meet your needs
Redistribute – Share the verbatim work, the reworked work, or the remixed work with others³⁵

Next to the multiplication of definitions, the cultural diffusion discussed in this section shows that different readings of the free software template are possible. An important point of divergence, and close to the spirit of the *Manifesto de Hipatia* and the Open Source Intelligence concept, is to interpret the free software template as a model for large-scale productive social relations where generous collaboration can take place,³⁶ and not just a more effective and liberal form of efficient production and sharing. As early as 2002, projects such as the Brazilian network *MetaReciclagem* put forth the materialisation of critical appropriation of technologies for social change³⁷ in which DIY, copyleft, and consensus-based decision-making, helped approach free

³⁵ David Willey, “Open Education License Draft,” 2007, <http://opencontent.org/blog/archives/355>.

³⁶ Fabianne Balvedi, “Free Studios,” in *FLOSS+Art*, ed. Aymeric Mansoux and Marloes de Valk (Poitiers: GOTO10, 2008).

³⁷ Felipe Fonseca, “Gambiarra: Repair Culture,” 2015, <https://efeefe-arquivo.github.io/livro/repair-culture/gambiarra/>.

and open source software as a “cultural and critical take on the pervasiveness of relationships mediated only by economic values.”³⁸ Similarly, this social dimension was also a deciding element in the creation of the *Estúdio Livre* project in 2005, a collaborative Brazilian Portuguese speaking network with a focus on the “breaking down of barriers between producer and consumer as an example of collective intelligence as well as of changes in aesthetic, economic and social paradigms in contemporary society.”³⁹ Generally speaking, this proto-free culture era, saw the emergence of what Chilean sound artist Alejandra Maria Perez Nuñez called the *southern time* of free and open source software.⁴⁰ Inspired by the *Rhythmanalysis* collection of essays from French Marxist philosopher Henri Lefebvre,⁴¹ she expressed the role of free and open source software in forging a culture that goes beyond software and exist outside of the “economical time of unlimited profit”;⁴² where new ways of learning, creating, and participating, offer an alternative to a dominant productive model of time. To be sure, and as noted by the artist, this southern time was “not so much about geographical locations as about frames of mind [...] that determines what is conceived as south,”⁴³ and this approach to free culture was thereby also shared in European hacklabs, art collectives and argued critically in the

³⁸ Ibid.

³⁹ Balvedi, “Free Studios,” 263.

⁴⁰ Alejandra Maria Perez Nuñez, “FLOSS, It’s Relation to Southern Time,” in *FLOSS+Art*, ed. Aymeric Mansoux and Marloes de Valk (Poitiers: GOTO10, 2008).

⁴¹ Henri Lefebvre, *Rhythmanalysis: Space, Time and Everyday Life* (1992; repr., London: Continuum, 2004).

⁴² Nuñez, “FLOSS, It’s Relation to Southern Time,” 281.

⁴³ Ibid., 281.

context of network politics.⁴⁴ Towards the end of the noughties, free culture was therefore more than a chaotic collection of definitions and licenses, it was also the concrete manifestation of different ideas about society, structured and grounded by the free software template.

2.3 Defining Free Culture and the Decay of Pluralism

Today's most recognised definition is not to be found in any of the efforts listed in the previous section. It is in fact the last one released in this stream of prototyping: the 2008 definition for *Free Cultural Works*, but which nonetheless found its infancy in discussions started three years earlier. Indeed back in 2005, yet before the official release of the OKD, and in this context of growing concerns about the lack of uniformity for the freedom of non-software things, free software activist Benjamin Mako Hill started to openly criticise the definition-free approach offered by the “hodge-podge of pick-and-choose” features of CC licensing, indirectly addressing the limits of the undefined forms of engagement found in CC co-founder Lawrence Lessig's 2004 book, *Free Culture*, that I mentioned in the introduction of this thesis.

[D]espite CC's stated desire to learn from and build upon the example of the free software movement, CC sets no defined limits and promises no freedoms, no rights, and no fixed qualities. Free software's success is built upon an ethical position. CC sets no such

⁴⁴ Fonseca, “Gambiarra.”

standard..⁴⁵

As a self-fulfilling prophecy, this intention is carried on in a 2006 announcement from German freelance journalist Erik Möller and Hill himself, to work on such a missing definition:

In the free software world, the two primary definitions - the Free Software Definition and the Open Source Definition - are both fairly clear about what uses must be allowed. Free software can be freely copied, modified, modified and copied, sold, taken apart and put back together. However, no similar standard exists in the sphere of free content and free expressions.

We believe that the highest standard of freedom should be sought for as many works as possible. And we seek to define this standard of freedom clearly. We call this definition the “Free Content and Expression Definition”, and we call works which are covered by this definition “free content” or “free expressions.”⁴⁶

This definition is written by several authors⁴⁷ using a wiki,⁴⁸ a MediaWiki installation to be precise, from the Wikipedia fame, and a powerful symbol of online collaborative writing dear to free and open source software communities.⁴⁹ In particular, the deliberative process follows a system put in place by Möller, and relies on a model loosely inspired from software production where a development branch co-exists with

⁴⁵ Benjamin Mako Hill, “Towards a Standard of Freedom: Creative Commons and the Free Software Movement,” 2005, http://mako.cc/writing/toward_a_standard_of_freedom.html.

⁴⁶ Erik Möller and Benjamin Mako Hill, “Announcement,” 2006, <http://freedomdefined.org/Announcement>.

⁴⁷ Erik Möller, “Authoring Process,” 2006, http://freedomdefined.org/index.php?title=Authoring_process&oldid=1303.

⁴⁸ The OKD was also drafted on a wiki.

⁴⁹ See Joseph Michael Reagle, *Good Faith Collaboration: The Culture of Wikipedia* (Cambridge: MIT Press, 2010).

a released branch. An invitation-only moderating group monitors the changes made by the wiki users on a page where an *unstable* version of the definition resides, and when consensus is felt to be reached on a point, the particular change is applied at the discretion of the moderators to the stable version of the definition.⁵⁰ As the name already implies, this definition is a transposition of the free software definition. According to their Frequently Asked Questions (FAQ), the definition applies to “works of the human mind (and craft)”:

- the freedom to use the work and enjoy the benefits of using it
- the freedom to study the work and to apply knowledge acquired from it
- the freedom to make and redistribute copies, in whole or in part, of the information or expression
- the freedom to make changes and improvements, and to distribute derivative works⁵¹

Similar to the OKD, the free culture definition is introduced as being different from a license.⁵² Instead it is presented as “a list of conditions under which a work must be available in order to be considered ‘free’ [and] a way to classify existing licenses.”⁵³ Next to distinguish itself from licenses, the project also distances itself from the concept of manifesto, a form they qualify as “vague, broad, and very encompassing”. The project aimed instead to provide a fixed reference point to free culture, one that

⁵⁰ For the latest list of moderators, see Erik Möller, Benjamin Mako Hill, Geraki, Spiritia, Mormegil and Koavf, “Moderators,” 2015, <http://freedomdefined.org/Moderators>.

⁵¹ The Definition of Free Cultural Works project, “Definition of Free Cultural Works 1.0,” 2007, <http://freedomdefined.org/index.php?title=Definition&oldid=4582>.

⁵² Erik Möller, “FAQ,” 2006, <http://freedomdefined.org/index.php?title=FAQ&oldid=1425>.

⁵³ *Ibid.*

could not be interpreted too freely, one that had to be restricted in order to build a common language and set a landmark, yet not as formal as legal code, hence the project name behind the definition: *freedom defined*. And just like the OKD, the free cultural works definition had no specific licenses to offer, but instead pointed to several already existing licenses that allowed the application of the four freedoms to the licensed work or expression. Similar to the licenses filtered by the FSF and the OSI, the overlap between freedom defined approved and OKF approved licenses is quite spectacular.⁵⁴ This should not come as a surprise. Just as a piece of GPL'ed source code can be independently articulated as either free or open source software, the *same* double inflection is carried with free culture and open knowledge. Hill,⁵⁵ who did not know about the OKD when he started to work with Möller, told me that there was some brief discussions about merging the projects, but there was a few barriers to do that. First, the specific naming and content of the free culture definition had been extensively discussed with Stallman and the FSF, Lessig and CC, and Wikimedia, to make sure they would endorse the project, and if they had called it *open knowledge definition* Hill believed that would have most likely lost some, probably all, of their support. Second, Between the two projects, there were too much structural and scope differences, with the OKF lacking in particular a model for being responsive to a broader

⁵⁴ In 2006, the licenses that were considered fitting the creation of free cultural works are: Against DRM, Creative Commons Attribution, Creative Commons Attribution ShareAlike, Design Science License, Free Art License, FreeBSD Documentation License, GNU Free Documentation License, GNU General Public License, MIT License. Of the seven Creative Commons licenses at the time, only two qualified as free cultural licenses.

⁵⁵ Email to author, October 9, 2015.

community interested in free open cultural concerns.

I previously argued that the state of free culture in its early undefined and unnamed days, was neither of aggregative, nor deliberative nature, but had instead the potential to illustrate a successful model of agonistic pluralism and radical democracy in which conflict is not seen negatively, and where consensus is not blindly pursued. Borrowing the words from law scholar Lawrence Liang, the licenses of the proto-free culture era were more than legal documents, they were also “speech act[s].”⁵⁶ However, this situation changed completely with the rise of CC and the free culture definition, which suddenly permitted the two classical liberal democratic models to become once again dominant. Indeed, CC approached the licensing from an economic perspective, proposing their own broad free market of different in-house *professional* licenses from which copyright owners can choose, thereby building up some commons in an aggregative way where voting and Darwinist survival mechanism are put forth. At the opposite, the free culture definition built upon the meritocratic position of its initiators and experts turned moderators, to create a sort of Habermassian deliberative open platform for the public to contribute, and eventually establish a list of licenses the selection of which is based on ethical concerns. But in *both* cases, the notion of consensus that was not a primary concern in the proto free culture era, now becomes a tool for, respectively, an economic reform for immaterial property on the one hand, and on the other hand a contribution to the democratic narrative of the multitude, in which *the common* is constructed by

⁵⁶ Liang, *Guide to Open Content Licenses V1.2*, 57.

spreading out singularities and where conflict is believed to become increasingly unnatural.⁵⁷ This process came at a cost however, which is the exclusion of all the groups the work of which did not match or did not matter for these federative platforms, as well as the disempowering of practicing communities, now guided by experts from the techno-legal field.

2.4 The Political Denial of Open Everything

Free software movement was started in a capitalist society and has always existed in a capitalist society, there is no incompatibility between free software and capitalism. [...] We do not need to get rid of capitalism. Free software combines capitalist ideas, and socialist ideas, and anarchist ideas. It does not fit into any of those camps.⁵⁸

It should become clear by now that free and open source software movements and initiatives, as well as the free culture phenomenon as a whole, are symptomatic of contemporary politics in which the ideas of cultural freedom and openness are stretched between on the one hand the post-political need to embrace a sort of consensus driven liberal democracy,⁵⁹ and on the other hand the diverging language games and family

⁵⁷ Michael Hardt and Antonio Negri, *Multitude : War and Democracy in the Age of Empire* (New York: Penguin Books, 2005).

⁵⁸ RT, *Richard Stallman: We're Heading for a Total Disaster*, Online video (San Bruno: YouTube, 2012), <https://www.youtube.com/watch?v=uFMMXRoSxnA>.

⁵⁹ Which manifests itself with the aggregation of all these licenses and their respective communities under diverse acronyms, such as Free/Libre and Open Source Software (FLOSS), see Ghosh and Glott, "Free/Libre and Open Source Software.", as well as labels and novel organisations related to all things open.

resemblances of the groups which constitute these movements.⁶⁰ It is this particular stretch that makes me wonder how to best approach the questions of commons and common ground, which has been made implicit or explicit in all these projects. The point that I want to investigate here is the consequence of a situation in which local disconnected singularities claim, or pretend, or assume, or believe to belong to the same universality. In particular do these efforts create a common ground because they are perceived to be able to fit within a universal consensus, or do they generate series of commons because they can be appropriated for radically plural purposes? Either way, the question of the political cannot be easily dismissed, because it is the fundamental basis to articulate such differences. Unlike the political agnosticism noted by American anthropologist Gabriella Coleman, to refer to the political denial that is both informed and reinforced by the cultural liberalism and the technological pragmatism of the free and open source software history,⁶¹ I believe it is essential to acknowledge the direct political dimension of free and open source things, and not fall into the trap of seeing them as operating at a different level, or similarly, disconnected from passionate irrational motives. Free and open source software, and hacking in general, *is* political.⁶² Sometimes the apolitical, or neutrality illusion is made stronger by the groups themselves. In this case any discussion about the context of

⁶⁰ Which are manifestation of all sorts of ideologies and attempts to contribute to a certain social order, with some of these visions sometimes compatible, sometimes not.

⁶¹ Gabriella Coleman, "The Political Agnosticism of Free and Open Source Software and the Inadvertent Politics of Contrast," *Anthropological Quarterly* 77, no. 3 (2004).

⁶² Johan Söderberg, "Copyleft Vs. Copyright: A Marxist Critique," *First Monday* 7, no. 3 (2002), <http://firstmonday.org/article/view/938/860#s13>.

such free and open things reinforces the idea that the political dimension is unproductive noise. For instance, in software developer mailing lists and forums, the term *semantics* is often used in a derogative way to describe any potentially conflictual discussion, that is not articulated in a purely techno-rational fashion. Similarly, while Raymond disagrees with Stallman's tactics and rhetoric of free software, their opposition meets up again in their extreme unclear positions, with Stallman unable to articulate a meaningful political interpretation for software freedom, and Raymond's desire to simplify the free and open source software discourse to a neutral technological debate⁶³ and yet is hardly able to disguise his libertarian agenda.⁶⁴

To articulate my argument, I borrow from Mouffe, the definitions and distinctions made by her between *politics* and *the political*,⁶⁵ and I will argue that the denial and the refusal to consider the politics within the different groups that constitute the ever expanding universe of free and open things, has the tragic consequence of denying access to the political antagonism that, and still following Mouffe, is the essential constituent of democracy. In particular there is an indispensable difference to be made between a model of pluralism where a common bond exists, yet in which conflictual collective identities can construct themselves by spe-

⁶³ See Eric S. Raymond, "Shut up and Show Them the Code," 1999, <http://www.catb.org/esr/writings/shut-up-and-show-them.html>.

⁶⁴ Raymond, "A Response to Nikolai Bezroukov."

⁶⁵ Mouffe makes the distinction as follow: *the political* refers to the constitutive antagonist magnitude of human societies, while *politics* are the set of practices and institutions through which human order and organisation are founded in the context of conflictuality provided by *the political*. Chantal Mouffe, *On the Political* (London: Routledge, 2005), 9.

cific differentiation—which was the case with the messy unstructured but very rich proto free culture—and a model where pluralism is consensually simulated because the common bond chosen is a one-size-fit-all collective identity—which is the case for all the different efforts made to define free cultural practices, to aggregate, and to normalise them.⁶⁶ The problem with the second approach is two fold: first, it can only favour one type of hegemony which will contribute to the shaping of such rationalisation and where pluralism is just another word for competition; and second, which is also a consequence of the first point, it makes vulnerable, fragile, and open to exploitation the cultural diversity and social practices that end up unknowingly mixed in the deceptive cultural blender of consensus.

To illustrate my argument I will now take a look at open design. I chose this field precisely to give an example of how the notion of consensus in free culture can backfire, and how the idea of a common public space and language can prevent the we/they construction, which in turn leads to deception for the actors of the less represented ideologies.

So what is open design precisely? In fact, it is precisely vague. Open design is a term generally accepted to describe the open development of tangible objects.⁶⁷ In the free culture family tree, it is one of its latest and distant branches. It is a particularly interesting one for my demonstration

⁶⁶ To be sure, the pluralism offered by CC also falls into this category as its palette of licenses is nothing more but an ersatz of diversity.

⁶⁷ Kerstin Balka, Christina Raasch, and Cornelius Herstatt, “Open Source Beyond Software: An Empirical Investigation of the Open Design Phenomenon,” *R&D Management Conference*, 2009, 14–16.

because of the overlaps it has with several other family trees not necessarily linked to free culture itself. First of all, as the name might suggest, open design is a concept derived from free and open source software practices, in the sense that it is an attempt to assimilate and integrate some aspects of these practices, not for the making of digital things but for the production of physical goods. Next to that, open design is also connected to a long history of participatory design practices, and is therefore influenced by broad research and applications around users and communities in the fields of urban, architecture, product, and graphic design.⁶⁸ This multi-disciplinary assemblage has in fact been instrumental in allowing the come-back of crafting and tinkering in art and design, via most notably the use of digital fabrication and rapid prototyping workshops, most commonly branded under the name FabLab,⁶⁹ as well as allowing the co-habitation of concepts such user empowerment and entrepreneurship, which are both mixed under the so-called maker movement,⁷⁰ but also connect back to the seventies Do It Yourself (DIY) scene.⁷¹

⁶⁸ In that sense, from the viewpoint of participatory design, free and open source software is not the ultimate form of collaboration, but one of many different types of processes and procedures that can be deployed for designing things.

⁶⁹ Julia Walter-Herrmann and Corinne Büching, *FabLab: Of Machines, Makers and Inventors* (Bielefeld: Transcript, 2013).

⁷⁰ Chris Anderson, *Makers: The New Industrial Revolution* (New York: Crown Business, 2012).

⁷¹ This is particularly true for the countercultural dimension of DIY. For instance there is an interesting connection between the “Free Furniture” design ideas from the 1971 *Steal this Book* work by American political and social activist Abbie Hoffman, and the “free (as in freedom)” 2012 *uH bench* open source public bench by Belgian designer Julien Deswaef, developed in the context of “urban hacking” and the reclaiming of public space. While each of these approaches deal with the notion of freedom differently, the overlap in methods and activist intention is striking and cannot be dismissed as coincidental. See Abbie Hoffman, *Steal This Book* (New York: Pirate Editions, 1971), 23–25. and see Julien Deswaef, “UH Bench - Open Source Public Bench,” 2012, <http://xuv.be/uH-bench-open-source-public-bench.html>.

As a consequence, open design ends up overlapping with all sorts of social, autonomous, and commercial practices. Indeed, the principle of designing and co-creating things that can be freely digitally distributed on online platforms and networks, then improved or modified by others, and eventually made tangible by their quick making with hobbyist and semi-industrial machinery, can give the idea that it can be applied for a wide range of applications: its modularity and fast deployment is ideal for strategic humanist projects and interventions; the making of unique tools and technical methodologies close to the ethos of manual labour is relevant for design practices in line with the Arts and Crafts movement but also meaningful for designers in search of novel forms of production; and of course the idea of a network of small generic manufacturing units has a bearing with businesses relying on prosumerism. It should not take long to realise that to be able to articulate such differences and approaches, a whole new subset of terms, definitions and licenses will be needed. While it is not within the scope of this thesis to look into this aspect specifically, I will mention that it is very much like zooming into a fractal set, because there is virtually no difference between the current state of open design where there is no clear consensus about a specific definition, and the state of proto free culture some years ago when several visions co-existed. At the time of writing this text, open design is represented by an assortment of definitions, scopes, perspectives, and of course several new licenses to implement these definitions,⁷² as well as

⁷² See Open Source Hardware Association, “Brief History of Open Source Hardware Organizations and Definitions,” 2013, <http://www.oshwa.org/research/brief-history-of-open-source-hardware-organizations-and-definitions/>.

taking into account the physical dimension of some of these designs.⁷³

Practically speaking, nobody knows at this point, or known since its infancy, if open design will in the end manage to converge towards a shared model of production, or if it will instead diverge into “a plethora of different models that embrace various aspects of commons-based peer production, with users switching between different models as appropriate.”⁷⁴ Meanwhile, the main voices from the free and open source communities are not quite sure how to articulate their understanding of these recent transformations. Even though Stallman would eventually reconsider⁷⁵ his previous discouraging views⁷⁶ on the validity of free hardware, it seems that these questions are out of the FSF scope which tends so far to limit itself to only recommending hardware that does not use one bit of non-free software with no concern about its means of production;⁷⁷ similarly, the OSI does not review any licenses specific to open source hardware design, making room in practice for the emergence and competition of new institutions and organisation more apt to deal with the issue.⁷⁸ But if open design, as in the era of proto-free culture, is currently

⁷³ Most notably, the notion of free and open source hardware has opened several cans of worms given the need to take more carefully into account the distinction between copyright and patent laws. See Wade D. Peterson, “The Creation of Interoperable Integrated Circuits Using Clean Room Design Practice,” research report (Silicore Corporation, 2008)

⁷⁴ Peter Troxler, “Libraries of the Peer Production Era,” in *Open Design Now*, ed. Lucas Evers Bas van Abel Roel Klaassen and Peter Troxler (Amsterdam: BIS publishers, 2011).

⁷⁵ Richard M. Stallman, “Why We Need Free Digital Hardware Designs,” *Wired*, 2015, <https://www.wired.com/2015/03/need-free-digital-hardware-designs/>.

⁷⁶ Richard M. Stallman, “On ‘Free Hardware’,” *Linux Today*, 1999, <http://www.linuxtoday.com/infrastructure/1999062200505NWLf>.

⁷⁷ Joshua Gay, “Respects Your Freedom Hardware Certification Requirements,” 2012, <https://www.fsf.org/resources/hw/endorsement/criteria>.

⁷⁸ See Open Source Hardware Association, “Brief History of Open Source Hardware

showing some healthy signs of pluralism from the outside, it is not by design, but as with free culture, it is the result of the assumption that everyone is heading towards the same goal. Unfortunately in recent years some cracks in the wall have started to appear, which highlight the limits of unspoken consensual definitions in these groups. This is peculiarly noticeable with 3D printing, which has become emblematic of the open design versatility, and the ultimate mascot of the maker movement.

2.5 The Liberal Democratic Industries of Freedom and Openness

3D printing is in fact modern alchemy. Of course, it does not focus on the transmutation of common metals into gold. Instead, it deals with the transmutation of digital information into tangible objects. An interesting aspect of this process is the transmutation of the alchemists themselves. This analogy is not innocent. Swiss psychiatrist Carl Gustav Jung used alchemy to exemplify the process of individuation of the alchemist, a process of psychological development towards the Self.⁷⁹ 3D printing operates similarly, and its impact goes well beyond the local production of objects pulled from a recombining library of digital models. In fact, drawn into the symbolism of direct-digital manufacturing, big data, the Internet, and just-in-time practices, with 3D printing, open designers are

Organizations and Definitions.”

⁷⁹ William McGuire, Gerhard Adler, Herbert Read and Michael Fordham, ed., *Collected Works of C.G. Jung, Volume 12: Psychology and Alchemy* (1953; repr., Princeton: Princeton University Press, 2014).

being transmuted into the true replicable yet indefinitely customised Self: the co-creating Tofflerian prosumer.⁸⁰ With this remark, I make a connection with the individuation of the programmer and their relationship with source code as psychopomp, discussed in Chapter 1. On a more general view, French philosopher Bernard Stiegler also saw in free software a process of individuation. For Stiegler, it is more particularly defined as the process that substitutes the duality of consumer/producer with an infrastructure made of active contributors, and according to him this individuation permits the transformation and the questioning of the self, as well as enabling the sharing and responsibility of what is made.⁸¹ While I believe that the exact same principles of individuation can be applied to open designers and 3D printing, in both cases it should not be treated without its existentialist counterpart which is the question of authenticity within open design. Said differently, what happens to this very individuation when it is faced with inconspicuous deceptive mechanisms?

When makers, fabbers, and open designers start to use 3D printers, the technology is not new.⁸² What is novel however is accessibility to the technology with simpler, cheaper components, and the recursive consequences of using GPL licensing for these: this is the story of the RepRap, a machine that should eventually be able to print itself entirely. The consequences of such a, still theoretical, economical fork bomb are multiple,

⁸⁰ In reference to Alvin Toffler, *The Third Wave* (1980; repr., New York: Bantam Books, 1981).

⁸¹ Quentin Noirfalisse, “Le Logiciel Libre Peut Redonner Sens à Nos Vies,” *Le Soir*, 2011, 18.

⁸² For a brief historical overview, see Chee Kai Chua and Kah Fai Leong, *3D Printing and Additive Manufacturing : Principles and Applications* (New Jersey: World Scientific, 2015), 1.1 Development of AM.

but most importantly according to the RepRap project inventor, British engineer and mathematician Adrian Bowyer, such a replicating manufacturing unit could “allow the world’s poorest people easily to put a foot on the first rung of the manufacturing ladder that has made the rest of us rich,”⁸³ a comment that is symptomatic of the delusional enthusiasm that often accompanies the arrival of a new technology.⁸⁴ Even if in the following years Bowyer would significantly tone down his moral and political motives—with the adoption of the pragmatic rationalism from the open source narrative and by putting upfront the notion of evolutionary game theory as the common ground for those wishing to contribute to the project⁸⁵—the subtext of the project and its early introduction as an apparatus that would bring down global capitalism,⁸⁶ made it popular in circles where free culture could not be decoupled from social concerns,⁸⁷ and those for who free and open source technologies, and their legal framework, are unconditionally linked to the shaping of a better society.⁸⁸

But of course, and linking back to the many roots of the open design

⁸³ Matt Mason, *The Pirate’s Dilemma : How Youth Culture Is Reinventing Capitalism* (New York: Free Press, 2008), 30.

⁸⁴ Langdon Winner, “Sow’s Ears from Silk Purses: The Strange Alchemy of Technological Visionaries,” in *Technological Visions: The Hopes and Fears That Shape New Technologies*, ed. Marita Sturken, Douglas Thomas, and Sandra Ball-Rokeach (Philadelphia: Temple University Press, 2004).

⁸⁵ Adrian Bowyer, “[Reprap-Dev-Policy] Reprap and Open Source,” 2011, <https://web.archive.org/web/20121103025921/http://lists.reprap.org/pipermail/reprap-dev-policy/2011-February/000001.html>.

⁸⁶ James Randerson, “Put Your Feet up, Santa, the Christmas Machine Has Arrived,” *The Guardian*, 2006, <https://www.theguardian.com/science/2006/nov/25/frontpagenews.christmas2006>.

⁸⁷ As seen in a previous section.

⁸⁸ See Paul Mason, *Postcapitalism : A Guide to Our Future* (New York: Farrar, Straus; Giroux, 2015), Chapter 5, Chapter 10.

field, such an invention also resonated strongly for those who interpreted openness as yet another tool for capitalist manoeuvres. Even though initially started by academic groups of users-developers, it soon moved to a mix of users from different backgrounds, as well as paid and unpaid developers. The RepRap project also helped to create a distributed and networked assembly line of open source products sold by a few for-profit companies. While the anti-global capitalist tone of the early days of the project were facing the reality of sustainability for its most involved participants, it also became an open door for exploitative strategies that did not give anything back to the RepRap community.

In particular this can be seen in the way a company such as MakerBot Industries, used the community and the research on the RepRap project, to develop and refine a series of products while accumulating experience and customer feedback in the process. As I will further develop in Part 2 of the dissertation, from a licensing perspective there is absolutely nothing wrong in deriving a commercial product here, and in that sense MakerBot Industries was no different from any other parts of the commercial open source hardware ecosystem that had formed around the RepRap. However in this case only the first product from this company was made open source. Starting in 2012, the following versions were closed source. Alongside this, and despite their bad reputation in free and open source circles⁸⁹ some patents were also filled by MakerBot Industries⁹⁰ who had coincidentally received venture capital a few months

⁸⁹ Luca Lucarini, *Patent Absurdity: How Software Patents Broke the System*, Film (Boston: Free Software Foundation, 2010).

⁹⁰ For a list of all patents from Makerbot Industries, 53 at time of writing, see Google

before the release of their closed source product.⁹¹ The immediate result is not an economical fork bomb, but a violent blow to the community, with some of the smaller companies and freelancers deeply involved with the idea of open source hardware describing “RepRap and especially 3D printing [...] now full of bullshit.”⁹² The same sentiments came from one of the three MakerBot Industries founders who was, according to him, forced out around the time of this new product release, and who described the “move to closed source as the ultimate betrayal” with the company adopting “a load of corporate double-speak bullshit.”⁹³

Next to this, other wall fissures in the open design world appeared during the rest of the year on the Thingiverse website, the leading online platform owned by MakerBot Industries where open source hardware designs can be shared under GPL and CC licenses. Two incidents in particular are relevant, and both originate from changes in the terms of service (TOS) of the platform. While Thingiverse was initially relatively illustrative of the messy pluralistic nature of open design, where all sorts of things could be uploaded and licensed with an arbitrary collection of free and non-free licenses, two decisions were made that would reduce this pluralism to a narrower subset aligned with the ethical and economical concerns of the company running the site.

Inc., “Google Patents Search Results for Makerbot Industries,” 2017, <https://patents.google.com/?assignee=MakerBot+Industries&num=100>.

⁹¹ Bre Pettis, “All-Star Lineup Invests in Makerbot,” 2011, <https://www.makerbot.com/media-center/2011/08/23/all-star-lineup-invests-in-makerbot>.

⁹² Josef Průša, “Open Hardware Meaning,” 2012, [\url{http://josefprusa.cz/open-hardware-meaning/}](http://josefprusa.cz/open-hardware-meaning/).

⁹³ Zachary Smith, “MakerBot Vs. Open Source – a Founder Perspective,” 2012, <http://www.hoektronics.com/2012/09/21/makerbot-and-open-source-a-founder-perspective/>.

The first decision was the purging of gun parts designs because the company's "focus is to empower the creative process and make things for good". But this decision eventually led to the creation of the DEFCAD project in 2012, an open source search engine for 3D models of all sorts and purposes, without any restriction. The project initiated by American free-market anarchist and crypto-anarchist Cody Wilson, is part of the larger agenda of the Defense Distributed⁹⁴ online organisation he founded, and focussed on the development of 3D printed weapons accessible to anyone. This particular approach to openness which can be understood from the perspective of libertarianism, avoids the smokescreen of ethical debate and directly responds to disenchantment with politics. It is made clear on the DEFCAD website with the following headlines the day of its launch: "Google can't, MakerBot won't, Politicians say don't, We the People, we will".⁹⁵

The second incident is not of ethical nature but has to do with the economic dimension of open design. So far in this thesis I have presented licenses as documents that can be used by an intellectual property owner to form novel ways of distribution and transformations while still, for the most part, relying on existing copyright laws. However, these documents do not exclude each others. I will come back to the issue of dual-, triple-, and n-, licensing in the next chapters, but for now I will simply say that the copyright owner is free to apply, or agree to apply, any and all licenses

⁹⁴ Defense Distributed, "DEFCAD," 2012, <https://web.archive.org/web/20121224010445/http://defcad.org/>.

⁹⁵ Defense Distributed, "DEFCAD: Open-Source Search Engine for 3D Printing," 2013, <https://web.archive.org/web/20130403073010/http://www.defcad.com/>.

if they like, and be free to agree on all sorts of non-exclusive licensing and agreements concerning their property. So an open source hardware design can be both licensed under the public domain friendly CC0 license, and the non commercial non derivative CC BY-NC-ND, while being at the same time the subject of a special commercial exploitation contract with a third-party. That would not make any sense at all,⁹⁶ but it's perfectly possible to do so. This contradiction can nevertheless be forced upon open designers via the TOS of the platform they use to distribute their work, which is what happened when Thingiverse introduced in its terms the requirement to give "to the Company and its affiliates and partners, an irrevocable, non exclusive, royalty-free and fully paid, worldwide license to reproduce, distribute, publicly display and perform, prepare derivative works of, incorporate into other works, and otherwise use [their] User Content, and to grant sublicenses of the foregoing, solely for the purposes of including [their] User Content in the Site and Services,"⁹⁷ and made its contributors "irrevocably waive (and cause to be waived) any claims and assertions of moral rights or attribution with respect to [their] User Content."⁹⁸ The decision was followed by a virtual protest under the form of an "Occupy Thingiverse" action in 2012, but this part of the TOS is still unchanged at the time of writing. Even if this is perceived by the protestants as yet another betrayal of the community ethos, the terms work like

⁹⁶ I'm excluding here the potential *trolling* effect of such an approach to free culture licensing.

⁹⁷ MakerBot Industries, "Thingiverse Terms of Use," 2012, <https://web.archive.org/web/20120312203852/http://www.thingiverse.com/legal>.

⁹⁸ *Ibid.*

a non-negotiable contract on top of the license,⁹⁹ and is so pervasive that it is nothing but a transfer of copyright in disguise.

Simulating pluralism via some unspoken or unclear consensus made around terms that are loosely defined cannot be sustainable.¹⁰⁰ Sooner or later the balance will shift dramatically at the expense of others, surprised to be suddenly precipitated into an alien monoculture. Instead of being able to develop strategies of adversarial politics, the pluralistic nature of open design, the maker movement and others, are increasingly dominated by the aggregation of groups whose ideologies are compatible or overlapping, which in the present situation are essentially linked to the roadmap of so-called smart industries and the next industrial revolution.¹⁰¹ Of course, things are not static, and such dominance can also

⁹⁹ For a more detailed analysis and other intellectual property issues related to Thingiverse, see Ramon Lobato Jarkko Moilanen Angela Daly and Darcy Allen., “Cultures of Sharing in 3D Printing: What Can We Learn from the Licence Choices of Thingiverse Users?” *Journal of Peer Production* 6 (2015), <http://peerproduction.net/issues/issue-6-disruption-and-the-law/peer-reviewed-articles/>.

¹⁰⁰ There should be no doubt that such stories are not exceptional. Open design is a minefield for the beginner and specialist alike, and things only get messier when taking into account the international cultural diversity of hardware manufacturing. This is visible, to give an example, in the clash between classic western IP models and the Chinese *shanzhai* tradition, which in the context of hardware manufacturing, has enabled the creation of the tech mashup *open BOM* culture. The latter is an umbrella term to describe practices of sharing bills of materials and other design materials between Chinese small and mid-size manufacturers, and policed alone by community word of mouth. This practice in particular has recently been given the name “gongkai” (公开) by US hacker Andrew Huang. See Andrew Huang, 2013, https://www.bunniestudios.com/blog/?page_id=3107; Huang, “Tech Trend.”; Mario Wenning, “Shanzhai: Dekonstruktion Auf Chinesisch. by Byung-Chul Han (Review),” *Philosophy East and West* 64, no. 1 (2014).

¹⁰¹ See Jeremy Rifkin, *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism* (New York: Palgrave Macmillan, 2014). Incidentally, the 2015 careers page of MakerBot Industries’ website was opening up with the large headline “JOIN THE NEXT INDUSTRIAL REVOLUTION”, see MakerBot Industries, “Explore Career Opportunities,” 2015, <https://web.archive.org/web/20150905052715/http://www.makerbot.com/careers>.

be overruled, but for this to happen the notion of common cannot be decoupled from the political. Because open design was never understood as a place of conflict, because it was not understood as a political struggle, or was simply denied a political dimension, and was instead reduced to its technological apparatus, its economics, or its ethics under an assumed consensus, there could only be deception further down the road, and an invalidation of the identity politics that emerged in the proto-free culture era of the late nineties and early noughties.

Critical making¹⁰² and engineering¹⁰³ are not enough, explicit political making is lacking in today's free and open source practices. Regardless of the morality of a project such as DEFCAD, it has been one, perhaps the only one, concrete response to this particular process of subjugation, because it triggered an hegemonic versus counter-hegemonic dynamic, a public discussion about learning and reflecting outside of the techno-legal niche of the professionals of free and open source production. What I can see today is that without a strong political ground, the current state of open design can be interpreted very pessimistically with little hope for change.¹⁰⁴ Worse still, actors of its early connection to a wider cultural context—for instance with the attempt to consider the approach of Brazilian *gambiarra* as a counter to industrial born prototyping practices¹⁰⁵—

¹⁰² Matt Ratto, "Critical Making," in *Open Design Now*, ed. Bas van Abel, Roel Klaassen, Lucas Evers and Peter Troxler (Amsterdam: BIS publishers, 2011).

¹⁰³ Jussi Parikka, "Critically Engineered Wireless Politics," *Culture Machine* 14 (2013).

¹⁰⁴ Julia Rone, "Playing Hard: Open Source Hardware Production as a Game (Changer)," in *Are You Being Served?*, ed. Anne Laforet, Marloes de Valk, Madeleine Aktypi, An Mertens, Femke Snelting, Michaela Lakova, and Reni Höffmuller (Brussels: Constant, 2014).

¹⁰⁵ Make art festival, *Gabriel Menotti: Gambiarra and the Prototyping Perspective*, lecture recording (Poitiers: GOTO10, 2010), <https://archive.bleu255.com/makeart/2010/>

are now leaving a ship they believe is sinking. Instead of providing the necessary counter-hegemonic communities, they seem to have lost their energy and grown increasingly cynical towards the makers movement they first thought they were connected to,¹⁰⁶ suggesting today the need to set-up an exodus towards other matters and concerns. But by doing so, they are ultimately leaving the way free for the hegemonic practices they fought so far.

[?page=video&lang=en#makeart2010_-_2010-11-06_-_gabriel_menotti.ogg](#).
¹⁰⁶ Fonseca, "Gambiarra."

Part 2: Free as in... Art

In Part 1, *Free as in... Culture*, I wanted to question the archetypal free software paradigm shift narrative, and the accompanying rhetoric of the subcultural hero through which free software was described as a subversive response to some of the technical and commercial strategies used by the computer industry in the nineties, or at the opposite end when it is framed as the ultimate and most efficient method for any kind of cooperative and collaborative forms of production. As I mentioned earlier, my position was not to undermine these particular properties, but instead to make visible some aspects that I find much more important than these specific perspectives. Notably, I have shown that the question of software freedom was not a *creatio ex nihilo*, but was completely interleaved with the history of computation and programming. Next to that, being a by-product of prototyping, and solutionist engineering culture, free software never was, and is still not, a static thing. Its narrative, discourse, and tools constantly change and adapt to their surroundings. This is for instance visible in the way the collective identity of free software has been shaped in the nineties with the rise of Microsoft,¹ then in the noughties with the spread of digital rights management (DRM)² and software-as-a-service³, and more recently with concerns about privacy and transparency in the age of global surveillance.⁴

¹ Williams, *Free as in Freedom*, 13–17, p. 98, p. 112.

² Free Software Foundation, “About Defectivebydesign,” 2006, <https://web.archive.org/web/20060524230110/http://defectivebydesign.org/about>.

³ Benjamin Jean, “‘Option Libre’: Compatibilité Entre Contrats” (Master’s thesis, Université Montpellier-I, 2006), 21–22.

⁴ Angela Watercutter, “Stallman: How Much Surveillance Can Democracy Withstand?” *Wired*, 2013, [\url{https://www.wired.com/2013/10/a-necessary-evil-what-it-takes-for-democracy-to-survive-surveillance}](https://www.wired.com/2013/10/a-necessary-evil-what-it-takes-for-democracy-to-survive-surveillance).

I have explained that this malleability and constant re-contextualisation could find its origin in source code itself, and more particularly its dual literary openness, for machines and human beings. I have argued that in particular the divergence in software interpretation is the reason why the same source code file, published with the same license can create a wide range of conflicting positions which have historically been oscillating between ethics and economics. I have also shown that such re-contextualisation has been implemented at a techno-legal level, through the development of definitions and licenses, and all together have provided a template of sorts that greatly facilitated its cultural diffusion and appropriation. As a result the emulation offered by the free software definition and licensing has grown popular for all sorts of ideologies, because it offered a model in which different groups could easily express their alienation, the disappearance of their community, and allow for the reparation of a lost or the construction a new hegemonic order. What followed was the constitution of many imagined communities which gathered around an assumed form of commonness. As a result I have preferred to refer to the creation of these different groups as virtual communities, language-games and emulations at the service of a wide range of ideologies, rather than supporting the idea of a global movement due to the lack of clean common interpretation of cultural freedom.

This is why I have associated the idea of radical democracy with the prototypical free culture era of the late nineties and early noughties, given the agonistic dimension of its pluralism, and why I have presented the efforts to define free culture and the emergence of an organisation like

CC as the decaying of such pluralism, more specifically under the form of coalitions around two modes of democratic discourse: respectively deliberative and aggregative. If I have no doubt that this process was a genuine initiative to make something more coherent and to consolidate all these different communities, it cannot be detached from the fact that by acting effectively as an hegemonic filter, it had nonetheless reduced cultural freedom to a limited subset of its potentiality. I have shown in particular that the denial of political dimension was particularly deceptive and had been the main reason why the consensual foundation of these different efforts was flawed. Finally, I have explained that without awareness or understanding that cultural freedom is also a place of political conflict and struggle, the different communities excluded from the dominant family of ideologies, will perceive this flawed consensus as a form of betrayal and abandon the different fields they have helped shape, instead of responding to this revelation as an attack in the political realm from their adversaries.

If in the first part of this thesis I have started to sketch a model in which free culture is fundamentally a template made available for others to articulate their own practice and ideology, I still have to analyse how such a cultural appropriation is taking place. While doing this for all the communities that have in the past claimed these methods would be a rather intimidating task, I will instead focus on one type of appropriation of such ideas in the domain of artistic practices. This will be the main subject of the next chapter and a particular attention will be given to the notion of *Art Libre* and the Free Art License, one of the very few effort from the proto free culture era that is still active at the time of writing.

The most revolutionary aspect of free software is in its constitutive nature. By constitutive, I mean its ability to first originally fabricate and embellish a framework for Stallman's ideas on communities and software sharing, so these can survive the techno-legal changes he witnessed at the MIT AI Lab, and second, beyond Stallman's vision, to turn such a framework into a template available for others so they can either emulate their lost, reinforce existing, or bootstrap new practices. I have shown that this second point relied essentially on the couple definition/license that worked as a cyber constitution for the virtual community. Eventually other groups and individuals started to appropriate this template to try to establish their own virtual communities, and as the cultural diffusion of this template grew, the realm of non-software cultural expressions would eventually be reached in the second half of the nineties, first in the form of proto-free culture, and later as part of the emergence of a free culture movement. However, given the radical ideological differences present in such development, I have argued that this process should be best understood as many different hegemonic and counter-hegemonic dynamics, rather than as global movements, as the notions of freedom and openness expressed by these different groups were at best slightly overlapping, but also contradictory or opposed. In this second part, I will articulate this argument in much more detail by looking in particular at the way artists have appropriated this template, and test if this appropriation consolidates or weakens the concept of free culture.

To do so, I will, in Chapter 3, look at the history of *Art Libre*, free art. I will detail how and why it existed as two different concurrent concepts, and how they related to software freedom. The proto-free and free cul-

ture eras have notably demonstrated the adaptability of the free software model to become relevant for a broad range of ideological manifestations. To be sure, the adaptability I am referring to is not that of the free software idea itself, but of its articulation. Thus in this section I will argue that understanding free software as a template for community emulation, and not a broad social movement, is essential to see the reason why a very wide range of incentives have been able to relate to the notion of software freedom, albeit in its abstracted form.

In Chapter 4, *The Practice of Free-range Free Culture* I will discuss how the artistic appropriation of the free software template can also happen at the level of individual practices, and that there also exists a process of cultural diffusion within the cultural appropriation of software freedom. This is the reason why I am using the term free-range, and, based on several semi-structured interviews, I will argue that free cultural practices and appropriations are echoed at several levels, motivated by rather diverse beliefs and intentions which are articulated far from the epicentres of the more official free culture, like the FSF or CC.

Finally, in the last chapter of this second part, Chapter 5, *Free Cultural Misunderstandings*, I will examine how the individual experience and personal narration of free cultural practices, such as the ones described in Chapter 4, creates a situation where nothing can be taken for granted when it comes to interpreting the intentions behind such practices. If this is indeed the strength of the techno-legal template derived from free software and its couple definition/license, it also makes generalisation and broad analysis of the free culture discourse impossible, as its univer-

salinity and commons is in fact constituted of many singular experiences, that are often incompatible and contradictory. To illustrate this, I will discuss two points: first I will argue that copyleft sits at the cross-road between the cultural field and the legal field, which creates both opportunities and misunderstandings for artists to link their practice with the famous free software mechanism; and second, the difficulty of pinpointing precisely the connection between free and open source forms of licensing and their commercial exploitation, which has led in the past, and still nowadays, to the creation of faulty generalisations in relation for instance to work and capital.

Chapter 3

Art Libre

3.1 Free Art Incentives

As explained in Chapter 1, while the late nineties brought to life some experiments on the creation of generalised proto-free culture licenses, this transposition first went through a direct use of the GPL for non-software creations, articulated most notably by Stutz in 1997.¹ However, this transposition was not only noticed by digital practitioners, or for that matter anyone close to free and open source software circles. In fact, in the same year of the publication of Stutz's text, copyleft was mentioned by a law scholar as a valid framework for collaborative artworks in which artists would pass "each work from one artist to another."² That remark is par-

¹ Stutz, "/Doc/Comp/Gnu/."

² Heffan, "Copyleft," 1448.

ticularly significant not because of the collaborative dimension applied to art, but because of the explicit concern to provide a legal validity to certain practices whose origins are buried in the depths of art history. Indeed, the idea of works passing from one artist to another and the questions of copies, derivative works, appropriation, or plagiarism, are nothing new.³ So, why a sudden interest in such practices at the turn of this century?

The reason is simple and the culprits are not the methods used in artistic practices, but rather their practice within the digital realm. With the fast adoption of personal computers and the democratisation of the Internet throughout the nineties, this “convergence of media technologies and of digital computing”⁴ eventually became known as *new media*, a term made popular by Russian media theorist Lev Manovich,⁵ yet the newness of which was in fact very much indebted to video and television.⁶ However, if the emergence of new media practices were instrumental in broadening computer related art practices, it also challenged the intellectual property frameworks that were adjusted for *older* media only. As French Philosopher Jacques Derrida noted in 1995, the rise of electronic media must necessarily be accompanied by juridical and political transformations,⁷ and from the perspective of copyright laws in

³ See Florian Cramer, “Anti-Copyright in Artistic Subcultures,” 2010, <http://anticopyright.pleintekst.nl/>.

⁴ Lev Manovich, “New Media: A User’s Guide,” 1999, 14, <http://manovich.net/index.php/projects/new-media-a-user-s-guide>.

⁵ Lev Manovich, *The Language of New Media* (Cambridge: MIT Press, 2002).

⁶ Sheila C. Murphy, *How Television Invented New Media* (New Brunswick: Rutgers University Press, 2011).

⁷ Jacques Derrida, *Mal d’archive : Une Impression Freudienn* (Paris: Galilée, 1995), 35.

the age of an Internet becoming increasingly commercial, the GPL copyright hack provided an interesting model for lawyers, then urged to revise their approach to intellectual property to accommodate different strands of practices that will eventually be associated with new media. In particular, the notion of originality and creativity became confronted with the tools and techniques of file sharing and digital data processing, in a system where everything is a copy.⁸ For instance in the US, and under the 1976 US Copyright Act, the only recognised artistic collaborative work was the joint work, in which different contributions were meant to be “merged into inseparable or interdependent parts of a unitary whole.”⁹ Said differently, the joint work assumed both the existence of an agreement to develop a final work, as well as a commonness of the intention behind the creation of that work. This made perfect sense in the context of the print-based copyright doctrine, but clearly does not work for digital environments where the romantic understanding of authorship was challenged by the dense network of branches, copies, and processes inherent to software-driven networked collaboration, where files, texts, bits of code and whatever digital bytes could end up at any time as part of an online assemblage or collage. Net art, with and without the dot, will be particularly exemplary in showing the impact of the net on the difficulty of framing a particular discourse, a canon, a definition, a movement, or

⁸ See Lawrence Lessig, “(Re)creativity: How Creativity Lives,” in *Copyright and Other Fairy Tales: Hans Christian Andersen and the Commodification of Creativity*, ed. Helle Porsdam (Northampton: Edward Elgar, 2006).

⁹ 94th Congress Public Law 94-553, “TITLE 17—COPYRIGHTS,” October 19, 1976, 101. Definitions.

simply establish a static viewpoint of such a dynamic environment.¹⁰

Intellectual property scholar Margaret Chon in her 1996 article *New Wine Bursting From Old Bottles*, had already used the 1992 work *ChainArt* by media artist Bonnie Mitchell, to demonstrate this particular limit of the copyright doctrine.¹¹ Mitchell's pre-WWW project, which seems rather trivial by today's standards, was a chain in which her students and fellow artists were invited to modify a digital image, and pass it to someone else via e-mail and File Transfer Protocol (FTP) servers.¹² The work is interesting because it makes extremely explicit the dichotomy between digital media as a telecommunication carrier, and digital media as artistic material.¹³ But according to Mitchell, the whole system and its different iterations are the work itself, not just the final image at the end of the chain.¹⁴ The work exists as a collection of derived, reused and, some would more easily say today *remixed*, individual elements that could not be flattened down into one single joint work, in a work of digital media conflation. Being hard to pin down, Chon noted the legal consequence of such chained media work in its impossible protection, and challenge to properly credit, under the limited copyright rules.¹⁵

Following the juridical literature, the work was then picked up by in-

¹⁰ See Josephine Bosma, *Nettitudes: Let's Talk Net Art* (Rotterdam: Nai Publishers, 2011).

¹¹ Margaret Chon, "New Wine Bursting from Old Bottles: Collaborative Internet Art, Joint Works, and Entrepreneurship," *Oregon Law Review* 75, no. 1 (1996): 257–76.

¹² Bonnie Mitchell, "Creative Connections: International Networked Collaborative Art. Unpublished Paper Presented to the College Art Association 83rd Annual Conference," 1995.

¹³ For a discussion about this particular distinction, see Florian Cramer, *Anti-Media: Ephemera on Speculative Arts* (Rotterdam: Nai010 Publishers, 2013), 12–14.

¹⁴ Chon, "New Wine Bursting from Old Bottles."

¹⁵ *Ibid.*

tellectual property attorney Ira V. Heffan in 1997, who used it as an ideal example of artistic works that could greatly benefit from both the GPL, and the creative use of its copyleft mechanism that would encourage “the creation of collaborative works by strangers.”¹⁶ Although Heffan’s conclusion is legally sound, and basically provides, unknowingly it seems, an academic echo to Stutz’s own conclusion and generalisation regarding the GPL and non-software works published the same year,¹⁷ it does nevertheless miss an important point, which is the cultural dimension of such networked practices. Said differently, and as net art would illustrate further, what is not taken into account is the artistic desire to reflect upon the nature of information in the age of computer networks. Even if it seems to conveniently fill a legal gap, using the GPL for art practices cannot be reduced to a mere desire to collaborate for the sake of collaborating, and to make a collage for the sole intent of glueing things together, out of its own consideration. This cultural aspect emerged from the early debates about control and freedom of information and speech, as the Internet started to spread to more households throughout the mid- and late nineties.¹⁸ Artists did not wait for the approval of lawyers to claim the GPL, they used it for specific purposes unrelated to the need to make their work legally reasoned for the net. If there had already been discussions—most notably in the context of hypertextual literature—on the need for new copyright models, like Ted Nelson’s idea of context and credit pre-

¹⁶ Heffan, “Copyleft,” 1513.

¹⁷ See Chapter 2.

¹⁸ Moschovitis, *History of the Internet*, Chapter 7: Living on Internet time: 1995-1998.

serving automated *transcopyright* system,¹⁹ the adaptability of new media practices—for instance with the mix of code and writing found in what American artist Alan Sondheim described as codeworks²⁰—allowed artists to reflect as much in the production of media as in its distribution in regard to intellectual property. Eventually alternative copyright disclaimers found their way into these works, such as the permissive copy statement found in the file header of the 2002 code poetry *london.pl* by British artist Graham Harwood,²¹ but moreso in the use of the GPL in the 2003 software art *pngreader* by text3.com and Project GNUtenberg.²² So in fact, many artists adopted the GPL—and other free and open source software licenses—early on to augment their work with a statement, both derived and appropriated from the free software template, but adapted to these new practices and intents. To be sure, at a time where there were no Creative Commons licenses, no free culture definition, at the dawn of peer-to-peer (P2P) file sharing, and with intellectual property frameworks which were unable to apprehend the fast expansion of net culture, the last thing artists looking at the GPL were interested in was the question of collaborative or cooperative infrastructures. These were already in place and in use. What mattered instead was the paratextual ability of free software licensing to colour a work as a strategy to criticise, com-

¹⁹ Theodor Holm Nelson, “Transcopyright: Pre-Permission for Virtual Republishing,” *Educom Review* 32, no. 1 (1997): 32–35.

²⁰ Alan Sondheim, “Introduction: Codework,” *ABR* 22, no. 6 (2001).

²¹ William Blake (Graham Harwood), “London.pl - Perl Routines to Manipulate London,” 2002, <https://web.archive.org/web/20031204231930/http://www.scotoma.org/lungs/london.txt>.

²² Sebastian Lütgert, “pngreader: text3.com / Project GNUtenberg,” 2003, <http://runme.org/project/+pngreader/>.

ment, communicate a motivation for their practice, essentially creating “a proxy for, or even generative of, the artwork’s very substance”:²³ in a nutshell an artist’s statement in the age of new media and codeworks.

Most notably in 2000, Mirko Vidovic used the free software definition to create the GNUArt project,²⁴ a call to develop what he refers to as free art,²⁵ an effort to ensure the independence and freedom of artists, liberated from the control of existing collecting societies, producers, and publishers, while at the same time allowing them to interface with an audience and suggest new ways to deal with the sustainability of their practice in an independent way.²⁶ The project uses the free software model as a way of putting forward the notion of a work protected from external and exclusive control, a work which, according to the GNUArt author, would then be free to circulate and evolve.²⁷ By consciously choosing the GPL as a means of creation and distribution, the different artists who contributed to GNUArt voluntarily engaged with the issue of commodity and culture. They used the free software template to implement an apparatus that was not specific to software freedom, but specific to artistic freedom mixed with social and political concerns.²⁸ Such efforts were very much connected with a growing trend in the late nineties for media activism in

²³ Natalie Adamson and Linda Goddard, “Artists’ Statements: Origins, Intentions, Exegesis,” *Forum for Modern Language Studies* 48, no. 4 (2012): 363.

²⁴ Mirko Vidovic, “GNUArt,” 2000, <http://gnuart.org>.

²⁵ Not to be mistaken with the GNU Art section of the FSF website that is a collection of logos, marks and artworks to be used as graphical assets for the visual identity of the GNU project.

²⁶ “Du L’art Pas Du Cochon,” *Les Puces Informatiques* 30 (2000).

²⁷ Vidovic, “GNUArt.”

²⁸ Professor, dj wesh, and éloody, “Sono Mutante,” 2003, <http://3boom.net/sonomutante/>.

the arts, in particular in the scene of tactical media.²⁹ Once again, these practices came into existence because of new media, because of this Internet *thing*, which ultimately permitted art practices to escape from their historically constructed autonomy. To illustrate this, German critic Florian Cramer notably compares the difference between the “simulation of corporate entities”³⁰ within the safety and artificiality of the art system, using as an example Res Ingold’s *Ingold Airlines*,³¹ to the same strategy deployed over the Internet by The Yes Men, leading to their intervention and spoof as spokespeople for the World Trade Organization (WTO) in 1999.³² This is not an isolated event, and what codeworks, new media art, net art, and other nineties networked media practices will demonstrate is the potential to liberate artistic critique, from decades of white cube taming and commercial domestication.

This is why a system like GNUArt can also be understood as “a process of copying that offers dominant culture minimal material for recuperation by recycling the same images, actions, and sounds into radical discourse,”³³ to apply to this project the words from performance art and tactical media collective Critical Art Ensemble (CAE). In this context, another interpretation of free software licensing and art suddenly emerges:

²⁹ Critical Art Ensemble, *Digital Resistance : Explorations in Tactical Media* (New York: Autonomedia, 2001).

³⁰ Florian Cramer, “The Creative Common Misunderstanding,” in *FLOSS+Art*, ed. Aymeric Mansoux and Marloes de Valk (Poitiers: GOTO10, 2008), 131.

³¹ Media Art Net, “Res Ingold ‘Ingold Airlines,’” 2005, <http://www.medienkunstnetz.de/works/ingold-airlines/>.

³² Dan Ollman, Sarah Price and Chris Smith, *The Yes Men*, Film (Beverly Hills: United Artists, 2003).

³³ Critical Art Ensemble, “Recombinant Theatre and Digital Resistance,” *The Drama Review* 44, no. 4 (2000): 152.

the GPL is not just a tool to make juridically well-grounded endless digital media transformation, it can be a materialist and performative flagship for recombining dreams of the digital resistance, close to that envisioned by the CAE collective, and shared by other groups at the time. Here, I am not musing about, or conveniently interpreting a project like GNUArt as an act of resistance. As with with Stallman's lost community and the Symbolics episode, it is important to look at the human dimension of these projects, the anecdotes and footnotes inside the official stories. In the case of GNUArt, bearing the same name, Vidovic's father Mirko Vidović, is a Croatian writer who was associated with the Movement of Independent Intellectuals in Yugoslavia, opposing Tito's regime in a quest for freedom of speech. Despite having easily obtained his French nationality by marriage in 1962, and exiled to France so as to pursue his literary work and studies, he is arrested in the late sixties during a visit to his birthplace in Western Bosnia. There, he will be tried and imprisoned for the earlier publication of his book of poetry. Two years later, his sentence is extended with his refusal to testify against members of the Croatian Spring, a Yugoslavian political movement in favour of democratic and economic reforms. In total, Vidović will spend more than five years in the Yugoslav Gulag camps, before his release and return to France toward the end of the seventies.³⁴ With such a lineage, it is easy to perceive a particular sensibility towards any forms of legal restriction, a sensibility that

³⁴ See Mirko Vidović, "The Movement of Independent Intellectuals in Yugoslavia," *Journal of Interdisciplinary Studies*, 2012.

would be eventually embodied in the GNUArt project itself.³⁵

Even though GNUArt emerged outside of the new media art and tactical media scene, there is a clear extension into the digital domain of an ambition to make art engage with intellectual and cultural resistance. It is not just about making gigantic chains or collages or networked *cadavres exquis*. Especially here, it is both rooted in a discourse of libertarian free speech which opposes authoritarian entities, and the pragmatic desire to develop an autonomous and empowering practice, in which its participants can build upon each other's ideas and techniques by combining and cooperating within a common pool, a library, once again, of projects and materials, be it software or art. This project is a crucial step to understanding the different paths of evolutionary transitions in the development of free culture. It is indeed not just the first and yet most articulate transposition of the FSF engineering freedom directed towards a politically driven artistic freedom by the means of licensing, it is also a demonstration of the capability of the free software template to be adapted and appropriated by others, so they can also set up their own *Gemeinschaft* emulation. Every other effort during the proto-free culture era should be understood similarly, and not simply as a direct transposition of the free software discourse. As a matter of fact, in the last section of this chapter I will discuss Stallman's struggle to understand the connections made in the case of free art. But before this, I will first come back to the second part of the free art genesis, which is also very illustrative of the

³⁵ Even if paradoxically the use of the GPL in art will also set in motion other forms of equally restricting and disciplinary legal structures, as I will explain in Part 3.

apparently endless adaptability of the free software template.

3.2 Licence Art Libre

While Vidovic was the first to articulate the term *art libre*,³⁶ and writing about the need for a Free Art License as early as 1998,³⁷ we have to wait until the year 2000 for the work of a few lawyers and artists, namely Mélanie Clément-Fontaine, David Geraud, Isabelle Vodjdani, and Antoine Moreau, as well as the feedback from the participants of a free art centred mailing list, to see the creation of such a Licence Art Libre³⁸ (LAL), also commonly referred to as the Free Art License as I stated earlier in the introduction to the second part of this dissertation. The resulting document is made to be an artistic equal to the GPL, yet articulated specifically for the creation of free art under the French jurisdiction, making the FAL explicitly tailored for the French equivalent of copyright laws: *le droit d'auteur*. This localism is however not an issue, indeed it is important to understand that the 1886 Berne Convention for the Protection of Literary and Artistic Works, give to the FAL an international scope, by assuring the respect and protection of the licensed work in all the states involved in the agreement.³⁹ This is not specific to the FAL: the GPL, written within US copyright laws, also benefits from this international

³⁶ Mirko Vidovic, "Art Libre," 1998, <http://www.mygale.org/~mirko/artlibre.html> (not available anymore, including Wayback Machine, on file with author).

³⁷ Mirko Vidovic, "Free Art Licence," 1998, <http://www.mygale.org/~mirko/freeart.html> (not available anymore, including Wayback Machine, on file with author).

³⁸ Copyleft Attitude, "License Art Libre 1.0," 2000.

³⁹ 168 at the time of this writing.

copyright treaty, which explains why its popularity extended beyond US jurisdiction. And the same can be said for any copyright based licenses developed within the jurisdiction of any the Berne Convention signatories. That said, building a license under a different juridical medium, as with code, enables different specificities and interpretations, and as for the notion of copyleft, it becomes in this particular context *la gauche d'auteur*, so as to emphasize in a playful way the leftist tone of the project.

Alongside this, it's probably with this project that the license reinforces its role as an artist's statement the most. In the FAL, the copyleft principle is described as "la liberté contre le libéralisme,"⁴⁰ freedom against liberalism. This is an important matter, because while both the GNUArt free art licensing and the FAL free art licensing work as artistic statements, they do differ greatly in their intention. As a matter of fact, Vidovic and Moreau did correspond by email during the early days of the creation of the FAL, regarding the merging of their distinct efforts; but, just like with the OKD and freedom defined, despite the apparent overlap in scope this merging never occurred due to diverging opinions and lack of interest to federate both projects.⁴¹ Indeed, if there is a connection between Vidovic's free art and a type of cyber-libertarianism that can manifest itself in both left-wing and right-wing politics, as well as a relation with the fundamental notion of artistic freedom in the constitutions of some European countries,⁴² the lineage of free art as enabled by

⁴⁰ Antoine Moreau, "Artlibre.org," 2000, <https://web.archive.org/web/20010223164739/http://artlibre.org/>.

⁴¹ This exchange was confirmed to me by both Vidovic and Moreau.

⁴² In particular Germany, Austria, and Switzerland.

the FAL is however of a different nature. In particular when the FAL, as I said earlier, is announced by its authors as freedom against liberalism, it must be understood from the viewpoint of French left-wing politics where liberalism is used broadly, to refer to capitalist systems and various strands of economic liberalism, including neoliberalism as well as classic liberalism.

To be sure, in this context, free art appeared as yet another iteration in an ongoing, but more traditional, struggle to articulate the position of the artist and their work within the art market and the cultural institutions that control it. It is very interesting to see for example that the term *art libre* appeared in France during the eighteenth century *artisanat* as a workaround to defend the circulation of designs outside of the market control ruled by guilds,⁴³ therefore trying to both escape and benefit from the Renaissance split between craft and art. But it is even more striking that the concept of *artistes libres* was used to describe specific modes of art production, as part of a broader analysis in the cultural transformation in France, regarding the structuring of its artistic field at the end of the nineteenth century. According to French art historian Marie-Claude Genet-Delacroix, under the French Third Republic, it is thus possible to make a distinction between three distinct structures of art production: academic art, official art, and free art, *art libre*, the latter being represented in her research with the painters Odilon Redon and Paul

⁴³ Lesley Ellis Miller, "Innovation and Industrial Espionage in Eighteenth-Century France: An Investigation of the Selling of Silks Through Samples," *Journal of Design History* 12, no. 3 (1999): 279–80.

Cézanne.⁴⁴ For Genet-Delacroix, free art is used as a term to show that the works of such artists were free from the official and academic institutions of the time, not from the market.⁴⁵ She however notes that at the same time these artists, who were largely ignored or disregarded by the authoritative circuits of exhibitions and awards at the time, were able to reverse the terms of the dominant art market by substituting economics with friendship, knowledge, and passion for art, precisely because they were free from institutional constraints.⁴⁶

So when Moreau writes that free art is freedom against liberalism, it must be understood from the perspective of artists resisting the dynamics of the contemporary art market, and the creation of the FAL belongs to a prolonged inner artistic dialogue about what defines the object of art, its economics, and its values. In a way, as an artistic response, free art is similar in its function to conceptualism, at least in the early days of the latter, before some of its manifestations became commodified by gallery dealers in the mid seventies, given the commercial value of works presenting both formal novelty and radical pretension.⁴⁷ This is why in free art, the constraint of the license becomes a means of liberation of the artwork and the artist's practice, from any possible future appropriations other than those permitted by the license. For the artists involved in the project this is not an art movement or genre, it is an attitude, thereby

⁴⁴ Marie-Claude Genet-Delacroix, "Vies d'artistes: Art Académique, Art Officiel et Art Libre En France a La Fin Du Xixe Siècle," *Revue d'histoire Moderne et Contemporaine* (1954-) 33, no. 1 (1986): 41.

⁴⁵ *Ibid.*, 42.

⁴⁶ *Ibid.*, 60.

⁴⁷ Brandon Taylor, *Avant-Garde and After: Rethinking Art Now* (New York: H.N. Abrams, 1995), 34.

giving the name *Copyleft Attitude* to the artists meetings from which the FAL came. With their license, rules stand on their own and provide a framework for a creative process that is meant to inspire a collectivist approach to producing works, thus encouraging an artistic alternative to the gallery and contemporary art market diktat on artwork production and distribution. So even stronger than a statement, the FAL is a rationalised, functional, and official divorce letter from the artists, to the contemporary art world of curators, gallerists, and collectors after centuries of proto-art libre infidelity.

Another important aspect of this latest iteration of free art is also the constraint generated by the license. Having inherited the “playful cleverness”⁴⁸ of the copyright hack, the FAL became both an artistic critique and a system to make art. In this respect, its practice boils down to a new variation of the constraint system used by groups such as the Ouvroir de littérature potentielle (OuLiPo), a sixties-born group of writers and mathematicians focussed on the creation of literary structures, in which systems of constraints are used to promote and inspire creation.⁴⁹ The group dynamic itself is driven by rules, and in the same way that *Cent mille milliards de poèmes*⁵⁰ was the emblematic 1961 OuLiPo call and manifestation of creative rules to encourage a practice of constraint-based writing, the launch of the FAL is similarly a call for legally-constrained

⁴⁸ Stallman, *Free Software, Free Society*, 17.

⁴⁹ Such rules are either novel, and developed within the group, or themselves belong to a much broader cultural context and history. This is the case of the lipogram writing, where one or several specific letters are obviated. See Georges Perec, “History of the Lipogram,” in *Oulipo: A Primer or Potential Literature*, ed. Warren F. Motte (Lincoln: University of Nebraska Press, 1986).

⁵⁰ Raymond Queneau, *Cent Mille Milliards de Poèmes* (Paris: Gallimard, 1961).

art, and set the rules for the Copyleft Attitude community that will subsequently use the license to produce new works and recombine others as part of a collective effort (Figure 3.1). But here the collective practice is centrally dictated, and unlike GNUArt that aimed to spread and test early on the idea of a boundless free art practice, which subsequently might lead to a bottom-up emergence of decentralised collectives and co-operation, the FAL works differently as an artistic top-down gift to other artists, to invite them to engage and participate in this game.⁵¹

Finally, given the cultural context in which the document emerged, and despite the fact that—as I said in the previous chapter—a license is not a contract, it is difficult not to frame the FAL within broader artistic practices that use the contract as a means of institutional critique. From Marcel Duchamp’s 1924 *Monte Carlo Bond* and the 1971 work *The Artist’s Contract* by art dealer and curator Seth Siegelaub, to some of the more recent works from artists Carey Young, Jill Magid, or the collective Superflex, to name a very few, artists have a long history of using the contract of aesthetics and the aesthetics of the contract in order to playfully destabilize institutional order and rationality.⁵² So in that sense, I find it very hard to not link free art to such forms of artistic critique, where intellectual property is turned inside out to reveal other legal and ontological narratives. However, even though Moreau notes that it is conceptually

⁵¹ For an analysis of some examples of communication within the group, and the relationship with the works created and appropriated, how they relate, inform and influence each others, see Charlotte Bruge, “Art Libre : Un Enchevêtrement de Réseaux Discursifs et Créatifs ?” (DEA Sciences de l’Information et de la Communication, Université Charles de Gaulle, Lille 3, Lettres, Arts et Sciences Humaines, 2003).

⁵² See Daniel McClean, “The Artist’s Contract / from the Contract of Aesthetics to the Aesthetics of the Contract,” *Mousse Magazine*, 2011.

Figure 3.1: Reuse and appropriation between FAL/LAL artists

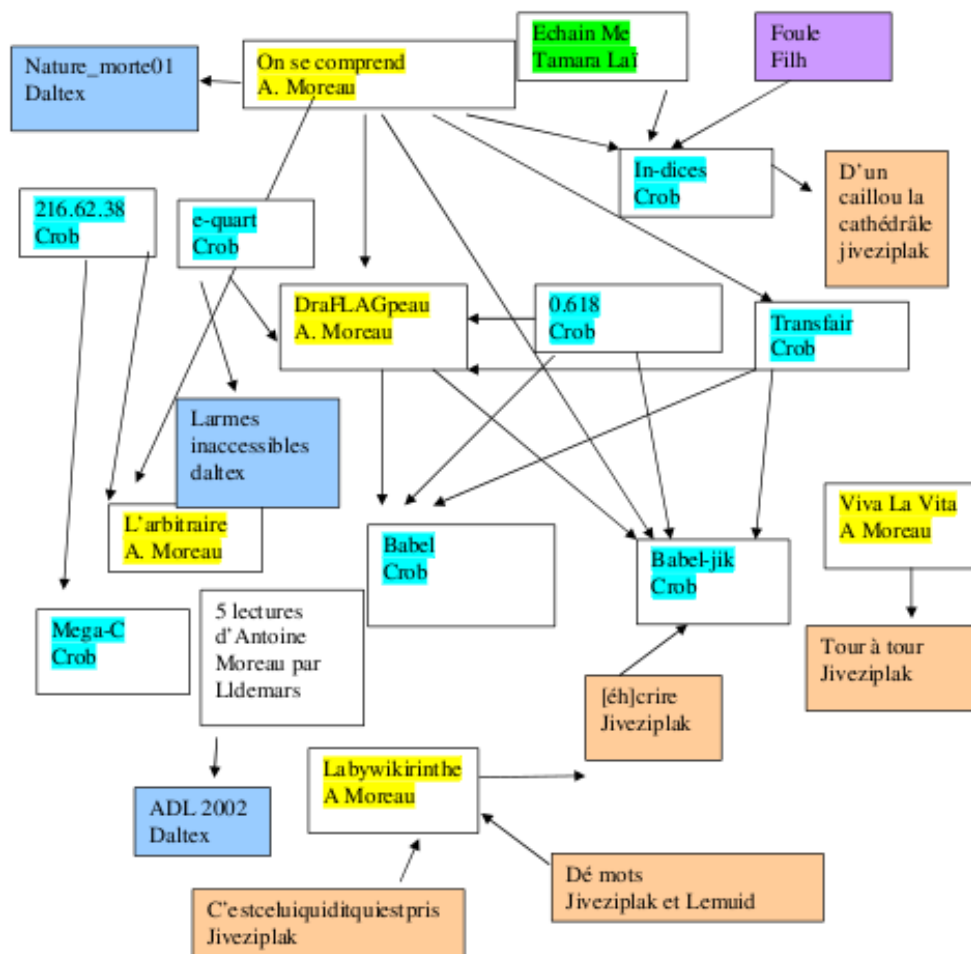


Diagram: Charlotte Bruge, 2003

possible to attribute an artistic nature to the FAL, just as it is according to him possible to do so for any other things, he insists that it is above all a legal document like any others. For him, the fact that it was produced by artists and relates to the art domain, could indeed provide an artistic element to the work, yet it was not their intention, and in fact a particular attention was given to make sure the Free Art License was created to be a common useful tool.⁵³

3.3 Usefulness of Legal Constraints as Safe Haven

To sum-up what I have discussed so far, the FAL works both as a system to make free art within the Copyleft Attitude group, in a way that is meant to be useful and playful, and also as a means to generate an artistic critique of contemporary art practices and economics. In that sense it exists as a coherent system, that just like free software, allows a community to materialise its ideals and support their matching social structure and practices. But beyond its critical and constituent usefulness, its artistic usefulness remains unexplained.

As I have argued in the previous section, there is a link between free art and constraint art systems such as the works of OuLiPo. However, I do not want this connection to be superficially understood from the

⁵³ See Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?”

perspective of the trivial playfulness in creating rules to collaborate on a potentially never ending networked canvas. As I said earlier, this type of functional usefulness was not an artistic motivation to start with, but was a specific juridical speculation made by law scholars regarding the potential of using the GPL for digital artworks. French poet Raymond Queneau, co-founder of OuLiPo had already advised in his 1938 essay *Qu'est-ce que l'art?*⁵⁴ that artists should not stop at the proper execution of rules for art's sake, and such a position could also be traced back to his generational connection with movements such as Dada and surrealism, that saw *le jeu* as “a code word for rebellion,”⁵⁵ and also predates the ludic frameworks of the Situationist International.⁵⁶ Said differently, there is and there must be something else expressed within these artistic games:

To simply perform one's task well is to reduce art to a game, the novel to a chess match, the poem to a puzzle. It's not enough to say, nor to say well; the thing must be worth saying. But what is worth saying? There's no getting around it: that which is useful.⁵⁷

So what is the artistic usefulness of free art? To understand this, it is first necessary to take into consideration the notion of liberation as found in free software discourse. For example, it is common that free software supporters use the term *liberation* when they aim at freeing a software

⁵⁴ Raymond Queneau, *Letters, Numbers, Forms: Essays, 1928-70* (Urbana: University of Illinois Press, 2007), 36.

⁵⁵ Constantin Toloudis, “The Impulse for the Ludic in the Poetics of Raymond Queneau,” *Twentieth Century Literature* 35, no. 2 (1989): 149.

⁵⁶ Les Sections de l'Internationale Situationniste, “Manifeste,” *Internationale Situationniste* 4 (1960): 36–38.

⁵⁷ Queneau, *Letters, Numbers, Forms*, 36.

from its original intellectual property framework.⁵⁸ Such an analogy can get particularly mucky specially when Stallman himself uses the register of the French Revolution to articulate various free software arguments, from using stereotypically the motto “Liberté, Égalité, Fraternité”⁵⁹ to naming a specific license clause as “Liberty or Death,”⁶⁰ another social revolution related wording that bares a strong link with *The Terror*, the violent post-revolutionary period in France at the end of the eighteenth century.⁶¹ This is not entirely specific to Stallman though, I have already shown in the first chapter how the UNIX community had appropriated the New Hampshire motto, “LIVE FREE OR DIE - UNIX”.⁶²

But in fact software is hardly ever liberated, because its source code is tightly locked and hidden away both legally and technologically. Most of the time the process of liberation is instead a complete reconstruction from scratch of closed source and proprietary software. In the same way that GNU is not a liberated UNIX but in reality a free software Unix-like operating system, a software such as the GNU Image Manipulation Program (GIMP) is not a liberated Photoshop, but a free software raster graphics editor.⁶³ English critical theorist Matthew Fuller even argued

⁵⁸ Bradley M. Kuhn, “From the Executive Director,” *FSF Bulletin* 1 (2002).

⁵⁹ Free Software Foundation, “French Motto Button,” 2014, <https://www.gnu.org/graphics/french-motto.html>; Richard M. Stallman, “Discours de Stallman à Linux-expo Paris, 2002,” n.d., <https://www.gnu.org/philosophy/2002-linuxexpo-paris.html>.

⁶⁰ Stallman, *Free Software, Free Society*, 160.

⁶¹ Sophie Wahnich, *In Defence of the Terror : Liberty or Death in the French Revolution* (Brooklyn: Verso Books, 2012), The Emotions in the demand for Terror.

⁶² See Chapter 1, Section 4.

⁶³ All that said, it does not mean that such liberations are without risk. If these software re-creations build upon the principle that copyright only protects a particular implementation and not an idea, the ideas behind copyrighted implementations can be patented. To be more explicit, the role of a software patent application is to articulate the software *invention* in the form of pseudo-code, flowcharts, or al-

that as a result, such forms of liberation are free yet not related to free thought given their submissive relationship with standards set by others.⁶⁴ Here again the territoriality implied by the division between the *Gemeinschaft* and *Gesellschaft* is visible: software freedom is first a framework to write free software in a different realm to the one in which it may find its inspiration. However if anyone is free to *use* the free software template to write free software, the *usefulness* of the latter, and therefore whether or not it can be part of the GNU project, is left to be judged solely by Stallman.⁶⁵ Here, utility is not relative to the value of the software for its user or author,⁶⁶ but it is on the contrary relative to the software environment itself, that is to say the common and functional components, such as the GUI, the kernel, the text editor, the shell, the C library, etc,⁶⁷ so as to provide a “coherent” operating system.⁶⁸ However this definition quickly reaches the problem of a lack of definition for these *commonness* and *coherent* functionalities, allowing software *usefulness* to be something very arbitrary. In the end, it is possible to classify free soft-

gorithm descriptions. After that, and regardless of the programming language used, the author of a software that would provide a feature already patented would need to have the authorisation of the patent holder to distribute their software. For instance in 2006, Peter Kirchgessner was forced to stop distributing his GIMP image mosaic plug-in because he had received cease and desist request from a patent holder who argued the plug-in was infringing his patent rights, See Peter Kirchgessner, “Untitled Page,” 2006, <https://web.archive.org/web/20060721065830/http://www.kirchgessner.net/photo-mosaic.html>. For more information on software patents and free software, see Lucarini, *Patent Absurdity*.

⁶⁴ Fuller, *Behind the Blip*, 25.

⁶⁵ Free Software Foundation, “GNU Software Evaluation,” 2017, <https://www.gnu.org/help/evaluation.html>.

⁶⁶ Where usefulness depends on the context, see Knuth, *Literate Programming*, Computer programming as an art.

⁶⁷ Stallman, *Free Software, Free Society*, 10.

⁶⁸ Free Software Foundation, “GNU Software Evaluation.”

ware in three categories: first, GNU software, that is “useful programs” approved by Stallman to be part of GNU,⁶⁹ and for which copyright may be transferred to the FSF if the authors want the organisation to enforce the GPL for them; second, regular “useful free software,”⁷⁰ that is free software submitted to the Free Software Directory (FSD) and “reviewed and approved and published by administrators”⁷¹ of the directory but not part of GNU; third, everything else released under a free software license and which I would call *in the wild* free software, or maybe even *free* free software, given their existence outside of the FSF walled garden or for which the FSD seal of approval was denied.

It is astonishing that such a hierarchy presents a similar structure to that I described earlier with the classification of art during the French Third Republic, namely academic art, official art, and free art. It shows again that as I argued in the previous chapter, the most interesting property of free software is its ability to recursively appropriate the structures it criticises, and provide a template model for others to do the same. So it is not surprising that free art also works similarly on three nested levels: first, free art produced as interactions between the members of the Copyleft Attitude group;⁷² second, any free art that has been submitted to the free art directory “Liste des Oeuvres,”⁷³ and moderated by Copyleft

⁶⁹ Ibid.

⁷⁰ Contributors to the Free Software Directory Wiki, “The Free Software Directory,” 2017, https://directory.fsf.org/wiki/Main_Page.

⁷¹ Contributors to the Free Software Directory Wiki, “Form:Entry,” 2016, <https://directory.fsf.org/wiki/Form:Entry>.

⁷² Bruge, “Art Libre,” A.3 Le Réseau Créatif.

⁷³ More precisely the website <http://oeuvres.artlibre.org> that has been active between 2005 and 2014.

Attitude members; and third, every other works released under the FAL and that I would also call *in the wild* free art or *free* free art. However, if at first this seems to be a direct mapping of free software ontology onto free art, it is rather yet another proof that when the free software template is appropriated, this process becomes an opportunity to make this model work for other ideological manifestations. So, in the case of free art the functional usefulness is not used as a criteria to categorise the works created. It is replaced instead by questions of morals and ethics as a means, according to Moreau, of gaining freedom from and keeping at a distance a libertarian conception of freedom.⁷⁴ Said differently, anyone is free to create new or engage with existing free art works at any of these three levels, yet their acceptance and visibility within the group will not be based on their usefulness—that could be understood here as either the value they represent in terms of contributing to a coherent body of work, or as the ability of the work to interface with or be used with others—but instead whether or not they match the aesthetics and ideological perspectives of those who have initiated the FAL.

However, that does not mean that there is no functional usefulness in free art, but the latter exists at a higher level. Indeed, the usefulness resides in its ability to liberate art from artistic criteria,⁷⁵ to emphasize “surrartistiques”⁷⁶ practices, that is to say practices that do not have any *a priori* notion of what art can be.⁷⁷ So unlike anti-art which recognises

⁷⁴ Email to author, November 13th, 2015.

⁷⁵ Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?” 549.

⁷⁶ *Ibid.*, 554.

⁷⁷ *Ibid.*, 554.

its existence as within the boundaries of art with which it establishes a dialogue,⁷⁸ free art aims to settle elsewhere, in a way that is neither supra-artistic, nor autonomist.⁷⁹ Thus the usefulness of free art is in its ability to create a space for such *surrartistiques* practices.

The logical next question is why these practices would need to be protected in such a way. When it comes to the place held by artistic practices within culture, Moreau points that “[l]’art est à la culture ce que l’interdit est aux dits.”⁸⁰ So while avoiding establishing a strict hierarchy within culture, he nonetheless considers art as a particular expression, by arguing that the latter is to culture what the inter-said is to what is said. Here, he is referring to a concept from French psychoanalyst Jacques Lacan⁸¹ which addresses the discontinuity of the signifier. Lacan used the term discontinuity to describe the existence of in-between spaces, as well as the holes in the structure of language, that give clues to the presence of hidden truths, as well as their forbidden characteristics by making a wordplay with the French adjective *interdit*. Thus according to Moreau, art is working in a similar manner with culture, with the former helping to perceive the underlying structures of the latter. But it is also, almost in a psychoanalytical sense, a staging moment, an impulse of avant-garde nature that eventually radiates throughout other cultural fields.

⁷⁸ Cramer, *Anti-Media*, 24.

⁷⁹ Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?” 553.

⁸⁰ Antoine Moreau, “L’Art est à la Culture ce que l’Inter-dit est aux Dits,” *Loisirs Éducation*, 2002.

⁸¹ See Jacques Lacan, “Subversion Du Sujet et Dialectique Du Désir Dans L’inconscient Freudien, ‘Lituraterre,’” in *Lectures de Lacan*, ed. Christian Fierens (Fernelmont: E.M.E, 2010), 793–827.

This distinction is essential to understand the conflictual relationship between art and culture, and appreciate its necessary martial game. This allows to better grasp that the exploration of limits, that is peculiar to art, sets into motion the cultural edifice at the risk of collapsing it. Also, it seems to me that the artistic practices that must inscribe themselves in the limited frame of culture cannot be subject to any cultural policymaking. The breach that the budding artist will create in the cultural field must be accepted and appreciated. Except a grain falls into the ground and dies, it is a whole harvest that becomes sterile. The young artist is a grower who denies productivist and positive culture. Far from being nihilist, they are the critical and constructive telling of what makes culture alive.⁸²

For Moreau, the dynamics of the contemporary art market and the institutions that support it are a threat to a culture that is alive, and in his analysis this very life depends on the ability of the artist to constantly challenge and renew its foundation. This is why the idea of art that escapes art criteria is important in the free art discourse, because these criteria are understood as imposed rules that will dictate the art practice, which in this case would contribute to the failure of cultural renewal. In the above quote in particular, he plays with the notion of field theory, *la théorie des champs*, by French sociologist Pierre Bourdieu,⁸³ in order to make an analogy between the sterile harvest of a field from which the

⁸² My translation. Original text: “La distinction est indispensable pour comprendre le rapport conflictuel qui existe entre l’art et la culture et en apprécier le nécessaire jeu martial. Cela permet de mieux saisir que l’exploration des limites propre à l’art met en branle, au risque de l’écroulement, l’édifice culturel. Aussi, il me semble que les pratiques artistiques qui doivent s’inscrire dans le cadre borné de la culture ne peuvent faire l’objet d’une politique culturelle. Qu’il faut accepter et apprécier la faille que l’artiste en herbe va créer dans le champ culturel. Car si le grain ne meurt, c’est toute une récolte qui devient stérile. Le jeune artiste est un cultivateur qui nie la culture productiviste et positive. Loin d’être nihiliste, il est le révélateur critique et constructif de ce qui fait la culture vivante” Moreau, “L’Art est à la Culture ce que l’Inter-dit est aux Dits.”

⁸³ Pierre Bourdieu and Loïc J. D. Wacquant, “La Logique Des Champs,” in *Réponses : Pour Une Anthropologie Réflexive*, ed. Loïc J. D. Wacquant (Paris: Seuil, 1992).

exploratory practice of the youthful cultivator is denied, with the becoming of a productivist cultural field that cannot perceive the fundamental role of the artist, and the usefulness of the cracks, pits, and various disruptions created in the process. Because this role is sensed as threatened, the FAL exists to secure and enforce this space in-between, so as to make room, and to create protective and nurturing pockets of artistic freedom in the interstices of a fabric woven by the politics of the culture industry.

If the FAL is indeed a useful tool, for Copyleft Attitude it is not a tool for useful productivity, that is to say an efficient and productivist cooperation, as seen with the engineering and prototyping cultural properties of the GPL and the focus on promoting *useful* programs, it is instead a tool to critically engage with these modes of production within the cultural field. In a strange twist, I think that without realising it, free art is not a cultural juxtaposition of free software but its cultural counterpoint, maybe an unknowing opponent. Free art really is a space of intervention, that seem to share some utopian similarities with the Temporary Autonomous Zone (TAZ), an idea developed in 1991 by American anarchist writer Hakim Bey, who then promoted the techno culture-derived idea of creating autonomous territories at the edges of control structures, literally operating as *zones interdites* in the network.⁸⁴ However, something is very different here, and Moreau does not have a very high opinion of such undefined approaches which, according to him are basically ignorant of the subtleties and reality of the network.⁸⁵ This difference

⁸⁴ See Hakim Bey, *TAZ: The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism* (New York: Autonomedia, 2003).

⁸⁵ Moreau, "Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des

is the strict territoriality generated by the constituent effect of the couple definition-license. Here, free art as a counter-hegemonic force, goes beyond the performativity and resistance by trying to plant its own ideological state apparatus.⁸⁶

Similar to the copyleft hack from Stallman, that creates software freedom by establishing a relationship with the same copyright that confines it, Moreau and the participants of Copyleft Attitude, challenge the spectacle by becoming visible and legitimate within its own apparatus. Moreau, who remains highly critical of the impact made by the work from French theorist Guy Debord,⁸⁷ does not believe in an ephemeral, poetical, invisible intervention. Instead, in order to truly establish a territory of artistic freedom, the FAL supporters seek legitimacy, and the license is, in its initial design, promoted as nothing other than a useful tool to claim and protect an artistic territory. So if the analogy with the cultural field, quoted above, seems at first to promote a neoliberal argument of the necessary disruptive role of the artist, it actually operates differently, because by creating a safe haven for these practices it radically differs from the process of creative destruction⁸⁸ that is associated with the economic instrumentation of artists. Similarly, this is also the reason why free art bares little resemblance to anti-copyright practices, and not just because of their divergent legal anatomy,⁸⁹ but simply in terms of tactics. If De-

Données Culturelles ?” 243.

⁸⁶ In reference to Louis Althusser, “Idéologie et Appareils Idéologiques d’État,” *La Pensée* 151 (1970).

⁸⁷ Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?” 3.1.1.2.2.1 Revue Potlatch, anti-copyright.

⁸⁸ In reference to Schumpeter, *Capitalism, Socialism, and Democracy*.

⁸⁹ Cramer, “Anti-Copyright in Artistic Subcultures.”

bord was a drifter, Moreau wants to be a settler.

To be sure, here I mean that in order to become useful and resist the evanescence of former artistic reflection on authorship and intellectual property, free art needs to make a pact with the devil. In particular if on the one hand the digital aesthetics modelled by CAE, inspired by Lautréamont's ideas,⁹⁰ proposed a practice against an authoritarian capitalisation of culture and for the free circulation of ideas within the network, free art on the other hand had to make legitimate the machine responsible for this very same authoritarian capitalisation in order to implement such practices in legal code. While anti-copyright practices intended to ignore legal constraints, free art instead tries to manipulate the legal system to occupy permanently the cultural landscape, and is establishing, just like free software, a kingdom within the kingdom, in the form of yet another *Gemeinschaft* emulation. Here thus appears a paradox. Using terms from American activist David Bollier, in order to support the creation of an “unregimented work space”⁹¹—as part of a process to reclaim the commons and to enable creative endeavours—the regimenting and bureaucratisation of such space is unavoidable. That said, the control over such spaces can be implemented differently to enable, not a complete freedom for any sort of experiments within universal commons, but instead favour singular practices that are only common and meaningful for a few. This is the reason why for instance, free software and free art are structured in an opposite inverted way: the FSF sets a broad ethical context with

⁹⁰ Critical Art Ensemble, “Recombinant Theatre and Digital Resistance.”

⁹¹ David Bollier, *Silent Theft : The Private Plunder of Our Common Wealth* (New York: Routledge, 2002), 9.

Stallman's GNU manifesto, in which the question of functional usefulness of GPL'ed software permits the organisation and classification of its production, while Copyleft Attitude sets a broad functional framework with the FAL, in which the question of ethics is both articulated within and help structure the works created in this work space.

3.4 Artistic Freedom versus Software Freedom

So far in this chapter, I have shown with GNUArt and the FAL two types of cultural appropriation of the free software template applied to the artistic domain. Referring back to the previous chapter, I have also explained the affiliation between all these appropriations and free software, during the cultural diffusion of the latter, and how such link became further articulated in the aggregative Creative Commons and deliberative free culture definition. However, in the process irreconcilable differences have appeared. As I have shown already in the sections above, the very transposition of free software to free art shows that notions like usefulness, purposes, and intentions vary greatly between the FSF, GNUArt, and Copyleft Attitude. What is more, this particular discrepancy is very illustrative of my argument showing that such software freedom has been successful in a broader context, not because of its underlying ideology, but because of its formula, its template for emulating communities, and the way it can abstract and generalise a struggle, so that it can be applied to other cultural contexts and ideologies.

That said, it does not mean that Stallman was completely disconnected

from the development of these projects. As with the OpenContent license from Wiley who consulted both Stallman and Raymond at the time of its creation,⁹² Vidovic and Moreau both corresponded extensively with the leader of the FSF, before, during, and after the development of their respective projects.⁹³ At the time, Stallman who solely used verbatim copying permissions for the publishing of his writing—and who is now also using non-free culture CC NonCommercial and Noderivs CC licenses⁹⁴—was troubled by the very principle of porting his software freedom to another cultural domain such as art, and even questioned the necessity and viability of such an idea. In particular, Vidovic and Stallman coresponded extensively on that matter even before the creation of GNUArt.⁹⁵ In Stallman’s view, it seems that cultural expressions are strictly split between objects of entertainment and tools to get things done, with the latter possibly helping us understand the fixation on the usefulness of software. This dichotomy should not be shocking however, as I have shown in the first chapter, his post-scarcity society as envisioned in the GNU manifesto is essentially a binary world where leisure alternates with work, and this separation is naturally echoed in his definition of culture: entertainment or software useful for working.

For novels, and in general for works that are used for entertainment, noncommercial verbatim redistribution may be sufficient freedom for the readers. Computer programs, being used for functional purposes (to get jobs done), call for additional freedoms beyond that,

⁹² See Chapter 1.

⁹³ Mails from Vidovic and Moreau to author, 2013-2014.

⁹⁴ Richard M. Stallman, “Richard Stallman’s Personal Page,” 2017, <https://stallman.org>.

⁹⁵ Mail to author, May 8th 2014.

including the freedom to publish an improved version.⁹⁶

Generally speaking and as opposed to free art, in his view cultural expressions are *not equal*, hence the need to classify and order them. Such an approach also differs from the broad one in the Freedom Defined project, where according to their FAQ, the free culture definition concerns “works of the human mind (and craft),”⁹⁷ a category comprehending “art works, free software works, free hardware design, machine design, whatever,”⁹⁸ and that is, according to the project, “a well-defined philosophical concept.”⁹⁹ Similarly, CC treats *works* in a broad manner, and the CC licenses can be applied to “any type of work, including educational resources, music, photographs, databases, government and public sector information, and many other types of material.”¹⁰⁰ Stallman however does not see cultural works and expressions as equal. He makes a notable distinction between: functional works, like the software that I use to write this thesis; representative works, such as the text of the thesis; and finally, what he calls aesthetic or entertaining works, which following the same line of example, would be the unlikely derived dramatisation of my research into a TV series. However, it would be a misunderstanding to think such a classification means that Stallman only cares for mass produced forms of entertainment. Despite his crude programmatic

⁹⁶ Stallman, *Free Software, Free Society*, 87.

⁹⁷ Contributors to the Freedom Defined Wiki, “FAQ,” 2015, <http://freedomdefined.org/FAQ>.

⁹⁸ *Ibid.*

⁹⁹ *Ibid.*

¹⁰⁰ Creative Commons, “Frequently Asked Questions,” 2016, <https://creativecommons.org/faq/>.

simplification of culture, he is also known for sharing openly his distaste for the Hollywood film industry and the like,¹⁰¹ and is quite supportive of the filk music scene,¹⁰² a folk derived participatory music genre linked to science-fiction fan communities, in which derivative, interpretative, re-enactive, and all sorts of appropriative transformations are central to this social music genre.¹⁰³ As a result it would seem surprising for Stallman to not understand the notion of free art, given the attempt of the latter to try to address cultural commodification.

It is interesting that unlike Freedom Defined or CC for which cultural works and expressions are equal, and for which it is up to the author to pick whatever license may fit, Stallman's classification instead implies that depending on the type of work or cultural expression created, there is an optimal license to be used. Stallman's reluctance to embrace something like free art is therefore linked to his personal beliefs and pragmatic concerns: first, the fear of misrepresentation or misinterpretation of one's thoughts thus protected with verbatim and non-derivative clauses, which can be linked back to his prototyping habit to iteratively perfect the free software definition, and carefully maintain throughout the years a growing FSF glossary which defines and explains the words he is using and those that he is not;¹⁰⁴ and second, the problem of economics,

¹⁰¹ See Timothy Maciag, *Dr. Richard Stallman: Copyright Vs. Community*, Lecture Recording (San Francisco: Internet Archive, 2011), 1:19:00, <https://archive.org/details/Dr.RichardStallmanCopyrightVs.Community>.

¹⁰² Richard M. Stallman, "Writing the Free Software Song," 2003, <https://web.archive.org/web/20031011123901/http://www.gnu.org/music/writing-fs-song.html>.

¹⁰³ See Henry Jenkins, "'Strangers No More, We Sing': Filking and the 'Social Construction of the Science Fiction Fan Community,'" in *The Adoring Audience: Fan Culture and Popular Media*, ed. Lisa A. Lewis (1992; repr., New York: Routledge, 2001).

¹⁰⁴ See Free Software Foundation, "Words to Avoid (or Use with Care) Because They

that is simply the issue of sustaining the production of free cultural non-software works, for which he cannot think of any suitable model, and explaining why regarding his category of aesthetic or entertaining works, he believes that a reform of copyright is ultimately needed instead.¹⁰⁵ Of course on the first point, Stallman holds a conservative position that seems to be from another time, yet given his knowledge of the digital medium he used to express, publish and distribute his ideas, I think his stance is more closely related to questions of verifiability and authenticity of documents and transactions, as discussed in crypto-anarchist and cypherpunk circles, rather than it is a disregard for all sorts of creative literary transformations. Regarding the second point—the financial sustainability of free cultural production—while the development of working business plans appeared in the nineties for free software,¹⁰⁶ this is not the case for non-software and non-hardware free culture which is still struggling today to showcase convincing models of economic sustainability.¹⁰⁷

In the end, the articulation of cultural freedom versus software freedom is also part of a larger prototyping process, where nothing is set in stone or definitive, hence today's official position of the FSF to neither clearly oppose nor endorse the notion of free art, as expressed on their

Are Loaded or Confusing,” 2016, <https://www.gnu.org/philosophy/words-to-avoid.en.html>.

¹⁰⁵ See Richard M. Stallman, “Let’s Share!” *OpenDemocracy*, 2002, https://www.opendemocracy.net/media-copyrightlaw/article_31.jsp.

¹⁰⁶ Robert Young and Wendy Goldman Rohm, *Under the Radar : How Red Hat Changed the Software Business— and Took Microsoft by Surprise* (Scottsdale: Coriolis, 1999).

¹⁰⁷ “Sustainable Models for Shared Culture : Case Studies and Policy Issues,” research report (CONSERVAS/Xnet, Stichting Kennisland, World-Information Institute, National Hellenic Research Foundation/National Documentation Centre, 2013).

website:

We don't take the position that artistic or entertainment works must be free, but if you want to make one free, we recommend the Free Art License.¹⁰⁸

While the FSF texts tend to strongly push forward their doctrine—as shown in the way assurance and desire to rally are articulated in the GNU manifesto—what such non-position shows, is the ideological incompatibility of the many groups and individuals that are too often conflated into one cohesive whole.

¹⁰⁸ Free Software Foundation, “Licenses,” 2016, <https://www.gnu.org/licenses/licenses.en.html>.

Interlude

So far in this chapter, I have built upon the argument that free software is essentially the abstraction of a struggle, in the form of a template that can be culturally appropriated by others, and therefore also removed from its original context, creating a divergence of discourse within the extended family of free and open source things. Most notably in the first section of the chapter, I have shown that proto-free culture efforts like free art present fundamental differences with free software from which it is derived. What is more, yet not so surprising from the template hypothesis, free art has co-existed historically in the proto-free culture era as two different concepts, that did not merge, precisely because they both proposed two different ideas of artistic freedom. To be sure, and going back to the link I made in the first chapter in the context of agonistic pluralism, such differentiation should not be understood as a failure of constructing so called commons or establishing globalised cooperative economics, but instead as a healthy sign of cultural diversity.

The free software ontology is also echoed in free art in its form, that is a system in which practices and production gravitate around an authoritative centre that works as both reference and model. The closer to

this centre, the closer the practice is aligned with, and becomes a direct manifestation of the ideology at hand. For instance in free software, this means that the work is deemed useful enough to be accepted by Stallman to be part of GNU, while in free art, this means that an artist is able to engage directly with other artists within Copyleft Attitude. As one moves further away from the centre of influence, a more neutral zone is visible where what is produced can be listed somehow officially and based on specific criteria, as seen with the Free Software Directory (FSD) and the free art Liste des Oeuvres. Even further away, in this last remote cultural circle, different practices co-exist with little to no influence from the centre

I want to be precise that this circular ontology is not specific to free software and free art. As a matter of fact, it can also be found in any other proto-free, pseudo-free, and open content and free culture projects. For instance Creative Commons follows the same logic of *différance*.¹ At a *first level*, the CC website presents works and projects that are selected by the organisation to showcase projects which illustrate perfectly the function and usefulness of their license. For instance the 2011 CC samples of “cultural creativity in ‘the commons’ ”² showcased a collection of instrumental music tracks by American musician Trent Reznor’s industrial rock project Nine Inch Nails, released under a CC BY-NC-SA license. It was used to exemplify a CC economic model in which the artist can still benefit from exclusive licensing and the royalties from collecting so-

¹ Derrida, *Marges de La Philosophie*, La Différance.

² Creative Commons, “Culture,” 2011, <https://web.archive.org/web/20110109095424/http://creativecommons.org/culture>.

cieties for their work, yet at the same time allow their audience to freely distribute, share and remix the work as long as it is not for commercial purpose. Then at a *second level*, many web platforms, software applications, for individual or collaborative use, can rely fully or partly on CC licensed work from their users—from YouTube to Wikipedia or Flickr, to name a very few—yet maintaining a role of moderation to validate or not the contributions, based on different more or less explicit end-user license agreement (EULA), terms of service (TOS), or Code of Conduct (COC). These terms of various nature may contradict or limit the effectiveness or the license, for economic purposes as explained in Chapter 2 with Thingiverse’s terms of use, or for ethical reasons, similar to the way free art is moderated in Copyleft Attitude “Liste de Oeuvres”. And finally at a *third level*, CC licenses can be used by any groups or individuals who will distribute their work across public online forums, personal or commercial websites, and motivated by rather diverse beliefs and intentions as I will highlight in the interviews presented in the coming chapter.

Before looking closer to possible ambiguity and misunderstandings resulting from such dispersion—which I will do in the last chapter of the current Part 2—I will now examine the sort of free-range free culture practices found in the long-tail of this cultural diffusion. Indeed, until now I have been mostly focussed on the epicentre and immediate surrounding of these different variants of the free software cultural diffusion. By doing so, I have essentially shown that the cultural appropriation of the free software template has permitted the constitution of new communities, that started to rely and articulate their own interpretation of cultural freedom, then made explicit by the writing of definitions, li-

censes, as well as publishing and collecting things that reinforce their ideology. In this first-stage appropriation it became clear that the resulting language-games could not form a coherent whole, and this is fine, but perfect coherence could be found nevertheless within and at the proximity of these communities. However, it is important to keep in mind that what constitutes these groups is of course public, and is also actively communicated and propagated as part of a desire for wider ideological adoption and expansion. As a consequence, and to give a concrete example, an artist could stumble upon the FAL and start using it without joining the Copyleft Attitude mailing list, and without reading anything about the notion of free art, except maybe for a Wikipedia summary, an abstract in a licensing guide, or a link from a list of approved licenses for free culture or open knowledge. The same goes for a programmer and the GPL, and this point can be obviously quickly generalised for any individual in regards to any license. So in this section, I argue that the consequence of this is the existence of a second-stage cultural appropriation, in which the ideological constituency of the appropriated free software template, becomes in turn another template for other interpretations and intentions to be formed by other groups or individuals that were not part of the first-stage epicentres described so far.

This second-stage cultural appropriation developed notably in the early noughties as a quick follow-up to the proto-free culture era. It declined with the raise of a more defined free culture, when, paradoxically, less defined notions of sharing, commons, and open source, became new curatorial topics for large generalist media art festivals and exhibitions with little to no connections with free and open source

practices,³ and to finally find their way, even further diluted today in the visual contemporary art discourse,⁴ or technically re-framed as part of a revival of interactive or generative art.⁵ While it is beyond the scope of this research to map thoroughly this under documented part of art history, having been involved deeply in some of these groups during the peak of this second-stage cultural appropriation, as stated in this thesis introduction, it became progressively clear for me that the artists and hackers involved at the time either individually or as collectives, had all their own specific understanding of cultural freedom, that did not necessarily overlap or were compatible. If one listens to the artists behind the works, performances, installations, lectures, and workshops programmed throughout the noughties in artist-run art festivals that promoted the use of free software and free culture licenses, such as Píksel in Bergen, LiWoLi in Linz, make art in Poitiers, Junctions in Brussels, OpenLab in London, to name a very few, it is obvious that their intentions and interests varied greatly, from the technical exploration of versatile free software tools, to anti-capitalist forms of engagement provided by the idea of community developed tools.⁶ It was

³ NetArtCommons, “Open_Source_Art_Hack,” 2002, <https://web.archive.org/web/20020528032912/http://netartcommons.walkerart.org/article.pl?sid=02/04/10/0515240&mode=thread>.

⁴ Leslie Fritj Lisa Schiff and Eugenio Re Rebaudengo, “Open Source: Art at the Eclipse of Capitalism” (Galerie Max Hetzler; Press Release, 2015).

⁵ Google Inc., “DevArt. Art Made with Code,” 2014, <https://devart.withgoogle.com>.

⁶ For a good sampler of such broad interests, I recommend watching the documentaries *FLOSSOFÍA*, about Píksel and make art festivals, Ernesto Romero, *FLOSSOFÍA: El Software Libre en el Arte*, Film (México: Centro Multimedia del Centro Nacional de las Artes, 2009), and the LiWoLi09 video interviews, Annalisa Cannito, Chui Yong Jian and Santiago Bence, *Arts Meets Radical Openness*, Online video (Linz: Servus.at, 2009). Similarly the 2005 *Underneath The Knowledge Commons* edition of Mute magazine, offers interviews from active artists and hackers, that already showcases the

also not uncommon for tension and conflict to rise between these groups and individuals, when it was apparent that there was no particular ideological alignment or shared valued to start with.⁷

All that said, regardless of the variety of discourse, and next to the usual ethics versus economics split already present in the free software versus open source discourse, it was possible to discern in this long-tail three different emphases: production, product, and process. During the writing of this dissertation I was able to conduct several semi-structured interviews with practitioners involved in the practice of free-range proto-free and free culture, and it became clear these were indeed cardinal references to navigate within and make sense of the apparent cultural randomness found in these practices. I decided for this text to focus in particular on three discussions that were the most illustrative and articulate of these aspects, and each of them will be presented in their own section: the tools and the means of production for Basque noise and improvisa-

plurality of voices present at the time, Anthony Iles, “Free Labour or Social Sculpture,” *Mute* 2, no. 1 (2005): 10–17. More recently, the book *Conversations*, present a similar diversity in the form of transcripts from several discussions “between developers and designers involved in the wider ecosystem of Libre Graphics”. See Xavier Klein Christoph Haag and Femke Snelting, *Conversations: I Think That Conversations Are the Best, Biggest Thing That Free Software Has to Offer Its User* (Brussels: Constant Verlag, 2015). Last but not least the round of interviews conducted in 2009 during the *Winter Camp* event, organized by the Institute of Network Cultures in Amsterdam, also testify the discrepancy of interests and intentions between those of the invited groups that integrated notions of free culture as part of their networked practices, see Gabriella Coleman, Geert Lovink, Ned Rossiter and Soenke Zehle, *Winter Camp 09: From Weak Ties to Organized Networks Ideas, Reports and Critiques* (Amsterdam: Institute of Network Cultures, 2009).

⁷ A good illustration of this was the feud between the openFrameworks toolkit and Píksel workshop communities, regarding the licensing of the former, and ultimately what such licensing meant ideologically. See Gisle Frøysland, “[Píksel] Who’s Afraid of the GPL?” 2010, <http://piksel.no/cgi-bin/mailman/private/piksel/2010-March/005048.html>, mailing list thread.

tion artist Mattin, the final outcome and its distribution for American cartoonist and animator Nina Paley, and the process of making where the distinction between production and product becomes blurred, with French graphic designers Stéphanie Villayphiou and Alexandre Leray. Finally in a fourth subsection, I will discuss a particular case of free cultural production where free culture is not only a vessel, but also a subject and artistic material.

Chapter 4

The Practice of Free-Range Free Culture

4.1 Mattin - Production

Basque noise and improvisation artist Mattin, is know for his multiple music projects and identities, as well as for a very broad range of noise related sonic experimentations and performances (Figure 4.1). There are quite a few printed and online interviews about his work as a musician in that regard, but this is not what I want to discuss here. Instead, what motivated me to talk with Mattin was his very particular attention to the means of production and the active role, mission even, that he believes an author should have in relation to cultural productions, and how such role relates to the use of free software.

Mattin started to use free software in 2004 while participating in

Metabolik HackLab Bilbao in the Basque Country.¹ He became further engaged with these tools in contact with fellow noise artist and musician Julien Ottavi from the French APO33 collective in Nantes, and by attending other workshops organised by other artist collectives busy with the use and the development of free software for their practice. This is how I met Mattin for the first time, as part of a 2004 Pure Data workshop that I was co-teaching and held at Mute magazine in London, but it took us a decade to start a discussion about the meaning and context of the things that we were interested in. For Mattin, there exists notably a clear separation between the tools used for the creation of, the work of art itself, its performance, and its reproduction. In particular, his main concern lies in the artist's engagement with the productive apparatus.

To give a bit of context to Mattin's thought, in his 1934 essay *The Author as Producer*,² German critic Walter Benjamin offered an understanding of authorship in the light of, and at the meeting point, of different Marxist traditions at the time. In his text, Benjamin especially opposed two situations, one in which the author supplies a productive apparatus without changing it, and one in which the author engineers this apparatus to change it as part of a counter-hegemonic effort. For Mattin, who believes that working artists should be concerned with the means of their artistic production, this essay has become a central reference, and the reason why he sees a connection between Benjamin's critique of cultural production with the ideas of transparency, openness, and participation

¹ The text from this section is based on a semi structured interview with Mattin, on the 23rd of January, 2014, Berlin, Germany.

² Benjamin, "The Author as Producer."

in the way free software is put together, distributed, and possibly modified by autonomous communities. The latter can be at first surprising, given that Mattin is not a software developer, and in his case this revolutionary engineering position of the author could turn out supplying unknowingly another production apparatus masqueraded as a counter-hegemonic effort. When I asked him about the way he might be romanticising free software production in one of his text,³ he admitted a certain ambivalence towards the principle of cooperation and socialisation found in free software. If on the one hand he believes that they have the potential to challenge the autonomy of art, used here in the context of the self-governance of art production, he also believes on the other hand that there is a darker side to such novel forms of cooperation, in which these efforts are in fact means of survival in disguise. He explained that in his opinion people nowadays are forced to collaborate on software, given economic pressure and thus reducing such co-actions to methods for individual gains.

Here again the spectre of Benjamin, and his mixed views regarding the rise of technological means of art reproduction,⁴ seems to resurface, and this may be the reason why, if Mattin sees the usefulness of software freedom regarding the means of production of his work, at the same time he refuses to engage with free culture when it comes to the dissemination and distribution of his production. This is particularly visible with his

³ Mattin, "Anti-Copyright: Why Improvisation and Noise Run Against the Idea of Intellectual Property," in *Noise & Capitalism*, ed. Anthony Iles and Mattin (San Sebastián: Arteleku, 2009).

⁴ Benjamin, "The Work of Art in the Age of Its Technological Reproducibility."

music label *Free Software Series* started in 2007,⁵ where he invites noise, experimental, and improvisation sound artists, who use and write free software as part of their practice. The resulting works are available online via the non-profit public domain and free culture supporter online digital library Internet Archives, and a limited edition of CDs are also produced. Each release follows a template in which the invited artists list the software and tools they use. But what is striking with *Free Software Series* is that unlike many other classic labels or net labels, where contracts and licenses are imposed on the artist, with this label they are free to choose how they want to legally publish their work. As a result, in spite of using a core free culture reference with the term free software, Mattin's label is also typified by a miscellanea of licenses, non-free personal and fantasy licenses, pseudo-legal statements, free culture licenses, and sometimes more simply, a single *anti-copyright* notice written on the back cover, which also happens to be Mattin's way of distributing his own work. Mattin accepts the legal pragmatism of free software licenses when applied to the creation of software tools, but refuses to apply the same principle to his work, or impose it on the fellow artists of his label. According to him, the notion of licenses presuppose too much about what a work of art is supposed to do, what is an author, a producer, and this is simply incompatible with a practice that constantly questions this framework. As a result, the label is not just a platform to showcase a

⁵ Mattin, "Free Software Series," 2007, <https://web.archive.org/web/20071016063358/http://www.freesoftwareseries.org/>.

Figure 4.1: Mattin at make art festival

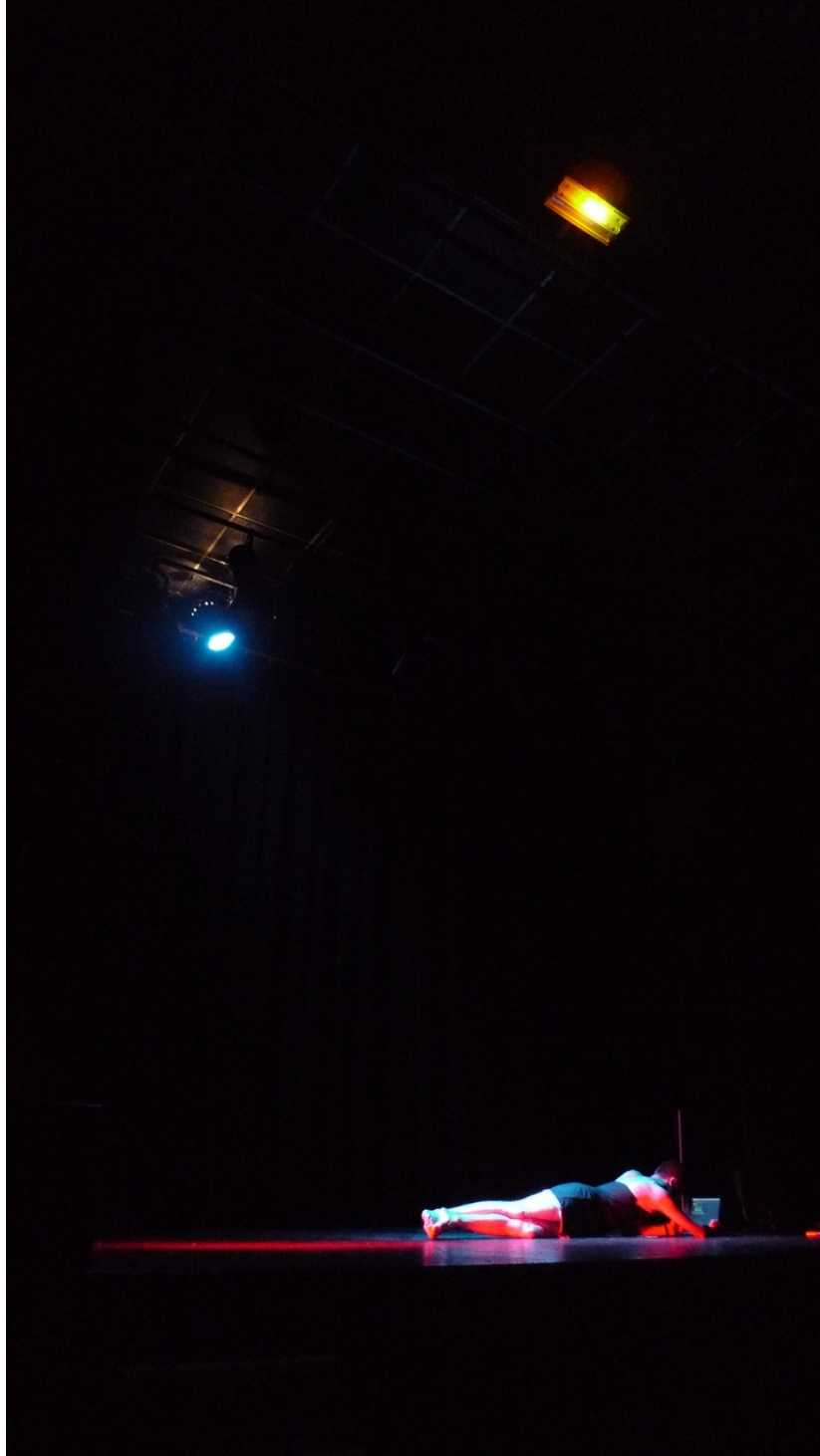


Photo: Olivier Laruelle, 2009, CC0

certain genre of work, but also a strategy to preserve their *aura*,⁶ or at least diminish their loss, given the agonistic pluralism of possible means of reproduction it presents.

So in the context of a free-range proto-free or free cultural art practice, authorship needs to be scrutinised particularly in relationship to capitalism. As Mattin mentioned to me, these modes of distribution and reproduction imply the need to enforce and police the use of his work, and also reveals the secret obsession of artists wondering about how they will be treated by posterity. So instead of accepting without hesitation a normalised notion of authorship, he seeks to trigger discussion. Connecting back with the particular strategy seen earlier of the FAL to defuse the spectacular via legitimacy and visibility, for Mattin the recuperation of the spectacle is part of the game, and has been completely internalised. He has no problem with being partly absorbed as part of a cultural agenda, and does not see the need to resist it with licenses, what matters is the impact noise has on a system in terms of artistic freedom and self-organisation.⁷ So while Mattin refers to Benjamin, and given his appreciation for Debord's work,⁸ maybe the engineering author would be best described in his case as a saboteur author.

⁶ In reference to Benjamin, "The Work of Art in the Age of Its Technological Reproducibility."

⁷ Mattin, "Anti-Copyright," 173.

⁸ See Dan Warburton, "Mattin," *Paris Transatlantic*, 2009, <http://www.paristransatlantic.com/magazine/interviews/mattin.html>.

4.2 Nina Paley - Product

One thing that the cultural appropriation of free software by artists demonstrates very well is the distinction between tools and what they are used for. This is an important point that is not necessarily visible when free culture becomes an over generalising umbrella for all things free and open. Therefore when looking at artists operating within the proto-free or free culture discourse, it is essential to find where these notions of openness and freedom are articulated in their individual practice. If some practitioners, like Mattin, concentrate essentially on the production pipeline to elaborate their critique of the culture industry, others do the exact opposite and instead put the emphasis on the means of distribution and publishing, which is the case for American cartoonist and animator Nina Paley.⁹ Paley's work needs no introduction for anyone familiar with free culture. Her 2008 multi awards animated film *Sita Sings the Blues* (Figure 4.2) became the archetype of free culture success, and more particularly the validity and relevance of CC licenses. For the first time, a free cultural work gained significant popularity and was screened within traditional film industry circuits. When I asked her how she ended up releasing such a work under a free culture license, what she told me would provide the perfect fit for a Creative Commons PR success story or an anecdote from a Lessig essay. But as it turns out, Paley knew very little about free software and free culture during the production of her feature film. However, at the final stage of the work

⁹ This section is based on a semi structured interview with Paley, on the 12th of April 2013, Madrid, Spain.

she learned the hard way how convoluted copyright and public domain could be, and her frustration led her to the discovery of free culture.

She explained to me that in her work she had used samples from records of nineteen twenties American Jazz Age singer Annette Hanshaw, that Paley thought were in the public domain. Unfortunately, copyrights for some technical and compositional elements of the records were still held, and as an independent film maker she was personally liable for a \$220,000 bill, a mandatory step to settle with the copyright holders before having the work distributed. Through negotiation and loan, she was eventually able to license the music for a quarter of the original demand, but what is important here is that while researching about rights clearance, she came across the 2005 essay *The Surprising History of Copyright and The Promise of a Post-Copyright World*,¹⁰ from American software developer Karl Fogel. Through the essay, that lauds without surprise the stereotypical battle of Stallman against closed source and proprietary software, she was introduced to the general theme of free and open source software struggle. Moreover, she told me that she found in this struggle similarities with the problems and frustration she was facing with the final distribution of her work. As a result, she would eventually join Fogel in 2009 in the QuestionCopyright.org nonprofit organisation, an effort to promote public debate around copyright and art. With this newly acquired affinity with the world of free and open things, she then naturally chose the copyleft-inspired

¹⁰ Karl Fogel, "The Surprising History of Copyright and the Promise of a Post-Copyright World," 2005, <http://questioncopyright.org/promise>.

Figure 4.2: Sita Sings the Blues



Still Frame: Nina Paley, CC0, 2008

CC BY-SA license for her animated film, presenting the free cultural publishing of her work as promotional copies, so as to avoid extra licensing from copyright holders. No wonders why she became a poster child for free culture.

The peculiarity of her situation though, is exemplary of the diversity of opinions that are gathered as free culture. Indeed, as I explained in Chapter 2, under the free culture definition, both the FSF software freedom of the GPL and the cultural freedom of CC BY-SA sit together in harmony. But so much for the theory. In practice, and as discussed in the previous chapter with Stallman's own resistance to publish his texts under free culture licenses, the reverse situation also exists: Paley does not directly use free software in the making of her work. What is more, she explained to me that she was still using the now dated 2005 Macromedia Flash 8 software,¹¹ even though many new version have been released since then. Paley said she was sticking with this particular version because of a feature that was removed in later iterations of the software. As a response, her position was to resist the idea of upgrading this software for the sake of it, refusing to buy more expensive versions, that, while claiming the usual productivity increase argument to justify bumping a version number up, whilst actually her opinion supporting a counter-productive system. So even though this story is the kind of anecdote on which the FSF and OSI usually build their narrative of software liberation and vendor lock-in,¹² Paley, instead of jumping in the free and open software bang-

¹¹ A very specific Mac OS version of the multimedia authoring software which at the time of our interview was owned by Adobe and was at version 14.1.

¹² That is to say that the top-down decision to remove the feature is a typical disadvan-

wagon, twisted the situation by continuing to use her old proprietary non-free software to create new free culture.

When I asked her why not simply drop closed source and proprietary software and use free and source software instead, I received in response a rather bleak personal view of the state of free software animation tools. Put simply and according to her, she would not be able to create anything with the same fluency as she had with proprietary tools. Paley told me that she had purchased in the past a machine dedicated for running and learning how to use a GNU/Linux distribution, but this did not work out for her. She was however not ready to give up just yet, and this is why she joined the 2013 Libre Graphics Meeting (LGM) in Barcelona, a meeting for developers and users of free and open source software in the realm of type, graphic design, illustration, and also the place where our interview took place. For her the conference was an opportunity to find renewed motivation, and to investigate the possibility of contributing financially to the development of specific free animation tools. However, at the end of the event, and after several discussions triggered by the presentation of her work in relation with free software and free culture, she found herself forced to admit that based on her needs, it would still take years to be as proficient with free software as she was now with closed source tools. According to her, one of the main problem she identifies with current free software animation tools is that there are simply not enough developers, and not enough moments of development in which users and developers can interact with each other, not remotely using IRC, mailing lists, or web

tage of closed source software, in which little to no control is given to the users.

forums, but face to face in the same room, for extensive periods of time such as a month or so, so as to thoroughly test and implement a particular feature that is relevant for the user. Sadly, Paley's frustration with free software is not simply anecdotal. It remains an unfortunate illustration that switching between tools, and more particularly substituting known non-free software for their supposedly equivalent free counterparts, is easier said than done, particularly for the type of free and open source software that aims at being a near drop-in replacement for known elements of a production pipeline, that has been for decades the closed and exclusive territory of the software industry.¹³ Paley does not take this issue lightly and she told me it was the cause for considerable suffering, not only because she greatly admires the free software movement, but mostly because she admits that out of all her supporters, free software users are the ones who understand the most what she is trying to do with free culture; in her own words it was "painful in that way to not use free software, but the most important thing is the art." Unfortunately, instead of triggering a discussion, her presentation during LGM essentially attracted critique from the more dogmatic free software supporters and developers, who could not comprehend why a non-free but expressive tool could be superior to a free but less expressive tool for Paley.

Next to the question of expressibility, Paley told me that what matters the most for her is access to the work. She has no doubts that if a

¹³ For an overview of the usual challenges and obstacles for the adoption of free and open source software, as a replacement for existing closed source and proprietary workflows, see Amal Al Roumi, "Migrations to Free and Open Source Software: Motivations, Planning and Case Studies" (Master's thesis, Universidad Rey Juan Carlos, 2014).

work is liked, it will be copied no matter what, and instead of controlling this aspect she wants to *concretely* encourage it, hence the focus on publishing the work with free culture licenses. She said that letting go of her intellectual property was the best decision of her life, because in her view copyright is nothing more than a device of censorship and the inhibition of creativity, which is the same point made in the GNUArt project discussed previously. In addition, she argued that intellectual property rights do not only impact artists, but society as a whole because they encourage ludicrous efforts to keep alive and scale systems of surveillance, control, and penalisation needed to enforce them.¹⁴ Paley believes this will only lead to increasing civil unrest, an opinion that overlaps with United Nations (UN) reports from Pakistani sociologist and activist Farida Shaheed, who has recently articulated several sharp critiques of intellectual property from the perspective of human rights.¹⁵

In that sense, in the case of Paley, free culture became a transitional device to help articulate her artistic intention and connect her practice with cultural rights. I use the term transitional because today the cartoonist and animator does not present herself as being a copyright reformist, but as a copyright abolitionist. She explained to me that she also decided in 2013 to re-license *Sita sings the Blues* under the much more permissive CC0 license, another CC and free culture definition approved license.

¹⁴ One notable source of reporting on such issues is the blog TorrentFreak, started in 2005, and still very active at time of this writing. Lennart Renkema, "TorrentFreak," 2005, <https://torrentfreak.com>.

¹⁵ See Farida Shaheed, "Statement by Ms. Farida Shaheed, SPECIAL RAPPORTEUR IN THE FIELD OF CULTURAL RIGHTS," research report (United Nations, 2015); Farida Shaheed, "Report of the Special Rapporteur in the Field of Cultural Rights," research report (United Nations, 2015).

CC0 is more of a legal tool than a typical free culture license, permitting the waiver of as many rights as possible and is currently considered a valid free software, free culture approved license, and conformant license for the Open Definition. It is however not approved by the OSI for the distribution of open source software.¹⁶ According to Paley having her work under CC0 is still suboptimal, in regard to her intention to let go of the entirety of her intellectual property, but it was the only way to be as close as possible to the public domain. Going back to this idea of free culture as a transitional device, what the work and experience of Paley shows is that despite the territoriality of free culture licensing, that was particularly explicit in the counter-hegemonic position of the FAL, these forms of distribution and publishing are not necessarily definitive. Far from the cultural epicentre of these licenses, artists and their work are able to move from one ideological perspective to another more freely, making free culture more of a strategy rather than an end in itself.

¹⁶ The hesitation from the OSI to list CC0 as an acceptable open source license comes from the fact that CC0 essentially works in two steps: first it tries to waive as many legal rights as possible to reach a near public domain status for the work; and a second optional step, because the first step might not be possible in every jurisdiction, CC0 provides a fall-back open source like license as permissive as possible. The issue for the OSI is that this fall-back license explicitly convey protection for patent rights that may be linked to the licensed work. See Open Source Initiative, “What About the Creative Commons ‘Cc0’ (‘Cc Zero’) Public Domain Dedication? Is That Open Source?” 2017, <https://opensource.org/faq#cc-zero>.

4.3 Stéphanie Villayphiou and Alexandre Leray - Process

If some practitioners tend to lean towards one particular side of production, or distribution of their work, others seek a certain balance in which their engagement and critical response is equally represented in both their tools and what they make. To be sure, I am not referring here to some sort of ultra dogmatic position that would seek to impose a free cultural purity in both the production and the product. As presented earlier, this section looks into what I described as free-range free culture practices, outsider free cultural producers, that is to say participants from the second stage cultural appropriation of the free software template by artists, and therefore far from the cultural epicentre and control from which these licenses and definitions have been written in the first place. As a consequence the alignment here of free software tools and free cultural work should not be understood as an extreme form of free cultural practices, but more as an opportunity to redefine an existing artistic practice or genre,¹⁷ making in fact free culture an *un-artistic* process.¹⁸

To illustrate this process, I will now share elements of a discussion with French graphic designers Stéphanie Villayphiou and Alexandre Leray.¹⁹

¹⁷ See de Valk, “Tools to Fight Boredom.”

¹⁸ In reference to American artist Allan Kaprow’s concept of the “un-artist”. See Allan Kaprow, “The Education of the Un-Artist, Part I (1971),” in *Essays on the Blurring of Art and Life*, ed. Allan Kaprow and Jeff Kelley (Berkeley: University of California Press, 1993); Allan Kaprow, “The Education of the Un-Artist, Part 2 (1972),” in *Essays on the Blurring of Art and Life*, ed. Allan Kaprow and Jeff Kelley (Berkeley: University of California Press, 1993).

¹⁹ Some of the following writing is based on a semi-structured interview with Stéphanie Villayphiou and Alexandre Leray, on the 5th of March, 2015, Brussels, Belgium.

I first met Villayphiou and Leray in 2007 when they were students in the Media Design and Communication Master, at the Piet Zwart Institute (PZI), in Rotterdam, Netherlands. After their graduation in 2009 they started the graphic and media design studio <stdin>, and joined the Open Source Publishing (OSP) collective between 2009 and 2010. Since its infancy in 2006 as a branch of the Belgian art and culture organisation Constant,²⁰ OSP is a project that reflects on questions of design, process, and tools in the realm of graphic and print design using only free and open source software.²¹ The particular focus of OSP, now an independent group, was not totally strange for the two designers. Villayphiou and Leray told me that they had both been attracted to the culture of free software since their teenage years, but not immediately in the context of unlearning and relearning graphic design practices, but rather as a knee-jerk reflex against the dominance of a very few software publishers in the late nineties. In fact Leray even recalled that as a high school student, he once stuck anti-Microsoft stickers depicting the Linux kernel penguin mascot, Tux, on the Windows-equipped machines of his school computer classroom, even though at the time he had *never* used free software himself. Tux, the content looking penguin, had reached the same status as other rebellious symbols such as images of Che Guevara, Bob Marley, or The Sex Pistols, thanks to the free software and the GPL roman-

²⁰ The group was initially formed in Brussels, Belgium, by a mixed group of graphic designers, artists and software programmers, Pierre Huyghebaert, Harrison, Yi Jiang, Nicolas Malevé, and Femke Snelting.

²¹ Matthew Fuller, "Open Source Publishing – Interview with Femke Snelting," 2008, <https://web.archive.org/web/20090424080044/http://www.spc.org/fuller/interviews/open-source-publishing-interview-with-femke-snelting/>.

ticised David against Goliath narrative regularly covered in popular tech magazines. Here, the abstraction of struggle offered by the free software template would once again become the main grip for its further appropriation by a younger generation with no direct relation with engineering culture or software development.

I do not mean to say that the relation that Villayphiou and Leray had with free software was entirely superficial or naive, but it was an entry point that would lead to their individuation as graphic designers reinventing their practice. In concrete terms, they explained to me that during their formal education, their particular interest in web design, in which both mark-up and programming languages are exposed, was instrumental in making them favour open standards and systems. From this point, they were interested in linking programming and generative graphic design, something they first did during their study at the *École supérieure d'art et design de Valence* (ESAD Valence) in France, and then explored further at PZI. The latter course being particularly both sensible to and critical of free and open source software culture,²² they were able to articulate more precisely what they found problematic with proprietary and closed source software, turning their attraction to the free software abstracted struggle into something meaningful and relevant to their practice. Villayphiou and Leray told me that one of the most important issues was the normalisation of the skills and workflows in their line of work. This aspect was particularly important for the two designers, who

²² Florian Cramer, Michael Murtaugh and Aymeric Mansoux, "How to Run an Art School on Open Source," 2010, <https://conferences.oreilly.com/oscon/oscon2010/public/schedule/detail/12627>.

had understood the 2006 disappearance of graphics, web, and design software publisher Macromedia, bought by Adobe, as the rise of a monopoly that would dictate through a single toolchain the means and methods of their professional activity. If this same incident had handicapped Paley, and forced her to no longer upgrade her animation software, this vendor lock-in and top-down standardisation was instead an opportunity for Villayphiou and Leray to reinvent their practice, and redefine graphic design.

The important distinction to make here is that the notion of freedom and openness is not at the level of the source code, but at a higher level, both in term of diversity and interoperability. In that regard, Villayphiou and Leray's position is much closer to the core principle of the Unix philosophy and its modular pipeline, than to the software liberation agenda of the FSF. Indeed, Villayphiou and Leray told me that they were not so much interested in using free alternatives to popular raster and vector graphics editors, such as GIMP for Adobe Photoshop and Inkscape for Illustrator. They had no particular hatred per se for any proprietary graphic design tools, and their question of empowerment goes further than investigating the ownership of tools. They are rather calling attention to the way the software industry increasingly replaces the gesture of the practitioner with frictionless suites and workflows. From early on, it has therefore also been important for OSP to perform the practice of design publicly, metaphorically with their participation in free software communities and also literally with their *Print Party* series of events, as an attempt to break the illusion of the perfect and idealised motion found in the factory-like choreography between a dehumanised designer and their

tools, as one of the founder of OSP, Dutch artist and designer Femke Snelt-
ing, once articulated.²³ Their aim is to embed the reflection and experi-
mentation with all sorts of free and open source software, as an indispens-
able element of design research. They admitted though that what they de-
scribed as “ceaseless gymnastics”, was sometimes horrifying in the way
it forced them to constantly unlearn and relearn new things. What might
seem borderline masochist and unproductive given the self-imposed dif-
ficulties and challenge here, is in fact typical of the way some artists and
designers engage with free software.²⁴ If there is fetishism, it operates at
the level of a careful and individuating exploration of uncharted territo-
ries, in order to challenge the critical understanding of their craft.

Of course, such a position seems highly precarious given the compet-
itive labour standards imposed by today’s neoliberal economics. When
Paley decided to stick with proprietary software, next to the question of
expressibility of the instrument, there was also the very pragmatic is-
sue of time management and productivity. When I asked them about
this matter, they told me that for them this was irrelevant because their
main interest was not in streamlining an assembly line, but of integrating
thoughtfully the means of production for every single project (Figure 4.3),
and learning from each other at OSP without any hierarchical construc-
tion or roles that are determined by the type of tools they use, and the
type of skills assumed by their profession. In their own words, this is not

²³ Femke Sneltling, “Awkward Gestures: Designing with Free Software,” 2008, http://freeze.sh/_/2008/awkward/.

²⁴ De Valk, “Tools to Fight Boredom.”

about “emboîter des boîtes à l’usine.”²⁵ It does not mean that they live disconnected from the reality of the graphic design market, but it does mean instead that time, labour, and energy are planned differently when they are commissioned. Unlike the other examples of free software appropriation and inspiration seen so far in this chapter, the link between OSP and free software can be understood as the twenty-first century resurgence of the late nineteenth, and early twentieth century Arts and Crafts movement. The way the collective work echoes the critique made by English social thinker John Ruskin, and by which the movement was inspired, on the issue of the division of labour brought about by the industrial revolution, and more particularly how works produced in factories are unfair and dishonest.

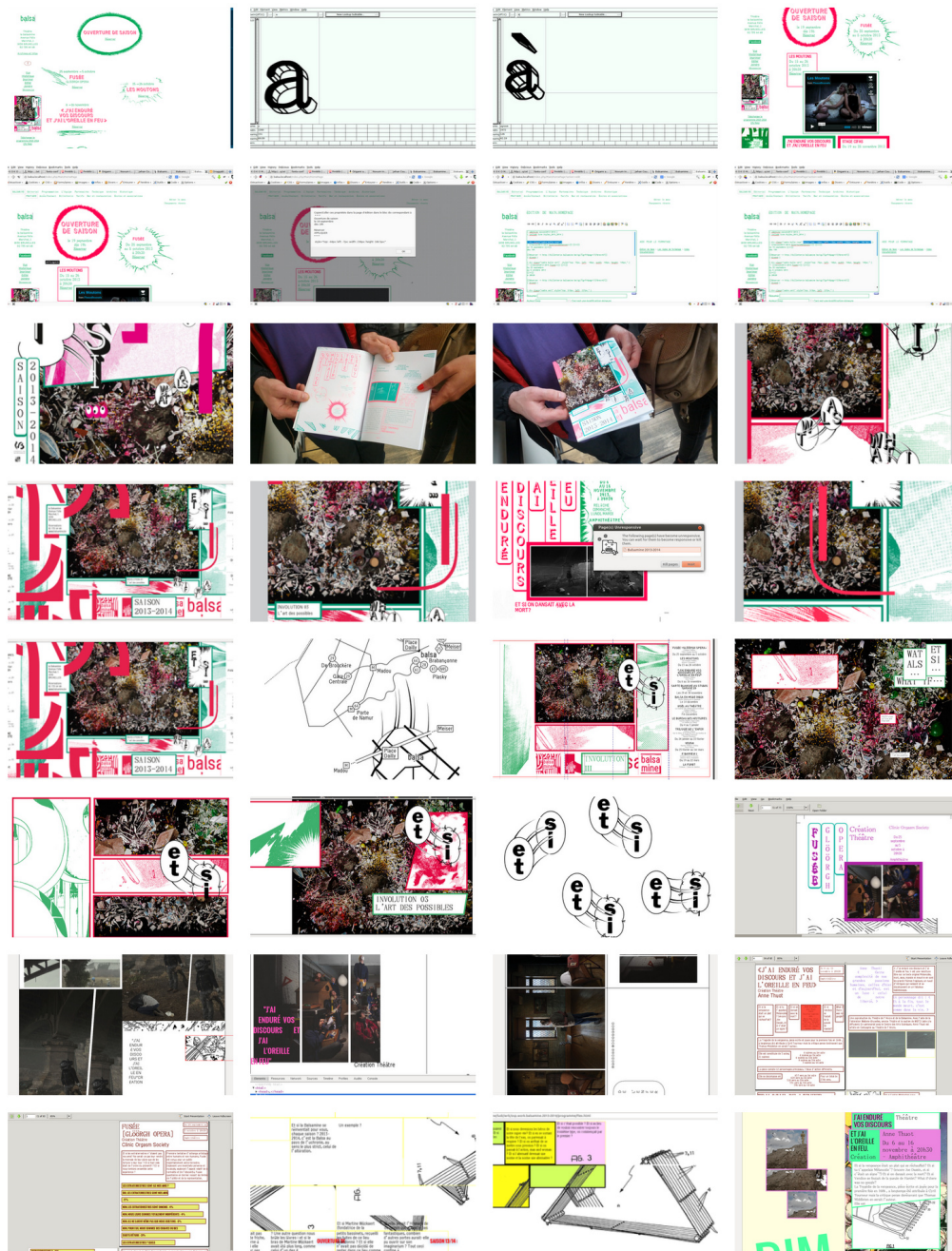
For Ruskin, if the question of tool ownership is important, a more central aspect is the context in which they are used. He therefore makes a clear distinction between things produced manually, and those which come from a factory. According to him, the latter are *lying*, they pretend to be the result of a thoughtful process, but unlike the outcome of craftsmanship they do not leave any record of intents, trials, successes and failures.²⁶ In that sense, even though practitioners like Villayphiou and Leray adopt a modernist stance in their desire to reshape graphic design, there is at the same time in their approach, an underlying connection to a more historical form of hacking where crafting plays an important role.²⁷

²⁵ “putting boxes in boxes in the factory”.

²⁶ John Ruskin, *The Seven Lamps of Architecture* (1880; repr., New York: Barnes & Noble Digital Library, 2011), 43–45.

²⁷ Levy, *Hackers*.

Figure 4.3: Snapshots from OSP design process and tools



Photos: OSP, FAL/CC BY-SA, 2014

So, while their practice exists within the second stage cultural appropriation of free software, and well after the code brutalism²⁸ of some practices in the proto-free culture era, the process they articulate is aligned with the notion of “fanatical devotion to beauty”²⁹ in software writing, the idea that hacking becomes a medium like painting,³⁰ in which writing beautiful programs is an art form like composing poetry or music,³¹ and where pleasure is found in using and writing such tools.³² However such art becomes itself linked to the notion of un-art I referred to earlier, because it creates a situation of unlearning and relearning relative to the skills assumed to be required in their work, while simultaneously promoting their practice as a very classical definition of artistry.

As mentioned earlier, an interesting aspect of OSP is that the works that they are commissioned to design, and the tools they might create as part of the process, are all made available under free culture licenses: the software is usually released under the GPL or the GNU Affero General Public License (AGPL); their fonts are made available under the SIL Open Font License (OFL); graphics works use the double licensing FAL and CC BY-SA. Properly licensing their work is a matter of ethics for Villayphiou and Leray, who believe that this mode of publication helps get rid of the myths of artistic geniuses and ex nihilo creations. This point seems para-

²⁸ Simon Yuill, “Code Art Brutalism: Low-Level Systems and Simple Programs,” in *Read_me: Software Art and Cultures*, ed. Olga Goriunova and Alexei Shulgin (Aarhus: Digital Aesthetics Research Centre, 2004).

²⁹ Paul Graham, *Hackers & Painters : Big Ideas from the Computer Age* (Sebastopol: O’Reilly, 2004), *Hackers and Painters*, p. 29.

³⁰ *Ibid.*

³¹ Knuth, *Literate Programming*, *Computer Programming as an Art*.

³² *Ibid.*

doxical given that craftsmanship has been anyway historically positively associated in hacker culture with individual recognition and talent,³³ but for them free culture licensing is a statement on copying which, unlike appropriation art, is made to respect and honour the notion of authorship. As they explained to me, their decision to use copyleft licenses is also a conscious choice to force sharing,³⁴ and a way of paying tribute to all the free software tools they rely upon themselves. Once again, the plurality of voices in free culture becomes visible. If free software became a template for cultural appropriation that led to the creation of the FAL, the FAL itself becomes in turn a new template to be appropriated and re-contextualised in other practices. That's why for OSP members who are not linked to Copyleft Attitude, the idea of the FAL as a critique of the visual contemporary art market, becomes entirely replaced with a critically reinstated testimonial to authorship and craftsmanship. What is more, this re-contextualisation gets further fragmented within the designers collective itself, as Villayphiou and Leray commented on the fact that other participants in the collective are not comfortable with the distribution of their work under the FAL, which they believe is too niche, and therefore would "require an extra act of contextualisation and seduction to convince [their] public that is the right instrument for the job."³⁵ For Dutch graphic designer and OSP member Eric Schrijver, there is also the problem that neither CC licenses, nor the FAL, reflect properly his philo-

³³ Levy, *Hackers*, 99–100.

³⁴ I use the term *force* precisely to highlight the mechanism of copyleft licenses, where *sharing* of modifications is mandatory when the work is transformed and published.

³⁵ Email from OSP member Eric Schrijver to author, January 3, 2016.

sophical convictions, and in particular the fact that defining authorship in a work is an arbitrary process prone to be influenced by socio-political bias or economic opportunism. Schrijver prefers nonetheless to employ CC licenses because of their existing visibility in the cultural field, and is willing to make a tradeoff between the precision of the intention and the effect his work can have when distributed via more popular free culture licenses.³⁶ This is the reason why OSP decided to dual license some of their assets under the FAL and the more popular CC BY-SA, even though the two have been recently made compatible in 2014,³⁷ hence creating via licensing itself a meta-discourse on top of their own personal interpretation of what such licenses stand for. Similar to the example of the GCC and Clang compilers discussed in Chapter 1, and the double inflection of their licensed source code, the same duality repeats itself here again. The meaning and the intention of using or making a free cultural work or expression will vary strongly depending on its licensing. Even though the FAL and the CC BY-SA are already re-contextualised in this second stage appropriation, that is to say that their purpose in the context of OSP have diverged from their original purpose, they are still distinct paratextual elements that translate into different meaning. What is unique though, is that OSP does not see this as an issue, and their choice becomes an echo to the plurality of voices that form the collective: they do not have to settle for one single license but use dual-licensing instead to highlight the cultural diversity within the group, and put in place concurrent strategies

³⁶ Email to author, January 6, 2016

³⁷ Creative Commons, “ShareAlike Compatibility: FAL,” 2014, https://wiki.creativecommons.org/wiki/ShareAlike_compatibility:_FAL.

of distribution.

Finally, if sharing knowledge and learning, the record of its gesture, is the most important part for the two graphic designers, they also recognise that this is also a point of friction in a collective where the use of software constantly challenge this social dimension of their craft. With the engineering and industrial context of their tools, appears therefore an overshadowing bargain between the intimate writing of software to be used once for a specific work, and the maintenance and documentation of more reusable and efficient production frameworks.³⁸

4.4 A Note on the Artistic Appropriation of the Free Cultural Discourse

With the examples of Mattin, Paley, Villayphiou, and Leray, I have shown that the relationship with free and open source software and free cultural licensing, exists under the form of a well formulated partisan choice, upon which the accent of their engagement varies according to the needs of their practice, and according to their habitus, even if this articulation is not ideologically aligned with the frameworks they are using. There are however, other forms of appropriation of the free cultural frameworks which I will address in the last section of this chapter. I want to mention

³⁸ For an extensive analysis of the relationship between time and expressibility in open source software written in the context of art practices, see Thor Magnusson, “Expression and Time: The Question of Strata and Time Management in Creative Practices Using Technology,” in *FLOSS+Art*, ed. Aymeric Mansoux and Marloes de Valk (Poitiers: GOTO10, 2008).

the existence of works, in which the affiliation to free culture and similar ideas is not only paratextual, but made explicit by the material used for making the work. The most interesting aspect of such works is how they turn inner and idiosyncratic discussions within the realm of free and open things, into an artistic medium. To illustrate this, I have chosen to discuss three works, *Save the GNou!*, *Fibre Libre*, and *CC Ironies*, all of which appropriate the free software principles at different levels, suggesting that if there is such a thing as free culture aesthetics, it does not limit itself to the sole question of licensing.

4.4.1 SAVE THE GNou!

As explained in the first section of this chapter, nineties new media art, and net art in particular, had championed a new form of digital appropriation art where borrowing, plagiarism, stealing, and quoting became both a method and instrumental in the development of network aesthetics operating as a smoke screen for all sorts of intentions.³⁹ Abusing such a smoke screen was notably the principle tactic for irreverent French group pavu.com,⁴⁰ which collection of automated translation assisted *FrenGLISH* pseudo entrepreneurial and pseudo avant-gardist web sites presented as “territoire libre du Net”⁴¹ was once described as the craziest part of the

³⁹ Bosma, *Nettitudes*, A Deeper View.

⁴⁰ An acronym for Popular Arts Value UPgrade, where *UPgrade* is used to refer to the transforming methodologies used by the appropriation artists, who described their formation at the time as a *startUPgrade*. Parts of this section are derived from email exchanges with pavu.com member Jean-Philippe Halgand, during March 2013, and January 2016.

⁴¹ Annick Rivoire, “Pas Vu Bien Vu,” *Libération*, 2002, 01/03/02.

French cyberspace.⁴²

Launched in 1999, pavu.com is presented as an establishment specialised in “arts informatifs”, a concept described at the time by the group as a form of artistic engineering and semantic reframing, operating on top of information perceived as raw material and that could be extracted outside of its original context.⁴³ Shortly after its creation, pavu.com released its *MilleniumFlower numerical bouquet* (MFL),⁴⁴ under the form of five events and projects which were announced over five days, on several net art and culture mailing lists such as rhizome, syndicate, nettime, and 7-11. The series of works ranging from different forms of artistic appropriation, commercial exploitation, and commissioned advertisements for other net artists, coincided with a time where the question of privatisation of the Internet was becoming more pressing and started to impose limits to the new networked artistic territories claimed by tactical media practices that had escaped the artificiality of the white cube but now found themselves exposed to corporate regimes, as best exemplified with the 1999 and 2000 domain name *toywar* between the digital art group etoy and the online retailer eToys.⁴⁵

If it is well beyond the scope of this text to cover in depth the whole

⁴² Ibid.

⁴³ Alban Saporos, “Arts Informatifs? Un Monde Qui Pline! Un Entretien Avec Clément Thomas (Pavu.com),” *Archée* 05/2001 (2001), <https://web.archive.org/web/20010606150015/http://archee.qc.ca/ar.php4?btn=texte&no=159¬e=ok>.

⁴⁴ A pun referring to both the Mayflower event, and the marketing term *bouquet numérique* used in France for the offering and combination of several digital broadcasting services and products, email to author, January 2, 2016.

⁴⁵ Reinhold Grether, “How the Etoy Campaign Was Won: An Agent’s Report,” *Leonardo* 33, no. 4 (2000): 321–24.

Figure 4.4: Dépôt marque Française COPYLEFT

N° National : 99 811 487

Dépôt du : 6 SEPTEMBRE 1999

à : I.N.P.I. BORDEAUX

CHABRELY ERIC, 51 BLD LUDOVIC TRARIEUX, 33100
BORDEAUX.

HALGAND JEAN-PHILIPPE, 21 RUE FRÈRE, 33000 BORDEAUX.

LAPORTE ELISABETH, 51 BLD LUDOVIC TRARIEUX, 33100
BORDEAUX.

ATTERET ALEXIS, 19 RUE DE LA PREVOTE, 33000 BORDEAUX.

Mandataire ou destinataire de la correspondance :
CHABRELY ERIC, 51 BOULEVARD LUDOVIC TRARIEUX, 33100
BORDEAUX.

COPYLEFT

Produits ou services désignés : Papiers, cartons Vêtements
Communications par terminaux d'ordinateurs, service télécom-
munication et messagerie électronique par réseau Internet
Cassettes audio-visuelles, Cédé-rom, Dévédé.

Classes de produits ou services : 9, 16, 25, 38.

Extract from Bulletin officiel de la propriété intellectuelle, 99/42 NL, VOL.I, 1999

MFL,⁴⁶ one of its five parts is however connected in a strange twist with the notions of territoriality and copyleft discussed in Chapter 3. This particular part entitled *Save the GNou! The Copyright The Copyleft World Campaign*, was created as a sort of pseudo-hacktivist mock-critique proto-free cultural campaign, using the free and open source software discourse as material and inspired by late nineties email chain letters.⁴⁷ At the core of the propaganda was the call for the protection of a threatened species called *GNou*, the French word for the Bovidae gnu, and of course also the mascot since the eighties of the GNU project. The protection campaign started notoriously in September 1999 with the trademark (Figure 4.4) of the word *copyleft* in France.⁴⁸ Later in 2000, new variations on the theme were added, in a form of a GNou Found Lands (GFL) organisation “fighting attempts to destroy Networked GNou free territories”, and “[p]reventing server space from becoming hunting companies’ monopoly.”⁴⁹ Eventually, it was announced that to expand the *GNou Reserve* one could acquire a plot from the GFL,⁵⁰ in the form a small graphic file depicting a gnu, to be inserted and hosted on one’s website.

If French semiotician Roland Barthes had visited one of the websites

⁴⁶ Or pavu.com for that matter. For more information, the following link lists several texts and interviews which should give enough clues to start deciphering, or not, the world of this collective. pavu.com, “Théorie - Entretien et Textes | Theory - Interviews and Texts,” 2016, <http://www.pavu.com/iaaf/theory.htm>.

⁴⁷ Email to author, January 2, 2016

⁴⁸ Eric Chabrely, Jean-Phillipe Halgand and Elisabeth Laporte, “N° National : 99 811 487 ‘Copyleft’,” Enregistrement de marque (I.N.P.I. BORDEAUX, 1999).

⁴⁹ Pavu.com, “GNou Found Lands - a Territory ! a Standard Unit ! a Market !” 2000, <https://web.archive.org/web/20031006012338/http://www.gnoufl.com/territoireus.htm>.

⁵⁰ The *GNou Reserve* term itself was linked to yet another Frenglish play on words derived from typical copyright notices: “Tous contents CopyGNou 2000, pavu.com, All Right ! GNou Reserve”.

from pavu.com after writing about the TV ads of French pasta brand Panzani,⁵¹ he may have rephrased the practice of “arts informatif” in simpler terms, that is to say the art of stripping the symbolism of an iconic message so as to create confusion and deception given the pre-existing connotation system within the appropriated material. Here, even though the resulting collage is also a reaction to cultural transformations and privatisations happening at the time, instead of deriving the free software template for their own purpose, pavu.com treated the FSF discourse and imagery as raw material to play with. The members of the group, who did not know of the existence of GNUArt and who did not read the FAL when it was released in 2000,⁵² but however had learned about copyleft from Moreau prior to the existence of Copyleft Attitude,⁵³ obviously operated as pranksters and trolls. While such manoeuvres were known in the field of tactical media,⁵⁴ they did not impress Moreau, who will eventually qualify the trademarking of copyleft as an example of the artistic stupidity, in reference to a comment by French artist Marcel Duchamp in relation to un-reflective traditional art making.⁵⁵ Regardless, looking today at the campaign from pavu.com it is undeniable that it both pre-dates and is announcing a wider and more globalised form of “arts informatif”

⁵¹ Barthes, *L'Obvie et l'Obtus: Essais Critiques III*, Rhétorique de l'image.

⁵² Email to author, March 11, 2013

⁵³ Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?” 614.

⁵⁴ Known and popular, however also ambivalent in their potential political impact that could be questioned. For a short discussion on that matter, see Mark Dery, “Vector Block on Telecom Avenue: Mark Dery in Conversation with Critical Art Ensemble,” *Mute* 10 (1998): 27–29.

⁵⁵ Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?” 614–15.

ifs”: Internet memes. As it turns out, on popular western imageboards like 4chan’s /g/ or 8chan’s /tech/, to name the biggest at the time of writing, the practice of appropriating and radically transforming the free and open source software discourse happens on a daily basis, with little regard to factualness or coherence, except for those practising it and who use it as part of specific visual grammars and symbols, constantly providing a counterpoint in near real-time to whatever happens in the world.

4.4.2 FIBRE LIBRE

If the approach of pavu.com to free culture relies on stripping away symbolism from its iconic message, other artists do the exact opposite by removing the literal elements and make use of the remaining symbolic images. By working with a material that is only a system of connotation, and which has lost its literal counterpart, the idea of free and open source software as well as free culture, becomes a means to create new works at a metaphorical level, and inspire methodologies to explore and frame existing practices from a new angle. To be sure, this is different from the cultural appropriation of the free software template discussed earlier. There is no literal functional adaptation but instead an inspiration to understand and observe free software through the lens of an existing practice.

This is the case with *Fibre Libre* (Figure 4.5), a 2009 event and artist’s book, that documents the efforts of a group of people learning about free

software while also learning how to make paper.⁵⁶ It was initiated by American bookmaker and letterpress printer Bridget Elmer as part of Open Edition.

Open Edition was founded in 2009 by Flatbed Splendor to explore the philosophy of FLOSS (Free/Libre/Open Source Software) through the medium of the artist's book. In this exploration, the artist's book is considered both for its potential as a free information technology and as a free cultural work. As such, Open Edition is an attempt to extend the Free Software Foundation's "four essential freedoms" to the users of the artist's book, integrating FLOSS with the art of making books by hand. Open Edition advocates for the understanding and use of free software, particularly in the book arts community, by supporting relevant practice, scholarship and pedagogy.⁵⁷

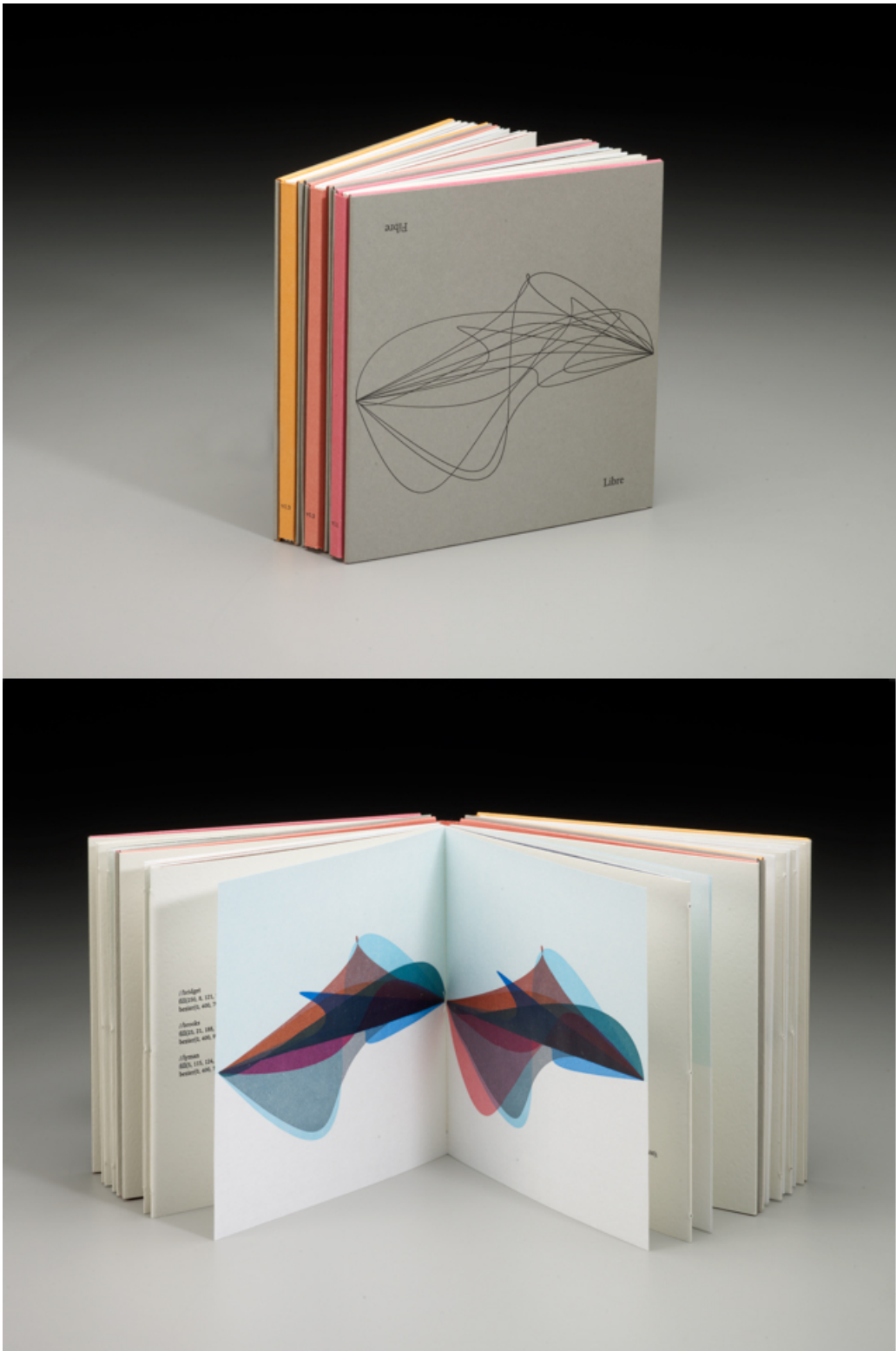
Elmer initially discovered bookmaking via the zine and self-publishing culture, and saw a lot of similarities between those writing free software, and "those printing their books from redistributed lead type on the letterpress [...] or making books of their own creation on a copy machine."⁵⁸ *Fibre Libre* is a way for Elmer to work through the similarities and differences of the two cultures, as a means to understand what free culture is about, and share this with her friends and the artist's book community. The resulting book, which is limited to fifty handmade copies and published under the FAL, represents a narrative that unfolds both in space and time. It derives an idealised understanding of the mechanism of collaboration and cooperation found in the production of free software, to

⁵⁶ Bridget Elmer, "Fibre Libre," 2011, http://flatbedsplendor.com/wiki/index.php/Fibre_Libre.

⁵⁷ Ibid.

⁵⁸ Email to author, April 23, 2011.

Figure 4.5: Fibre Libre



Photos: Bridget Elmer, 2011, FAL

permit another reading of what is constituent of book making that both highlights and illustrates literally such elements. In this method, the different contributors to this event and workshop used, reused, and transformed each other's recipes to make paper, down to the fiber created from the pulp of their own clothing. Next to that, they learned the open source programming framework Processing, as a means to visualise and keep track of the usage and origins of each pulp vat used in the process of making the paper. The graphics generated are printed on the paper, as well as the source code, whether they are instructions to make the paper, or the code for the generated visuals. Finally, this method is used three times and will form the three parts of the final book, each new iteration builds upon the previous one so as to highlight and encourage the progressive blending of the source code from the different Processing sketches, and the different instructions and pulps to make the paper sheets.

The result is describe by Elmer in the form of a parallel between what she calls *objects* and their *source*, and how the latter are produced.⁵⁹ According to her the project has an educational purpose and see her intention as political in the way it tries to address a sense of disconnection in the practice of book making:⁶⁰

To sum up, we'll fight for days on the listservs as to whether or not polymer type prints as well as lead type. We'll argue down to the millimetre when it comes to our binding decisions. But we'll just

⁵⁹ Vamp & Tramp, "Flatbed Splendor," 2013, <http://www.vampandtramp.com/finepress/f/flatbed-splendor.html>.

⁶⁰ Email to author, April 23, 2011.

fire up the Adobe Creative Suite, live trace our drawings and make a negative without ever understanding the code (written by someone else!) that generates our content. This seems like a disconnect to me.⁶¹

The fact that Elmer's approach to free culture is essentially metaphorical is very useful to understand the process of cultural diffusion in free culture. *Fibre Libre*, while not using the free software template to create a functional framework relevant to her practice and community, demonstrates clearly how this abstraction of the free software struggle can move so easily from one field to another, and explain why many artists were able to relate to its general idea and see similar patterns in the way the things they make, highlighting in particular the contradiction between a polymath desire to remain autonomous in one's practice, yet articulate such independence within broader collaborative and cooperative networks.

4.4.3 CC IRONIES

Another form of artistic appropriation of the free and open source discourse is also possible. For instance, artists can turn the question of choice for licenses upside down, and instead use licensing itself as a way to engage their audience directly with intellectual property issues in the art. An illustration of this is the 2007 *CC Ironies* series (Figure 4.6) by English artist and writer Rob Myers, a work that takes the form of nested

⁶¹ Ibid.

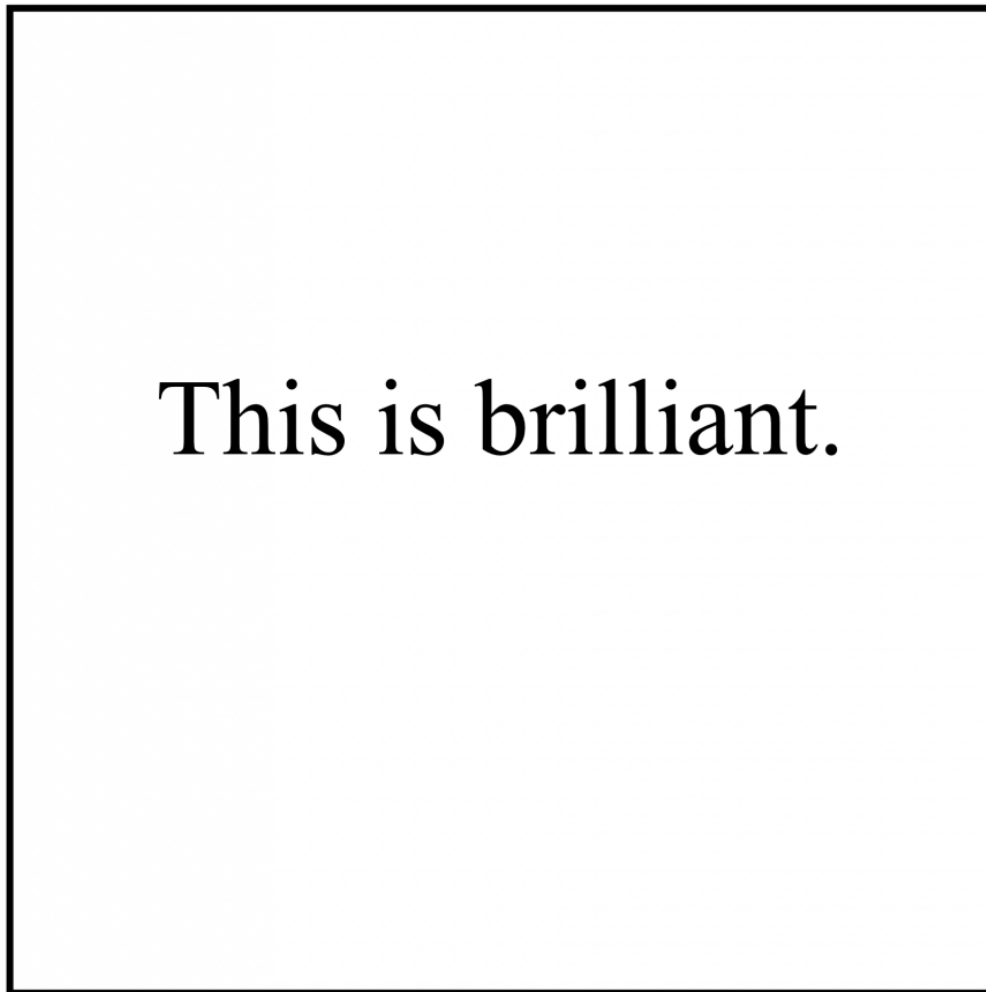
art in which the artist articulates the tensions between authorship, appropriation, attribution, collaboration, copyright, and CC licenses at the three levels of icons, indices, and symbols. Here, the iconic messages of the appropriated images are not stripped of their symbolism, however, instead of generating meaning through their discreet and discontinued arrangement, which would be the way in which such images are usually encountered, Myers creates a new symbolic interpretation by superposing these images. To be sure, the particularity of such collage is that the context and functionality of the images used has been deeply challenged.

Unlike the FAL—which as I discussed earlier was not understood by its initiators as a work of art, in the sense that it did not claim any affiliation with artistic practices using the contract as medium—a series like *CC Ironies* is instead a free culture addition to the notion of contract aesthetics, or to be more precise license aesthetics. Indeed, the making of the work was the result of a discussion between Myers, the Serbian artist duo Marija Vauda and Nikola Pilipovic (MANIK), and English entrepreneur David Bausola on the topic of copyleft as form, and that according to Myers, drew inspiration from Carey Young’s use of legal documents as sculpture and installations.⁶² Here, a particular point of attention was given to the social and legal form that copyleft is intended to be, and the way it can, or cannot, affect the aesthetic form of art.⁶³ If the strategies of pavu.com can be understood politically, they are not a direct political action. This is not the case with Myers whose work is more militant than

⁶² Carey Young, “Works,” 2017, <http://www.careyyoung.com/works>.

⁶³ Email to author, April 22, 2011.

Figure 4.6: CC Ironies (sample from a series of 42)



Vector graphics: Rob Myers, CC BY-SA, 2007

partisan, or to be more precise, is inscribed in a copyright reformist trajectory where the choice of a license is not an innocent gesture. Similar to the point I made earlier on the role of licensing as a form of artist statement, Myers argues that free culture licensing is a “small political act”, that make artists and their work directly implicated in the *Copyfight*.⁶⁴ Even though he generally finds the political commitments of artists to be “more often a cause of embarrassment than an interesting component of the work”⁶⁵ that causes the impairment of artistic freedom, he considers Copyfight to be an exception because, and it is a paradox, he argues that it is precisely inscribed in an effort to remove limits on artistic freedom.⁶⁶

In that sense, the use of licensing in *CC ironies* is more than an artist statement by Myers on free culture, it is also an attempt to communicate to his fellow artists this particular reflexivity. He believes that free cultural licensing makes tangible and visible the underlying legal apparatus of art production and distribution, and *CC Ironies* is thus a bold attempt to demonstrate this point through practical means. Once again, there is with such position an interesting split between a more partisan approach to free culture, as illustrated by the examples of free-range free culture practices discussed earlier, and the way artists like Myers understand these documents beyond their paratextual role. In fact, what triggered

⁶⁴ Copyfight is a blend word between copyright and fight, often used in free and open source discussion as a general term to describe the struggle over intellectual property. See Wendy Seltzer, “Why Open Source Needs Copyright Politics,” in *Open Sources 2.0 : The Continuing Evolution*, ed. Chris DiBona, Mark Stone and Danese Cooper (2005; repr., Sebastopole: O’Reilly, 2006), 150.

⁶⁵ Rob Myers, “Why Should the Licence of an Artwork Be Interesting?” 2007, <http://robmyers.org/2007/06/21/why-should-the-licence-of-an-artwork-be-interesting/>.

⁶⁶ Ibid.

Myers to first articulate the effect of licensing, and eventually produce *CC Ironies*,⁶⁷ was a comment on CC licensing from American artist duo M.River & T.Whid Art Associates (MTAA), who while presenting themselves as CC license users, also wondered about the artificiality of such licenses which they qualified as a “legal-addon.”⁶⁸ By *artificiality* Tim Whidden from MTAA explains that it is “something added on by outside influence and may or may not have any meaning or value vis-a-vis what the artist was trying to communicate in the art work,”⁶⁹ and as consequence a CC licensed work is not necessarily better than a non CC-licensed work because in his view, for most viewers the contextual shift provided by the CC license will not be perceived.⁷⁰ According to Whidden, the value of a work will be appraised based on traditional artistic criteria and not the license used. Worse, “drawing a viewer’s attention to the licensing aspect of a work of art may confuse the viewer”⁷¹. For Myers, these points are moot because there is no clear distinction between understanding the work and understanding the artist’s intention once there is copyfighting as political commitment. In his own words, CC licenses may not “make a work look better [but] it can make the work be seen better and can lead to the creation of better work.”⁷² They create

⁶⁷ In June 2007, Myers first wrote about this aspect of licenses, and then made the work. The latter was further developed in August of that year following the creation from Bausola of a series of free culture licensed *Free Gift Wrapping Paper* inspired by the notion of the gift economy. Email to author, January 13, 2011.

⁶⁸ Tim Whidden, “Artificial Legal Add-Ons to Art,” 2007, http://www.mtaa.net/mtaaRR/news/twhid/artificial_legal_add_ons_to_art.html.

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Ibid.

⁷² Myers, “Why Should the Licence of an Artwork Be Interesting?”

a direct implication of the work and the artist with the issue of artistic freedom. This argument implies however that the artist has been using the license knowingly, a point I will discuss in the next chapter.

Interlude

With everything discussed so far in this text and more particularly in this second part, it should become clear that free culture is symptomatic of a situation in which—in postmodernist terms—the temptation to present it under the form of yet another *grand narrative*,¹ “les grands récits,”² is constantly challenged and questioned by its value and function at the level of individual experiences and personal narration. Similarly, the dual openness of source code presented in the first chapter, and now the dual openness of licenses, leads to a state where the technical, legal, and literary interpretation of these documents can never be taken for granted. To make things even harder to track, as explained previously, proto-free and free culture practices have greatly inherited from engineering prototyping culture, where things are constantly cooperatively rewritten, revised, and reiterated. As for the question of authorship, a very broad range of opinions can be found in these free cultural processes of partici-

¹ In reference to Jean-François Lyotard, *The Postmodern Condition : A Report on Knowledge* (Minneapolis: University of Minnesota Press, 1984).

² Jean-François Lyotard, *Rapport Sur Les Problèmes Du Savoir Dans Les Sociétés Industrielles Les Plus Développées* (Québec: Conseil des universités, 1979).

pation. The way they are expressed in practice is directly aligned with the means of reproduction that they offer to their audience: from traditional verbatim strategies, so as to leave a thought or an intention pristine and pre-interpreted ready to be consumed by an audience, to an invariably replayed and materialised death of the author,³ whereby every reader has the permission to become writer.

The direct consequence of this ongoing process is that it becomes questionable to find a foundation of discursivity⁴ in such mussiness. If I have indeed shown that several stages of appropriation of free cultural principles imply their organisation around originative ideas, I must clarify that this is different from describing a system of influence around a foundational idea. Instead it was merely used as a simple way of following some of the transformation of the free cultural discourse as it is diffused. To be sure, I do not see these transformations as proofs of defusion, or elements of deviance or divergence, that would imply the weakening or recuperation of an *authentic* free and open foundational position. On the contrary, each of these variations is given the possibility to become the foundation of a new discourse, and as explained in Chapter 2, this should not be seen as a problem, but a healthy sign of hegemonic and counter-hegemonic dialogue in a very diverse cultural landscape,⁵ and operating by the means of the expression of power relations via their conscious

³ Barthes, *Le Bruissement de La Langue*, II. De l'œuvre au texte.

⁴ Michel Foucault, "Qu'est-Ce Qu'un Auteur? (Conférence 1969)," in *Michel Foucault: Dits et Écrits, 1954-1988. / Ii, 1976-1988*, ed. Daniel Defert, François Ewald and Jacques Lagrange (Paris: Gallimard, 2001).

⁵ Chantal Mouffe, "Cultural Workers as Organic Intellectuals (2008)," in *Chantal Mouffe: Hegemony, Radical Democracy, and the Political*, ed. James Martin (London: Routledge, 2013), 210.

choice of inclusion and exclusion. Such practices help establish a certain order in a context of contingency.⁶

The consequence again is that the license as the vector of a clearly defined intention and usage simply cannot be trusted. The risk here is that even if the freedom of interpretation and usage is beneficial for both the cultural and legal fields, and can attest to the existence, if not to some clichés, of a romantic understanding of the needs and apparatus of each side, this same freedom of interpretation can also quickly turn into misunderstanding. In the thesis introduction I made reference to Hall and Carey, to push forward the ideas of culture as communication and communication as culture, respectively. With free culture both these approaches seem to constantly work to simultaneously improve and undo the outcome of the other, to the point where what we are left with could be more accurately defined as culture as miscommunication and miscommunication as culture.

With that said, if it's not a problem per se, it does not mean that it is not problematic. The risk arises when a fixed viewpoint at a particular time, becomes framed and turned illustrative of the whole machinery by means of hasty generalisations. Although it is not in the scope of this research to systematically list all of these faulty generalisations, in the next chapter I intend to provide an analysis of two aspects that are the most prone to misunderstandings: the meaning of copyleft within and outside free culture; and the relationship between commercial activity

⁶ Mouffe, *On the Political*, 16–17.

and free culture. Each point will be addressed with examples in its own section.

Chapter 5

Free Cultural Misunderstandings

5.1 The Double Misunderstanding with Copyleft

On the 26th of May 2014 Italian noise musician Eleonora Oreggia, working under the artist name xname, published via email a call for experimental musical pieces on the theme of lullabies.¹ The selected works were meant to be released by the new net-label *nebularosa*, run by the artist, and distributed both as digital downloads and limited edition vinyl. Being both familiar with, and supportive of free culture practices² and also

¹ The following short account was narrated to me during an email exchange with Oreggia in 2015.

² Eleonora Oreggia, “The Piksel Big Bang,” in *FLOSS+Art*, ed. Aymeric Mansoux and Marloes de Valk (Poitiers: GOTO10, 2008).

a free software user for many years, Oreggia requested the applicants to specify which license they wished their work to be published under. However after making the final selection of works for the compilation, a strange pattern became apparent in the licensing choice. Indeed, instead of specifying the name of a particular license, the majority of submitters had simply put “copyleft”, which as discussed earlier in Chapter 1, is not a license but simply a property of *some* free culture licenses. But the story does not stop here. After trying to clarify the situation with the musicians and explaining that a proper license was required, and that copyleft per se was not a license, she eventually received the following list of Creative Commons licenses from the artists: CC BY, CC BY-NC, and CC BY-NC-ND. Perfect, these were indeed valid licenses, the project could proceed as planned, except for one small puzzling fact: *none* of these licenses were copyleft licenses.³ How did that happen?

A circled backwards letter C, the vertical mirror of the copyright symbol, is the graphic representation of copyleft. It can be found today on T-shirts, mugs, and of course on stickers to decorate the mood board that represents the laptop cases of artists, designers, musicians, and writers who want to demonstrate their support for... Well, for what precisely? As explained in the first chapter, and in the context of free software, copyleft is a property of a free software license, to ensure that all the modifications

³ As discussed previously, out of all the Creative Commons licenses, only the CC BY-SA is close to a copyleft license. For a more detailed discussion on the difference between copyleft and CC’s ShareAlike, see Rob Myers, “Non-Commercial Sharealike Is Not Copyleft,” 2008, <http://robmyers.org/2008/02/24/noncommercial-sharealike-is-not-copyleft/>.

and extensions made to the software must be free as well,⁴ meaning published and distributed under the same licensing terms. Copyleft is *not* a synonym of free software. Non-copyleft licenses, which can generally be described as permissive licenses, do not require sharing back changes.⁵ In fact these permissive licenses are sometimes referred to as copyfree licenses by their supporters, and the advocates of this term are openly against copyleft, arguing that unlike copyleft, copyfree is true software freedom because these licenses do not impose sharing.⁶ In practice, both the FSF and OSI supports and list free software licenses that are copyleft and copyfree, and open source licenses that are copyleft and copyfree, which should come as no surprise given the important overlap between the two listings.

According to the FSF, the purpose of the copyleft mechanism is to prevent *uncooperative*⁷ people from converting free software into propri-

⁴ Free Software Foundation, “What Is Copyleft?” 2017, <https://www.gnu.org/copyleft/copyleft.html>.

⁵ I am purposefully simplifying here to make the basic distinction more clear. In practice however, depending on the license, the copyleft principle can either be non-existent, or weak, or strong. A license is said to be permissive, when the copyleft principal is non-existent and the licensed program can be turned into closed source software. When a license is weakly protective, then the copyleft principle is said to be weak, as the program is prevented from becoming closed source, yet it can become part of a larger closed source system. Finally, when a license is strongly protective, then the copyleft principle is said to be strong, because the program is strictly prevented to become or be part of a larger closed source system. For a more complete overview, See David A. Wheeler, “The Free-Libre/Open Source Software (FLOSS) License Slide,” 2007, <http://www.dwheeler.com/essays/floss-license-slide.pdf>. Last but not least, copyleft does not only apply to software, CC’s ShareAlike is roughly equivalent of copyleft, and free culture licenses can also be categorised by function of their copyleft weight. See Contributors to the Freedom Defined Wiki, “Licenses,” 2014, <http://freedomdefined.org/Licenses>.

⁶ Chad Perrin, Lester L. Martin II, Lisa Joy and Kbenjamin Sauerhaft Coplon, “Copy-free,” 2017, <http://copyfree.org/>.

⁷ Free Software Foundation, “What Is Copyleft?”

etary software: copyleft is here to avoid a situation in which the freedom granted by the author to the users of their software, has been stripped away by an intermediary agent. As a consequence, in the case of the copyleft license GPL, it means that any distributed modifications of GPL'ed software must in return also be licensed under the GPL itself, thereby leading in theory to more free software being written and distributed. This is why some critics of the free software movement started to use the term *viral licensing* or virus⁸ to describe the possibility of the GPL spreading whenever free software was modified and distributed. Some even called it the “Borg property,”⁹ and there is certainly in these analogies a mix of popular sci-fi and posthumanist anxiety towards something inhuman going out of control, stealing our identities, and taking over the world. Here the notion of creativity is understood as a sort of Bergsonian *élan vital*,¹⁰ a precious biological reproductive function that needs to be diligently safeguarded from a virus that might lead to involuntary sharing of embodied private property and identity. The analogy is not exaggerated and it seems these metaphorical strategies come up fairly often during debates around IP, whether or not specific to copyleft and free software. For instance in February 2012, following the peak of online protest against the US bill Stop Online Piracy Act (SOPA), the American

⁸ Raymond and Steele, “THE JARGON FILE, VERSION 2.2.1”; Paul Vixie, “Re: Section 5.2 (Ipr Encumbrance) in Tak Rollover Requirement Draft. E-Mail to namedroppers Mailing List,” March 6, 2006, <http://web.archive.org/web/20070927175628/http://psg.com/lists/namedroppers/namedroppers.2006/msg00246.html>.

⁹ Richard Hawkins, “The Economics of Open Source Software for a Competitive Firm,” *NETNOMICS* 6, no. 2 (2006): 103–17.

¹⁰ In reference to Henri Bergson, *L'évolution Créatrice*. (Paris: Les Presses universitaires de France, 1907).

film industry magazine *The Hollywood Reporter* solicited a branding and advertising expert to draft a purposefully populist campaign targeting piracy.¹¹ The resulting mockup called DTCs, for Digitally Transmitted Content, made a questionable parallel between viral sharing and STDs, Sexually Transmitted Disease, using a condom as illustration and on the packaging of which could be read in capital letters “PROTECT YOUR CREATIVITY.”¹²

To return to the puzzling situation of licensing choice made by the musicians of the *nebulosa* net-label, a question that I asked myself in relation to this anecdote, was did the artists misunderstand what copyleft is, or did I misunderstand what the artists meant by signing their work in such a way? I have shown that copyleft is indeed a very particular legal mechanism with no possible misunderstanding, and is emblematic of sharing and co-creative practices. It is the most popular aspect of Stallman’s work, and plethora of free cultural copyleft licenses lists can be found on the Internet. Yet, the term is regularly misused. An example of such a confusion can be seen in one of the scenes of the very popular documentary *RiP: A Remix Manifesto*, in which copyleft is used to visually represents several icons of non-copyleft Creative Commons licenses (Figure 5.1) such as non-commercial, sampling, and even public domain—the latter being the most radically non-copyleft status a work can possibly receive. Similarly the free software movement is frequently assimilated to the so-called copyleft movement, and somehow put in relation with

¹¹ THR, “The SOPA Disaster: Hollywood’s Image Problem and Who’s to Blame,” *The Hollywood Reporter* 50 (2012): 34.

¹² *Ibid.*, 34.

Figure 5.1: RIP!: A Remix Manifesto



Still frame: Brett Gaylor, CC BY-NC 3.0, 2008

art traditions of non- and anti-copyright practices.¹³ This creates confusion because copyleft relies heavily on copyright as explained several times in this thesis, and also—as discussed in the previous chapter—when it comes to mapping the different artistic intentions connected to cultural freedom, there are irreconcilable differences within the different communities which animate these fields.

The reason copyleft is misunderstood is very simple. The term sits at the cross-road between the cultural field and the legal field. Copyleft, an obvious play on the word copyright, is a way to express a certain form of rebellious and tongue-in-cheek humour which mocks or defies IP laws. The term predates the FSF, and so a trivial symbol like a copyleft sticker or the casual use of the term is not the sign of defusion and recuperation of free software by the means of mass producing stereotypes of cultural resistance, because such a sign occupied the cultural field long before its legal articulation with free software. In fact, one day in 1984 Stallman received by mail a programming manual that had been borrowed by American hacker and computer artist Don Hopkins. On the envelope a stickers reading “Copyleft (L)” was used to seal the small package. Hopkins had bought a pack of stickers at a science fiction convention, where hackers, including Stallman, often gathered and where it was common for them to organise and share rooms, notably for “@” parties in which people with email addresses could meet each other.¹⁴ According to Hopkins, at that time the term copyleft was not part of the hacker culture, and

¹³ See Liang, *Guide to Open Content Licenses V1.2*, The Black and White (and Grey) of Copyright.

¹⁴ Email to author, February 17, 2015.

the stickers had been purchased in the dealer's room of one convention with other comics, political, and satirical stickers and buttons.¹⁵ Knowing Stallman's appreciation for such things, Hopkins had decorated the letter in a similar spirit. Little did he know that eventually the sticker and the pseudo-copyright statement he had written as a joke (Figure 5.2), would inspire Stallman to use the word copyleft to describe the properties of the GPL.¹⁶ This is how copyleft, the symbol of rebellious cultural practices, ended up being claimed as a term to describe a particular mechanism of free software licensing. Regarding the copyleft term that inspired Stallman, it seems that it kept on being occasionally used in the nineties, with no connection to free software. For instance, I found it mentioned with the mark "<L>" instead of "(L)" in the lyrics of a folk song¹⁷ inspired by the *Dune* science fiction saga by American author Frank Herbert. The lyrics were signed "<L> 1992 by Jeremy Buhler" with a note at the end of the file "PS - <L> means copyleft."¹⁸

While Hopkins explained that copyleft was not part of the hacker culture at the time he bought the stickers, the overlap of different alternative, countercultural, niche, or underground communities was however already visible in the copyright notice of a 1976 implementation of the proto-free software Tiny BASIC, where could be read on the title screen "@COPYLEFT ALL WRONGS RESERVED."¹⁹ This particular

¹⁵ Ibid.

¹⁶ Williams, *Free as in Freedom*, The GNU General Public License.

¹⁷ A folk derived participatory music genre linked to science-fiction and fantasy fan communities as briefly discussed in Chapter 3.

¹⁸ Jeremy Buhler, "The Spice Has Made My Green Eyes Blue," 1992, dune.txt.

¹⁹ Li-Chen Wang, "Palo Alto Tiny BASIC," *Dr. Dobbs's Journal* 1, no. 5 (1976): 15.

line of copyleft linked to computational culture also kept on being active in the nineties with no apparent connection to free software. For instance it can be found in some ezines mentioned as “(CL) Copyleft,”²⁰ or “Copyleft 1992 - All Rites Reversed,”²¹ or “(CP) Copyleft 1999 QNARKK PRODUCTIONS all rites reversed.”²² The last two are particularly interesting because they suddenly connect to much older publishing practices. It was relatively common in the late sixties and seventies to spot in underground publication a statement against the publishing industry and intellectual property, in various forms, such as the phrase “All Rights Reversed”, spelled or expressed differently like in the “© All Rites Reversed – reprint what you like” notice in the 1979 version of the *Principia Discordia*.²³ Concerning the term copyleft itself, it is striking that mail artists such as Ray Johnson also used the term *copy-left* in their work,²⁴ and it was possible on occasions to spot the now very popular copyleft icon, a vertically mirrored copyright logo, marking a mail art related publication. In this context copy-left was more politicised and articulated by those who refused to engage with the art scene of the time, and who experimented with alternative systems of property by giving their art away, in an age where different strategies such as the staging of happenings, were

²⁰ HTLV-3, ed., “020: The Swedish Elite Magazine. Nummer #1,” 1995, 020_1.txt.

²¹ Mister Zen, “Separation of Church and State in America: A Short History by Mister Zen,” 1992, scsa-ash.txt.

²² Maje\$ty, ed., “QNARKK. #4,” 1999, q04.txt.

²³ Greg Hill, *Principia Discordia, or, How I Found Goddess and What I Did to Her When I Found Her: The Magnum Opiate of Malaclypse the Younger, Wherein Is Explained Absolutely Everything Worth Knowing About Absolutely Anything*. (Mason: Loompanics Unlimited, 1979), SPECIAL AFTERWORD.

²⁴ McKenzie Wark, “<nettime> from Mail Art to Net.art (Studies in Tactical Media #3),” 2002, <http://www.nettime.org/Lists-Archives/nettime-l-0210/msg00040.html>.

created to resist the commodification of culture. In particular the use of copy-left was seen by Japanese mail artist Ryosuke Cohen as a symbol of “free-from-copyright relationships”²⁵ with other artists, in a way that was “not bound to ideologies.”²⁶ Here the statement is not just paratextual, it also refers to a practice and attitude towards particular communities of sharing, similar to the 1973 “COPY-IT-RIGHT” and “distribution religion” philosophy from American video artist and activist Phil Morton,²⁷ or the earlier 1970 so-called *Xerox mark*, a circled X, used in the American video journal *Radical Software*, as the “antithesis of copyright”²⁸ and to “encourage the dissemination of information”²⁹. Even though it is out of the scope of this research to map thoroughly other important or forgotten historical examples of copyright inversions, it should be clear that they have been quite numerous. The problem with such approaches, to come back to the topic at hand, is that their legal validity is at best questionable, which makes it easy for them to be claimed by the intellectual property framework they criticise. Unless potential artistic relationships and cooperation are made explicit, which is what Lithuanian-American artist George Maciunas did with fellow Fluxus artists by using a shared copyright,³⁰ or unless the estate of an artist or collective is taken over by a

²⁵ Ryosuke Cohen, “RYOSUKE COHEN MAIL ART - ENGLISH,” 1999, <http://www.h5.dion.ne.jp/~cohen/info/ryosukec.htm>.

²⁶ Ibid.

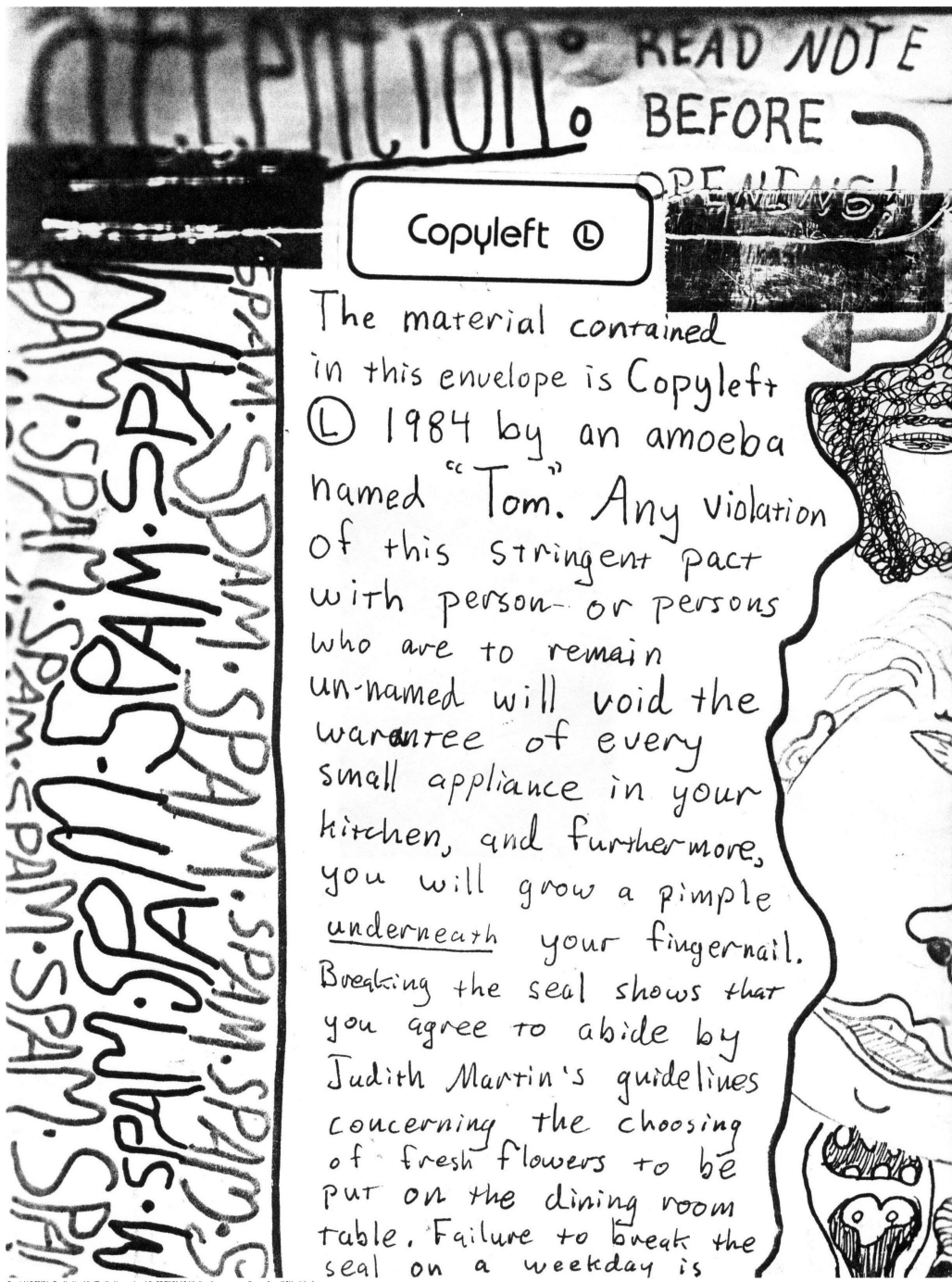
²⁷ Jon Cates, “Re:Copying-IT-RIGHT AGAIN,” in *Relive: Media Art Histories*, ed. Sean Cubitt and Paul Thomas (Cambridge: MIT Press, 2013).

²⁸ Phyllis Gershuny and Beryl Korot, eds., *Radical Software, Volume 1, No. 1* (New York: Raindance Corporation, 1970).

²⁹ Ibid.

³⁰ Kristine Stiles and Peter Selz, *Theories and Documents of Contemporary Art: A Sourcebook of Artists' Writings* (Berkeley: University of California Press, 1996), GEORGE MACIUNAS - Letter to Tomas Schmit (1964).

Figure 5.2: Copyleft (L) sticker



Envelope scan: Don Hopkins, 1984, CC BY-SA 4.0

caring group or institution willing to document and share the work in the same original spirit, like The Phil Morton Memorial Research Archive,³¹ then the door to contradictions can open at any time. For instance, in a very unfortunate and sad twist, the copy-left free-from-copyright ethos of mail-art echoed years later in some reproductions of Johnson's copy-left works, which are now stamped "Copyright the estate of Ray Johnson."³²

But the copyleft trail does not stop there. The term copy-left and its iconic representation were introduced onto the mail-art scene by Swiss artist Manfred Vänçi Stirnemann, after the artist had sent stamps of the copy-left word and logo to Cohen, who then started to use the latter to imprint copy-left marks as part of his widely distributed stamp sheet editions.³³ At the time Stirnemann was not aware of any similar usage of the term, and admits it is a quite obvious play on the word copyright, he would not be surprised if other artists with some political inclination had also come up with the same idea. At first, Stirnemann was not involved in mail-art, and used copy-left and its mark for his projects and publications, such as the 1984 "copy-left" editions. His work has been inspired by various topics and things, from the eighteenth century *Encyclopédie* edited by Denis Diderot and Jean le Rond d'Alembert, early eighteenth and nineteenth century anarchism and socialism, American poet Gary Snyder and the Beat Generation, hippies, McLuhan's global village, to art brut and the Frankfurt School. For Stirnemann, "no copy-right" eas-

³¹ Cates, "Re:Copying-IT-RIGHT AGAIN."

³² Wark, "<nettime> from Mail Art to Net.art (Studies in Tactical Media #3)."

³³ This paragraph is based on an email exchange with Stirnemann in March 2015.

Figure 5.3: Cover of 1985 copy-left issue #3

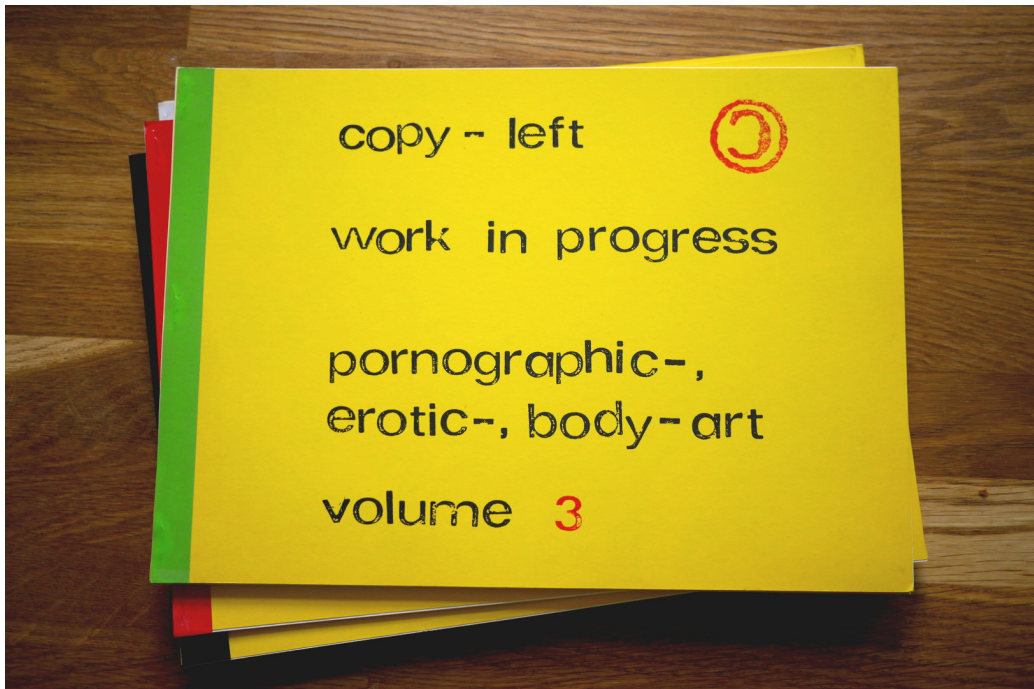


Photo: Aymeric Mansoux, 2011, CC0

ily translates into copy-left while making allusion to left wing politics, it is as simple as that. Regarding the coining and usage of the term, Stirnermann cites as first personal influence the Underground Press Syndicate (UPS), a late sixties born countercultural network of underground newspapers and publishers, within which community things were shared, with simple rules of no copyright but the crediting of source and author. This was actually often made explicit in these publications, for instance in the colophon of the UPS affiliated underground magazine *HOTCHA!* initiated by Swiss artist and writer Urban Gwerder, the following statement could be read: “anti-copyright aber quellenangabe und beleg erwünscht”, anti-copyright but please cite the sources and references.³⁴

Such an approach itself is of course in the trajectory, of the even more radical pseudo-copyright statement found in the *Internationale Situationniste* publication, which started with its third issue of 1959 to print the following notice: “Tous les textes publiés dans ‘INTERNATIONALE SITUATIONNISTE’ peuvent être librement reproduits, traduits ou adaptés, même sans indication d’origine.”³⁵ All the texts published in ‘INTERNATIONALE SITUATIONNISTE’ can be freely copied, translated or altered, even without mention of origin. The link could be further explored to take into accounts the large history of anti-copyright and plagiarist practices in art,³⁶ but it is not necessary. The demonstration here, is to simply show that copyleft licenses are not derived and do not belong to the cul-

³⁴ Urban Gwerder, ed., *HOTCHA!*, No. 49 (Zürich: UPS, 1970).

³⁵ Guy Debord, ed., *Internationale Situationniste (Numéro 3)* (Les Sections de l’Internationale Situationniste, 1959), 2.

³⁶ Cramer, “Anti-Copyright in Artistic Subcultures.”

tural legacy of anti copyright practices. They are completely different trajectories. It would be more correct to say that it just happens that Stallman was exposed unknowingly to the micro-mediatic³⁷ diffusion of underground art scenes with the copyleft sticker, and ended up fixating a term outside of its original context. This of course helped a lot free software to become adopted and appropriated back by artists who thereafter, with very few exceptions such as Copyleft Attitude, did not interpret copyleft in its techno-legal context but linked it to an internalised symbolic critique of the culture industry in the past century.

American scholar James O. Young suggests using the term style appropriation when “artists do not reproduce works produced by another culture, but still take something from that culture [and] produce works with stylistic elements in common with the works of another culture.”³⁸ In that sense, the artists contributing to Oreggia’s netlabel sampler effectively appropriate the style of free software culture by using the term copyleft in relation to the licensing of their work, yet picking the apparently wrong non-copyleft licenses. Similarly, the *.copyleft!_ notice from Turkish artist İbrahim O. Akıncı, both refers to the notions of free art, copyleft attitude, and free culture, yet presents itself as a non-license, a comment on the moral values and ethics of free culture, as they are perceived by the artist.³⁹ But Stallman’s use of copyleft is *also* a case of style

³⁷ In reference to Sarah Thornton, *Club Cultures: Music, Media, and Subcultural Capital* (Hanover: University Press of New England, 1996), “Micro-Media: Flyers, Listings, Fanzines, Pirates”.

³⁸ James O. Young, *Cultural Appropriation and the Arts* (2008; repr., Chichester: Wiley-Blackwell, 2010), 6.

³⁹ İbrahim O. Akıncı, “httpdot.net » . .copyleft!_:” 2013, http://www.httpdot.net/copyleft_.

appropriation of underground and countercultural practices, for which the meaning of copyleft is not universal, but as I have shown, points to a collection of intentions and processes that can vary greatly, from encouraging copying, but not specifying the possibilities of transformation, or requesting attribution, to complete permissiveness and the occasional legal limbo to provoke a challenge to copyright. They are all unique and specific to the cultural context they stem from. These practices were in fact not proto-copyleft but similar to the proto-free culture era described in Chapter 2, where all sorts of exotic licenses were used to publish digital works. Therefore, and returning to the netlabel anecdote, it becomes understandable that when asked to specify a license, the musicians all come with very different licenses, each illustrative of a personal understanding of copyleft art that interfaces with common language, as part of an ongoing dramatisation⁴⁰ of the processes of cultural commodification. So in the end there are truly two misunderstandings occurring with the use of free software derived copyleft for works of art: the first is most obviously the failure to properly use free cultural copyleft licenses, but the second, more subtle underhand misunderstanding, and of equal if not more importance, is the failure to see behind the first one the continuation of poetics and resistance, as part of a long history of practices critical of intellectual property.

⁴⁰ In reference to Hebdige, *Subculture*, 87.

5.2 The Enduring Debate over the Commercial Exploitation of Free Culture

Another frequent source of confusion is the commercial exploitation of free and open things, and the muddiness surrounding the topic seems to be the most persistent misunderstanding within free culture. Because of this, the literature on the topic has yielded in the past, and is still producing a plethora of contradictory analysis. For instance open source was presented early on as exemplary of a cyber-communist gift economy and wrongly associated with the shareware and freeware business models,⁴¹ or articulated as anti-commercial effort,⁴² that sometimes was even described as the underlying meaning of copyleft.⁴³ It is an old confusion and more recent writings have started to look back at the connection between free software and the software industry in a less one-sided way,⁴⁴ providing in particular a much needed articulation of the relationship between the liberal interpretation of free software and free markets, and the tension that arises in the symbiosis between capital and community.⁴⁵

Still, even today the relationship between free and open source software, and its commercial exploitation from large corporations to

⁴¹ Richard Barbrook, "The Hi-Tech Gift Economy," *First Monday* 3, no. 17 (1998), <http://firstmonday.org/ojs/index.php/fm/article/view/631/552>; Richard Barbrook, "The Hi-Tech Gift Economy," *First Monday* Special Issue 3 (2005), <http://firstmonday.org/article/viewArticle/1517/1432>, Special Issue Update.

⁴² Galloway, *Protocol*, 169–71.

⁴³ Hardt and Negri, *Multitude*, 301–2.

⁴⁴ Berry, *Copy, Rip, Burn*, The Commercialisation of FLOSS.

⁴⁵ Johan Söderberg, *Hacking Capitalism: The Free and Open Source Software Movement* (New York: Routledge, 2008), Business models based on free software.

garage-hacker startup companies, is the topic of heated debate.⁴⁶ It is true that the link between commercial practices, software distribution, and the idea of selling software has always been a complicated construction within free and open source communities. Swedish scholar Johan Söderberg uses the 1989 slogan from early free software supporting company Cygnus Solutions, “we make free software affordable,”⁴⁷ to sum up the contradictory logic of the first commercial exploitations of free software practices. But this ambiguity is also mirrored, early on in the nineties, with the discourse of the first large non-commercial and not-for-profit free software projects. For American software engineer Ian Murdock, founder of the free software Debian project and operating system, software freedom in relation to commercial exploitation was referred in such a way:

The Free Software Foundation plays an extremely important role in the future of Debian. By the simple fact that they will be distributing it, a message is sent to the world that Linux is not a commercial product and that it never should be, but that this does not mean that Linux will never be able to compete commercially. For those of you who disagree, I challenge you to rationalize the success of GNU Emacs and GCC, which are not commercial software but which have had quite an impact on the commercial market regardless of that fact.⁴⁸

The idea of something presented as non-commercial, which nonethe-

⁴⁶ For instance on popular tech news posting and discussion forums, such as *Slashdot*, *Hacker News*, and also some subreddits from *Reddit* and various chan’s /g/ and /tech/ boards, such debates have solicited emblematic knee-jerk reactions from its community of users, whenever something related to free and open source software and commercial exploitation is discussed.

⁴⁷ *Ibid.*, 32.

⁴⁸ Murdock, “The Debian Manifesto.”

less has the ability to be commercially competitive on a market, is not trivial to communicate and understand, but it makes explicit that the resistance towards commercial exploitation is not necessarily an opposition to the principles of free market. Fast forwarding fifteen years after the release of the Debian manifesto from which the above text was quoted, this ambiguity has played in favour of developing a large free and open source software supported anti-capitalist network infrastructure,⁴⁹ but also fuelled many large scale free and open source software based commercial projects. The latter is obvious for products relying on permissive licensing, as often exemplified by the relationship between FreeBSD and Mac OS,⁵⁰ but also for copyleft licensing for which commercial exploitation is possible in spite of the much feared source code closedness. This strategy was particularly demonstrated with Google's Android mobile operating which Linux source code, was essentially reduced to an open middleware and thin client, meant to interface with a corporate controlled closed ecosystem of apps and cloud services.⁵¹

As covered in the first chapter, since its infancy, the FSF goal was never to promote the distribution of software free of charge, but instead to liberate the software culture from the closed source and proprietary software model. Even before the introduction of the term open source, Stallman

⁴⁹ For a list of 32 active, at the time of writing, of “[a]nti-capitalist, anti-hierarchy, autonomous revolutionary collectives which provide free or mutual aid services to radical and grassroots activists”, see Riseup, “Radical Servers,” 2017, <https://riseup.net/en/security/resources/radical-servers>.

⁵⁰ Weber, *The Success of Open Source*, 202.

⁵¹ Kimberley Spreeuwenberg and Thomas Poell, “Android and the Political Economy of the Mobile Internet: A Renewal of Open Source Critique,” *First Monday* 17, no. 7 (2012), <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/4050/3271>.

was very well aware of the risk of using the adjective *free*:

The word “free” in our name does not refer to price; it refers to freedom. First, the freedom to copy a program and redistribute it to your neighbours, so that they can use it as well as you. Second, the freedom to change a program, so that you can control it instead of it controlling you.⁵²

However, this was only the beginning of what would be an unceasing struggle with language. Not only did the FSF supporters have to liberate software to fit their particular definition of freedom, now they would also need to do the same for their own vocabulary. Therefore, by the end of the nineties, and shortly before the creation of the OSI, the FSF started to maintain a collection of “confusing or loaded words and phrases that are worth avoiding.”⁵³ This effort is in fact a preemptive lexicon meant to defuse possible current and future weaknesses in the free software discourse. The evolution of this collection of definitions is literally an ever changing media archaeological artefact that is the witness of Stallman’s learning process and own individuation, which development, like GNU’s source code, is made public through an iterative and version controlled workflow.

Throughout the years, the list has kept on growing, as an attempt to patch any new misunderstanding, and to remain in control of the GNU language. Regarding the issue of the commercial exploitation of free and

⁵² Stallman, “What Is the Free Software Foundation?”

⁵³ Free Software Foundation, “Confusing Words and Phrases That Are Worth Avoiding,” 1998, <http://web.archive.org/web/19980119061527/http://www.fsf.org/philosophy/words-to-avoid.html>.

open source software, this lexicon is therefore helpful in its function of logging Stallman's defusing efforts. For instance, the entry "Sell software" added in 1998, is essentially a response to the threat presented by the creation of the OSI the same year:

"Sell software"

The term "sell software" is ambiguous. Strictly speaking, exchanging a copy of a free program for a sum of money is "selling"; but people usually associate the term "sell" with proprietary restrictions on the subsequent use of the software. You can be more precise, and prevent confusion, by saying either "distributing copies of a program for a fee" or "imposing proprietary restrictions on the use of a program," depending on what you mean.⁵⁴

In this quote, Stallman and the FSF try to balance an ethically driven free software discourse with a touch of openness towards commercial exploitation. This attempt to connect with past defectors and future OSI supporters is even stronger four years later, were the term "commercial" is added in response to the increasing popularity of the term open source in business contexts:

"Commercial"

Please don't use "commercial" as a synonym for "non-free". That confuses two entirely different issues.

A program is commercial if it is developed as a business activity. A commercial program can be free or non-free, depending on its license. Likewise, a program developed by a school or an individual can be free or non-free, depending on its license. The two questions, what sort of entity developed the program and what freedom its users have, are independent.

⁵⁴ Ibid.

In the first decade of the Free Software Movement, free software packages were almost always noncommercial; the components of the GNU/Linux operating system were developed by individuals or by non-profit organisations such as the FSF and universities. But in the 90s, free commercial software started to appear.

Free commercial software is a contribution to our community, so we should encourage it. But people who think that “commercial” means “non-free” are likely to assume the idea is self-contradictory, and reject it based on a misunderstanding. Let’s be careful not to use the word “commercial” in that way⁵⁵

This long quote is particularly striking because it shows two aspects of the free software discourse prototyping. First, Stallman starts to reach the limits of its conceptual framework, and the more he tries to articulate a neutral all encompassing position the more difficult it becomes for the reader. If the usage of free in free software was already confusing and questionable,⁵⁶ the introduction of a term like *free commercial software*, while perfectly correct and coherent within the GNU language, does little to help communicate that free software and commercial exploitation are compatible. Kelty uses the term *recursive public* to describe how the free software community articulates itself via direct engagement and modification,⁵⁷ but what the FSF and Stallman’s collection of problematic words shows is that the procedure in which such recursion happens, while being

⁵⁵ Free Software Foundation, “Confusing Words and Phrases That Are Worth Avoiding,” 2002, <http://web.archive.org/web/20020124230207/http://www.fsf.org/philosophy/words-to-avoid.html>.

⁵⁶ Every now and then, some debates sprout online which discuss whether or not the term is ambiguous and should be renamed. Usually the alternatives suggested are so tainted with a personal interpretation of freedom, that trying to clarify leads to even more problematic alternatives, for instance “Freedom Software”, or “People’s Software”, or “Software for the Masses”. See Sandip Bhattacharya, “Re: Free Software [Solutions [was So what is the problem?],” 2004, <http://git.net/ml/org.fsf.india.fsf-friends/2004-09/msg00045.html>

⁵⁷ Kelty, *Two Bits*, Introduction.

public and informed by public discussions, is in fact private and authoritative. It is also more recursive than Kelty may have wished for as it gives little room for a change of direction, because its self-similar generative process only points to a downward spiral. The text quoted above is also symptomatic of an information driven culture that constantly rewrites its own history. In particular, the entry quoted above significantly alters the commercial origins of free software as it omits the fact that Stallman's efforts to develop the concept of free software was bootstrapped by the selling of his own free software,⁵⁸ or to be more precise, by distributing copies of proto-GNU programs for a fee. Regardless, this novel practice would indeed prove to be an "innovative business model,"⁵⁹ which makes the emergence of open source software a logical next step in the refinement of such commercial practices.

If free software is truly a recursive public, then its base case is the famous expression "free as in speech, not as in beer,"⁶⁰ which has the specificity to link the free software discourse with broader free cultural issues, but also doom the latter by transmitting further its ambiguity to non-software free cultural things. This aspect was notably highlighted with the 2005 *free beer* project.⁶¹ This brew was initiated by a group

⁵⁸ See Richard M. Stallman, "The Gnu Operating System and the Free Software Movement," in *Open Sources: Voices of the Open Source Revolution*, ed. Chris DiBona, Sam Ockman, and Mark Stone (Sebastopol: O'Reilly; Associates, 1999), 53–70, GNU Emacs.

⁵⁹ Salus, *The Daemon, the Gnu, and the Penguin*, 50.

⁶⁰ Originally formulated in 1998 as such: "Free software' is a matter of liberty, not price. To understand the concept, you should think of 'free speech', not 'free beer' ". See Stallman, "What Is Free Software?" 1998. The modern version was introduced in 2001. See Stallman, "What Is Free Software?" 2001.

⁶¹ SUPERFLEX, "FREE BEER," 2004, http://superflex.net/tools/free_beer.

of students from the IT-University in Copenhagen and the Danish artist collective SUPERFLEX. It was first released under the name *Vores Øl*⁶², the open source beer, and was later modified and developed further by the artist collective as the *Free Beer* project. What is specific about this beer is that the recipe and the branding are published under a CC BY-SA license that allows anyone to produce the same beverage, or any other one that would be derived from this freely available recipe. Similar to the free software copyleft principle, this is made possible as long as the terms of the CC license are respected. The conditions boils down to publish the original or modified recipe with the same license and requires credits to the project initiators, and other contributors if the recipe has already been modified. As long as this condition is respected, anyone is *free* to make and sell the free beer product and earn money with it, without having to pay any royalties or licensing fees to the authors of the original recipe, or to those who modified it further. But, next to the playfulness of the work, what such a project shows is the fragility of the FSF position towards the expression of selling software. *Free Beer* is a free cultural work, and more precisely a beer liberated from the closed and sometimes secretive practices of brewers, but it's also a product of consumption that is sold in different contexts, and for which it would be rather strange to rephrase the selling of free beers in favour of the distribution of free beers for a fee.

So in practice, the confusion discussed here, when transposed at a

⁶² Superflex.net and students at ITU.dk, "Vores øl," 2004, <https://web.archive.org/web/20041224002116/http://www.voresoel.dk/main.php?id=5>.

non-software free cultural level, has multiple repercussions, on economic profit, cultural commentary, and consumerism. First it's the open door for crude and direct exploitation because free culture can present itself as a gift economy,⁶³ in which money is not the purpose of the exchange of goods or services, which is more or less implied by Stallman's effort to avoid using the word selling. The consequence is that for instance when the CC supporter and image hosting website Flickr attempted to monetise the photos of its users,⁶⁴ it offered a classic licensing model to remunerate the photographers who had chosen to publish their photos under standard copyright protection, but did not offer any compensation to those who had publish their photos under the CC licenses that were not explicitly non commercial. Nothing wrong from a legal perspective but a rather painful reality check for the photographers using CC licenses who had not quite understood some of the subtleties of this pseudo-gift economy. Second, the confusion exists also on the other side of the free cultural transaction, which seriously weakens the paratextual message shared by free culture supporters. For instance free culture supporting scholars such as Cramer, or animators like Paley, are almost systematically asked by editors, publishers and distributors to approve, license, authorise, and make contracts copies of their work for publications or screening,⁶⁵ despite their use of free culture licenses, thus ignoring and

⁶³ Marcel Mauss, *The Gift: The Form and Reason for Exchange in Archaic Societies* (1954; repr., London: Routledge, 2002).

⁶⁴ Richard Nieva, "Some Photographers Bristle over Flickr's Selling of Photos," *CNET*, 2014, [\url{https://www.cnet.com/news/some-photographers-bristle-over-flickr-selling-of-photos/}](https://www.cnet.com/news/some-photographers-bristle-over-flickr-selling-of-photos/).

⁶⁵ Emails to, and in discussion with author, 2013-2014.

making irrelevant the point they try to make to the very culture industry that remains blissfully unaware or unwilling to engage with such critiques. And third, from the perspective of the consumer, the default interpretation of free in the context of exchange and sharing, simply means gratis.

Of course, those expecting free software to be free as in free beer, or believing that it is the outcome of a spontaneous global cooperative mechanism are very much misinformed about how such software is produced. The vast majority of Linux kernel developers are employed by tech companies⁶⁶ which have extended their competition in the writing of source code relevant for their product, and many important desktop and mobile applications and their components are managed and produced by large corporations, following a model in which free and open source software is used strategically.⁶⁷ Similarly, emblematic projects like Mozilla Firefox are still alive simply because of external revenue streams and deals,⁶⁸ made possible via a construction in which the very communicative nonprofit organisation controls a more discreet revenue-generating entity.⁶⁹ At the opposite end, small or independent software projects constantly struggle to generate income for its developers, even if their work

⁶⁶ See Corbet and Kroah-Hartman, "Linux Kernel Development."

⁶⁷ Salman Q. Mian, Jose Teixeira and Eija Koskivaara, "Open-Source Software Implications in the Competitive Mobile Platforms Market," *I3E 2011: Building the E-World Ecosystem*, 2011, 110–28; Jose Teixeira and Tingting Lin, "Collaboration in the Open-Source Arena: The Webkit Case," *SIGSIM-CPR '14 Proceedings of the 52nd ACM Conference on Computers and People Research*, 2014, 121–29.

⁶⁸ Essentially royalties from deals with search engine companies, see Hood & Strong, "Independent Auditor's Report and Consolidated Financial Statements," Financial report (Mozilla Foundation and Subsidiary, 2015).

⁶⁹ See Mozilla Foundation, "Mozilla Foundation Reorganization," 2005, <http://www-archive.mozilla.org/reorganization/>.

is widely used commercially,⁷⁰ sometimes with their economic struggle noticed only once covered in tech news channel.⁷¹ Yes, free software licenses allow for commercial exploitation and most free and open source software source code is nowadays just one click away to download for free, but abuses from corporations and the reluctance of the FSF to engage seriously with the question of work and labour, combined with very optimistic views on a fully cooperative society and sharing economy living on thin air, all this has today severely damaged the cultural diversity within the free and open source software ecosystem. As a result, in practice free software is expected to be gratis, available on-demand, disposable, and coming out of nowhere but the cloud. Worse still, this aspect is often given as an advantage of free and open source software over closed source and proprietary software. Any independent developer or small team of programmers trying to make a user pay for their work—or trying to justify the need to make a living—will in the best case provide a minimal income,⁷² or in the worst case be trashed publicly for daring to ask for money.⁷³

If the FSF can greatly help with intellectual property issues and abuse regarding free and open source software, it is neither a union, nor a co-

⁷⁰ Bob Beck, “Re: Request for Funding Our Electricity,” 2014, <https://marc.info/?l=openbsd-misc&m=138972987203440&w=2>.

⁷¹ Julia Angwin, “The World’s Email Encryption Software Relies on One Guy, Who Is Going Broke,” *ProPublica*, 2015, <https://www.propublica.org/article/the-worlds-email-encryption-software-relies-on-one-guy-who-is-going-broke>.

⁷² Paul Davis, “Ardour and Money, 2014 Edition,” 2014, <https://community.ardour.org/node/8288>.

⁷³ Reddit Linux, “You Are a Cheater If You Download Elementryos for Free,” 2015, https://www.reddit.com/r/linux/comments/2vi6qo/you_are_a_cheater_if_you_download_elementryos_for/?st=iyvr87to&sh=0d2f6594.

operative. Free and open source software programmers are on their own trying to find ways to survive until the day when Stallman’s free society comes true, a society where “nobody will have to work very hard just to make a living” and “[t]here will be no need to be able to make a living from programming.”⁷⁴ But that proposition also ends up sabotaging the further development of free and open source software, and today results in a situation where for some, public source code has become a way to show off skills, to present source code as a curriculum vitae to eventually get hired and paid to write software that will unlikely be free software, a trend accelerated by so-called social coding platforms like GitHub,⁷⁵ but also by the same boards, like the social news website Hacker News,⁷⁶ where such practices are discussed and where it is well accepted to show pet projects.⁷⁷ These demos are often personal projects, highly topical and personal, or dependant on external services and platforms, and for which user attraction and software rot is irrelevant because they are software of the moment. Such software is a disposable material to gain reputation and visibility within the startup software industry.

For non software free cultural works and expressions however, this translation does not work well, as—with the exception of performing a

⁷⁴ Stallman, “The GNU Manifesto.”

⁷⁵ Laura Dabbish, Colleen Stuart, Jason Tsay and Jim Herbsleb, “Social Coding in Github: Transparency and Collaboration in an Open Software Repository,” *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work*, 2012, 1277–86; Daniel Doubrovkine, “Github Is Your New Resume,” 2011, <http://code.dblock.org/2011/07/14/github-is-your-new-resume.html>.

⁷⁶ Notably the “Show HN:” threads. See Y Combinator, “Show | Hacker News,” 2017, <https://news.ycombinator.com/show>.

⁷⁷ Laura Dabbish, Colleen Stuart, Jason Tsay and Jim Herbsleb, “Social Coding in Github.”

work—most artistic income streams rely on making derived objects from the work, or licensing its access.⁷⁸ What is more, unlike software tools, with a few exceptional cases where the tool itself becomes a culturally infused constraint practice associated with a specific community and culture,⁷⁹ the value of these works or expressions do not age the same: by effect of fashion, discovery, trends, inspiration, these works can become financially relevant at any time. To distribute them both for free and with a free software licenses is therefore truly radical, because of the financial suicide it may represents.

As a workaround, partisan or free culture often adopts a liberal communist discourse in which the role of services is presented as a requirement for sustainability: the musician does not make money from the music freely licensed but from merchandising, gigs, limited physical editions or the free tracks on cassette tapes and vinyls; the writer derives income from special physical limited editions of an electronic publication; the artist does not make money from commercial gallery purchases and exhibitions but from public funding, residencies, and commissions. All of these strategies come with strings attached given the mediation created by the production and distribution of these new objects, in which the free culture freedom of the author is moderated by the editorial freedom of the platforms, the publishers, the funding organisations, and the curators standing at the gates of a liberated culture as service driven economy.

⁷⁸ It is out of the scope of this thesis to discuss alternative and speculative models for free culture production, crowd-funding and other patronage. For some case studies, see “Sustainable Models for Shared Culture.”

⁷⁹ For instance ASCII and ANSI editors.

On top of that, novel forms of funding and micro-payments or patronage can be put in place, but are so far only effective for already established authors, or very talented marketers and net-workers, or targeted at mainstream culture consumption. Finally, for free culture artists who were not born wealthy, working today still remains the most straightforward option to liberate a practice and bypass entirely the ambiguity of the commercial exploitation of free culture, thus coinciding with economic models of anti-professional art production that pre-date free culture⁸⁰ and also connect back with strategies to sustain the making of work that resist commodification, either because of their form or because of the intention of their author.

⁸⁰ Stiles and Selz, *Theories and Documents of Contemporary Art*, GEORGE MACIUNAS - Letter to Tomas Schmit (1964).

Part 3: Free as in ... Trapped

In the second part of the dissertation, I wanted to build upon the discussion started earlier in Part 1, about the consequences of the very broad adoption of what I called the free software template. I had already sketched that the introduction of the latter had led to a very wide adoption beyond the software realm, and hinted that this adoption should not be misunderstood for a global movement, but instead something closer to a self-contained liberal democratic process with many opinions driven sometimes by radically opposed ideologies.

To make this aspect more clear I have looked in the last three chapters at the cultural appropriation of the free software template in the context of art and culture production. I have shown that unlike what was perceived at the legal level—namely seeing free and open source licensing as a convenient novelty mechanism to make collaborative works—the motivation behind such appropriation was much more profound. I have explained that it would be more precise, in fact, to talk about the plurality of appropriations, and inspirations, because of the different intentions that motivated them in the first place. To explain this aspect I have notably discussed that next to the early emergence of free and open content, the proto-free cultural concept of *art libre*, or *free art*, had existed as two different strands that neither overlapped, nor sought convergence. At the same time their existence posed the problem of affiliation with free software, in which the hypothesis of a liberated work of art is problematised differently and shows a different appreciation of cultural freedom, thus weakening a free culture discourse presented as a common umbrella for all software and non-software freedom. But if there has been cultural appropriation and if some elements have been lost or transformed in transla-

tion, I have also shown that the communities that emerged around these principles are not based on make-believe relations but genuine and concrete practices, regardless if they are rooted in a magical recovery¹ of a lost or purely speculative tradition. They simply materialise cultural freedom in different ways.

As announced in the text of the GPL—almost in a prophetic warning to the coming free culture practices—a GPL licensed work is provided “‘AS IS’ WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED.”² Pushing this disclaimer further, there is absolutely no guarantee that works created within free culture are ideologically aligned or can form a coherent whole. This is not without consequences on artistic productions, not just because of their failure to contribute to *useful commons* in an engineered culture industry made of Lego bricks, but also in terms of their effectiveness to communicate a critique of intellectual property, if such critique limits itself to the selection of tools or licenses. Even for an artist like Mattin interviewed in Chapter 4—who told me that he did not believe that a work should be totally transparent and all encompassing, and who considered his work a purposefully fragmented puzzle that should just give enough clues and tension to trigger curiosity and discussion on that matter—it is questionable if putting back such a puzzle is even possible. Understanding the context of the production of free cultural works is therefore an haphazard process, as it really depends on several levels of literacy. I have explained that this literacy

¹ Clarke, “The Skinheads and the Magical Recovery of the Community.”

² Free Software Foundation, “GNU GENERAL PUBLIC LICENSE Version 2,” 1991.

issue is also to be taken into account from the perspective of the practitioners themselves. Practitioners can pick up the wrong license for their work, misuse it, or misunderstand why it was created in the first place. This situation is of course ignored by those who act as a gateway to alternative copyright licensing, and the reasons of such bypass are twofold. First of all, as discussed in Chapter 2, the different definitions that have attempted to vulgarise the notion of cultural freedom and open content, form their own habitus which overshadows that from which the licenses they select stem. Secondly, whenever a new generalised strategy for alternative copyright licensing is proposed, it is systematically reduced to its legal analysis, not only because those who are producing such synthesis are very often legal scholars, but also because it is much easier to compare licenses from the lingua franca of the law, rather than from a language-game perspective, let alone aesthetics.

Walter Benjamin in his time noted that the increased popularity of photography from its adoption of Dada inspired *revolutionary content* in the political photo-montages of John Heartfield, eventually turned into a more nuanced aesthetic experience, that ultimately led to the success of “transforming even abject poverty – by apprehending it in a fashionably perfected manner – into an object of enjoyment.”³ To paraphrase Benjamin, the practitioners misusing the copyleft principles could for instance run the risk of ending up supplying, once again, a productive apparatus without changing it. This problem is clearly visible with the infantilisation of authors that happens, for instance, with the Creative

³ Benjamin, “The Author as Producer,” 87.

Commons plea for human readable deeds, while keeping content producers away from the more *adult* texts such as the lawyer-readable texts and the technological information that constitutes the machine-readable metadata. Discussions surrounding intellectual property must be led by specialists. Berry and Moss, borrowing terminology from Deleuze, noted that CC “licensing model acts as a ‘plan(e) of organisation’, placing a grid over culture, communication and creativity” while ensuring that “legal licences and lawyers remain key nodal and obligatory passage points.”⁴ This aspect is also felt by free artists themselves. I have explained that free art worked as a safe haven, an autonomous territory for specific artistic practices, but this territory is also claimed at a higher level by myriad forms of federating structures and alliances. For instance, with the FAL becoming an official free culture approved licence, and more recently with the compatibility with the latest iteration of the CC BY-SA license:⁵ art libre becomes hardly dissociable from free culture and CC. It ends up being used by practitioners who are not familiar with the context in which the FAL was created, and will likely miss the critique of Moreau, who warns against a free culture turning into an end in itself, and no longer as a means by which to liberate authors and their work.⁶

However, in a surprising and hopeful twist, I have argued that this is not necessarily an issue, because, as I have shown in the previous part,

⁴ See David M. Berry and Giles Moss, “The Politics of the Libre Commons,” *First Monday* 11, no. 9 (2006), <http://firstmonday.org/ojs/index.php/fm/article/view/1403/1321>.

⁵ Creative Commons, “ShareAlike Compatibility.”

⁶ Moreau, “Le Copyleft Appliqué à La Création Hors Logiciel. Une Reformulation Des Données Culturelles ?” 565.

when it boils down to groups or individual practices, the materialisation of free culture happens with very open interpretations, which are consistent with artistic styles and cultural identity. Rather than following closely a free cultural constitution or binding to a specific federating ideology, I have given as examples the use of the word copyleft, and the commercial exploitation of free culture to illustrate how these aspects change from one group, or individual, to another. In particular, a lot of the cultural affiliation that can be found in free culture analysis is essentially coincidental, or accidental, and when examined closely that which at first seemed to be the development of the same ideas, was in fact an arbitrary linguistic crossover of two different trajectories. This is why I have argued that the cultural diffusion of software freedom happens in different stages, showing the existence of more authoritative centres, that preserve and develop the definitions and rules in order to remain in control of their free cultural discourse. But at the same time this discourse is also counter-shaped by the communities, and also by the individuals that revolve around these centres, and for which the understanding of all the free and open source ideas can be radically different.

In sum, free culture is animated by two forces that keep on trying to get a hold of each other. One more conscious of its agenda is the free culture, which locks itself out from public debate by constantly trying to prevent its participants from radically reconfiguring its structure. This force embraces openness as long as the openness of interpretation and meaning of its discourse is untouched and unquestioned. The other force, more chaotic and spontaneous, is the uncontrolled and unforeseen interpretation of such discourse, and the way the constitutive free software

template is used in practice, how free software is produced regardless of its *usefulness*, how free cultural licenses are deployed with little regard to their cultural context, how the rational dimension of the free cultural machine ends up injected, maybe involuntarily sabotaged, with works and understanding driven by other motives.

In this final part of the thesis, it is now time to analyse more closely such machinery, and why this apparently conflictual and inefficient interaction is the main drive that has kept free culture afloat so far. Until now, I have focussed on the historical lineage of free culture that saw the birth, decay, and sometimes death, of many definitions and licenses. I have also highlighted that the motives and intentions of those using free culture licenses, and free and open source software, can deviate considerably. I have also shown how licenses can act as a surrogate for artist's statements, and by extension are truly a ready-made paratextual statement, and how these texts instruct rules that can enable powerful and critical collaborative cultural frameworks, yet for which in some cases the licensing rationalisation seems fragile, and could in fact reinforce the notions of markets, property, and authorship, that the licensee thought to initially challenge by adopting alternatives to default copyright mechanisms. Given this chaos of openness and freedom, I started to wonder how it is possible for free culture not to implode or collapse under all the different systems of beliefs it allows, and how this multi-faceted system manages to produce anything when its foundation seem to be built by diverging forces, and near constant miscommunication. To explain why, against all odds, free and open source principles are today still inspiring new variations and keep on reinventing their affiliation, I argue that

these free and open things sustain themselves, precisely because they are postponing their failure, over and over again, by the means of conflicts and tensions that provide new opportunities for its participants to learn to think and ask their own questions, opposing singular and local views with general and consensual ones,⁷ as discussed previously in Chapter 2 during the transition between less defined proto-free and more defined free culture practices.

In this third and final part of the thesis I am therefore focus on this particular generative mechanism that copyright and intellectual property laws, the media and software industries, and of course the Internet, have bootstrapped in the neighbourhood of, and within free culture itself. Here I am giving evidence that clues regarding the resilience and growth of the free culture ecosystem can be found by looking right into the source of its apparent contradictions and points of friction. For this final demonstration I need to depart from and, at the same time, rely on previous analysis of aspects of free culture that have already highlighted some of its properties. There has been three decades of writing on free and open source software, and more recently free culture, which have all more or less precisely tackled many different aspects of these things, but have done so always in isolation or ignorance of the others. For instance, depending how one is looking at free and open source software, it could be framed as free labour in the context of participatory,

⁷ Here I am referring to and paraphrasing remarks from Belgian philosopher Isabelle Stengers on the question of taking position and capabilities that is institutionally removed from the public, or at best impaired and limited to ready-made non conflictual issues. See Stengers, *Au Temps Des Catastrophes*, 165–76.

yet commercially driven, fully or partially open source products,⁸ or on the contrary it could be given an egalitarian and positive role to develop anarchist models of production in the network society.⁹ These narrow views have led to the drawing of radically opposed conclusions and speculations, and it is my desire with this last part to depart from these single specific forms of analysis, and instead draft a model in which all these oppositions, contradictions, and possible misunderstandings are given an essential role.

Ultimately, I argue that conflict, unlike the way it is often perceived,¹⁰ should not be seen as an agent against cooperation which requires mediation, but as the unseen glue that prevents these free and open cooperative modes from falling apart. Here my analysis aims to stand against the narrative of equal representation and transparency, and more precisely, the semantics wars in proto- and defined free culture are therefore not wasteful efforts to defend one's territory in the name of a locally-defined freedom and openness, against another locally-defined freedom and openness.¹¹ Far from being apolitical, they implement politics as a messy assembly of dissembling,¹² which is not fuelled but very much threatened by any endeavour to turn these things into a cohesive and

⁸ See Terranova, "Free Labor."

⁹ Moglen, "Anarchism Triumphant."

¹⁰ Benkler, *The Penguin and the Leviathan*, CHAPTER 5: Why Don't We Sit Down and Talk About It?

¹¹ With locally-defined, I mean to say definitions of cultural freedom that are only specific to a limited group, project, or context, and that cannot be generalised outside of these.

¹² Here I make reference to Bruno Latour's invitation to revisit the ideas of assembly and gathering. Bruno Latour, "From Realpolitik to Dingpolitik or How to Make Things Public," in *Making Things Public: Atmospheres of Democracy*, ed. Bruno Latour and Peter Weibel (Cambridge: MIT Press, 2005).

uniform movement, a one-size-fits-all formula.

In that sense, the radical democracy approach, from Mouffe, and suggested by Berry and Moss as an alternative to broaden the relevance and purpose of a movement concerned with the liberation of culture,¹³ is not an alternative to be wished for,¹⁴ but as I have shown in Chapter 2, was in fact *already* present since the early days of proto-free culture, albeit not as a conscious mechanism, and then tamed and forgotten with the rise of aggregative and deliberative attempts to frame cultural freedom and filter licenses.

To illustrate my argument, I will give a particular attention to the environments in which such conflictual cooperation and gatherings occur. To start with, in Chapter 6 I will argue that the software engineering approach to free cultural production cannot offer a universal model. In particular, the notions of usefulness and source code cannot be literally translated into all practices, which, I will argue, leads free culture to promote a world of digital commons made of digital files and leave the definition of freedom as a technocratic obfuscation that hides its struggle to translate software freedom to the non-software realm. I will then discuss the consequence of that in Chapter 7, in particular the fact that the free culture implementation of classic liberalism reduces cultural value to ac-

¹³ Berry and Moss, “The Politics of the Libre Commons.”

¹⁴ As a matter of fact, Berry and Moss go as far as suggesting their own *Res Communes* and the *Res Divini Juris* licences, which demonstrates their participation in an already existing enclosed radical democratic space. So unlike their claim, such novel licenses do not provide a new politico-democratic device but simply contribute to an existing political agglomerate within free culture.

cess and potentiality of information, and the reason why file permission¹⁵ inspired metaphors have often been used to support the remix-ability of cultural expressions as a goal. However, by pushing such file permission metaphors to their limits, I will argue that access and potentiality of files that constitute the digital commons does not imply control and sovereignty over said commons, and that it is more important to look at the systems and environments that produce knowledge around, and help materialise, free cultural discourses. Having established the importance of these environments, I will introduce the term sandbox as a rhetorical tool to explain how such environments operate; and as an overlooked, yet crucial technological witness, that can help understand the metaphorical transformations that have contributed to turning software and licenses, into groups that can accommodate any forms of values and transactions, yet that can be fully embedded inside other groups with opposite forms of values and transactions. Finally, in the last chapter of the dissertation, Chapter 8, I look at what happens when the sandbox fabric is torn up, when these environments that have been called home¹⁶ turn into a deceptive architecture. I will examine what strategies exist, from code and license forking, to software exile, that permit the postponing of existential collapse and failure that I am referring to earlier, and that at long last translates conflicts and tensions into the unspoken apparatus of free

¹⁵ File permissions are the set of rules that define and regiment access to digital files in a computer, for instance whether or not a user can modify a file. This will be explained in more details in the chapter.

¹⁶ This is another reference to the organisation of computer file systems, namely the location where a user stores their personal files. This will also be explained in details in the chapter.

culture.

Chapter 6

The (Almost) Endless Possibilities of the Free Culture Template

6.1 Free Software Art Publishing

Debian, which has been mentioned several times in this thesis, is a collection of free and open source software put together to form a complete operating system (OS) that is called a *distro*. To be more exact it is a Linux distribution, or a GNU/Linux distribution when it is desirable to put the emphasis on the fact that many such distros rely at their core on the combination of both the GNU OS—without its kernel called Hurd—and the Linux kernel.¹ Indeed, Debian is by no means the only distro

¹ For a more extensive account of the historical relationship between the GNU OS project and the Linux kernel project, and the controversy around the term

available. According to the webzine LWN, there are at the time of writing nearly five hundred active distros.² However, looking at the vertiginous *GNU/Linux distribution timeline*,³ it is striking to see that the majority of these distros are derived or still directly dependant today, on only three free software collections that started in the early nineties: Debian, Slackware, and Red Hat. The free software techno-legal template, is therefore not limited to the appropriation of licenses, it also operates at the level of software code, and in this case, provides the ability to create different operating systems fine tuned for all sorts of purposes and communities. But the amount of users is not evenly distributed, and according to DistroWatch, a website dedicated since 2001 to tracking the development and releases of free and open source Unix-like OS, there are, at the time of writing, ten “most widely used” Linux powered *major* distros: Linux Mint, Ubuntu, Debian GNU/Linux, Mageia, Fedora, openSUSE, Arch Linux, CentOS, PCLinuxOS, and Slackware Linux.⁴

Most distros provide the usual graphical user interface (GUI) desktop metaphor similar to Mac OS or Windows, and a collection of free and open source software for both general and specialised tasks. But next to a standard default selection, these operating systems are connected to several repositories of software, that allow the user of the system to add more software and adapt the OS to their needs and liking. In this con-

GNU/Linux, see Williams, *Free as in Freedom*, Chapter 10 GNU/Linux.

² “The Lwn.net Linux Distribution List,” *LWN*, 2017, <https://lwn.net/Distributions/>.

³ Andreas Lundqvist, “GNU/Linux Distribution Timeline,” 2012, <http://futurist.se/gldt/>.

⁴ Unsigned Integer Limited, “Top Ten Distributions: An Overview of Today’s Top Distributions,” 2017, <https://distrowatch.com/dwres.php?resource=major>.

text, free and open source software customisation can therefore happen at two levels: first by picking a particular distro whose base content has been curated by others, and second by adding software packages that are compatible with the distro, and generally accessible on networked repositories specific to the chosen distro.⁵ The flexibility of these operating systems is such, that almost any distro, whether general or specialised with many standard packages provided by default, can be made minimal and bare bones again by removing packages, and changed into something radically different at a later stage. Regardless if the distro provides pre-compiled software or not, the source packages maintained by distro developers, maintainers, and also sometimes less officially by the users themselves, tend to provide the same things: the original source code written by the original software author(s), as well as optional patches to apply on top of it, and the license(s) under which these files are published; the metadata of the distributed software, that is its description, category, and a list of author(s) and maintainer(s); as well as the technical prerequisite of its installation, that is to say, a list of other packages needed to be installed before, and which the package is dependent. Last but not least, any changes in these files are logged and stored in the packages them-

⁵ A third level also exists, which is the ability for the user to manually compile other software sources and modify the system quite extensively. This aspect goes beyond the OS ecosystem itself but is interesting to consider given its link with commercial activities relying on copyleft or permissive licensing and which ship products based on existing operating systems, customised and sometimes integrating closed source software as well. An example of this would be the operating system running on broadband wireless modems and routers, that can be based on a Linux operating system and a few more free and open source software projects, the source code of which must be shared by the manufacturer, but not the source code of any other software written by the latter and yet bundled in, and vital to the functioning of the device.

selves or external databases. These changes combined with the storage of previous versions of the software, and its source code, and the ability to access these at any time, literally turns almost any distro into a vast software archaeological excavation site. If this transparency and traceability facilitates communication and the efficiency of technical infrastructure needed for making these distros, it is also a side-effect of the free cultural licensing of the distributed software.

Another consequence of the publishing model enabled by free culture licensing, is that the packages can be mirrored online by anyone with enough storage space and bandwidth. From a user perspective, package managers—administrative software developed by the distro developers—can then be used to install, remove or upgrade software, which simplifies greatly the maintenance of one's operating system to one's liking.⁶ Furthermore, this process is not unidirectional, because users are often given the possibility to help and give feedback by writing documentation, submit bug reports, write patches for their favourite software, suggest new software to be packaged, and even maintain such software themselves by also becoming official maintainers and developers. They can also simply publish other or slightly different software in unofficial repositories that can be used by other distro users. What is striking here, is that these systems are not mere advanced forms of prosumerism, because their whole infrastructure can be re-appropriated and derived into new

⁶ In a way these package managers could be perceived as similar to app stores, that are popular nowadays and found in mobile and desktop operating systems. However, app stores notably do differ in the way they introduce a hierarchy of usefulness, where optional applications are given most visibility, as opposed as traditional package managers where no particular filtering is enforced.

projects, new operating systems and software collections as shown with the overwhelming amount of distros available.⁷

This is why so many distros can be produced and distributed. These can be of different nature, as not only technically specialised distros can be released, for instance focused on network security⁸ and privacy,⁹ scientific computation,¹⁰ or medical applications,¹¹ but also any community has the potential to manifest its interest or ideology under the form of a distro: enter the stranger than fiction realm of Ubuntu Christian Edition,¹² the North Korean Red Star OS,¹³ and of course Biebian, the Justin Bieber Linux distribution.¹⁴ This level of customisation is such that it has become its own aesthetics, as software artists Gordan Savičić and Danja Vasiliev illustrated with their 2011 work *The 120 days of *buntu*, a collection of 120 modified Ubuntu Operating Systems.¹⁵

To be sure, I use Linux distributions as an example here, given their

⁷ It is out of the scope of this research to dive into the specifics of what precisely constitutes a distro, in practice there are some significant differences from one distro to another. For instance some are truly put together from scratch, while others are customising an existing operating system, or combining different sources of pre-packaged software. Some distro also start provide such level of customisation within their own installation process, such as the Debian Pure Blend project. See SPI, “Debian Pure Blends,” 2016, <https://www.debian.org/blends/>.

⁸ Kali Linux, “Kali Linux | Penetration Testing and Ethical Hacking Linux Distribution,” 2017, <https://www.kali.org/>.

⁹ The Tor Project, Inc, “Tails - Privacy for Anyone Anywhere,” 2017, <https://tails.boum.org/>.

¹⁰ Fermi National Accelerator Laboratory and European Organization for Nuclear Research, “Scientific Linux,” 2017, <https://www.scientificlinux.org/>.

¹¹ Debian Project, “Debian Med,” 2017, <https://www.debian.org/devel/debian-med/>.

¹² Jereme Hancock, “Ubuntu Christian Edition – Linux for Christians,” 2012, <http://ubuntuce.com/>.

¹³ Korea Computer Center and North Korea, “Red Star Os,” 2013.

¹⁴ “Justin Bieber Linux,” 2011, <http://biebian.sourceforge.net/>.

¹⁵ Danja Vasiliev and Gordan Savičić, *The 120 days of *buntu* (Toronto: Beaver Press, 2011).

popular usage and visibility in mainstream tech media, but these modular qualities also exist in other free and open source UNIX-like operating systems. In fact, as mentioned several times in the first chapter, these properties were already visible with the birth of the Berkeley Software Distribution (BSD). In particular the extreme adaptability of Unix was the main drive behind the so-called Unix wars, and explained the reason why the different Unix-like OS failed to reach standardisation in the late eighties and early nineties.¹⁶ If free and open source BSD-derived operating systems differ structurally from Linux distros—in the sense that BSD OS like FreeBSD, OpenBSD, NetBSD, or DragonFly BSD offer a complete base system that can at a later stage be *optionally* extended with extra software, as opposed to Linux distros piecemeal-assembly¹⁷—their flexibility and ability to be transformed is as powerful and was demonstrated in the commercial field due to the permissive licensing of the base system.¹⁸ Ultimately, all these Unix-like free and open source operating systems offer an interesting publishing system, in which archiving, conservation, distribution, and access are merged into one replicable and modifiable structure.

Given this potential and possibility to adapt to any cultural context, it was to be expected that these infrastructures became at some point, also considered for the collaborative development and distribution of digital

¹⁶ Kelty, *Two Bits*, 5. Conceiving Open Systems.

¹⁷ Matthew D. Fuller, “Design Philosophies,” 2010, <https://www.over-yonder.net/~fullermd/rants/bsd4linux/08>.

¹⁸ For instance Sony relies extensively on FreeBSD and other free and open source software for its PlayStation 4 video game console. See Sony Interactive Entertainment Inc., “Open Source Software used in PlayStation®4,” 2016, <http://doc.dl.playstation.net/doc/ps4-oss/>.

cultural expressions, using and possibly contributing artistic works to these OS.¹⁹ The democratisation of software production and execution in the form of free and open source Unix-like operating systems, could indeed in theory permit the existence of cooperative forms of publishing for free and open source code poetry, net art, generative art and software art, and also media art, which software elements, free culture supporters have argued,²⁰ could also be released under free and open source licenses and then integrated into distributed infrastructures. In practice the GNU/Linux distribution Puredyne has distributed works from software artists such as Alex McLean and Martin Howse²¹ throughout the mid-noughties. Similarly, Debian and FreeBSD have distributed and maintained generative artworks such as Electric Sheep.²² Alongside this, every now and then it is possible for media artists releasing their work as free and open source software, to be approached by distribution maintainers to help integrate their piece within free and open source operating systems.²³ It goes without saying that such software must comply with the distribution's guideline, and its localised understanding of user-

¹⁹ An idea notably developed in the context of the Debian ecosystem. See Javier Can-deira, "Towards a Permanently Temporary Software Art Factory (Notes for the Sustainability of Software Artifacts)," in *Readme 100*, ed. Olga Goriunova (Norderstedt: Books on Demand GmbH, 2006), 105–21; Annet Dekker, ed., *Archive2020: Sustainable Archiving of Born-Digital Cultural Content* (Amsterdam: Virtueel Platform, 2010), 5; Anne Laforet, *Le Net Art Au Musée: Stratégies de Conservation Des Oeuvres En Ligne* (Paris: Questions théoriques, 2011), 162.

²⁰ Anne Laforet, Aymeric Mansoux, and Marloes de Valk, "Rock, Paper, Scissors and Floppy Disks," in *Archive2020: Sustainable Archiving of Born-Digital Cultural Content*, ed. Annet Dekker (Amsterdam: Virtueel Platform, 2010).

²¹ Laforet, *Le Net Art Au Musée*, 162.

²² Scott Draves, "The Electric Sheep Screen-Saver: A Case Study in Aesthetic Evolution Applications of Evolutionary Computing," *Applications on Evolutionary Computing* 3449 (2005): 458–67.

²³ See Laforet, Mansoux, and Valk, "Rock, Paper, Scissors and Floppy Disks."

friendly applications, or *usefulness*, to refer to the FSF free software criteria discussed in Part 2 of this thesis.

However it is at this point that things start to get complicated and the free software template shows some limit. While there was no trouble for a work like Electric Sheep—that essentially and effectively runs as a screen saver—to be accepted as part of large public repositories from several Linux distros and BSD operating systems, the same cannot be said, maybe thankfully, for other types of digital and media art, in particular software art. If free software contributed to ontological freedom,²⁴ it is not surprising to see that the resulting cultural expansion can no longer be contained by the very structure that gave birth to it. Said differently, here free software art not only radically challenges the conservative FSF understanding of software as something *useful*, but once distributed within an operating system, also makes it ambiguous and difficult to separate the OS-as-platform to distribute software art, from the OS-as-software-art itself. The adaptability of free and open source operating systems, and therefore the possibility for such publishing strategies to exist outside of major distributions, does not help either. For instance, Puredyne,²⁵ mentioned earlier, started as a single user operating system containing free software art works from several artists. However, Pure-

²⁴ Cramer, *Words Made Flesh*, 123.

²⁵ Also known as pure:dyne and which found its root as a heavily modified version of the dyne:bolic or DyneBolic distro, itself inspired by and originally based on development tools of LoA hacklab's Bolic1 distro. See GOTO10, "[Spectre] Pure:dyne 2.3.6 Release - a Gnu/Linux Distro for Media Artists," 2006, <http://post.in-mind.de/pipermail/spectre/2006-December/007412.html>; jaromil and lobo, "dynebolic," 2004, <https://web.archive.org/web/20040102094646/http://www.autistici.org/bolic1/dyne.php>; Adnan Hadzi, *Deptford. TV diaries* (London: Deptford. TV, 2008), 59.

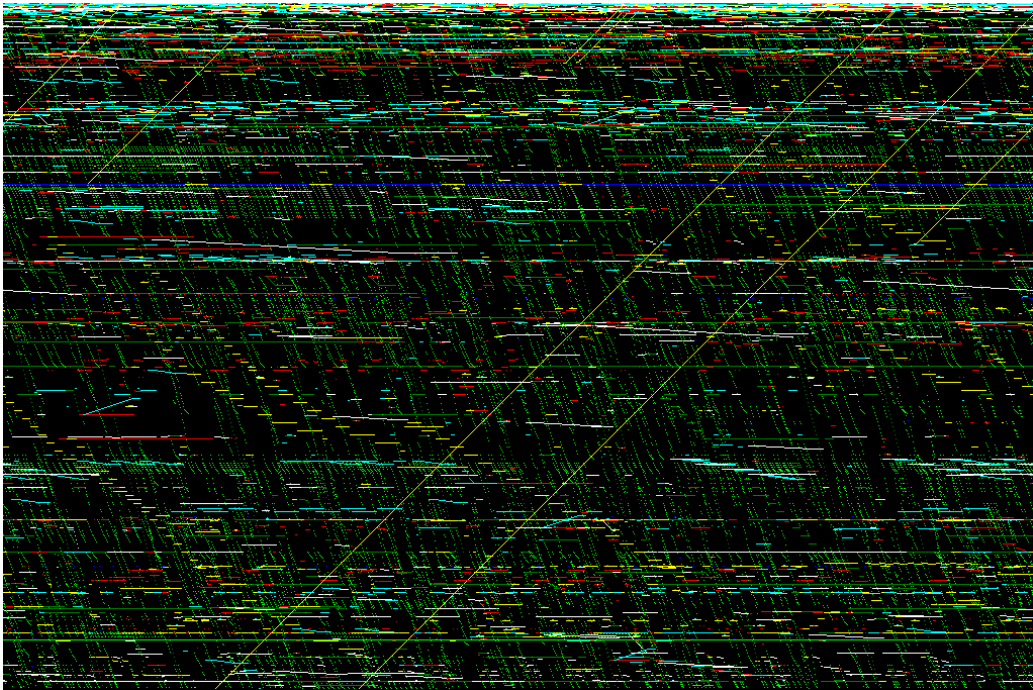
dyne was also used by its developers to teach workshops and provide a platform to encourage artist to use and write free software. As a result it became more than a singular collection of software shared within a small community of free software artists, eventually evolving into an hybrid Debian-Ubuntu distribution, funded by Arts Council England and used as a media art teaching tool in art organisations, academies and universities.²⁶ In this educational context with a strict separation between tools and works produced, software culture became an hostage in a discussion on the pragmatic aspect and usefulness of Puredyne as a whole.

This transformation became conflictual for the Puredyne distro, now that its new users, external to the free software art networks from which Puredyne stemmed, were confronted with a system in which no safeguarding was offered and that was simultaneously a proof of concept free software art distribution system and a fully functional Unix-like OS. The safeguarding that I am making reference to is dual: first it assumed that the users would not need to be constantly assisted or prevented from doing foolish things, such as wiping out all their data; second, the artistic computation was not separated or isolated from the rest of the system. This second point in particular was discussed during the FLOSS+Art panel at the 2007 edition of the Make Art Festival,²⁷ Poitiers, France, and specifically on the question of what would be the consequence if the Puredyne developers modified the source code of a work (Figure 6.1)

²⁶ Julian Brooks, Joanna Brooks and Pierre Alexandre Tremblay, “Across the Great Divide,” *Journal of Music, Technology and Education* 5, no. 2 (2012): 145–157.

²⁷ GOTO10, “FLOSS+ART : Make Art 2007,” 2007, <https://archive.bleu255.com/makeart/2007/?page=floss&lang=en>.

Figure 6.1: self3[cpu]



Screenshot: Martin Howse, 2006

from Howse, so as to provide a version of the software with a more *user friendly* program exit mechanism, that is to say, a simple way to quit the application. This functionality was not present in the original program, and Puredyne users had complained they did not know what to do once they started the program, and were forced to reboot their machine to make the software stop. This posed a particular problem precisely because Howse's work in his collaboration with English performer Jonathan Kemp, essentially drew inspiration from, and also used, operating system mechanisms, including the notion of interrupt signal. The latter mechanism ended up in this case at the conflicting point of being both an artistic material for Howse and Kemp, and a critical system feature needed for a classic desktop interaction.

Some other works also touch so directly on the underlying mechanics of the operating system, that they prove very hard to publish in an executable form, and distributed even in free software art distributions like the first iteration of Puredyne would have permitted. For instance, McLean's *ungovernable.patch*, a 2011 free software licensed modification to the Linux kernel that reverts the standard CPU throttling behaviour, makes the CPU frequency decrease under load and increase when the machine is idling,²⁸ and would be unlikely to be accepted in any Linux based OS that aimed to be fully functional, given this very functionality is questioned by this work. In the end, even liberated from proprietary and closed systems, software art remains an aspect of computational culture that resists entirely free cultural infrastructures, despite

²⁸ Cox and McLean, *Speaking Code*, 57–58.

an apparent closeness in the way they relate to care of software crafting, expressibility of programming, and the sharing of tools. Even if free software allowed software art to expand itself towards technological layers not accessible in closed source and proprietary systems, it did not change its nature of being unsustainable by design—therefore useless and problematic computation—making moot the question of normalisation of such practices within large scale techno-legal infrastructures. As briefly shown with Puredyne, free software art’s viral property does not exist solely at the licensing level, nor the source code, but the execution of software, that can compromise the OS as a whole if not contained or diminished. Next to that, the *code brutality*²⁹ of these works clashes with the polished and organised idea of distributed, cooperative, and to some extent decentralised approach to software art publishing. If such systems would be possible, beyond indexing and classification,³⁰ they would not be able to provide more than tamed software art, similar to those found in app stores, and which brutality becomes emulated or simulated, as glitchy gimmicks sandboxed in a software white cube, and isolated from the computational usefulness of the rest of the system.³¹

²⁹ Yuill, “Code Art Brutalism.”

³⁰ Such as Amy Alexander, Olga Goriunova, Alex McLean and Alexei Shulgin, “runme.org - say it with software art!” 2002, <http://runme.org/>.

³¹ In this context, it is interesting to put in parallel projects such as the Satromizer iPhone app and the early performances from group 5VOLT CORE. While the two relate to glitch aesthetics, the first is essentially a standalone graphic tool available from the Apple App Store, whereas the second is about direct and abusive live intervention on computer chips. See Ben Syverson, “Satromizer for iPhone, iPod Touch, and iPad on the iTunes App Store,” 2009, <https://web.archive.org/web/20100212083220/http://itunes.apple.com/app/satromizer/id312566528>; emanuel andel, *5VOLT CORE live*, Online video (San Bruno: YouTube, 2007), <https://www.youtube.com/watch?v=mml6DcW0OJE>.

6.2 The Source of Free Cultural Expressions

Another problematic aspect I have yet to discuss is the becoming of source code, once the latter has been transposed to non-software cultural expressions. As discussed several times in this thesis, the importance of source code availability is essential in free and open source software, and the reason why such availability was fully part of the free software definition and licensing models. But what about works that are neither code or software based, which is what non-software free culture is. How would that work practically?

In Chapter 2, I provided a general overview of how the free software definition has been slowly transformed, into a series of definitions that aimed to provide the same freedom and openness for any cultural expressions. As I demonstrated, the affiliation of these definitions was both visible in style and content, and the link with their parent software-centric definitions was also blatant. In spite of that, if we take a closer look at the definitions in Chapter 1, even though the first attempt in porting the software freedom to knowledge—the *four kinds of free knowledge*—took into account the idea of source, the following proto-free-cultural attempts stopped mentioning it. The reason for this can be put simply: while computer software is a cultural expression,³² not all cultural expressions are computer software. Therefore the computer-specific jargon, which the term source code is, was eventually lost in translation.

³² See Fuller, *Behind the Blip*.

So free cultural definitions are after all not a perfect transposition of free and open source software definitions, due to the lack of, or incomplete, approach to defining what is a source. This is not specific to one particular approach to free culture, but all the free, libre, and open content, knowledge, expression and work ideas that emerged from the proto-free culture era. If the notion of source code is not easily transposable to non-software free culture, I will argue that its absence is problematic and needs to be addressed.

First of all, from a simple pragmatic perspective, the consequence of the absence of source means that it is fine to publish and distribute *any* content. For instance a low-resolution, highly compressed, photo or video can be distributed freely under these licenses (Figure 6.2). But then, while these files would perfectly qualify as valid work under their respective free and open definitions, their value becomes questionable when the high-resolution, raw, or less destructively compressed *original* digital file, can still remain under other copy or licensing rights. Here the software equivalent of this process would roughly be the so-called shareware, a freely distributed, usually closed source, software distribution mechanism in which the full potential of the software is unlocked only once the user has paid a fee, which would roughly translate for non-software objects, in paying licensing rights to acquire such sources, in the eventuality these would be anyway available under such type of classic licensing. Here the term licensing can be confusing. A work can be licensed under a free culture license allowing a usage defined by the terms of the license, but licensing can also refer to any unilateral permissive process, and in some case reciprocal contracts, in which a

Figure 6.2: A maybe free and highly compressed thumbnail



Image: Anonymous, 2013

work can be commercially licensed for a specific use. For instance a musician can license their music to an advertisement company to be used in a television commercial, in exchange for a fee. The two forms of licensing, classic and free culture, do not necessarily exclude each others. For instance the music platform Jamendo, invites artists to contribute free culture licensed music, and at the same time provide commercial licensing to businesses and individuals so they can use the music royalty-free.³³

Another aspect is what the Freedom Defined project calls the “practical modifiability” of a work,³⁴ which is how in practice a work can be appropriated and modified by someone else. For instance, if the licensed work is an image composed of several elements, its practical modifiability is affected if the author decides to publish such an image exclusively as a flattened down work, or if instead the author also provides the layers used to make this final image. To make things more difficult to follow, there is also an unavoidable recursive mechanism triggered by the existence of such external pseudo source files. Indeed, and still using the example of a digital collage, one can ask what would happen if the layers provided were themselves derived from other originals? Shouldn't these

³³ Jamendo claims that it uses a fair model to redistribute the financial gain to the artists for this commercial licensing, therefore acting as an automated agent for works that are not commissioned, but in fact they are essentially crowdsourcing their catalogue for free. Jamendo also suggests artists to use NC licenses combined with the Jamendo licensing agreement, to make sure they will be paid for their work, whereas in fact it is a barely disguised strategy to make sure only Jamendo can exploit commercially their work. See Jamendo, “Jamendo Royalty Free Music Licensing - Stock Music for Commercial Use,” 2017, <https://licensing.jamendo.com>; Jamendo, “How Are Creative Commons Licenses Compatible with Jamendo Licensing? What CC License Should I Choose to License My Music?” 2017, <https://artists.jamendo.com/en/artists-faq>.

³⁴ Freedom Defined Wiki, “Licenses.”

also be included? What about the font used for a caption or logo, what would be the practical modifiability of a rasterised text layer? Would it make sense to provide the font file? If someone wants to practically modify the file at a level that is not a mashup or remix using the flatten and merged output—essentially a product of passive consumption—then such elements are in fact very much needed, and the difficulty of distributing and accessing grows in proportion with the composite depth of the image (Figure 6.3). The same could be said of course of music as free culture licensed mp3, ogg or FLAC digital files, as opposed to music as free culture licensed score, separate audio tracks, OSC and MIDI digital dumps of the parameters for the hardware and software synthesizers, settings of the sequencing software, and so forth. And to make things even more complicated, if an author is to distribute the source of their work, this source being a distinct cultural expression itself, the author is free to distribute the material under separate licenses. Several questions come to mind. Is it acceptable then for free content to have its assets under non free culture licenses? Is it acceptable if these external cultural expressions are freely licensed, yet using closed standards from proprietary software? How far can these ideas of free, and open, content or works can be pushed?

To address such issues, Myers, whose work was introduced in Chapter 4, offered an idea on what an ideal cultural source could be.³⁵ He suggested considering five attributes which are: transparent, in an easily editable text-based format; full quality, in a standard that permits the

³⁵ See Rob Myers, “Cultural Sources,” 2007, <http://robmyers.org/weblog/2007/08/26/cultural-sources/>.

Figure 6.3: How deep is your source?

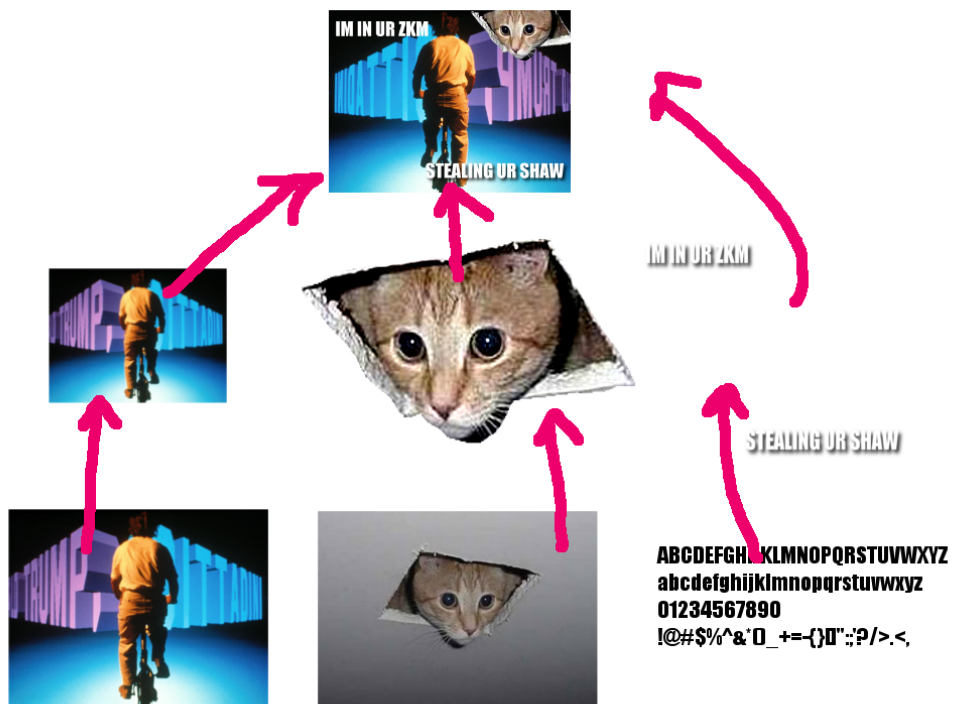


Image: Anonymous, 2013

recreation of the final format; complete, so that all the materials needed to produce the distributed work are provided; unencumbered, that is free of patents and DRM; structured, as in provided in a descriptive format, such as vector graphics. This theoretical approach is however not fully translated in practice. It is worth noting that the FSF, with the 2000 GNU Free Documentation License (GFDL), had attempted to tackle this problem already, and most notably the notion of transparency, needed for the collaboration on, and the distribution of free documentation.³⁶ To date, in the history of proto-free and free culture definitions, only Freedom Defined tried to address this issue. According to them, to truly be a free cultural work, a work must respect four more conditions, and one that is specific about the notion of source data:

Availability of source data:

Where a final work has been obtained through the compilation or processing of a source file or multiple source files, all underlying source data should be available alongside the work itself under the same conditions. This can be the score of a musical composition, the models used in a 3D scene, the data of a scientific publication, the source code of a computer application, or any other such information.³⁷

There is however an important flaw in this approach: unlike free soft-

³⁶ The license was notably used by Wikipedia which later in 2009, demanded the FSF to change the license, using the infamous “later version” loophole present in most FSF licenses, to make the content of the online encyclopaedia compatible with the trending CC BY-SA license, to which it eventually switched without requiring authorisation from the GFDL copyright holders. For some context see Free Software Foundation, “GFDL v1.3 FAQ,” 2014, <https://www.gnu.org/licenses/fdl-1.3-faq.en.html>; timothy, “Wikipedia Moving from GFDL to Creative Commons License,” *Slashdot*, 2009, [\url{https://news.slashdot.org/story/09/05/21/2317253/wikipedia-moving-from-gfdl-to-creative-commons-license}](https://news.slashdot.org/story/09/05/21/2317253/wikipedia-moving-from-gfdl-to-creative-commons-license).

³⁷ The Definition of Free Cultural Works project, “Definition of Free Cultural Works 1.0.”

ware licenses that legally implement the free software definition, this extra condition of source data availability is not part of any free culture approved license terms. It is simply part of a guideline to decide whether or not a work could truly be called a free cultural work. Said differently, an author does not have to respect this clause when using a free culture license, because it is not part of the license conditions. In practice, it is therefore possible to distribute works that are not truly free with free culture licenses, literally turning free culture into a messy mix of both free and non-free cultural expressions. If the different free cultural techno-legal systems were not already confusing or difficult to navigate through, they are now genuinely Kafkaesque. Creative Commons even uses the misleading term “approved for free cultural works,”³⁸ for its licenses that respect the free culture license definition, whereas it really should say that such or such licenses are free culture licenses, no less, no more.

In practice, a thorough publication of properly licensed source materials for works of art is rare, and is usually limited to artists and collectives already close to free and open source software communities, such as software artists using free software as a framework. Similar to Vilayphiou and Leray’s design practice, exposed to this particular mode of production and distribution in their daily use of free software tools, these practitioners eventually applied the same philosophy with their work, and make many elements of the latter publicly available in repositories, us-

³⁸ The affiliation is made visible with a graphical badge in the human-readable summaries of their licenses. See mike, “Approved for Free Cultural Works,” 2008, <https://creativecommons.org/2008/02/20/approved-for-free-cultural-works/>.

ing different software licenses.³⁹ This aspect is particularly obvious for artists and designers using free and open source Unix-like operating systems, and who are therefore exposed to these replicable infrastructures and their modes of distribution which rely on source code. For instance with Debian, the connection between source code and freedom is clearly expressed in its own free software guidelines:

- Source Code

The program must include source code, and must allow distribution in source code as well as compiled form.

[...]

- Integrity of The Author's Source Code

The license may restrict source-code from being distributed in modified form only if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software. (This is a compromise. The Debian group encourages all authors to not restrict any files, source or binary, from being modified.)⁴⁰

Infused in such a habitus, these artists adopt them in their own practice, sometime expressing the moral imperative to share back regardless of the computational usefulness of their work, simply because the latter would not exist in the first place without the access to such tools.⁴¹

³⁹ See Lee, "Art Unlimited."

⁴⁰ Perens, "Debian's 'Social Contract' with the Free Software Community."

⁴¹ This explanation comes up fairly often in interviews. See Romero, *FLOSSOFÍA: El Software Libre en el Arte*; Annalisa Cannito, Chui Yong Jian and Santiago Bence, *Arts Meets Radical Openness*.

However, such an attitude towards the meticulous sharing of source material is unlikely to become popular, due to the complete or partial disappearance of an articulated concept of source. In fact, by cleaning up the computer jargon when software freedom was transposed to culture, the moral justification of free software which was embedded in this idea of source code availability, disappeared as well. In spite of the idea of defined deliberative free culture presented as an ethical counterpart of the aggregative market driven CC licensing that I discussed in Chapter 2, the ethics of free culture have no means by which to materialise. As a result, and in a strange twist, the imperfect transposition of software freedom to cultural freedom also has a negative impact on free and open source software itself:

Can I apply a Creative Commons license to software?

We recommend against using Creative Commons licenses for software. [...] Unlike software-specific licenses, CC licenses do not contain specific terms about the distribution of source code, which is often important to ensuring the free reuse and modifiability of software.⁴²

Indeed CC licensed software, even though as culturally free as free and open source software, is in fact a pseudo form of free and open source software. For instance an obfuscated and compressed JavaScript library can easily be distributed with a CC BY-SA license, or simply a CC BY license, therefore encouraging the widespread of said library, yet making it clear that its inner mechanisms are not the concern of anyone but its original authors. In this case, free culture in practice seems closer to a

⁴² Creative Commons, “Frequently Asked Questions.”

gratis sharing consumer culture rather than a liberated and empowered productive apparatus. It is also significant that in CC's perspective, as shown in the quote above, the question of modifiability is only an issue for software.

The problem of source has yet to be solved at the time of writing, but some efforts to take into account this issue are worth mentioning. In fact, as early as 2004, the Open Art Network started to work on the Open Art license (OAL), also known as the View Source license, or simply the Source License.⁴³ Even though this license would be considered today as non-free because it prohibited commercial use, it requested that “source file/s for the work must remain accessible to the public”. Unfortunately, there was no consideration on the nature of the standard used for such source files. OAL made no difference between free software and proprietary software, and no difference between open or close file formats and standards. Another take on the question can be found in the ongoing work from French composer and pianist Valentin Villenave, on a license that would solve some of the source issues discussed so far, yet unpublished to this date. Villenave is an active member of the Copyleft Attitude community from which the free culture FAL was born, as discussed in Chapter 3. His idea is to modify the FAL, in a way that it would require the artist to provide all intermediary source material used during the creation of a work of art. This would include sketches and research in all versions. If at any given time a source element is involved, it must be

⁴³ See Open Art Network, “The Source License,” 2004, <http://web.archive.org/web/20041208023918/http://three.org/openart/>.

provided, so as to avoid a situation, according to Villenave, where what is given access to, is in fact a summary of the work and not the work as a whole.⁴⁴ This approach would be, according to the musician, a concrete way to resist the passive and commodified consumption of free cultural expressions, and connect back with the free software engineering freedom, where re-usability and modularity is necessary for any progress and innovation, and at the same time preventing free culture from turning into gratis sharing consumer culture or a shareware culture, to use the analogies I made earlier. However, with this extra step, it seems that our problem is expanding further and further beyond the recursive vertigo triggered by diving into the cultural sources of cultural sources: it is also reaching the *context* in which these very sources are created.

6.3 Sharing Is Caring but How Many Files Are Enough?

The problem with the notion of cultural source is that it is difficult to draw a clear line between a well defined cultural artefact and the context in which the latter has been produced once culture has been reduced to shareable files. Free culture does not provide a solution, but instead further stresses this reduction. What is more, this situation creates a follow-up in the digital realm to some reflections of twentieth century

⁴⁴ Valentin Villenave, "Re: Sources d'une Oeuvre (Was Re: [Copyleft_attitude] Fwd: Re: [Revenu-Existence:1310] Affiches Pour Promotion Du Revenu d'existence -> Comment Partagez Vous Vos Oeuvres Libres ?)," 2011, https://listes.april.org/wws/arc/copyleft_attitude/2011-10/msg00042.html.

American philosopher Nelson Goodman, and more precisely in his 1968 book *Languages of Art*, in which the distinction is made between *autographic* and *allographic* works of art. Goodman's interpretation of the art object is of course not developed in the context of artistic cooperation and collaboration, but it does overlap coincidentally with some of the intellectual property issues covered in this thesis as it approaches the concept of authenticity by looking at the difference between originals and copies.⁴⁵ According to the philosopher's examples, painting is qualified as *autographic* because a copy of the original work is never authentic, while music is *allographic*, because the work of the composer is finished with the writing of a score that can be used for multiple authentic performances; he also notes that art can be formed of multiple stages, giving examples with printmaking being both two-stage like and *autographic*, which helps him clarify that *autographic* art must not necessarily translate into the production of one unique object.⁴⁶ These reflections on art and the work of art, leads Goodman to eventually develop a theory of notation, where stipulations are made for the creation and use of satisfactory systems of notation.⁴⁷ This approach is close to the questions of how to define the source of cultural works and what would be an acceptable medium and protocol to create and distribute these.

However, the difference with Goodman is that even though free culture seems to employ a rigorous syntactic and semantic system, its theory

⁴⁵ Nelson Goodman, *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis: Bobbs-Merrill, 1968), III Art and Authenticity.

⁴⁶ *Ibid.*, 113–15.

⁴⁷ *Ibid.*, IV The Theory of Notation.

of notation—that is built upon software data and licenses—is not fixed; it evolves constantly. Consequently, although it escapes the reductionism employed by Goodman, it nonetheless fails to capture anything sharply despite a techno-legal apparatus that keeps on expanding. This is particularly visible for artistic practices that have emerged from this techno-legal changeability, such as live coding which originally came from the desire to use free software programming as both a performance art medium and approach to improvisation in the context of electronic dance music.⁴⁸ This particular practice is exemplary of the appropriation of free and open source in the arts,⁴⁹ but it also shows the limitation of the free culture rational, defined, and quantifiable notation system. In such a practice, “the specificity of code is opened towards the indeterminism of improvisation,”⁵⁰ however, its distributivity also make irrelevant the multiple staging analysis of art production within and outside of the scope of its reproduction, and in turn makes it impossible to determine which of all of its original sources is the most valuable.

Defining an artistic source is as problematic as defining the language of art, yet the access to increasingly sophisticated legal and technological tools, which can enforce a fine-grained versioned capture of the artistic creation, directly fuels an endless quest to capture the “participation mystique” of the poet.⁵¹ What happens is that by being unable to extract

⁴⁸ Alex McLean, “Hacking Perl in Nightclubs,” 2004, <http://www.perl.com/pub/2004/08/31/livecode.html>.

⁴⁹ Simon Yuill, “All Problems of Notation Will Be Solved by the Masses: Free Open Form Performance, Free/Libre Open Source Software, and Distributive Practice,” in *FLOSS+Art*, ed. Aymeric Mansoux and Marloes de Valk (Poitiers: GOTO10, 2008).

⁵⁰ *Ibid.*, 69.

⁵¹ In reference to Carl Gustav Jung, *Modern Man in Search of a Soul* (1933; repr., London:

universal usefulness from cultural production—as opposed to the slightly more defined usefulness of free software or free art discussed in Chapter 3—a technologically assisted brute force approach to capture everything is set into motion. The argument from Cramer that without a dump of an artist’s storage device no complete works or biography can be written,⁵² shows how the quantification and capture of data footprints has both revitalised discussions on intermediality, but also demonstrates the infiltration of information technology into the art discourse beyond practical questions of conservation, archiving, and documentation. This strategy of sharing as *dumping* whatever has been digitally captured, was exemplified early on with the *Praystation Hardrive* [sic] published in 2001. The later was a CD-ROM containing *raw data* from the hard drive of media artist and Macromedia Flash specialist Joshua Davis.⁵³ The shared data was meant to be explored, studied, and reused. Even though the content was far from being a raw bitstream copy of the designer’s drive, it was nonetheless quite an impressive collection of 3637 files of all sorts and spread in a maze of folders. Some scholars made a parallel between this project and the free and open source ethos,⁵⁴ but this is a misunderstanding of how free software and open source operate, because the files were

Routledge, 2001), *Psychology and Literature*.

⁵² See Florian Cramer, “Peer-to-Peer Services: Transgressing the Archive (and Its Maladies?),” in *adonnaM.mp3 - Filesharing, the Hidden Revolution in the Internet*, ed. Franziska Nori (Frankfurt: MAK, 2003).

⁵³ Joshua Davis, *Praystation Hardrive* (Wan Chai: Systems Designs Ltd., 2001).

⁵⁴ Boris Cuckovic and Hrvoje Stancic, “Open Source in Art: Originality, Art Process and Digital Preservation,” in *INFuture2009: Digital Resources and Knowledge Sharing*, 2009; Matthew G. Kirschenbaum, *Mechanisms: New Media and the Forensic Imagination* (Cambridge: MIT Press, 2008), 54.

released without any licenses or copyright notices.⁵⁵ Effectively the drive fell instead into the gooey grey swamp that is unspecified public domain and default copyright laws. Still, its tremendous positive impact on the Flash user community, both as an educational and inspiring cultural artefact, demonstrated the effectiveness of a brute force approach to sharing. A strategy whose motto could be: if in doubt, share it all.

But this makes me wonder about the process of production. If the hypothetical aim here is to provide the source code of an artwork, why not try to capture the creative process as well?⁵⁶ This situation would share some resemblance with the first attempts of commercial art galleries in the early seventies, to claim back conceptual art in a commodified form by encouraging the collection of by-products, artefacts, and documents, that could generate commercial interest accentuated by the novelty practices these objects came from.⁵⁷ It also brings back the possible analogy between artistic use of free cultural licensing with prior attempts to use the contract as a means of institutional critique like *The Artist's Contract* by Siegelau, as briefly discussed in Chapter 3. However, here the emphasis is no longer on aesthetics, but rather whether or not these practices reinforce or instead liberate the autonomy of the artist, and how these new methods of documenting, archiving, and publishing transform the language of art. These issues are important ones to take into account, in order to evaluate the becoming of the artistic practice

⁵⁵ Email from Joshua Davis to the author, June 8, 2012.

⁵⁶ See Annet Dekker and Jeroen van Mastrigt, "Serious Archiving: Preserving the Intangible by Capturing Processes," in *Archive2020: Sustainable Archiving of Born-Digital Cultural Content*, ed. Annet Dekker (Amsterdam: Virtueel Platform, 2010).

⁵⁷ Taylor, *Avant-Garde and After*, 34.

in free culture where—as I mentioned earlier—liberation and empowerment also creates a consumer culture of sharing; in fact a multi-layered sharing economy. So without noticing it, the frustration coming from the lack of definition of artistic sources, combined with the increasing digital capture of human activity, is an open door towards a commodified analysis and recording of the artistic practice itself, where Snelting’s awkward gestures⁵⁸ of free software craftsmanship I discuss in Chapter 4, could end being misinterpreted as movements waiting to be sampled with all sorts of sensors and captors. With increasing means by which to sample phenomena into data sets, if there is more to these sources than just a flattened object, nothing prevents the capturing of such *intermediality* by also providing electroencephalographic data, DNA samples, cosmological models and more, thus transforming the capture of pretty much any phenomenon into the source of art as noumenon, and reduce culture to an ever expanding digital Voyager Golden Record, constantly challenging Lyotard’s hypothesis that knowledge cannot be translated in its entirety by machines.⁵⁹ If anything at all, I might well suggest a new free cultural license, the Borges Public License, for tomorrow’s librarians of Babel,⁶⁰ and their lawyers.

By only focusing on the techno-legal infrastructure that permits the distribution and the processing of data, information, and content, the value of what is being distributed and processed is however constantly

⁵⁸ Snelting, “Awkward Gestures.”

⁵⁹ Lyotard, *Rapport Sur Les Problèmes Du Savoir Dans Les Sociétés Industrielles Les Plus Développées*, 5–7.

⁶⁰ In reference to Jorge Luis Borges, *Fictions* (1944; repr., London: Penguin Books, 2000), *The Library of Babel* (1941).

re-contextualised. Its *raison d'être* becomes more ambivalent. As I said, the difficulty of qualifying a universal usefulness to what is shared—essentially the failure to define a universal approach to the digital commons—means that old paradigms such as quantity versus quality have become superseded by *potentiality versus accessibility*. The nineties debate on the societal benefit of digitally distributed knowledge,⁶¹ has thus been transformed since the mid noughties into discussions on culture as a digital commons, where the latter is assessed on the function of possible opportunistic transformation and instantaneous availability. Free culture is not responsible for this but is symptomatic of this trend, and its implementation of a sharing economy does not create an alternative to this situation. It is yet another variation of an information society built on top of techno-legal pipes, in which data flows from one processing unit to another, so as to shape and develop an infinite Lego construction site. Here I make the analogy with Lego again—after introducing its connection with engineering culture and free and open source software in Chapter 1—because if the playfulness of the Lego methodology for cultural production is not so far from the *metamechanics* of Swiss sculptor and painter Jean Tinguely, it also shows that there is a limit to the translation of engineering culture to artistic methodologies. The result is the risk of building an infrastructure optimised for non-existing practices, based on shortcuts that simplify cultural production to an equivalent of industrial production, in which engineering processes and re-usability are essential for innovation.

⁶¹ Lévy, *L'intelligence Collective. Pour Une Anthropologie Du Cyberspace*; Lévy, *World Philosophie*.

I refer to non-existing practices because the discussion on sources and context shows that art and design practices do not always rely on existing free cultural works, and therefore have little use for what the free culture machinery excels at: the bureaucratic organisation of many digital files. In fact, even within dedicated free culture supporters, the very access to usable sources, let alone *even* finished works, from their peers is only anecdotally relevant. For instance, according to Vilayphiou and Leray, but also other graphic designers working with free software and distributing their work under free culture licenses, such as Ana Isabel Carvalho and Ricardo Lafuente from the Porto based design studio Manufatura Independente,⁶² not all the material found in free cultural licensed graphic design is useful for other designers. In particular, for Carvalho and Lafuente there is a constantly moving frontier made between some low-level components deemed somehow neutral that can be useful, such as a software tool or a font, and on the other side an authorship tainted higher level artistic object, like a finalised poster design or illustration that is judged too contextually specific to be useful.⁶³ Here again we're confronted with the problem of staging what Goodman faced when working on the question of authenticity, but then if free culture demonstrates anything, it is that there cannot be one finite number of stages during the making of art, and that the art object itself can also move across all these stages depending on the context of its making, distribution, performance,

⁶² This comment was made to me during an interview with the two graphic designers, during the 2013 Libre Graphics Meeting (LGM) in Barcelona.

⁶³ This is especially visible when comparing a general vector graphics database such as the OpenClipArt library, and the much more personal vektorDB database from design group LAFKON. See LAFKON, "vektorDB," 2012, <http://vektordb.lafkon.net>.

appreciation ... and usefulness for others.

By trying to turn cultural fuzziness into a quasi-industrial and modular composite machine, free culture falls into the trap emerging from its own attempt to demystify cultural production, but it also fails to be representative of the cultural workers who produce such free culture. In particular the question of re-usability shows that appropriation art and remix practices are a very good demonstration of the advantage of free cultural processes over more conservative IP mechanisms, but it is also an inflated tale that helps argument more easily the question of economic accessibility and potentiality of digital culture. To be sure, I do not mean that there are no such things as remix or appropriation within free culture, but that outside specific practices, such as artistic strategies of citation or appropriation, or playful collaboration within close collectives and networks, as discussed in Chapter 2, or as witnessed in small-scale free software art collaborations,⁶⁴ they remain singular and localised processes. As for the source of a work, Leray explained to me during our discussion that from the perspective of OSP, there was possibly more value in sharing the documentation of moments of creation and explaining why these moments matter—what the collective calls recipes—rather than just dumping collections of source files and digital assets under free culture licenses. In the case of free culture supporters like OSP, it means that the brute force *if in doubt share it all* dump approach is reaching a new level, by not just

⁶⁴ Annet Dekker, “Enabling the Future, or How to Survive FOREVER: A Study of Networks, Processes and Ambiguity in Net Art and the Need for an Expanded Practice of Conservation” (PhD thesis, Goldsmiths, University of London, 2014), 5. The Value of Openness.

preemptively providing access to the things they are unable to attribute a universal usefulness, but by also making the considerable effort to provide guidance within the dump and explain why some are useful to them. With this strategy, the rationalisation of sharing into a free cultural peer-to-peer file exchange, becomes once again the basis of a human-to-human relation.

Interlude

As shown in the second part of the dissertation, art and cultural platforms can thrive on techno legal constraints. It also explains why some elements of proto free culture, discussed in Part 1, have translated into very diverse practices. Therefore the populating of free culture is not always specific to free culture, and is more likely to relate to the nature of the environments in which they emerge. Yet, free culture supporters, with their desire to protect such environments by an over-articulation of principles and rules, overlook the fact that the very failure of this attempt does not prevent cultural development, but is instead an important component, a veritable *fruit défendu*, from which new practices and transactions will be fed. Of course, the hypothesis brought to the fore by the free culture argument, is that eventually cultural constraints will be so strong and repressive, that all these practices will end up stifled and at the service of a commodification process that harvests the work of artists.¹ However, the same logic offered by free culture when pushed to the extreme, leads to another form of commodification provoked by the endless

¹ David M. Berry and Giles Moss, "Art, Creativity, Intellectual Property and the Commons: Can Free/Libre Culture Transform Art?" *Free Software Magazine* 6 (2005).

techno legal possibilities of rationalising cultural productions which become a highly contained disposable material, by making the incorrect generalisation that culture can be broken down into engineered blocks of things that can be combined and recombined to create new objects and products.²

In sum, the techno-legal free software template has helped form constraints and inspire a wide range of artistic practices discussed in Part 2, but this same template can also limit the cultural scope and the intention of those who appropriate it, thus making free culture unfit for generalisation, or at least creating more problems than it solves when adopted blindly. Another aspect that I wanted to reflect upon was what happens to cultural production when it adopts a model that is essentially derived from engineering. If on the one hand, engineering methods of prototyping and pipelining opened up new way to engage with the making of artistic work, from the writerly command line to notions of source code brutalism, these methods cannot be decoupled from a certain approach to organise and categorise digital information in their systems of execution and distribution. This led me to explain that in such systems, once again, free cultural practices that rely on precise definitions cannot accommodate all sorts of cultural expressions, which I illustrated by taking free soft-

² To be fair, Berry's and Moss' views, especially in relation to Creative Commons, changed quickly and radically a year after their paper I am referencing above. See Berry and Moss, "The Politics of the Libre Commons.". Their argument remains however a very good illustration of how such alternatives are perceived at first and become quickly viral and popular within the cultural field. But once its mechanics are more apparent, other interpretations become possible, leading possibly to disenchantment, which is why I will next introduce the sandbox analogy to explore this particular process, and why free culture in general can be so ambivalent despite its precise techno-legal articulation.

ware art as an extreme example of runtime incompatibility. It also struck me that the question of source, which I argued was the core foundation of software freedom, was impossible to articulate simply once transposed to non-software cultural expressions, making free culture fragile, threatening to become nothing more than another form of file sharing system. What is more, these problems of translation show that the core value of these systems are only revolving around the questions of access to data and the potentiality of transformation of such data.

With these limits exposed I wanted to highlight the paradox of the free culture constraint, as both liberating and entrapping, raising fences to protect practices and at the same excluding others. Building upon this idea of walled gardens, I will use the last two chapters of this thesis to draw a model of such systems that take into account these conflicts and paradoxes, and demonstrate how these paradoxes allow free culture to sustain itself and evolve through time. In the next chapter I will attend to the kind of environments, or platforms, that are created by free culture. I will take the notion of remix, which is popularly used in the free culture narrative as a point of departure, to illustrate that the question of access can be highly manipulative and deceptive. By doing so, it is my intention to highlight how techno-legal frameworks provide an inconspicuous social cohesion and a set of rules, which only become visible and questionable when the systems of belief they create are challenged by a conflictual event. For this, I introduce the term sandbox as a way to describe and refer to such platforms. The idea of cultural sandboxing

exists in the neighborhood of other notions such as discourse,³ fields,⁴ subcultural⁵ and post-subcultural models,⁶ ideological state apparatus,⁷ art platforms,⁸ and also Heidegger's *Gestell*⁹ amongst others. However, these are also markedly different and I find it necessary to coin the term sandbox to highlight the very specific type of framing made by software environments and licensing, and the containment they provide, therefore building upon the notions of foundation and territoriality hinted in the second part of the thesis.

If the impact of rationalisation, commodification, and normalisation on culture has already been addressed extensively in the literature, with the sandbox model I want to show more precisely how this operates and is implemented at a techno-legal level, at a time where the role of software in society, and its underlying algorithms, is increasingly scrutinised. This is why the idea of sandboxing also relates to the mix that Kelty had noted between operating systems and social systems, while inspired by the tag line "Operating Systems and Social Systems" of the first edition of the Wizard of OS conference in 1999.¹⁰ However unlike Kelty, inside the sandbox, I do not limit the mix only to hackers, but any users, given

³ Michel Foucault, *L'archéologie Du Savoir* (1969; repr., Paris: Gallimard, 1996).

⁴ Bourdieu and Wacquant, "La Logique Des Champs."

⁵ Hebdige, *Subculture*.

⁶ David Muggleton and Rupert Weinzierl, "What Is 'Post-Subcultural Studies' Anyway?" in *The Post-Subcultures Reader*, ed. David Muggleton and Rupert Weinzierl (Oxford: Berg Publishers, 2003).

⁷ Louis Althusser, *Positions (1964-1975)* (Paris: Éditions sociales, 1976), *Idéologie et appareil Idéologique d'État (AIE)*.

⁸ Olga Goriunova, *Art Platforms and Cultural Production on the Internet* (London: Routledge, 2013).

⁹ Martin Heidegger, *The Question Concerning Technology and Other Essays* (New York: Garland Publishing, 1977), *The question concerning technology* (1954).

¹⁰ Kelty, *Two Bits*, 36–43.

the omnipresence of today's operating systems and increasingly complex terms of service (TOS) in all sorts of appliances. In that sense, if there was a point in time where such a mix might have been observed remotely and limited to some hacker subculture, such distance is definitively questionable with today's 24/7 network connectivity for most, and will be eventually made irrelevant with the upcoming of the so-called Internet of Things (IoT)—and regardless how this will be marketed and promoted in the coming decades—which will impose such a mix on everyone. As part of my argument I will both use examples from operating systems and free culture licensing, to show how this particular sandboxing operates both at a software and legal level, and provides an update to the notion of blackboxing.¹¹ I will discuss the ubiquity of sandboxing, where legal and technological openness does not necessarily equate with user empowerment and technological literacy.

¹¹ In reference to Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge: Harvard University Press, 1999).

Chapter 7

From Techno-Legal Templates to Sandbox Culture

7.1 Deceptive Participations in a RO/RW Remix Culture

In the previous chapter I have departed from the argument on innovation that is central in the free culture discourse—made popular by Lessig to explain why he believes free software is a model to develop free culture—because if the analogy of software re-usability seemed to transpose theoretically to culture in relation to productivity, sharing ideas, and inspiration, the same analogy was clearly over stretched when in practice culture had been reduced to file-sharing and the remix of flattened down works. The latter practice, which refers to the problem of lack of cultural source discussed in the previous chapter, demonstrates that all the subtleties, tensions, plays, and conflicts, found in the way works respond and relate

to each other, as was exemplified, for instance, with the 1973 influence analysis and theory from literary critic Harold Bloom,¹ are at the risk of being streamlined to their weakest form of pleasurable and entertaining collages, as Benjamin had predicted in his time for photography.²

To be sure, I am not saying that remix is per se a poor practice that solely exemplifies the failure of artists to change the productive apparatus. Growing from the *versioning* of Jamaican songs into dub music, to its systematisation in the nineties music industry, the remix has been increasingly used to demonstrate the power of combinatorial practices.³ For instance, remix can be used literally as an experimentation, an appropriation of the medium and its instruments, as it is in the practice of turntablist Janek Schaeffer;⁴ and it can also be instrumental in another way, as a framework to analyse the semantics of political discourse, as illustrated in the President George W. Bush's 2002 "Axis of Evil" speech remix from artist Lenka Clayton.⁵ Regarding the latter approach, I would go as far as to say that remix as a folk political tool has worked in the past as proto-tactical media. For example, in the mid-eighteenth century Paris, folk songs were spread orally in popular neighbourhoods. But these songs were not just for entertainment, they were also used from time to time as a vector to memorise and spread commentary and cri-

¹ Harold Bloom, *The Anxiety of Influence: A Theory of Poetry* (1973; repr., New York: Oxford University press, 1997).

² Benjamin, "The Author as Producer."

³ See Eduardo Navas, *Remix Theory: The Aesthetics of Sampling* (Berlin: Springer Verlag, 2012).

⁴ Janek Schaeffer, "AudiOh!: Appropriation, Accident and Alteration," *Leonardo Music Journal* 11, no. 1 (2001): 71–76.

⁵ Lenka Clayton, *Qaeda, Quality, Question, Quickly, Quickly, Quiet*, limited ed. vinyl (hand-numbered ed. of 1000), (2004).

tiques on public affairs.⁶ The well known melodies of existing songs were used as carriers, in which the original lyrics were replaced by critical texts and poetry, which would have been banned and illegal otherwise, thus turning the process of influence to which I was referring earlier, not into mere entertaining collages but into a powerful political communication network of remixes, building upon the effect of the latter as a “subversion of the listener’s expectations.”⁷ Furthermore, the transformative generalisation offered by remixing makes it possible to link it easily to all sorts of practices and theories, from musique concrète, to appropriation art, intertextuality and dialogism, and more. With such adaptability in mind, writer Eduardo Navas describes remix as a “cultural glue,”⁸ as opposed to a movement or something that can be framed precisely. The message is strong as it relies on the obvious cultural mechanisms in which any object is a cultural product, specifically an object deriving from existing ideas and technologies and therefore, through cultural diffusion, yes indeed, of course, everything can be seen as a remix of something else.

With that said, if some have made the claim indeed, that “everything is a remix,”⁹ the remix becomes problematical however when it is used to showcase democratic processes of participation in cultural production. Before showing why this is an issue, I must first explain how remix and free culture relate to each other in file-sharing culture. The instrumen-

⁶ Robert Darnton, *Poetry and the Police: Communication Networks in Eighteenth-Century Paris* (2010; repr., Cambridge: Belknap Press of Harvard University Press, 2012).

⁷ Michael Veal, *Dub: Soundscapes and Shattered Songs in Jamaican Reggae* (Middletown: Wesleyan University Press, 2007), 89.

⁸ Navas, *Remix Theory*, 4.

⁹ Kirby Ferguson, “Everything Is a Remix,” 2010, <http://everythingisaremix.info>.

talisation of remix culture to justify the purpose of free culture was in fact articulated by Lessig himself. More explicitly, Lessig used terms from the file system permissions read-only (RO) and read-write (RW), which he called geek-speak metaphors, in order to illustrate the mechanisms of remix culture.¹⁰ This approach to remix and culture, that holds a privileged position in Lessig's free culture,¹¹ was the obvious next step in a process of cultural rationalisation reduced to file-exchange, and in which participation thus also became reduced to file permissions. This geek-speak metaphor is not only used by CC, but also within some of the groups and networks mentioned in the previous thesis part.¹² Of course, the advantage of such simplification is that it offers a very strong example, as it relies upon technological jargon and practices that have been increasingly democratised with the rise of the Internet and P2P file-sharing. In that sense it also becomes a subversive vector that can be used to accelerate the spread of new ideas, in a similar way as was the engineering of popular tunes mentioned earlier. This is why remixing has been frequently used by CC as: an inspiration,¹³ a handy shortcut to communicate about licensing changes,¹⁴ and a way to illustrate the

¹⁰ Lawrence Lessig, *Remix: Making Art and Commerce Thrive in the Hybrid Economy* (London: A&C Black, 2009), 28.

¹¹ Berry, *Copy, Rip, Burn*, 22.

¹² See for instance Constant, "Tools for a Read-Write World," 2013, <http://www.constantvzw.org/site/Tools-for-a-Read-Write-World.html>.

¹³ In the early days of CC, there was even a series of rather confusing Sampling licenses, that were inspired directly from remix practices. The licenses were however flawed in several aspects and were eventually retired in favour of more generic licenses. For more details on retired CC licenses, see Creative Commons, "Retired Legal Tools," 2017, <https://creativecommons.org/retiredlicenses/>.

¹⁴ Creative Commons, "Big Win for an Interoperable Commons: BY-SA and FAL Now Compatible," 2014, [\url{https://creativecommons.org/2014/10/21/big-win-for-an-interoperable-commons-by-sa-and-fal-now-compatible/}](https://creativecommons.org/2014/10/21/big-win-for-an-interoperable-commons-by-sa-and-fal-now-compatible/).

potentiality of CC's "pool of content"¹⁵.

It is interesting that this particular understanding of remixing, as a quantifiable form of commodified reusable artistic elements also leaks into the contemporary art discourse. For instance, French art historian and critic Nicolas Bourriaud stated in 2002 that the artistic question is no longer what can we make that is new, but instead what can we do with what we have.¹⁶ And with this point he argued that artists were no longer considering the artistic field as a museum containing works that must be cited or surpassed, but as so many storehouses filled with tools that should be used, stockpiles of data with which to manipulate and present. According to Bourriaud, artists are remixers and the consumption and production of information are no longer so separate. He sees artists as, what he calls, *semionauts* who can produce endless narratives and journeys within information. However, once the art critic gives examples of such an artistic approach and dissolution of the barrier between consumption and production, a completely different image is painted and which clearly demonstrates the discrepancy between remix as a creative mechanism and remix as a controlled environment. When Bourriaud quotes French artist Dominique Gonzalez-Foerster, the pre-condition of this new practice becomes in particular very clear:

Even if it is illusory and Utopian, what matters is introducing a sort of equality, assuming the same capacities, the possibility of an equal

¹⁵ Creative Commons, "About the Licenses - Creative Commons," 2017, <https://creativecommons.org/licenses/>, What our licenses do.

¹⁶ Nicolas Bourriaud, *Postproduction: Culture as Screenplay: How Art Reprograms the World* (2002; repr., New York: Lukas et Sternberg, 2005), Introduction.

relationship, between me - at the origins of an arrangement, a system - and others, allowing them to organize their own story in response to what they have just seen, with their own references.¹⁷

But, how can equality exist when such forms of sharing are built on the premises that these systems are, in fact, understood as an *origin* to which *responses* are expected? In this situation, remixing is limited to a process in which an original becomes the source of an anticipated creative chain reaction. The spectre of access and potentiality discussed in the previous chapter returns, from the famous artist waiting for an audience to recombine the elements of their work, to CC waiting for users to recombine the elements of their digital commons. Similarly, free culture supporters have done poorly in making their cause resonate beyond the concerns of very few privileged classes. According to scholar Laura J. Murray, the popular documentary *RiP: A Remix Manifesto* is essentially the glorification of a North American white male middle class culture, in search of some Robin Hood-like thrills by doing something that could be illegal, and where stereotypes of gender and stardom are carried with absolutely no awareness or reflection.¹⁸ These disconnections between the way these discourses present themselves and how they materialise are, however, not specific to contemporary cultural appropriation of remixing. In fact this ambivalence was already present in one of remix culture's exemplary cases: dub music.

In late sixties Jamaica, dub music was born from a mixing mistake that

¹⁷ Ibid., 13.

¹⁸ Laura J. Murray, "Brett Gaylor (Dir.) (2009) *RiP: A Remix Manifesto*," *Culture Machine CM Reviews* (2009).

led to the creation of a dubplate—a non durable acetate disc on which the master recording was cut for testing and demonstration purposes—from which the vocal track was omitted. The disc was nonetheless kept and played during a sound system gig. The lack of vocal track was turned into an opportunity for the deejay to improvise over the instrumental music, to the delight of the crowd.¹⁹ The immediate success of the accidental performance of both the studio mixing and of the deejay, toasting and chatting over the faulty dubplate, led to one of the richest musical dialogues of the twentieth century, where the live performance of sound system deejays inspired producers to make new *versions* of Jamaican songs, using the sound mixer and effects such as spring reverb and tape delays as improvisational instruments. The resulting dubplates fed back into the sound system improvisation culture, and back again into the studios. Looking at dub music from the sole perspective of the remix as a creative mechanism, it is possible to draw extensive analysis on its formal aesthetics, its sonic qualities, and its semiosis.²⁰ However, it is also possible to look at dub music from the perspective of the remix as a controlled environment. American scholar Michael Veal has written extensively on the history and development of dub music²¹, and has most notably analysed the original dub culture beyond its technical and sonic qualities. From Veal’s research, it is not a big stretch to say that dubplates functioned as

¹⁹ The origin of the myth and its narrative is slightly controversial, and there exists different accounts on the birth of this genre. See Navas, *Remix Theory*, 37–38.

²⁰ For more discussion on the study of remix, see Eduardo Navas, Owen Gallagher and Xtine Burrough, ed., *The Routledge Companion to Remix Studies* (New York: Routledge, 2015).

²¹ Veal, *Dub*.

an addictive product, sold to competing sound systems which, in order to attract an audience and sell alcohol, constantly needed new stocks—the dubplates were self-deteriorating plates—and new uniquely cut versions of popular tunes. Sound system sometimes even paid extra for dubplate *specials*, a particular version of a popular song, with the lyrics modified to praise the sound system that had effectively paid for the placed advertisement, but essentially these sound systems were advertisement and sponsoring platforms for the tracks used as source material for the dub versions.²² Here remix worked as a sort of twisted reverse crowdfunding scheme, where the original tracks were never given to the sound systems, and were only made available to purchase in music stores, owned by the same studios that produced the dub versions. On top of that, at the source of the versioned tracks were studio musicians working under very precarious conditions, and were often required to come up with finished music for a whole album to be recorded in a day, or provide a series of reusable beats and melodies with no possibility of claiming copyright. The riddims—essentially a database of artistic media—from which new tracks and their dub versions could be generated over and over again.²³ With many musicians in Jamaica, the competition and pressure to make riddims for studios was very high, even with terrible working conditions. The situation was also amplified due to poorly implemented copyright law in Jamaica—initially imposed by the UK in 1911 with little consider-

²² For an overview of the dub music market and relation to sound systems, see *ibid.*, 54.

²³ See Sharma Latoya Taylor, “Reggaenomics: The Relationship Between Copyright Law and Development in the Jamaican Music Industry” (PhD thesis, Victoria University of Wellington, 2013), 53–56.

ation of the local oral culture in folk music—which allowed the rise of a copyright infringing Jamaican music industry, which treated music as a public domain resource.²⁴ This however became an issue once some Jamaican musical genres and artists, in particular Bob Marley, started to profit greatly from a globalised music industry, and led to the ban of all versioned music from radio airing in Jamaica following pressure and lobbying by the musicians’ union. This action was however mostly a symbolic gesture as sound systems were much more powerful advertising platforms than radio.²⁵ As Veal concludes, despite its counter hegemonic nature, as well as the singing and improvising to an instrumental popular track used as vector to carry new discourse, there was a another side to such practices, with dub becoming the sound of “profit consolidation and competition.”²⁶

With this example, I am not arguing that a conservative and restrictive approach would be more beneficial than unregulated copyright and public domain derived cooperation. Instead, I want to point out that the free circulation and transformation of information cannot be directly linked to an egalitarian participation in a liberated productive apparatus. This shortcut is indeed problematic because it ignores the aspect of political economy in relation to these practices. Even if a detailed analysis of such an aspect is out of the scope of this dissertation, it nevertheless cannot be completely ignored, discarded, or rendered moot by considering free cultural practices as existing in a vacuum. In that sense, this free circu-

²⁴ Ibid., 42–59.

²⁵ Veal, *Dub*, 91.

²⁶ Ibid., 90.

lation of information encourages that new things constantly compete to become new mediating hubs or nodes of capitalisation, and thereby providing the ground for a near textbook illustration of classical liberalism, in which coordination by a central agency is replaced with a system of competitive arrangements of information conveying agents.²⁷ Exploitation that is driven by the division of labour in such a chain of distribution is therefore no more absolute but instead relative, which explains why the counter-hegemonic power of the Jamaican music industry, which has also liberated and empowered the sound engineering culture of Jamaica, comes at the price of reducing the cultural and political power of folk musicians. In particular, I can see an inversion of the situation of the subversive use of folk songs in mid-eighteenth century Paris, because Jamaican lyricists, but also song writers like Bob Marley, saw dub as a damaging practice in which political texts were removed, erased, and overshadowed by effects and mixing techniques.²⁸ According to Veal, the whole versioning process can therefore be sensed as a direct result of capitalist influence in the making of music, that turns folkloric practices into a calculated economic strategy based on a complex and possibly endless archaeology.²⁹ Therefore, if the remix nature of dub music can be celebrated for being a cultural glue and creative process, it simultaneously presents itself as the sound of a “society tearing itself apart at the seams.”³⁰

²⁷ See Friedrich Hayek, *The Road to Serfdom* (1944; repr., London: Routledge, 2001), 50–52.

²⁸ Veal, *Dub*, 78.

²⁹ *Ibid.*, 89.

³⁰ *Ibid.*, 206.

In the context of remix culture, instead of putting into perspective the different levels of empowerment and their cost to the community, the idea of an evil, central and easily identifiable source of control—essentially inherited from the post-war era reaction to central planning³¹—creates the foundation for a deceptive subcultural heroic discourse. In the same way that the non-trivial symbiosis between capital and free and open source software communities can be mistaken as a “black and white dramaturgy of profiteering villains,”³² the copyright infringing remixer is often portrayed as a beloved liberator, a David fighting an evil Goliath. Depending on the context, the evil Goliath becomes a replaceable figure who embodies the record industry, the film industry, the publishing industry, and all sorts of media industries. Of course, there is an urgency to address today’s folly found in many intellectual property related incidents, from a media industry lobbying for more punitive actions against the sharing and distribution of copyright material, to appropriation artists and musicians suing each other ad nauseam over sampled materials. However, by articulating these issues in a such a way that those who prevent the free circulation of information are systematically impersonated by evil entities,³³ the free culture discourse struggles to depart from a Nietzschean position of *ressentiment*,³⁴ and this hostility prevents free culture supporters from

³¹ Karl Popper, *The Open Society and Its Enemies: Volume 1: The Spell of Plato* (1945; repr., London: Routledge, 2006); Karl Popper, *The Open Society and Its Enemies: Volume 2: Hegel and Marx* (1945; repr., London: Routledge, 2006).

³² Söderberg, *Hacking Capitalism*, 31.

³³ See Gaylor, *RiP!*

³⁴ In reference to Friedrich Nietzsche, *The Genealogy of Morals* (1913; repr., Mineola: Dover Publications, 2003), “Good and Evil”, “Good and Bad” (1887).

fully evaluating the consequences of their propositions.

Finally, the deception of the remix as a satellite of an original, lies in the artificial influence of the original, that is specifically possible because of the locking down of culture by some industries. It is therefore ironic, and problematic for free culture, to use such a practice to make its point, and therefore suggest an egalitarian cultural landscape, in which in fact the stardom driven remix aesthetics they use in their narrative could not exist, and would eventually be replaced by new structures of mediation in which other mechanisms of artificial influence would operate. The author-centered regime of the information society that Boyle had warned against³⁵ is therefore not resolved in free culture but only displaced.³⁶

Following the discussion of free cultural techno-legal templates that I developed throughout this thesis, it should become clear that the questions that matter are not about the potentiality of the free circulation of information, or the novelty of its form, but rather how such information comes into existence, what kind of technological, social, and political frameworks permit its access, what networks of software it requires or

³⁵ James Boyle, *Shamans, Software, and Spleens: Law and the Construction of the Information Society* (Cambridge: Harvard University Press, 1997), Chapter 11.

³⁶ This problem of artificial versus egalitarian influence is very concrete: a white label record mashup is more likely to contain a drum sample from Michael Jackson's *Thriller* than some drumloops produced by the neighbourhood kid and released under a CC license on a sample sharing site such as freesound. Even the few Internet memes that do not appropriate from pop cultural icons, end up at the centre of variations that reinforce their central authority, such as Wojak/Feels Guy/twarz, the bald man image used in all sorts of situations to express emotional situations with *feels*, or trollface, the popularity of which made its author a royalty annuitant. See Know your Meme, "Wojak / Feels Guy | Know Your Meme," 2010, <http://knowyourmeme.com/memes/wojak-feels-guy>; Patrick Klepek, "The Maker of the Trollface Meme Is Counting His Money," *Kotaku*, 2015, [\url{https://kotaku.com/the-maker-of-the-trollface-meme-is-counting-his-money-1696228810}](https://kotaku.com/the-maker-of-the-trollface-meme-is-counting-his-money-1696228810).

gives rise to, its wider aesthetic inferences and affordances. It should also become clear how such frameworks influence the groups that inhabit the structures formed by these templates. Lessig's RO versus RW file system approach to remix and free culture therefore needs to be challenged in its own metaphorical domain: who owns the file? Where is it located? Why can it be accessed? Who benefits from reading from or writing to it? Full permissions over a small element of a system does not imply complete control over the latter.

7.2 The Early Days of Mixes Between Operating Systems and Social Systems

By using the RO versus RW metaphor, Lessig may have underestimated how relevant such an analogy was for the so-called geeks he was referring to, in particular those sensible to cultural environmentalism, and whose political life "have indeed mixed up operating systems and social systems in ways that are more than metaphorical."³⁷ In fact, the idea of a computer environment mixed up with social organisation could already be found in several early seventies projects.

The 1973 project Community Memory in the San Francisco Bay area provided three public terminals for a common database, a resource sharing, in which people could read and add information (Figure 7.1). The system, developed by Resource One Inc. a non-profit corporation and one

³⁷ Kelty, *Two Bits*, 38.

of few public service computer centres, ended being used beyond its creators expectations: student tips, musician and chess players' announcements, car pool organisation, restaurant reviews, as well as poems and graphics.³⁸ People queued and taught each other to use the computer, and according to Berkeley Free Speech Movement activist Michael Rossman, the system was "inescapably political,"³⁹ its politics were "concerned with people's power,"⁴⁰ as anyone could access the network that Rossman considered as the ultimate participatory democracy without central authority, and of public utility.

[I]n this system no person or group can monopolize or otherwise control people's access to information. Information-power is fully decentralized. No editing, no censoring; no central authority to determine who shall know what in what way.

[...]

[U]sers of the system must take responsibility for their own judgements about its data, supported by whatever judgements other people offer to them through the system.⁴¹

What is interesting here, is that even though the system had been clearly designed and programmed with no ill-intention, it was nevertheless a completely centralised time-sharing system, from which terminals were used to connect and edit content, a sort of proto-cloud. The users had to trust that the anonymous access they were given, was truly anonymous and that no extra time stamps and information about which termi-

³⁸ Ken Colstad and Efreem Lipkin, "Community Memory: A Public Information Network," *SIGCAS - Computers & Society* 6, no. 4 (1975): 6-7.

³⁹ Michael Rossman, "Implications of Community Memory," *SIGCAS - Computers & Society* 6, no. 4 (1975): 7-10.

⁴⁰ *Ibid.*

⁴¹ *Ibid.*

Figure 7.1: Community Memory walkthrough

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Doc Benway wanders into the Whole Earth store to check out what's happening in
Community Memory. A typical sequence would look something like this (what Benway types
is underlined). There is a ">" symbol at the left side of the CRT screen, indicating the
machine is waiting for the next user to give it some command. He proceeds to type:

>FIND TAXI
1 ITEMS FOUND
>PRINT
#1:
TAXI UNLIMITED IS A CO-OPERATIVE TAXICAB AND ANSWERING SERVICE,
RUN AND MANAGED BY ITS WORKERS. TRIES TO KEEP RATES AS LOW AS
POSSIBLE, HELPS PEOPLE IN EMERGENCIES, AND OFFERS EXTRA SERVICE
FOR THE SICK AND DISABLED.
1908 BERKELEY WAY, BERKELEY 94703, TH1-2345

>FIND FREE CLINIC
6 ITEMS FOUND
>AND BERKELEY
2 ITEMS FOUND
>BRIEF
#1: GEORGE JACKSON PEOPLE'S FREE MEDICAL RESEARCH HEALTH CLINIC
#2: FREE CLINIC (BERKELEY) 548-2570

>FIND BAGELS
5 ITEMS FOUND
>BRIEF
#1: WHERE CAN I GET DECENT BAGELS IN THE BAY AREA (BERKELEY!)?
#2: THERE IS A STORE CALLED BAGELS ABOVE KEY ROUT ST. ON
#3: THE DANISH BAKERY AT UNIVERSITY AND SHATTUCK IN BERKELEY
#4: IF YOU CALL MICHAEL AT 645- AN EX-BAGEL BAKER CAN TEACH
#5: YOU CAN GET FRESH BAGELS AT THE HOUSE OF BAGELS, WAY OUT ON

>FIND ENERGY CRISIS
6 ITEMS FOUND
>BRIEF
#1: ***** TEG'S 1994 ***** ---> SOME CONCEPTS
#2: I AM LOOKING FOR INFORMATION ABOUT METHANOL (METHYL ALCOHOL)
#3: RESTARTING YOUR CAR'S ENGINE BURNS LESS GASOLINE THAN ONE
#4: <ENERGY PRIMER> -- A BOOK BEING PREPARED BY PORTOLA INSTITUTE
#5: ANYONE WANTING TO DEVELOP PUBLIC-ACCESS INFORMATION SYSTEMS,
#6: GOT TO, GOT TO
GOT TO, GOT TO
GOT TO SCRAPE THAT ENERGY CRISIS
RIGHT OFF YER SHOES . . . .
(W/THANK TO MICK 'N KEITH)

>FIND DOCTOR BENWAY
3 ITEMS FOUND
>PRINT 2
#2:
***** IE' XQRSTQAL SYSPRINT OFFSET INTERRUPT *****
APPLIESTO: ALL BOOGIES, BEANERS, BOLOS & BOZOS . . . .
DOC BENWAY HERE . . . . . NURSE, SLIP ME ANOTHER AMPULE
OF LAUDANUM . . . . . RECOLLECT ONCE ME AND CLEM CLONE WAS CHEWIN
YOHIMBE BARK OUT BACK OF JODY'S ALL-NIGHT PET SHOP . . . . .
NOT A FINER MAN IN THIS WHOLE ZONE
THAN OL' CLEM 'N JODY CLONE . . . .
*****WERE WAS WE, YEAH --- USE AUTHORIZED DATA BASE ACCESS
PROTOCOLS ONLY . . . . SENSUOUS KEYSTROKES FORBIDDEN . . . . DO NOT
STRUM THAT 33 LIKE A HAWAIIAN STEEL GUITAR . . . . GRAND CONCLAVE
OF THE PARTIES OF INTERZONE: CHECK YOUR BOX FOR DETAILS. . . .
PERSONAL ATTENDANCE REQUIRED; SEND NO REPLICA. BENWAY OUT.
TLALCLATLAN . . . . .

```

Photo: Mark Szpakowski, 1974, CC BY-SA 2.5

nal was used, were also recorded, that the content in the central computer was not tempered with, and that deleted information was not in fact simply kept. With this example the notion of mixing up becomes indeed very strong, because the computer system did not merge with a certain type of social organisation to create a third thing, instead it created a situation in which two realities co-existed. Said differently, the purpose of the system and its perceived social dimension made the network topology appear radically different from its physical and technological reality, and made it look like a decentralised and anti-authoritarian network. The contemporary difficulty to articulate the relationship between social systems and the Internet are rooted in this conundrum. In that sense, and to give a contemporary illustration, the pseudo-anonymity and pseudo-privacy offered by image boards like 2ch, 4chan, or 8chan to name a few, is nothing but helplessly echoing these questions.⁴²

What is more, this discrepancy, between how a computer system is perceived and how it effectively operates, allows for the materialisation of different social systems. For example, it is perfectly possible to portray a Unix-like operating system as a top-down authoritative hierarchical organisation, that “is deeply indebted to culturally determined notions such as private property, class membership, and hierarchies of power and ef-

⁴² With this I mean that the belief of anonymity provided by these platforms is illusory. Regardless of whether one’s post is signed *anonymous*, it does not guarantee that one’s IP address and other uniquely identifiable information is not gathered and tracked from these centralised discussion platforms. For instance, even if justified as a way to prevent abuses, 4chan does not allow access to its service with the anonymous communication software Tor. See 4chan community support LLC, “FAQ - 4chan,” 2017, <https://www.4chan.org/faq#torproxy>.

fectivity.”⁴³ And yet, the same system has nonetheless spawned a very rich network of machines built and inhabited around principals of egalitarianism, sharing, decentralisation and cooperation; literally turning the capitalist-like file system organisation, into a constellation of networked communities, from hackerspaces,⁴⁴ to artist-run servers,⁴⁵ as well as mutual help activist infrastructures.⁴⁶

To explain how such contradictions have come about I must once again turn back to the early days of computational culture, which had yet to be exposed to the division of labour and managements hierarchies,⁴⁷ simply due to the lack of a clearly defined computer market or business at the time, as discussed in Chapter 1. According to American historian Roy Rosenzweig, Community Memory merges impulses from the radical sixties with the hacker ethic. To make his point, Rosenzweig explains that the founders of Community Memory included Lee Felsenstein, who made a living as a computer engineer, whilst being a New Left radical linked with the Free Speech Movement. Felsenstein was also the son of a district organiser of the Philadelphia Communist Party.⁴⁸ Felsenstein, who was also member of the influential hobbyist Homebrew Computer Club,

⁴³ John Unsworth, “Living Inside the (Operating) System: Community in Virtual Reality,” in *Computer Networking and Scholarly Communication in the Twenty-First-Century University*, ed. Teresa M. Harrison and Timothy Stephen (Albany: SUNY Press, 1996), 142.

⁴⁴ Contributors to the HackerspacesWiki, “List of Hacker Spaces - Hackerspacewiki,” 2017, https://wiki.hackerspaces.org/List_of_Hacker_Spaces.

⁴⁵ Contributors to the Monoskop Wiki, “Art Servers - Monoskop,” 2016, https://monoskop.org/Category:Art_servers.

⁴⁶ Riseup, “Radical Servers.”

⁴⁷ Berry, *Copy, Rip, Burn*, 106.

⁴⁸ See Roy Rosenzweig, “Wizards, Bureaucrats, Warriors, and Hackers: Writing the History of the Internet,” *The American Historical Review* 103, no. 5 (1998).

from which the idea of the personal computer was first articulated, was one of the many engineers that developed a common hatred for large centralised proprietary mainframes: *computer liberationists*, in Rosenzweig's own words, who were interested in the potential of computers as a vector of decentralisation, democracy, and freedom.

In parallel of this political impulse, the larger time-sharing operating systems they opposed also started to provide social software built into the system, all the while the production and development of software was increasingly reliant on automation, and had already started to be envisioned as if it was a factory process.⁴⁹ Computer hacker Don Hopkins recalls that many of these social programs were available on the Incompatible Timesharing System (ITS), used throughout the seventies and eighties, such as :UNTALK, :SEND, :REPLY, :INQUIR, :WHOIS, :FINGER, :USERS, :WHOJ, :PEEK, and :OS, all providing the software's bricks and mortar needed to build a cohesive social structure inside the machine.⁵⁰

The MIT-AI lab's ITS machines had several ways of chatting and socializing through the host. You had a lot more awareness of who was on, what they were doing, and what they were into, than most other time-sharing systems of the time. Many people would stay logged in all the time, just to be social, read email, send text messages, and chat.⁵¹

The communal sense of these groups was best demonstrated with the

⁴⁹ Robert William Bemer, "Machine-Controlled Production Environment," ed. Peter Naur and Brian Randell, "*SOFTWARE ENGINEERING*" *Report on a Conference Sponsored by the NATO SCIENCE COMMITTEE*, 1968, 55–57.

⁵⁰ Emails to author, February 17, 2015.

⁵¹ Ibid.

software shelter and educational environment, that they provided for the under-privileged living outside of such academic networked walled gardens. For instance, under the name *Tourist Policy*, the MIT AI Lab allowed people outside of the lab to apply for accounts, and use the system during off-hours, in order to learn how to program and access the network.⁵² But most importantly, the documents in these systems were made available with no restrictions whatsoever:

And another very social feature was that there was not file protection, and it was considered perfectly acceptable to learn by reading other user's files. Deleting and vandalizing wasn't considered socially acceptable of course, but since there was no challenge to it (and the user community was so small), it wasn't a big problem.⁵³

If the history of computing and its impact on society would have stopped right here, Lessig's RO versus RW geek-speak metaphor may have been strong enough, because it essentially depicts a de-contextualised binary situation of file access in the context of communities small enough to have a good understanding and overview of the system they participated in. However, as I will now explain, the exponential growth in usage of these systems and the reality of their control mechanisms greatly negates any positive effects that could have come from using such a simple shortcut to address the free circulation of information.

⁵² Ibid.

⁵³ Ibid.

7.3 Policies, Jails, Chroot and Sandboxes

Hopkins also wrote to me that a lot of these network developments and usage were not business-related, and essentially existed in a grey area. As it turns out, and as computer networks grew, such grey areas became difficult to maintain in an ad hoc fashion and started to require policing,⁵⁴ and in some cases more secretive rules. This was the case with ARPANET, which subcultural activities could not be communicated to the outside world, in order to avoid the Defense Advanced Research Projects Agency (DARPA) losing public and political credibility over their military projects. This led to the infamous 1985 ban of Science Fiction writer Jerry Pournelle from the network who lost his guest/tourist account, after mentioning inside stories about the network several times in his columns for the microcomputer magazine Byte.⁵⁵ In that sense, if today Usenet, the Unix powered network that I introduced in the first chapter, is still remembered rightfully as a unrestricted and poor man's ARPANET alternative,⁵⁶ it should not overshadow the fact that the cultures of the two networks were equally busy with human to human network communication and social organisation, the difference being that one was not explicitly allowed to communicate about any one of them. Of course ARPANET and Usenet are taken as examples here, because of their rel-

⁵⁴ A copy of the rules can be found at MIT AI Lab, "MIT AI Lab Tourist Policy," n.d., <http://www.art.net/Studios/Hackers/Hopkins/Don/text/tourist-policy.html>.

⁵⁵ See Don Hopkins, "How Jerry Pournelle Got Kicked Off the ARPANET," 2000, <http://www.art.net/~hopkins/Don/text/pourne-smut.html>.

⁵⁶ See Michael Hauben and Ronda Hauben, "Netizens: On the History and Impact of Usenet and the Internet," *First Monday* 3, no. 7 (1998), <http://firstmonday.org/ojs/index.php/fm/article/view/605>.

evance in the context of this thesis, and rather important visibility in computer history; however, it should not be forgotten that the seventies and eighties proto and early Internet days, saw dozens of important networks initiatives from different origins, research, corporate, cooperative and so-called metanetworks, which all shared similar social dynamics, to those exemplified here.⁵⁷ In the end, all these systems were eventually adapted to serve more personal goals and social interests,⁵⁸ showing the democratic transformations that could occur within such platforms, no matter what were their original purpose.⁵⁹ This is also the reason why, most notably with ARPANET, the adaptive bottom-up communication systems have often been associated with the counterculture movement, even if their origins belong to different contexts.⁶⁰

The direct consequence of these transformations became visible in the way the operating systems running these networks were designed. Here again, Unix is exemplary to show how the code to organise social activities, and the code to execute on machines are often intertwined. In particular, an important aspect of a Unix-like environment is its organisation as a hierarchical model, in which everything is represented by files,⁶¹ and

⁵⁷ For an extensive survey of such networks, see Quaterman and Hoskins, “Notable Computer Networks.”

⁵⁸ Markoff, *What the Dormouse Said*, 104–6.

⁵⁹ Here, I am essentially paraphrasing and referring to the optimistic analysis of such transformation that philosopher Andrew Feenberg made in the context of the French Minitel, but entirely relevant to the older networks that I just mentioned. See Andrew Feenberg, *Transforming Technology: A Critical Theory Revisited* (Oxford: Oxford University Press, 2002), 118–20.

⁶⁰ Scaruffi, *A History of Silicon Valley, 1900-2015*, Chapter 6.

⁶¹ Which is to say, that almost every aspects of the system, including devices, are exposed to the file system. Based on the explanation on pipes and input/output redirection presented in Chapter 1, because of this approach, file manipulation tools can also be used to manipulate hardware devices. For instance the command `cat /dev/mem >`

arranged in a tree of nested directories. In such a system each file and process has a single owner. Users belong to different groups which gives them different permissions to navigate in some parts of the tree structure, as well as read, write, and execute files in the system. This is basically the technical information on which the RO versus RW metaphor can be understood. However this is not all, users are also given a home directory in which they can manage their own files. In multi-user systems, regardless of whether they are proprietary or not, Unix-like or not, the home directory is a personal and privileged place in the file system, an entry point after a successful log in, where a user stores personal files and programs, but also a place to set configurations and preferences for any given software in the system. Every popular multi-user operating systems has home directories. The access to the files that can be experienced through many different mediating layers, from graphical user interfaces (GUI) to command-line interfaces (CLI).⁶² Last but not least, and sitting on top of the mountain, a superuser, called the root user, possesses all the permissions in the machine, that is full access and control over every single process and file, including of course the private ones in the users' home. Even though this is a very quick overview, it already projects a much richer imaginary than the one found in the RO versus RW comparison.

`/usr/home/merzbow/mymemory` will dump the memory of the computer to a file named `mymemory`, but `cat /dev/mem > /dev/dsp` will dump it instead to the soundcard, making *audible* the machine's memory.

⁶² See Florian Cramer, “\$(echo echo) echo \$(echo): Command Line Poetics,” in *Digital Artist's Handbook*, ed. Marloes de Valk (Lancaster: <https://web.archive.org/web/20121222001506/http://digitalartistshandbook.org>; Folly, 2007).

Depending on the privileges of a user, one can either be trusted to take care of other people's home and files, or trust that a more privileged user will take care of one's home and files, while not abusing such power. As it turns out, the nineties success of GNU/Linux is tightly connected to this structure, as the access to a UNIX operating system running on affordable hardware such as PC-compatible home computers, gave the availability for every user to become a local root at a time where UNIX systems were running on expensive machines, to be accessed remotely as a simple user. The relative nature of exploitation within liberal cultural production that I was discussing with the remix, is therefore also technologically implemented in these systems where RO and RW permissions—and to be more complete also *execute*—are isolated in nested structures of relative, but not absolute, access. What is more, this construction might be completely invisible to the user. It is in this particular situation that the Unix command `chroot` becomes a much more powerful file system inspired geek-speak metaphor than RO versus RW.

Added in 1979 to the seventh edition of Bell Labs' Unix,⁶³ the `chroot` program manipulates the way the file system is *perceived* from a user or process perspective. It does so by moving the apparent uppermost directory of the file system to another location, thus preventing the *chrooted* users and processes from accessing anything outside of this metaphorical *jail*. Said differently, the sub-folder one is jailed inside appears as the base and starting point of all the other folders in the system, while others,

⁶³ Pierre (P.) Lewis, "A Very Brief Look at Unix History," 1994, <ftp://rtfm.mit.edu/pub/faqs/unix-faq/faq/part6>.

non-chrooted users and processes, can see one constrained in the space and resources one has been allocated. More specifically when discussed in the context of security, the technique is literally called a chroot jail,⁶⁴ and in some operating systems like FreeBSD, such technique expanding upon the chroot idea, is simply called a jail.⁶⁵ It's not by accident that the act of getting administrator rights on an iPhone, which operates a Unix based system, is called jail-breaking: the hack is a form of *privilege escalation* that aims at liberating phone users from their jail, and subsequently giving them access to the full Unix machine hidden behind their golden cage GUI. Similarly, in this universe of software class struggle, on Android phones, also a Unix-like OS, the term *rooting* refers to the process in which the phone user can modify the operating system, so as to gain superuser permissions: that is becoming root by means of a software assisted coup.

Ultimately, the introduction of the chroot program was a tipping point in which trust and social organisation within operating systems, could no longer be solved with ad-hoc moral guidelines, and in that sense pre-dating virtualisation and the cloud, that further obfuscated and further mediated the relationship between users within these systems. Yet once chrooted, a user or process is given the illusion of complete freedom when they are in reality sandboxed. The term sandbox is in fact frequently used to describe all sorts of testing, secure containment, and prototyping prac-

⁶⁴ David A. Wheeler, "Secure Programming for Linux and Unix HOWTO," 1999, <https://www.dwheeler.com/secure-programs/>.

⁶⁵ Matteo Riondato, "Chapter 14. Jails," 2017, <https://www.freebsd.org/doc/en/books/handbook/jails.html>.

tices that require both the experimental potential offered by such an isolated and malleable place and the illusion they provide to the sandboxed users or processes. This aspect makes such digital sandboxes similar to physical box full of sand in a children's playground, where things can be invited, bounced, created, abandoned, contained, constrained, interpreted, experimented, censored, populated and grown. Said differently, it's a world on its own. Most importantly, it implies the existence of a higher level structure, and therefore context, which all these actions are ultimately nested within. The sandbox is within the playground, that is within the park, that is within the city, that is within the state, etc.

So what matters is not so much if access is provided with read or write permissions, but the conditions and context for such access, both at a software and legal level. If RO and RW are used to illustrate a simplistic understanding of cultural processes within free culture, using chroots to talk about these instead, forces us to acknowledge the existence of containment in free culture, a sandbox culture indeed, a model that highlights the duality of the aesthetic of consumer society,⁶⁶ that I earlier exemplified with dub music, but that also resonates with the tension between freedom, constraints, and creative territoriality, which I discussed several times so far in relation to the situations created by the use of free cultural techno-legal templates.

⁶⁶ Here I make reference to American political theorist Frederic Jameson, who questioned the ability of postmodernism to resist the logic of consumer capitalism. See Fredric Jameson, "Postmodernism and Consumer Society," in *Postmodernism and Its Discontents: Theories, Practices*, ed. Elizabeth Ann Kaplan (1988; repr., London: Verso, 1993).

Another point that I want to address is that the enclosure of the information commons, to borrow a term from software developer Dmytri Kleiner,⁶⁷ is not strictly of a capitalist nature. In this sense I disagree with an historical creation myth of the Internet as a common and shared resource, as I have shown that even in the early days of proto-Internet infrastructures, these systems already worked as a series of enclosed commons and shared resources only accessible *within* specific techno-legal walled gardens of varying ideologies. Capitalism and the growing commercialisation of the Internet might have enclosed, or more precisely overlaid their own enclosing structure on top of some already existing resources but they are in fact essentially focused on mimicking the successful structures that support these resources, not quite enclosing existing commons but in fact facilitating the sandboxing of new commons to be capitalised upon. This means that the notion of cultural environmentalism from Boyle,⁶⁸ which draws an analogy between ecological and cultural issues, works only so far with the notion of public domain cultural expressions and not so much with new forms of digital commons that are created as part of a logic of cultural sandboxing and user participation, or as Stalder notes, associated to a neoliberal downsizing strategy where context and embedding did not emerge from a bottom-up process.⁶⁹

⁶⁷ Dmytri Kleiner, *The Telekommunist Manifesto* (Amsterdam: Institute of Network Cultures, 2010), 20.

⁶⁸ Boyle, "A Politics of Intellectual Property."

⁶⁹ See Felix Stadler, *Digital Solidarity* (London: Mute, 2013), 31–36.

Interlude

On several occasions in this thesis, I have shown that whilst it might be instrumental for some to describe free and open source software, as well as free culture, as movements, it is more precise to decouple the constitutive techno-legal templates that they offer—and that are all derived from the original free software template—from their usage. By doing so, it allowed me to first highlight the cultural diversity present in the proto-free culture era, and show how such pluralism decayed when aggregative models of free culture relying on economics, such as CC, and a deliberative models of free culture relying on ethics, such as Freedom Defined, came into existence. This decoupling also allowed me to demonstrate, with art in particular and cultural production in general, that even within the contemporary reduction and rationalisation of the free cultural framework, as soon as such templates were used, appropriated, or transformed by practitioners, they all materialised differently and were driven by radically different intentions and purposes.

One consequence of these findings seems to present a new challenge however. Namely, that such miscommunication and divergence within the free and open *things* discourse does not lead to a collapse of these ef-

forts, but instead strengthens it by constant renewal and adaptation to its environment. Kelty's intuitive description of free software that is "constantly becoming"¹ comes to mind, yet this does not fully explain this apparent contradiction. This is why in the third part I have momentarily set aside the discussion on licensing, and discussed instead the copyright respectful free cultural proposal where culture is essentially produced through remix and file sharing, to show that in this liberal model of free circulation of information, decentralisation favours the creation of opportunistic territories and agents where such access and circulation of information can be profitable. This was my main motivation, to first show that the democratic and egalitarian narrative of the RO versus RW metaphor can be deceptive, as they need to be put in the perspective of broader consequences from liberal models and commodified approach to culture. There is of course nothing new in this critique of digital labour,² however critiques of exploitation within free and open source projects have never managed to articulate why such systems are nevertheless so durable and passionately defended by their users. As it turns out, more recent analysis of participatory platforms populated with user generated content has started to offer other ways to think about such systems, showing in particular that economic transactions are not the only form of exchange occurring in exploitative digital environments.³ Similarly, the question of

¹ Christopher Kelty, "There Is No Free Software," *Journal of Peer Production* 3 (2013), <http://peerproduction.net/issues/issue-3-free-software-epistemics/debate/there-is-no-free-software/>.

² Terranova, "Free Labor."

³ Lasse van den Bosch Christensen, "I, for One, Welcome Our New (Google) Overlords," 2015, [\url{http://networkcultures.org/longform/2015/06/01/i-for-one-welcome-our-new-google-overlords/}](http://networkcultures.org/longform/2015/06/01/i-for-one-welcome-our-new-google-overlords/).

participation in free and open source projects cannot be answered absolutely, because of this *constant becoming*, which can be illustrated, for instance, with changes in the work dynamics within the Linux Kernel which is now essentially done by employees of companies whose products or production infrastructure depends on the free software kernel.⁴ Essentially the political economy of free and open source software is affected by both the scope and scale of the communities revolving around such software, and how many active developers are providing the majority of work. In that sense, it is not because a barely sustainable one-person project is licensed in the same way as a project that involves hundreds of “eyeballs,”⁵ that their mode of production is the same. It seems obvious phrased like this, but it is rarely taken into account when discourse around free and open source software become overly generalised to form a universal narrative. What can be extrapolated from these remarks is that commodity fetishism and user manipulation, are not enough to explain globalised arrangements of cultural production in which a few are able to economically benefit from the work of others.

Similarly, awareness of exploitation cannot be taken for granted in environments that have mixed up operating systems with social systems. Unlike the Jamaican musicians union standing up, even if only symbolically, against version music, it has become increasingly difficult to position and locate oneself in liberal cybernetic constructions of nested home-factory hybrids, in which one activity may or may not be unknowingly

⁴ Corbet and Kroah-Hartman, “Linux Kernel Development.”

⁵ In reference to Eric S. Raymond, *The Cathedral and the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary* (1999; repr., Sebastopol: O’Reilly, 2001).

exploited at a different level. I have argued that this aspect is particularly visible when the context in which data, information, and content are produced, accessed, and transformed, is taken into account. This is why in the previous chapter I used the Unix `chroot` command, to push to its limits the RO versus RW file permissions metaphor, precisely in order to start articulating a sandbox model. This allows me to explain both how free culture is constantly becoming, and why free culture is not an alternative to dominant means of cultural production, but instead exemplary of the latter. The somehow neutral sandbox model is also useful to break the discussion about the relationship between artefacts and politics,⁶ or to be more precise, the mixed open and closed model of the sandbox allows me to avoid choosing between a model of control or a model of contingency, to describe a networked culture in which both are nested within each other, in their most extreme forms and without political agnosticism, albeit sandboxed.

Linking back to free and open source software and free culture in general, the sandbox culture I describe is therefore yet another consequence of the dual openness of code, legal and software, which I discussed in the first part of the thesis. Effectively, sandbox culture manifests itself by the nesting of certain practices through a techno-legal apparatus that, first of all, might not be immediately visible to its participants, and second will be interpreted differently no matter how explicitly these apparatuses present themselves. However, because of the ambivalent liberal frame-

⁶ In reference to Langdon Winner, *A Search for Limits in an Age of High Technology* (1986; repr., Chicago: University of Chicago Press, 1992), Do Artifacts have Politics?

work in which such sandboxes exist, the free circulation of information is still possible inside and outside of these sandboxes, and benefits greatly from public and private commitments given the wide range of possible interpretations, from startup commercial exploitation to anti-capitalist artworks.

In this final chapter, I will illustrate such a sandbox effect within the Pure Data community, and also explain the role of conflict in these systems. I will argue that at a lower level their defusing is a threat to cultural diversity and pluralism, but at the same time, when conflict occurs it leads not to the collapse of the sandbox but allows for its extension into other territories. To show this, I will revisit the notion of forking, of both code and licenses, and finally, explain how the model of sandbox culture can help us think about free and open source dynamics differently, introducing, notably, the concept of software exile.

Chapter 8

The Mechanics of Sandbox Culture

8.1 A Day in the Sandbox Life

Pure Data (Pd) is a popular¹ cross-platform visual programming language used by artists, musicians, and designers to create *patches*. These are graphical representations of the real-time multimedia processes used for live performances, installations, audiovisual creations, and more.² The software was originally written by US mathematician Miller Puckette, who had been involved in numerous projects related to electronic music. One of the initial motivations to start working on Pd, back in the

¹ See Romero, *FLOSSOFÍA: El Software Libre en el Arte*.

² Frank Barknecht, “Pure Dataflow - Diving into Pd,” in *Digital Artist’s Handbook*, ed. Marloes de Valk (Lancaster: <https://web.archive.org/web/20121222001506/http://digitalartistshandbook.org>; folly, 2007).

mid nineties, was to depart from the frustrations he had with his former employer, the Institut de Recherche et Coordination Acoustique/Musique (IRCAM), which at the time made it very hard for him to disseminate his research on the software Max which he wrote whilst employed by the institute. Therefore one of the other meaning of the Pd acronym is a purposeful synonym of liberation from the IRCAM intellectual property sandbox: Public Domain.³ So when Pd is announced in 1996, it is in this spirit of dissemination of knowledge that Puckette concludes his paper, musing and wondering about the future of Pd, acknowledging the community aspect being as important as the software itself.⁴ As it turned out the community that emerged around the software took Pd far beyond its author's "wildest dreams."⁵ Pd itself was however not distributed as public domain but was released under a modified BSD license, a permissive, copyfree license that permitted the use of Pd source code within closed source software, to provide for instance some building blocks of the real time audio synthesis objects of the software Max/MSP,⁶ or for the sound engine in the Electronics Arts video game Spore⁷.

I use Pd as a case-study in this chapter, because the sandbox it managed to create has attracted a broad range of people, from academic researchers to musicians, computer scientists and artists, all very much alert to the

³ See Miller Puckette, "Who Owns Our Software? A First-Person Case Study," *Proceedings ISEA 2004*, 2004, 200–202.

⁴ Miller Puckette, "Pure Data," *Proceedings International Computer Music Conference*, 1996, 37–41.

⁵ Puckette, "Who Owns Our Software? A First-Person Case Study," 201.

⁶ Cycling '74, "FAQ: Max 4 « Cycling 74," 2013, http://cycling74.com/support/faq_max4/, Where did Max/MSP come from?

⁷ Mark Danks, "[PD] Pd in video game Spore," 2007, <http://lists.puredata.info/pipermail/pd-list/2007-11/056300.html>.

subject of free software and free culture, due to the openness of Pd's source code and its tight links with several free and open source operating systems. It provides, therefore, a very good multicultural context and meeting point for the different and sometimes incompatible interpretations of the free software techno-legal template discussed in the second part of the thesis. In particular, I will look at two events that occurred within the Pd user community which demonstrate what happens in these sandboxes when such incompatibilities become tangible.

8.1.1 RjDj

RjDj was an iPhone app released in 2008⁸ that promised to change the way music was consumed on mobile devices, by bringing to the masses a generative and interactive sonic experience, optionally taking advantages of the different sensors present on the Apple phone. It was originally presented as a platform, a new type of music label to some extent, for composers to contribute and distribute such pieces.⁹ RjDj was however not developed from scratch, its core component was Pd.

When the RjDj concept was originally introduced to Pd users in July 2008, it was done through one of the founders of the Pd community, in the form of an invitation to join intensive week-end working sessions, where selected Pd users would be flown over, fed, accommodated, though un-

⁸ Günter Geiger, "[PD] [Pd-Announce] Rjdj Released," 2008, <http://lists.puredata.info/pipermail/pd-announce/2008-10/001314.html>.

⁹ Email from English computer scientist and sound designer Andy Farnell to author, May 28, 2013. Farnell was closely involved in the project.

paid, to contribute hacking and reflection on a new form of interactive music for mobile devices, thought to be the next generation of Walkman or MP3 player, in which the consumption of such algorithmic music would, according to the project description, result in effects similar to that of taking drugs.¹⁰

From the perspective of existing Pd users, RjDj was essentially a mobile Pd patch player. For the Pd developers, and without entering into technical details that are beyond the scope of this thesis, RjDj was an inspiration and a new impulse to revisit an old desire,¹¹ that was the better decoupling of the *engine* part of Pure Data from its user interface, thus creating a software library that could be used by other applications such as games, embedded systems, and other audiovisual frameworks. At the time of the first announcement, it was stated that the project would be built using several open source components, and that most parts of the project would be released as open source software in return. It was only a few months later, and after few more week-end working sessions around Europe, that the definitive form of the project became clear.

RjDj was not yet another artistic use of Pd that emerged from the Pd community, it was the product of a technology startup (Figure 8.1), Reality Jockey, Ltd., founded by Austrian entrepreneur Michael Breidenbruecker, who had gained visibility in the early noughties as a co-founder of the music listening tracking service Last.fm, eventually sold to CBS In-

¹⁰ Günter Geiger, “[PD] Announcement Kickstart Rj,” 2008, <http://lists.puredata.info/pipermail/pd-list/2008-07/063497.html>.

¹¹ See Lee, “Art Unlimited.”

teractive for \$280 million in 2007,¹² during the web 2.0 renaissance of Internet economic bubbles. So while the project got very good mainstream media attention, it left some members of the Pd community perplexed, seeing their favourite creative sandbox suddenly exposed in mainstream technology scenes and the tech startup field, while still puzzling about how exactly these exciting developments and playful hacking sessions around Pd led, within just three months, to the appearance of a company planning to sell tens of thousands of \$0.99 Pd-derived apps for its sole profit, while not sharing back much of the iPhone specific source code developed for the project.

To be sure, from a legal perspective the actions of Reality Jockey, Ltd. were perfectly fine. As stated in the second part of the thesis, commercial exploitation of free software has always been central in the history of the movement, and a copyfree license makes the release of modified source code completely optional. This might have come as a surprise for some,¹³ but what created the impression of deception was predominantly the sudden realisation that even a rather niche free cultural practice can be influenced by global free market dynamics. Said differently, the enthusiasm to build something together created a positive feedback loop of generosity and mutual help within the Pd community—a form of collectivism similar to that experienced during the early experimentation of time-sharing systems—which made some forget to read or ignore the

¹² “Music site Last.fm bought by CBS,” 2007, <http://news.bbc.co.uk/2/hi/technology/6701863.stm>.

¹³ See Scott R. Looney, “[PD] rjdj is gone, robotcowboy is coming ...” 2012, <http://lists.puredata.info/pipermail/pd-list/2012-11/098781.html>.

Figure 8.1: RjDj promotion

RjDj Sonic Network

New to RjDj?
Sign up or Login

Artists & Labels on RjDj

A growing number of labels, artists and producers joined the RjDj music network and distributed millions of scenes through our music network. If you are interested to join, get in contact with info@rjdj.me.

Artists

- Hans Zimmer
- Jimmy Edgar
- Booka Shade
- Chiddy Bang
- Easy Star All Stars
- Air
- Little Boots
- Clinic
- Fabrice Lig
- Son of Dave
- Netsky
- Johnny Arthur
- Kirsty Hawkshaw
- etc.

Labels

- Warner Music Group
- Atlantic Records
- EMI Music
- IK7
- Fineart Recordings
- Hospital Records

Screenshot: Reality Jockey Ltd., 2010

very rules of these sandboxes, literally putting individual and personal trust and ethics before the way these were encoded at a techno-legal level. This lack of understanding or interpretation of what constituted the sandbox was without much consequences, as long as the community was partly isolated from the rest of the world. With RjDj, the free cultural idea of digital commons became fragmented once what was believed to be shared was questioned during public discussion where different motivations and interpretations of licensing were confronted.¹⁴ Pd, even if popular in the world of art and electronic music, is neither part of GNU, nor it is a project of the same scale as the Linux kernel. As I explained in Chapter 7, using the remix as support for the argument, free culture promotes above all a liberal framework of free circulation of information, in which transformation of information, competition, and opportunism are intertwined. It is a perfect ground for entrepreneurial developments.

What is more, the situation was further complicated by the mix and interplay of several licenses. As it turned out, due to conflict between the Apple developer's agreement and the GPL,¹⁵ it was not possible to distribute copyleft free software such as GPL software in the iPhone App Store, which meant that the developers of RjDj made explicit that such GPL licensed software—this is the case for some popular externals distributed as part or next to Pd—should therefore be either avoided or re-

¹⁴ See Marvin Humphrey, “[PD] Keyboard shortcuts for ‘nudge’, ‘done editing’,” 2011, <http://lists.puredata.info/pipermail/pd-list/2011-09/091294.html>; See Make art festival, *Damian Steward's RjDj presentation - FAQ with audience*, Video archives (Poitiers: GOTO10, 2008).

¹⁵ Brett Smith, “GPL Enforcement in Apple's App Store,” 2010, <https://www.fsf.org/news/2010-05-app-store-compliance>.

licensed by their respective authors. Practically speaking, those willing to provide copyleft GPL work instead, would have to assign the copyright of these files to Reality Jockey. In layman's terms, it means that the authors willing to participate in the development of some core components of the app, must give up their software ownership to the company, who can then re-license the outcome of such participation the way they want to incorporate them into an iPhone app.¹⁶ Regarding the App Store's issue with GPL code, this situation had already prevented multi-author free software from entering the publishing platform,¹⁷ as every individually copyrighted contribution is in fact a right to veto the re-licensing of software. To avoid such a blocking situation, RjDj defused potential conflicts by imposing a condition upon the acceptance of source code to its project, which in this case is the choice between: a copyfree'd contribution with original copyright, or a copyleft'ed contribution with copyright transfer. It is this particular trick that triggered most criticism outside of the Pd user community, namely how, it was argued, the GPL was used as "a firewall to protect commercial interests on a closed platform, while exploiting the work of a free software community."¹⁸

Such tension was also palpable on the side of those who had joined

¹⁶ It is an interesting twist on the GPL copyright assignment strategy championed by the FSF, and recommended to GNU developers who by giving up their source code ownership to the FSF, also simplify the protection and enforcement of GPL'ed property by the foundation itself. It would be unimaginable that the FSF would use this position of power to then dual license the source code, or make it available under other conditions. But technically copyright owners are able to do virtually anything they want, regardless of who actually wrote the code.

¹⁷ Rekkanyo and MarkDoliner, "Why Is There No Version of Pidgin for IOS in the App Store?" 2013, <https://developer.pidgin.im/wiki/WhyNoiOSVersion>.

¹⁸ Alex McLean, "Alex McLean | The iPhone and toilet paper freedom," 2009, <http://yaxu.org/the-iphone-and-toilet-paper-freedom/>.

the RjDj project. Some active Pd developers and contributors who were essentially doing voluntary work within the Pd community, or integrating it as part of diverse university research and academic positions, had been offered paid work via other developers already involved, thereby also helping legitimise the product within the Pd community. Australian freelance software developer Chris McCormick recalls: “the RjDj thing seemed like it would be pretty wild and the pay was good so I went with that.”¹⁹ But as the product was further developed, the company’s agenda seemed to contradict its originally advertised openness and respect towards the Pd community. One of the RjDj developers, French music signal processing specialist and Debian maintainer Paul Brossier, who, at the time had contributed foundation work on the audio engine and GUI, told me that the requests from Breidenbruecker to remove the license and copyright notice of Pure Data to further close the project was “one drop too much.”²⁰ As a result of this conflict the developer left the project. Another developer, who wished to remain anonymous, also shared with me how he felt at the time:

I was very ambivalent. Always cheerful and enthusiastic about the team, the technical aspects of the project and its potential, but always on edge and suspicious. [...] There are last-minute meetings that some people do not get to hear about because they “are only technicians”. Suits begin to appear that nobody knows. We hear about “great opportunities” which fortunately were raised, but how “compromises will have to be made.” And the good people who believe in something more than money, smell the wind and start leaving. This was turning point for me because in it I saw a lot of my fears about the driving of a tech startup come true. The crisis and

¹⁹ Email to author, May 31, 2013.

²⁰ Email to author, June 4, 2013.

growing-up, for me, was to see that these things are how it works for this kind of people and are not reflections of my own cynicism or paranoia. Many companies use the idealism of young people as a weakness. Interest in openness, software freedom, innovation, passionate creativity exist as long as they are useful to recruit and train the team. Once the company starts making business transactions all that goes out the window.²¹

However, as I suggested in the introduction, I do not want to fall into a one-dimensional interpretation of such events. There is not just one system of transaction in place and they are not all related to the questions of capital or ethics. For example, returning to McCormick's experience, the interpretation of the process is much more nuanced and opens up new possibilities of further emancipation:

[...] I think I always knew it was a proprietary company and I was paid to do a job within the confines of that. I am not even sure it's accurate to say that it was any less transparent than other proprietary companies, especially startup companies which are notoriously secretive. In the end I was happy that we got some things released under Free Software licenses let alone the whole stack. Actually I think if you look at other startups in the music space, we were releasing a lot more stuff as Free Software than others did, so I feel good about that. Some of it is even in use today and it really inspired some cool projects that wouldn't have happened without RjDj.

If I had have felt like we were actively violating any Free Software licenses that would have been a different thing, but I felt like myself and a couple of other people in the company worked hard to make sure that wasn't happening[.]²²

What is more, the sandboxing effect also happened at a level that was invisible and not suspected inside the Pd sandbox, that is to say, RjDj

²¹ Email to author, June 1, 2013.

²² Email to author, May 31, 2013.

was also established within Apple’s sandbox. The latter’s growing visibility experienced by the startup, and its influence on indirectly dictating the technical and legal form and conditions linking with the Pd community, eventually dragged the remaining energy out of the project.²³ And finally, in October 2012, the RjDj app was removed from the App Store. But as McCormick hinted, as much the whole RjDj development was perceived as a deceptive process by some, the free circulation of information across sandboxes also led to new opportunities that arose during the development of the app. After the combination of several efforts, most notably on the Android platform, the project libpd—a library based on Pd’s source code and which allows the development of standalone applications using Pd as sound engine—was released towards the end of 2010, and had also found its way into the iPhone tool-kit of the RjDj developers when the project was still running.²⁴ In February 2012, the website libpd.cc was launched next to a book on the topic.²⁵ A link to a web forum, distinct from the existing Pd mailing list and bulletin boards community, was provided early on for discussions regarding the use of this library. A new sandbox was born, which tried to present itself in the least conflicting way possible:

libpd is Pure Data. It is not a fork of Pure Data, not a different flavour of Pure Data. It is simply a way of using Pd in a new way that can be more convenient and allows compatibility with mobile app development, game development, embedding into sophisticated 3D

²³ Email to author from the developer wishing to remain anonymous, June 1, 2013.

²⁴ Peter Brinkmann et al., “Embedding Pure Data with Libpd,” *Proceedings Pure Data Convention*, 2011.

²⁵ Peter Brinkmann, *Making Musical Apps* (Sebastopol: O’Reilly, 2012).

visualization tools, and lots of other applications. As such, it adds to Pd, without taking away anything from Pd Vanilla's DSP core. It has the same license as Pd, too. It is every bit as free and open source as Pd. As such, the project is hugely indebted to the entire Pd community, and to Pd's original creator, Miller Puckette. Those of us working with libpd have done so because we're excited to see Pd patches running in more places than ever before, doing things they've never done before, and we trust you're just getting started.²⁶

From a software perspective, the RjDj project is far from being simply anecdotal, as it provided new perspectives and horizons for Pd users and developers, and finally unified efforts around the creation of one library that can expand Pd's territory to other sandboxes. Alongside this, in the recent years the project inspired new derivative works, frameworks, players, apps, whether closed or open, or in some sort of legal limbo. It also provided new commercial opportunities for Reality Jockey Ltd., that, after retiring the RjDj app, kept on using parts of the RjDj software in other commercial apps,²⁷ a practice that was already notably experimented with by the company in 2011 with the release of a promotional app for the 2010 science fiction film *Inception*. In sum, the whole story arguably mainly had an effect on the people who witnessed and participated in this process, and it is unclear how this will transform the social dynamics around Pd in the long term, now that the sandbox participants have seen the cracks in the wall, and witnessed how the source code of an artistic iPhone app can be turned into a hub for different opinions, ideologies, philosophies, economic imperatives, and practices to collide, not always in a pleasant way.

²⁶ Peter Kirn, "Libpd » About," 2012, <http://libpd.cc/about/>.

²⁷ Email to author from Farnell, May 28, 2013.

8.1.2 FUCK THE SYSTEM

In Chapter 7 I argued that the mix up between social systems and operating systems was not just an arbitrary overlap or accident. Thus behind the RO versus RW cultural dichotomy of Lessig, using file system permissions as an analogy to describe cultural processes, I have briefly explained that computer operating systems and their networking can provide different models of social organisation, with different levels of transparency and policing, from small-scale emulations of property-less pseudo-secret societies to panopticonesque chroot jails. This led me to use the term sandbox to refer to these different architectures that have increasingly relied on techno-legal templates, and most notably in the context of this text, those derived from free and open source software licensing. If this approach allowed me to create a counter argument—by simply looking at the ways cultural expressions are produced and not just accessed—to the trivial pro free culture binary RO versus RW, I now want to discuss the refusal to engage with these sandboxes and their techno-legal fabric, when they create a conflict of belief, values, or ideas.

To do so, in this section I will examine the work from French noise and experimental musician and computer programmer Yves Degoyon.²⁸ If some are busy pondering about file permissions, Degoyon is more in favour of simply getting rid of the files and the whole OS at the same time. This is the basis for his performance *rm -rf/* :: f*** the system*—or

²⁸ The text from this subsection is based on a semi-structured email interview with Degoyon, that took place during April 2015 and March 2016.

/bin/rm -rf/ :: f*** the system*—in which the musician performs using an audiovisual noise generating Pd patch, while at the same time opening up a terminal on his computer and runs the command */bin/rm -rvf /**, that will in effect recursively force-remove every file and directory under the root file system, while the names and paths of said files and directories are printed on the terminal of his GNU/Linux distro. Eventually with the file system emptied and only a handful of programs and data left in the RAM of the machine, the computer crashes, sometimes with unexpected behaviour, and with it ends the performance.

Degoyon told me that the work is mainly an experiment in chaos and the instability of computer systems. However he also admits that the title hints obviously towards a double meaning, and the action that needs to be taken to get rid of a system before it alienates you. Degoyon grew up listening to post-punk bands such as Wire, Gang of Four, and This Heat, which while having widened the cultural scope of punk, have done so, according to Degoyon, notably through the generalisation of punk's DIY spirit. Here the punk connection can be deceptive, because the title of the performance is to be understood differently from the way English punk singer Johnny Rotten claimed to have fucked up the system, when he was part, with other proto punks and early punks, of what has been described as a working class Bohemia.²⁹ Instead, a more abiding connection would be the 1967 pamphlet *Fuck the System* by American political and social activist Abbie Hoffman, a text filled with tips and advice to

²⁹ Simon Frith, *Sound Effects: Youth, Leisure and the Politics of Rock* (London: Constable, 1987), 266.

organise and survive in the “city jungle” and the development of a “freer more humanistic” society.³⁰ So it should not be surprising that in his approach, Degoyon feels more connected to the early days of British collective and anarcho-punk band Crass, which he often quoted and referred to during heated mailing list discussions, where the link to avant-garde art and anarchist political movements was not a trivial appropriation as it was in other early punk bands, but was more seriously explored via direct action and zine publishing, so as to advocate animal rights, anti-war, anti-consumerism, vegetarianism, environmentalism and feminism.³¹

When Degoyon started to use and write free software, it is through this art punk anarchist inspiration that he engaged with this particular digital form of knowledge sharing. During our exchange, he referred to the Spanish video collective R23,³² founded by artist and computer scientist Lluís Gómez i Bigorda, as an example of introducing such elements into media art practices. Degoyon contributed to R23 DIY streaming media projects and network mapping in the early noughties, and admitted to enjoying the perturbation generated with the introduction of “some spirit of activism in the polished world of media art,”³³ at a time where

³⁰ The text also paved the way for a better known work by Hoffman, the 1971 *Steal this Book*, which I mentioned in Chapter 2 in connection to open design and DIY. Of course Hoffman is not the only connection to be made here. Sixties anarchist guerrilla street theatre group the Diggers were early explorers of ideas of anonymity, freedom of association, and societies free from private property, using a wide range of practices from direct action and art happenings, to the publication of leaflets and manifestos. See Emmett Grogan, *Ringolevio : A Life Played for Keeps* (1972; repr., New York: New York Review Books, 2008).

³¹ See Johan Kugelberg, *In All Our Decadence People Die: An Exhibition of Fanzines Presented to Crass Between 1976 and 1984* (New York: Boo-Hooray, 2011).

³² R23.cc, “r23.cc,” 2005, <https://web.archive.org/web/20050312155147/http://r23.cc/community/>.

³³ Email to author, April 8, 2015.

the mix of free software and art offered a self-organised and decentralised alternative to artistic media labs.³⁴ However, what was first perceived as an ideological alignment between Degoyon's beliefs and the technological environment he was contributing to, unfortunately quickly turned into something very illustrative of the alienation expressed in his performance.

One of the software project actively developed by Degoyon at the time was PiDiP,³⁵ which stands for PiDiP is Definitely into Pieces, a BSD-style licensed Pd external that brings extra video processing capabilities and builds upon the GPL'ed Pure Data Packets (PDP) Pd video processing objects by Belgian software and hardware developer Tom Schouten,³⁶ and also sharing some code with GPL'ed real-time video effect software EfecTV, originally developed by Japanese programmer Kentaro Fukuchi. But two events made Degoyon question the relationship between his political views and free and open source software production. He explained to me that the first event was a conversation with a CCTV company in 2004, that was present in an international meeting of activists in Switzerland, and that was interested in using free software technology for motion detection. The second event occurred at a free software meeting in Brazil in 2005, where representatives from the army were assessing the viability of using free software in their surveillance systems. Degoyon told me

³⁴ See Annet Dekker, Angela Plohman and Irma Földényi, "Interview with Dave Griffiths, Aymeric Mansoux and Marloes de Valk," in *A Blueprint for a Lab of the Future*, ed. Angela Plohman (Eindhoven: Baltan Laboratories, 2011).

³⁵ See Yves Degoyon, "PiDiP Is Definitely in Pieces," 2011, <http://ydegoyon.free.fr/pidip.html>.

³⁶ Tom Schouten, "Untitled Page," 2012, <http://zwizwa.be/pdp/>.

that he obviously could not accept that, and was the reason he first first decided to add a clause to his BSD-style license “NOT FOR MILITARY OR REPRESSIVE USE !!!”, and later on take a more radical step by releasing PiDiP under his own license in 2010:

to cut with all legal blah-blah, this license will be made short.

the code published here can be studied, modified, used by anyone that provides all the original credits and sources in derivative projects.

there are restrictions on its use, it cannot be used for :

- military and/or repressive use
- commercial installations and products
- any project that promotes : racism, nationalism, xenophobia, sexism, homophobia, religious hatred or missionaryism .. (expandable list)

this is not a standard license.

sevy & authors.³⁷

These two changes in PiDiP’s licensing terms are an interesting case of fucking up the sandboxing system. Degoyon, who told me he had originally chosen a copyfree³⁸ BSD style license because it was like Pd’s own license, was in fact releasing a software containing an assortment of code from copyleft’ed EffecTV, bits and bytes from other sources and collaborations, and also his own code written from scratch. By initially releasing PiDiP with a non-copyleft non-GPL compatible license and yet using some copyleft’ed parts, he was breaking the GPL and misusing the

³⁷ LICENSE.txt file from the PiDiP CVS repository, revision 1.1.1.1, commitid: MR5avkuVSyEPgbZ, 2010-12-06 06:31:45. The typo will be fixed with commit aOzDtQZu7yTgVL9v, in February 2011 for version 1.2.

³⁸ For an explanation on copyfree licensing see Chapter 5, The Double Misunderstanding with Copyleft.

copyright of others. A GPL-respectful way to publish PiDiP should have been for instance either under the GPL, or as two collections of source files, the GPL modified ones under the GPL and the others under the BSD style license or else, assuming Degoyon did not use other chunks of source code licensed differently, in which case further fragmentation of the software would have been necessary in case of license incompatibilities. But Degoyon cared little about that fact and in 2006 stated on the Pd mailing list, in a very art punk anarchist way, that people should not forget that PiDiP contributors like to “confuse lawyers and boring people first.”³⁹ Funnily enough, the original mis-licensing—when PiDiP was distributed as BSD yet including GPL code from Effectv—did not prevent the software to be successfully validated by FSF employees and listed in 2003 by the FSF directory with other *useful* free software—as I discussed earlier in Part 2—which shows that traceability and transparency in free and open source software has its limits.

Regardless of Degoyon’s little interest in respecting licensing terms—a situation which shows some resemblance with Stallman’s early EMACS days where code circulation was more important for the hacker than diligent respect of copyright laws⁴⁰—was an important figure of the Pd community, whose software was used by several artists and packaged or distributed by other developers. However, this started to change in 2005 when the licensing issue was brought up in the Pd mailing lists. The issue dragged on for years with extremely heated discussions on the user

³⁹ Yves Degoyon, “[PD-Ot] Pidip Inherits Gnu Gpl from Effectv,” 2006, <https://lists.puredata.info/pipermail/pd-ot/2006-01/001377.html>.

⁴⁰ See Part 1.

and developer lists of the software. Degoyon's contributions to the debate tended to add oil to the fire as he explicitly grounded his refusal to change his license based on political motivations—with even more oil poured when he started to change the BSD license into a non-copyfree non-military license—whereas those asking him to conform acted as a sort of neighbourhood watch system, trying to enforce the cyber constitution of the Pd sandbox. I use the words neighbourhood watch here, because in fact *only* Kentaro Fukushi, and possibly other contributors of EffecTV, were the ones who could require their licensing to be enforced. As it turned out, Degoyon and Fukushi had already met on several occasions previously, and the EffecTV author knew of PiDiP and appreciated the fact that his work had been ported to Pd. His silence on the mislicensing matter may have seemed to indicate he cared little about the potential licensing problem with PiDiP. However, as Degoyon was further pushed in to a corner within the Pd community, which in turn led to the radicalisation of his licensing strategy, PiDiP started to break more constitutive mechanisms of other sandboxes, such as operating systems like Debian, or free and open source software hosts like SourceForge. Simply put, by means of TOS, social contracts, or other usage agreements, these platforms and operating systems can implement their own definition of software freedom, which help decide which licenses they allow, ultimately shaping the software culture they distribute. PiDiP's new license was incompatible with many of such definitions. Eventually PiDiP became, in 2010, a *software non grata* removed from the Pd repositories

and distributions.⁴¹ At time of writing, PiDiP, the impossible *copypunk* source code, only exists in a limbo of various repositories outside and disconnected from the Pd community, but it is still listed in the EffecTV project links as well as in the FSF free software directory.

Within the free cultural techno-legal template, the practice and intention that led to the creation of PiDiP, a software that grew organically from the encounter of the author with other artists and developers—and the source code they wrote, notably within the projects of the R23 collective—became incompatible with its technical and legal framework. It challenged the definition of freedom carried by the sandbox it was born within, and illustrated the non-trivial interaction between the changes through the years of an author’s thoughts, the fluidity of the digital medium his creation was written in, and the rigidity of its legal framework. In such a situation, PiDiP, published by a rather proud outlaw,⁴² nonetheless found a deadlock and the execution of its *legal* instructions became eventually incompatible within the system it was developing, as opposed to its perfectly running *software* instructions. This example shows once again the strength of the techno-legal template, and its dual level of interpretation by machines, and humans, initially discussed in Chapter 1. To be sure, Degoyon’s stand should not be marginalised or neglected because it was the response of an artist in the context of a niche software community. In fact, similar responses

⁴¹ This removal was effective with commit r14502 from the Pure Data SVN code repository, which motivated Degoyon to start hosting his own public code repository on giss.tv and change the license even more, as discussed previously.

⁴² In reference to Yves Degoyon, “[PD] Percolate,” 2007, <https://lists.puredata.info/pipermail/pd-list/2007-03/047953.html>.

and critiques towards free and open source projects have also been articulated notably by Felix von Leitner, a German IT security expert and ex-member of the Chaos Computer Club:

This is what we get when our free software licenses lack a ‘not for military purposes’ clause: DARPA presents a weapon control system on the basis of Android tablets <http://www.darpa.mil/NewsEvents/Releases/2015/04/06.aspx>. Linux is now killing people.⁴³

More recently, in 2015, one of von Leitner’s own GPL licensed free software projects, dietlibc, a popular lightweight C standard library,⁴⁴ was shown to have been used in products sold by Hacking Team, the Italian Information Technology company specialised in providing corporations and governments with intrusion and surveillance technology. Next to the breach of the GPL copyleft, this situation further prompted Leitner to call for a NOMIL/NOINTL license, and started to put in motion a modification of the AGPLv3 as a foundation for such a license.⁴⁵ von Leitner’s effort is not singular, and there has been in the past several projects that became non-free and non-open source software, in spite of the availability of the source code, simply because they used statements,⁴⁶ or licensing techniques that exclude military usage like the Peaceful Open Source

⁴³ ‘Das haben wir jetzt davon, dass wir in unseren freie-Software-Lizenzen keine “nicht für militärische Anwendung”-Klausel haben: DARPA präsentiert ein Waffens-teuerung auf Basis von Android-Tablets. Linux tötet jetzt Menschen.’ Translation Florian Cramer. Felix von Leitner, “Fefes Blog,” 2015, <https://blog.fefe.de/?ts=abda600a>.

⁴⁴ Felix von Leitner, “diet libc - a libc optimized for small size,” 2016, <https://www.fefe.de/dietlibc/>.

⁴⁵ Felix von Leitner, “Fefes Blog,” 2015, <https://blog.fefe.de/?ts=ab645846>.

⁴⁶ See Roedy Green, “Non-Military Use Only,” 2017, <http://mindprod.com/contact/nonmil.html>.

License.⁴⁷

PiDiP, whose name indeed announced its demise, precisely shows what happens when the license as community law take over the values it was thought to be defending. Accepting to use a specific license against one's own beliefs brings the risk of creating cognitive dissonance, and Degoyon avoided this by putting his beliefs before the sandbox's rules when he noticed the contradiction created by the situation. But even though passion and affects are crucial in creating allegiance to democratic values,⁴⁸ they must be removed from the rationalised model of free culture for the latter to operate smoothly, and could explain why some participants of free and open source projects present their work detached from political intentions.⁴⁹ This is not just an issue of social dynamics within small communities, but it is also visible in the way the infrastructures that support free culture operate. To give a short example, in 2009, the jsmin-php software was banned from Google Code because the software had inherited the license of jsmin.c it was based on, a license that was a modified version of the free and open source software MIT license. The modification was one line stating "The Software shall be used for Good, not Evil", which made the software non-free and gave the "Don't be evil" company a reason to exclude the code from its free and open source software hosting platform.⁵⁰ Interestingly enough, and

⁴⁷ Linkesh Diwan, "Peaceful Open Source License," 2014, <https://web.archive.org/web/20140924010836/http://wiseearthpublishers.com/sites/wiseearthpublishers.com/files/PeacefulOSL.txt>.

⁴⁸ Mouffe, "For an Agonistic Model of Democracy (2000)," 199–200.

⁴⁹ Coleman, "The Political Agnosticism of Free and Open Source Software and the Inadvertent Politics of Contrast."

⁵⁰ See Ryan Grove, "JSMin isn't welcome on Google Code," 2009, <http://wonko.com/>

linking back to my earlier neighbourhood watch analogy, Google did not scan their repository for non-compliant licenses, they were simply informed by another user in the main discussion forum of the Google Code virtual community.⁵¹

As shown with these examples, there is only a thin balance between the free software *Gemeinschaft* emulation, and the implementation of a cyber disciplinary society. Free culture in this context is far from being the liberating and pluralistic tool it seemed to be, or to be more precise and to refer to the first part of this thesis, I have shown with this example that the aggregative and deliberative democratic models of free culture, have risen at the cost of antagonism and radicalisation of cultural practices, by limiting rapid cycles of hegemonic and counter-hegemonic efforts, that used to be more prominent during the chaotic era of proto-free culture. As a result, free culture sandboxes become absolute democracies in which not only artists such as Degoyon, but any participant in fact, are effectively forbidden “to engage with a multiplicity of agonistic democratic struggles to transform the existing hegemonic order,”⁵² because their software becomes a threat to a public space that according to the defined free culture can only exist as a consensual thing, and that is defined by certain parameters that rely on the exclusion of others.

post/jsmin-isnt-welcome-on-google-code.

⁵¹ Adam Goode, “jsmin-php not open source,” 2009, <https://groups.google.com/forum/#!topic/google-code-hosting/F8P68oKPXA8>.

⁵² Mouffe, “Cultural Workers as Organic Intellectuals (2008),” 215.

8.2 Fork the System

Next to complete obedience or complete resistance, one particular side-effect of a free cultural mechanism that promotes the circulation of information over the context of its production and usage, allows a third approach to engage with sandbox dynamics: forking.

Forking can be described as the process by which the source code of a piece of software can be modified, so as to make, for instance, new software integrating modifications, minor or major, that would not have been accepted by the author(s) and community from which the fork stemmed, or simply to explore transformations unforeseen by the original authors of a work.⁵³ The divergence of source code and the proliferation of concurrent versions of the same software is not specific to free and open source software and became an important aspect of source code sharing in the early days of UNIX, as it was discussed in Chapter 1. It has also been argued that copyleft development could either deter forking motivated by competition, and allow merging back at a later stage if forking occurs.⁵⁴ However, the rationalisation of source code sharing with the creation of free and open source software licenses, can also be interpreted as taking a radical path towards divergence, a “right to fork,”⁵⁵ regardless if open forms of developments are made mandatory as with copyleft li-

⁵³ For a general explanation regarding forking in free and open source software culture, some historical references, and a case study with the Debian and Ubuntu operating systems, see Benjamin Mako Hill, “To Fork or Not to Fork: Lessons from Ubuntu and Debian,” 2005, https://mako.cc/writing/to_fork_or_not_to_fork.html.

⁵⁴ Andrew M. St Laurent, *Understanding Open Source & Free Software Licensing* (Sebastopol: O’Reilly, 2004), 171–73.

⁵⁵ Weber, *The Success of Open Source*, 159.

censes. In that sense license-assisted forking can be seen more as a liberal remix-culture-oriented free culture approach, than a community-binding copyleft mechanism. Both are in fact different materialisations of the rules of software freedom. Due to the difference of context in which such materialisation occurs—acquiring existing work versus contributing to existing work—forking originally had as a result, a very bad reputation. Yet, it has risen today to become a very important mechanism central in the writing of free and open source software, in the age of connected machines and users, and an important component in sandbox dynamics and underlying mechanics of the constant becoming in free and open source software communities.

Before elaborating on the details of such a mechanism—notably with the software `git` that I will introduce later in this section—I must first briefly explain how forking has co-evolved with the different generations of tools which have facilitated the writing of software. What is interesting in this co-evolution is the apparent contradiction between the desire to develop a very liberal approach to producing and distributing software, but done so through the very techno-legal means and methods that will later be feared by those defending such a liberal system. In particular, libertarian computer programmer Eric S. Raymond, who famously articulated the negative consequences of forking:

Nothing prevents half a dozen different people from taking any given open-source product (such as, say the Free Software Foundation's GCC C compiler), duplicating the sources, running off with them in different evolutionary directions, but all claiming to be the product.

This kind of divergence is called a fork. The most important characteristic of a fork is that it spawns competing projects that cannot

later exchange code, splitting the potential developer community.⁵⁶

Here it becomes clear that the fork is more than a threat to these communities, it is a threat to the mechanism of reciprocity which is central to the gift economy,⁵⁷ and which inspired Raymond to describe free and open source software community as gift culture.⁵⁸ Of course, as I explained previously in this third part, and regardless of the desires and mechanisms of reciprocity put in place, it is to be expected that a system deeply inspired by classic liberal dynamics will create competition between different actors trying to maximise profit, whatever this profit is, either financial or based on the free circulating information they can access to. In that sense, forking can become a tool to accelerate competition. Raymond however seems to preemptively defuse the problem by arguing that there is a discrepancy between what he calls *the yield* implied by free and open source licenses, which according to him is only *use*, and the yield of participation in the production of free and open source software that is “peer repute in the gift culture of hackers, with all the secondary gains and side-effects that implies.”⁵⁹

In this context indeed, forks are therefore negative for the community as they “tend to be accompanied by a great deal of strife and acrimony between the successor groups over issues of legitimacy, succession, and design direction.”⁶⁰ The fork here is seen as a form of failure to reach con-

⁵⁶ Eric S. Raymond, “Homesteading the Noosphere,” *First Monday* 3, no. 10 (1998), <http://firstmonday.org/ojs/index.php/fm/article/view/621/542>.

⁵⁷ Mauss, *The Gift*.

⁵⁸ Raymond, “Homesteading the Noosphere.”

⁵⁹ Ibid.

⁶⁰ Eric S. Raymond and Guy L. Steele, “THE JARGON FILE, VERSION 4.2.2,” 2000, <http://www.catb.org/jargon/>

sensus around a common techno-legal authority, that should in theory satisfy all the inhabitants of the sandbox. But given its political power, the threat of forking could also work as part of a strategy to influence the direction of a project, and has been described as similar to a “‘vote of no confidence’ in a parliament,”⁶¹ a convenient way to work around the effective vote-less rough consensus found in some of these communities.⁶² Therefore in the early days of free and open source software development, the fear of forking may have worked as a glue to assemble and maintain large software community sandboxes, where the desire for liberal and libertarian structures was nuanced by the necessity to maintain cohesion in these world of techno-legal social systems, leading to a sort of macro liberalism. Another account is to note that in certain cases, the trademarking and other means of protecting the name of a project has helped discourage the creation of competing projects.⁶³ Lastly, it was argued that the trading aspect of free and open source software development shared resemblance with iterated games around reputation, and thus the fear of forking introduces a reputation risk.⁶⁴ Said differently, it may have not been the threat of schism, name protection, or reputation, that limited the proliferation of radical software freedom, that is forking, but simply that the act of forking took significantly more effort than solving issues within an existing community. However, another expla-

//catb.org/jargon/oldversions/jarg422.txt, forked entry.

⁶¹ David A. Wheeler, “Why Open Source Software / Free Software (OSS/FS, FLOSS, or FOSS)? Look at the Numbers!” 2015, https://www.dwheeler.com/oss_fs_why.html#forking.

⁶² Stadler, *Digital Solidarity*, 39.

⁶³ Andrew M. St Laurent, *Understanding Open Source & Free Software Licensing*, 173.

⁶⁴ Weber, *The Success of Open Source*, 159.

nation could simply be that the development platforms available at the time were simply not flexible enough to facilitate forking, therefore prevented a more radical take on software freedom and the free circulation of information.

In the history of software engineering, tools such as version control systems (VCS), also known as revision control and source control, have allowed developers to keep track of changes in software. When Marc J. Rochkind started research on VCS in 1972 at Bell Labs with the project Source Code Control System (SCCS),⁶⁵ running both on IBM 370 OS and PDP 11 UNIX, the idea to approach software development to reflect on the continuous and concurrent nature of software engineering was deemed radical,⁶⁶ but it was not entirely new, because IBM had already been working on a way to facilitate and control software engineering with their 1968 CLEAR-CASTER system—the combination of the Controlled Library Environment and Resources (CLEAR) and the Computer Assisted System for Total Effort Reduction (CASTER)—so as to provide a unified programming development support system and batch processing system. In the CLEAR-CASTER system, changes to source were notably detached from the actual source text to facilitate the keeping track of changes as well as providing contextual documentation for the software.⁶⁷ These VCS and others from the first generation, to borrow from Raymond’s classification

⁶⁵ Marc J. Rochkind, “The Source Code Control System,” *IEEE Transactions on Software Engineering* 1, no. 4 (1975): 369.

⁶⁶ *Ibid.*, 368.

⁶⁷ John N. Buxton and Brian Randell, “Software Engineering Techniques,” Report on a conference sponsored by the NATO Science Committee, Rome, 1969 (NATO Science Committee, 1970), 5.3 Support Software for Large Systems.

of such tools,⁶⁸ worked by sharing the same file system, but with the rise of computer networks and remote access to computational facilities, VCS eventually evolved to adopt a client-server model. This shift occurred with the Unix tool Revision Control System (RCS) created in 1982 by German computer scientist Walter F. Tichy,⁶⁹ first following a local data model, the functionality of which was enhanced in 1985 by Dutch computer scientist Dick Grune⁷⁰ so as to facilitate collaboration across several users. Grune's work eventually led to the creation of the Concurrent Versions System (CVS), that existed, not without some irony, as two concurrent projects.⁷¹

As part of a client-server VCS like CVS, or its successor subversion (SVN) introduced in 2000 to improve some of the flaws of CVS,⁷² the code repository is commonly served from a single machine, the server, that keeps track of all the changes in the source code. For instance, a programmer can use a VCS client software to retrieve changes made by other programmers and which are stored remotely on a machine running the VCS server software that serves and tracks changes in the central repository. The programmer can then make further modifications locally on their personal machine, and eventually commit changes to the central repository, granted they are allowed to do so by the server. It is not

⁶⁸ Eric S. Raymond, "Understanding Version-Control Systems (DRAFT)," 2008, <http://www.catb.org/esr/writings/version-control/version-control.html>.

⁶⁹ Walter F. Tichy, "RCS—a System for Version Control," *Software: Practice and Experience* 15, no.7 (1985): 637–54.

⁷⁰ Dick Grune, "The relation between my CVS, Brian Berliner's cvs and GNU CVS," 1992, https://dickgrune.com/Programs/CVS.orig/CVS_BB_and_GNU.

⁷¹ Ibid.

⁷² Michael Pilato, Ben Collins-Sussman and Brian Fitzpatrick, *Version Control with Subversion* (2002; repr., Sebastopol: O'Reilly, 2008), xiii–xiv.

difficult to see that there is a lack of balance in this control structure because developers can be denied access to the central repository. But it also means, that getting access to the whole database, the history of the project, is not trivial because all of this is handled on the server side. On the other hand, because of this gated and centralised architecture, requesting access to a project VCS, to be trusted with such access, can only be done by socially interacting with the community or group working on the software. Changes to the system are therefore also scrutinised and discussed within these same groups and communities, as access to the main VCS repository of a project does not imply anything can be committed. But it is important to note that once again, those in charge of writing software within such environments are not necessarily those able to change and modify such software environments, and the writing of software can be done following many different participatory and managerial models, often referred to as *governance models* within free and open source software management discussions.⁷³

In 2005 Scottish artist, writer, and programmer Simon Yuill introduced the concept and framework of Social Versioning Systems (SVS), used in his social simulation game *spring_alpha*,⁷⁴ where players are invited to take part in an uprising to form an alternative society to that of the capitalist, normalising and disciplinary world they've lived in so far. Next to traditional game mechanics derived from interactive fiction and open-

⁷³ Ross Gardler and Gabriel Hanganu, "Governance Models," 2013, <http://oss-watch.ac.uk/resources/governancemodels>.

⁷⁴ Simon Yuill, "SVS [about]," 2006, <http://www.spring-alpha.org/svs/index.php?content=about>.

ended world simulation, the novelty of *spring_alpha* is that players were able to re-write the code that runs the simulated world,⁷⁵ a process both facilitated and tracked by SVS. SVS and *spring_apha* are both inspired by, and illustrate well, the constitutive and social dimension of the free software techno-legal templates that lead to the creation of sandboxes, whereby rules can be theoretically challenged and modified following different models of participation. One aspect of SVS in particular was prompted at the time by the growing availability of tools to monitor, visualise and further track changes within version control code repositories, as well as quantify and contextualise them. Looking back today at the way the tracking tool provided by SVS pushed the idea of VCS as a glue to bridge social systems with their techno-legal frameworks, it is striking to see how some of the principles provided by this critical art and research project announced, coincidentally, an age in which VCS are nowadays combined and interleaved with discretised and “computable orderings,”⁷⁶ not however to reprogram the social systems they’re used in—and this is the key difference—but rather to further order and control software work and dominant modes of production, as best exemplified with the social-coding platform GitHub.⁷⁷

Indeed, if Yuill’s ideas were rooted in the understanding that the moral and social aspects of work were not solely determined by technology, as Coleman explained with her work on free software communities as

⁷⁵ Ibid.

⁷⁶ Quinn DuPont and Yuri Takhteyev, “Ordering Space: Alternative Views of ICT and Geography,” *First Monday* 21, no. 8 (2016), <http://journals.uic.edu/ojs/index.php/fm/article/view/6724/5603>.

⁷⁷ Ibid.

high-tech guilds,⁷⁸ and therefore whose dynamics had the potential to be internally contested and challenged with very rare occasions of forking, this was not without counting on two aspects. The first is as I described earlier with the two Pd examples, which showed that the immutability of the legal fabric of these sandboxes in practice greatly limits counter-hegemonic efforts. But most importantly here, the second aspect is that such analysis and work were highly dependent on the state of all these software frameworks that helped manage and control software production. If client-server models of version control, for instance, introduced a great change and reinforced the role of governance models—a sort of golden age for systems based on Raymond’s description of bazaar versus cathedral and benevolent dictatorship versus meritocracy⁷⁹—the third change in the history of such tools, which I will now introduce, is without question the one that will exacerbate the tension between the two approaches to software freedom that I have introduced in this section, and as a consequence the tipping point that will change the way forking was perceived thus far.

This third alteration is the replacement of client-server architecture with that of distributed version control system (DVCS). With DVCS, there is no more central repository, and no more fixed topology for the networked organisation of software production. Because each DVCS is both client and server, every copy of the project *is* a fork and the programmer works first on their local copy before deciding to push which part of their

⁷⁸ Gabriella Coleman, “High-Tech Guilds in the Era of Global Capital,” *Anthropology of Work Review* 22, no. 1 (2001): 28–32.

⁷⁹ Raymond, *The Cathedral and the Bazaar*.

changes and to which other repository. At first this model seems to suggest a less rigid relation between the embedding of moral and social aspects of work in technology, because indeed in the case of DVCS it is up to social conventions to shape the network topology of software production, and this with extremely great flexibility, with the possibility of breaking free from the more traditional models of governance. However when several DVCS implementations—such as arch, bazaar, codeville, darcs, git, mercurial—started to gain popularity in the mid-noughties they were not perceived positively,⁸⁰ precisely because “the very conveniences [DVCS] provides also promote fragmentary social behaviours that aren’t healthy for [free and] open source communities.”⁸¹ It is a threat because the historical situation becomes suddenly inverted: forking takes less work and effort than interacting with an existing community. Sending changes back to other code repositories becomes optional, and depends on the willingness to interact with other developers, and of course the willingness of these to accept changes. Above all, DVCS shows that the old assumption where “it will almost always be more economical for a potential forker to try to get the technical changes he wants incorporated into the existing code base [...], rather than to split off and try to create a new community,”⁸² might have been wishful thinking, or at least needs serious revision.

However, in the same way the success story of the Linux kernel project

⁸⁰ Ben Collins-Sussman, “The Risks of Distributed Version Control,” 2005, <http://blog.red-bean.com/sussman/?p=20>.

⁸¹ Ibid.

⁸² Weber, *The Success of Open Source*, 160.

helped construct the nineties free and open source software narrative of many programmers collaborating and working together, and became a poster child for the bazaar and benevolent dictator model of free software governance, the same project is at the centre of a shift in mentality regarding forking. As mentioned in the previous part of this thesis, Android, Google's mobile operating system, relies on the Linux kernel, but due to several issues that are not so relevant here,⁸³ Google's work on the kernel was essentially done on a branch which grows further away from its original source, with little to no possibility of merging back changes and additions. In turn, the initial contributions, then abandoned, from Google to the mainline source code repository were removed. The conflict was initially framed as a stereotypical situation where communication is difficult but forking is easier, but what was new here, is that next to the usual knee-jerk response of forking as a threat to communities and the reciprocal blaming for which party was at the source of the situation, there was a subtle shift in the perception of forking. Chris DiBona, American software engineer and director of Open Source and Science Outreach at Google, posted during the tense exchanges of 2010:

[...] this whole thing stinks of people not liking Forking. Forking is important and not a bad thing at all. From my perspective, forking is why the Linux kernel is as good as it is.⁸⁴

The rise of DVCS put in motion a process in which forking transformed

⁸³ Steven J. Vaughan-Nichols, "Linus Torvalds on Android, the Linux Fork," 2011, <http://www.zdnet.com/article/linus-torvalds-on-android-the-linux-fork/>.

⁸⁴ Chris DiBona, "Greg Kroah-Hartman: Android and the Linux Kernel Community (Comment)," 2010, <https://lwn.net/Articles/372419/>.

from vice to virtue. because in effect it offered a way for sandboxed communities to go forth and multiply by following this radical materialisation of deregulated software freedom, and expanding the development of the *metacommunities*, “sparsely or thickly connected populations of objects, users, producers”⁸⁵, that surround code repositories. But this new approach also launched into fame a web platform such as GitHub, in leading the self-coined trend of social coding, that sits at the cross-roads of social networks, project managements tools, and revision control.⁸⁶ On GitHub, anyone is able to have several public git repositories, a popular revision control system, and is given the ability to fork any other repository by clicking on a button, simply called *Fork*. The button is enhanced with a counter that reveals how many forks have been made of the given repository, making explicit, within this platform, how forking ends up as a popularity contest. Users of the platform are also able to contribute back changes they make to their fork, to the parent repository, and employ a specific property of git, which allows them to cherry-pick changes made in other forks. These basic operations represent the so-called “social life” of code sharing on GitHub.⁸⁷ They can also simply ignore the parent repository and give a new context to their fork. In fact other features offered by both the git software and GitHub itself, and the ability

⁸⁵ Matthew Fuller, Andrew Goffey, Adrian Mackenzie, Richard Mills and Stuart Sharples, “Big Diff, Granularity, Incoherence, and Production in the Github Software Repository,” in *Memory in Motion: Archives, Technology, and the Social*, ed. Ina Blom, Trond Lundemo, and Eivind Røssaak (Amsterdam: Amsterdam University Press, 2017), 89.

⁸⁶ Ibid.

⁸⁷ See Adrian Mackenzie, “What Is an Important Event? 175 Million Events and Counting. Notes for Public Lecture at It University of Copenhagen” (<https://github.com/metacommunities/metacommunities.git>, March 5, 2014).

to track all these, could have the potential to provide a rich “account of how people move through code,”⁸⁸ and generally speaking the reason that leads scholar Adrian Mackenzie to argue that “software today is less like a machine, a system or even an assemblage, and more like a crowd.”⁸⁹ But given everything discussed so far in this thesis—from the proto free and open source era of computational culture, its strange modes of organisation and the UNIX fellowship, and of course the Cambrian explosion of free and open *things* triggered by free culture—this analogy to the crowd could easily apply since the early days of code sharing. In fact, private forks and exotic code-hosting platforms are nothing new, but GitHub contributes an authoritative centralisation and forced visibility of such practices. The shift is not so much from machine to crowd, but—and expanding on Mackenzie’s urban metaphors—it is the transition from rural coding communities to the coding city crowd, through the means of the *Gemeinschaft* emulation originally triggered by the use of free and open source techno-legal templates. But more importantly here, this crowd is in fact trapped. While GitHub provides very effective, and easy to use, tools to facilitate the self-organisation of communities around one single repository, there is a catch. To permit the construction of extra systems on top of the git DVCS the repositories are forked *within* the GitHub platform, thus revealing the irony of centralising a completely distributed system into one giant... sandbox, where almost one half of

⁸⁸ Adrian Mackenzie, “Code-Traffic : Code Repositories, Crowds and Urban Life,” in *Code and the City*, ed. Rob Kitchin and Sung-Yueh Perng (London: Routledge, 2016), 86.

⁸⁹ *Ibid.*, 87.

the repositories are forks from other repositories.⁹⁰

While networked decentralisation has been perceived as an empowering instrument, as best exemplified with Dmytri Kleiner's Peer-to-Peer Communism vs Client-Server Capitalist State,⁹¹ the techno-legal mechanisms that permit such decentralisation have been greatly overlooked. In retrospect, it is clear that when P2P rose to popularity, it first appeared to provide a lightweight, democratic, and nomadic alternative to the client-server models of transactions and capitalisation, but that was however not counting without how this new model could also be embedded into other systems of different nature. This is once again very well illustrated with GitHub and shows that no matter what is the topology of network labour, there will always be opportunities to create overlapping structures to control and capitalise it. In the case of GitHub, this capitalisation is moved to another level. What has escaped from the control of macro-liberal/micro-communal groups is now collected by this platform, a new form of browser-assisted massive local file system source control à la CLEAR-CASTER, a shared and collaborative file-sharing app for programmers in the age of Internet turned into an Operating System,⁹² worse, a download site.⁹³ Similarly, it is possible to witness how the *yielding* effect suggested by Raymond, can be captured by a platform

⁹⁰ Adrian Mackenzie, "Large Numbers: Imitative Fluxes in the Data-Material Imaginary. Notes for Material, Visual and Digital Culture Research Seminars 2015-16, University College London" (<https://github.com/metacommunities/metacommunities.git>, February 1, 2014).

⁹¹ Kleiner, *The Telekommunist Manifesto*.

⁹² In reference to Tim O'Reilly, "The State of the Internet Operating System," 2010, <http://radar.oreilly.com/2010/03/state-of-internet-operating-system.html>.

⁹³ Mackenzie, "What Is an Important Event? 175 Million Events and Counting."

like GitHub. It does not matter what the yield is and it certainly is a variable element, but while the *use* of software can escape GitHub as easily as with a clone command, its context cannot be extracted from the different additional social and technological features that GitHub has built around the popular DVCS. In the process the licenses are replaced with Terms of Services,⁹⁴ and the employees and founders of the platform, whose core components are strategically closed source,⁹⁵ are the ones to decide what projects and behaviours are acceptable. They establish a nearly feudal meta-model of governance on top of the communities and groups they host, occasionally taking advantage of their overarching landlord position, thanks to the newly-acquired virtuous property of forking, to directly tap for their own benefit into the gigantic pool of disposable code they host, regardless of the damage this creates to independent programmers turned sharecroppers.⁹⁶

⁹⁴ A recent study in 2013, even if it was essentially simple data scraping, showed that out of nearly 1.7 million code repositories on GitHub, less than 15% had a license. See Neil McAllister, "Study: Most Projects on Github Not Open Source Licensed," *The Register*, 2013, http://www.theregister.co.uk/2013/04/18/github_licensing_study/.

⁹⁵ Tom Preston-Werner, "Open Source (Almost) Everything," 2011, <http://tom.preston-werner.com/2011/11/22/open-source-everything.html>.

⁹⁶ For an example of such abuse see Aymeric Mansoux, "Fork Workers," in *Are You Being Served?*, ed. Anne Laforet, Marloes de Valk, Madeleine Aktypi, An Mertens, Femke Snelting, Michaela Lakova, and Reni Höffmuller (Brussels: Constant, 2014).

8.3 On Forking Homes, Sandboxes and Software Exile

The idea of a sandbox culture is not to be understood solely metaphorically. The way cultural processes and transformations take place in free culture are always contained within strict boundaries, whether it is from the software structures that support human communication, the policies that shape them, the source code and other digital cultural expressions produced, and finally the licenses and other legal and pseudo-legal mechanisms that regulate cooperation. At each level the effect of sandboxing can be perceived, yet these sandboxes not only do not necessarily align in terms of ideologies, they also exist as multiple concurrent systems of belief, for social groups that are thus not federated around a belief, but around techno-legal systems that work as a mediation between style and beliefs, thereby preventing direct confrontation and providing an illusion of common and shared intent.

This creates a situation where the more context is given to analyse what happens in a techno-legal sandbox, the more difficult it is to rationalise it, always switching from one state to another. In *Evil Media*, British critical theorists Matthew Fuller and Andrew Goffey proposes a way to avoid such deadlock, and explore instead the colourful corpuscles that constitute greyness.

[I]n a period in which it is difficult to trace patterns of conflict and the emergence of antagonism back to a single binary opposition with any degree of plausibility, the gray zones of gray media call for new forms of investigation and a nuanced approach to the kinds

of tensions and patterns of interference that arise.⁹⁷

The approach of technology as either black and white boxes does not work any better than its underlying dichotomous narrative. We are all working in white or black boxes nested inside black or white boxes, themselves components of many other black or white boxes, like a Kafkaesque Matryoshka doll. In this situation, if there is control and exploitation over work, they are increasingly exercised at a different level, which is not perceived by participants who are still able to develop a local culture, cooperative models, and experiment with all sorts of techno-legal frameworks, therefore allowing opposing values, ethics, and politics to co-exist and grow stronger. Rather, the greyness of the systemic ambiguity found in free culture so far is always encoded as discreet binaries, and it is the dithering between these that give the illusion of different shades of grey, because the ambiguity raised by the dithering of black and white binaries is in reality razor sharp, well defined, and coherent *within* in its own local logic. There is indeed little fuzziness left when the rules in place are interpreted strictly with the matching apparatus: source code is compiled successfully or not, licenses are compatible or not, definitions help filter licenses into precise groups, access is granted or revoked based on policies, and so forth.

If greyness there is, it is a cultural illusion, or more precisely the by-product of a constant motion from one sandbox to another. These sandboxes, whether they manifest themselves as a license, a software commu-

⁹⁷ Matthew Fuller and Andrew Goffey, *Evil Media* (Cambridge: MIT Press, 2012), 31.

nity, a tool, or even a file system, are not perfect. There is always a moment of tension, conflict, a form of ugliness in their idealistic interfaces. It is during these moments of conflict that some of its inhabitants are given a small window of opportunity, out of which they see through the flawlessness of its rules, and might understand why some had described the perfection of these simple systems as illusions.⁹⁸ These are simple because, to borrow from Mouffe's critique of rationalist and individualist forms of liberalism,⁹⁹ such sandboxes are archetypical of a form of liberalism that is unable to hold the pluralistic nature of the social world, in which conflict cannot be solved rationally and there cannot be a fully inclusive *rational* consensus; such conflicts are thus ignored and pluralism within sandboxes must be presented as harmonious and non-conflictual assemblages of different perspectives and values.

Simple yes, but not merely illusions. To be sure, these sandboxes create a cybernetic illusion in which society can be described in terms of simple operations, but the framework in place, the infrastructural implementations of such illusion, is *not* illusive and provides a very tangible means of production and social organisation. But when the wall of a sandbox cracks, its participants are projected right into a classical Heideggerian situation, namely that even though these sandboxes are very much handy and at our disposal, *zuhandenheit*¹⁰⁰—like a tool required to achieve a par-

⁹⁸ Scott Timberg, "Jaron Lanier: The Internet Destroyed the Middle Class," *Salon*, 2013, https://www.salon.com/2013/05/12/jaron_lanier_the_internet_destroyed_the_middle_class/.

⁹⁹ Mouffe, *On the Political*, 10–11.

¹⁰⁰ Martin Heidegger, *Being and Time* (1927; repr., Albany: State University of New York Press, 2010).

ticular action—when conflicts emerge from what appeared to be a trivial trigger—such as in the examples cited earlier, or with a failed software installation, or the commercial appropriation of commercially prohibited licensed material—then these sandboxes suddenly become visible, objectively present, *vorhandenheit*,¹⁰¹ leaving the demystified sandbox participants confronted with their diversity of illusions. It is a painful wake up call, a democratic failure that shows the limit of consensus, and the price to pay for a free culture that has ignored the proliferation of its language games, instead benefiting, regardless of its intention, from miscommunication and misunderstandings in an attempt to control and normalise these practices, wrongly equating differences under common terms and definitions. As it turns out, without means and channels for pluralism and cultural diversity to take place within free culture, the attempt to get rid of the proto-free-culture agonistic situation does not manage to eradicate conflicts, instead it pressure-cooks them.

At this point, something interesting happens which deviates slightly from the usual process of revelation. Any new knowledge acquired by the conflict will unlikely result in a revolution, even a mere evolution of the sandbox dogma that was just dispelled. When the fog lifts or the storm passes, for many the only way out will be denial, in fact a way in, further down the sandbox. There is simply too much at stake, too much has been invested in and built around these things already for the one-dimensional sandbox inhabitant.¹⁰² But in the sandbox, denial and

¹⁰¹ Ibid.

¹⁰² In reference to Herbert Marcuse, *One-Dimensional Man* (1964; repr., Hoboken: Taylor; Francis, 2013).

commitment are not necessarily proof of an uncritical dogmatism,¹⁰³ or complete subjugation: it is a survival mechanism to overcome and ignore the *unhandiness* of these sandboxes, in order to sustain the rational-legal authority of the techno-legal structure that provides a sense of belonging within the sandbox.

I would also add that this sense of belonging creates a sentiment, a master position within one's own belief, which is demoted to a slave *ressentiment* once the formal abstraction of the sandbox appears,¹⁰⁴ and that can only be suppressed indeed with denial in the hope to recreate the illusion of the open ended, boundary-less progressive development of such platforms, and comfort the sentiment of mastery. Of course that does not apply to everyone. Seeing the ugliness leaking from the cracks in the sandbox walls, an opportunity is given for some of its inhabitants to migrate to other territories, gather strength and seize that moment to live through their own techno-legal assisted *Aufklärung*¹⁰⁵ by claiming their own sandbox, as a mark of self-management, maturation, and maybe progress. It is also more than a static schism or rupture, but as with the lift of the forking taboo,¹⁰⁶ it amplifies the constant gradual and exploratory becoming of those that escape a sandbox, making sandbox culture representative of a modernist *ontology of ourselves*.¹⁰⁷ There is

¹⁰³ Here I am referring to Jaron Lanier's criticism of open source. See Jaron Lanier, *You Are Not a Gadget: A Manifesto* (New York: Knopf, 2011), 126.

¹⁰⁴ Nietzsche, *The Genealogy of Morals*, "Good and Evil", "Good and Bad" (1887).

¹⁰⁵ Immanuel Kant, *An Answer to the Question: 'What Is Enlightenment?'* (London: Penguin Books, 2013).

¹⁰⁶ Matthew Fuller, Andrew Goffey, Adrian Mackenzie, Richard Mills and Stuart Sharples, "Big Diff, Granularity, Incoherence, and Production in the Github Software Repository."

¹⁰⁷ Michel Foucault, "Qu'est-ce que les Lumières ?" *Magazine Littéraire* 207 (1984): 35–

however a counterpart to this process, in the way that it is a spectacle,¹⁰⁸ and may also exist as a radical and global alternative in itself.¹⁰⁹¹¹⁰ There is therefore a possibility for those who are able to escape their sandbox to turn into the new rulers, gurus, benevolent dictators, facilitators of a new sandbox, that will in turn be populated by those spectators who followed such new leaders down the rabbit hole. The slave can therefore also accept their past condition, and move to other sandboxes in which they regain their status of master, either through construction, in the case of building a new sandbox for others, or delusion, in which case they migrate from one demystified system of belief to a new one. In all situations, the collapse of free cultural belief does not lead to its destruction, but to a new generative force. So in a way, if openness facilitates the creation of iron cages,¹¹¹ it also gives the democratic possibility for virtually anyone to create their own, creating new social imaginaries as part of an agenda, an exit strategy, or simply to relieve a personal itch. In that sense the notion of a sandbox culture is strongly linked to the idea that liberalism can accommodate a diversity of different models of social organisation and modes of production. To be sure, the system I describe does not offer true pluralism but a post-democratic emulation of it. What is more, it shows that the existence of such systems are symptomatic of the current political struggle that moves to the moral register—it's not

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¹⁰⁸ Ibid.

¹⁰⁹ Michel Foucault, "What Is Enlightenment?" in *The Foucault Reader*, ed. Paul Rabinow (London: Penguin Books, 1984).

¹¹⁰ Please note that the last two references are in fact two different texts from Foucault.

¹¹¹ In reference to Weber, *The Protestant Ethic and the Spirit of Capitalism*.

“right vs left” but “right vs wrong”¹¹²—hard coded into conflict defusing licenses that determine and dictate what is acceptable or not beyond any form of debate or evaluation.

The sandbox model gives a privileged position to techno-legal infrastructure, their software and legal code, as constituent element and source of power. This was necessary for me to articulate it in such a way in order to explain two things: First, that the mechanism of discursivity in free culture, that has always been analysed from the perspective of the movements that may animate it—like the opposition between free software and open source software¹¹³—happens at a much lower level, which is that of the individuals and communities gathered around the production of free cultural objects; but secondly, sandboxes are in effect non-human normalising and subjugating surrogates, or proxies, for those who control or initiate them. The consequence of these two points is that the existence of such sandboxes challenges the idea that systems of domination are only terminal forms of power.¹¹⁴ The sandbox provides an opposite model precisely because it demonstrates that it is possible to limit the multiplicity of force relations and their confrontation.¹¹⁵ However, this does not mean that the emergence of *reverse* discourses¹¹⁶—the reclaiming of free culture-related terms for other motives¹¹⁷—is impossible, it is,

¹¹² Mouffe, *On the Political*.

¹¹³ Berry, *Copy, Rip, Burn*, Chapter 5 The Contestation of Code.

¹¹⁴ In reference to Michel Foucault, *The History of Sexuality, Volume I: An Introduction* (1976; repr., New York: Random House, 1978), 92.

¹¹⁵ See *ibid.*, Chapter 2 Method.

¹¹⁶ *Ibid.*, 101.

¹¹⁷ Here I must explain that the reference to reappropriation is not a stretch. Of course, *reverse* discourse was articulated by Foucault in the context of homosexuality, however the free cultural model, in which the control of terms such as freedom and open-

but the manifestation of reverse discourses happens at a higher level, because inside the sandbox, conflict does not translate into the opportunity to reprogram the social organisation of the system, but triggers instead the necessity to exile towards other sandboxes or create new ones, from scratch or by forking.

In a sense, if making visible the decontextualised formal abstraction of the sandbox highlights its neglect for its inner discourse, it also provides a mechanism to defuse its dominance. The dominated and manipulated relations within the sandbox that cannot be changed from within can therefore be reconsidered from the outside, creating a sort of meta-discourse, and thus providing the development process needed for the existence of a discursive free culture. What is more, its techno-legal code based immaterial territoriality permits a limitless creation of new nations for every crisis. If seen through the lens of the freedom theory proposed by twentieth German psychologist Erich Fromm¹¹⁸—in which are discussed the relationship between emancipation and submission—the creation of new sandboxes serve as a parable where participants free themselves from their current working condition, and end up in a new position where they are free to pursue an emancipating process in a new environment. In this case the transition is nearly seamless as the replacement offered has been partly experienced already. However, and still following Fromm's con-

ness, follows the same patterns of incessant recontextualisation between dominant groups and minority groups. This is not limited to free culture jargon, offensive words are also reclaimed, such as the Internet slang *freetard*, originally coined to mock both free-as-in-gratis and free-as-in-free-speech free culture supporters, and that would end being used nonetheless by the latter in some Internet forums and boards to reinforce their identity.

¹¹⁸ Erich Fromm, *Escape from Freedom* (New York: Owl Book, 1994).

cept, it remains to be seen if this is a change for the better, and also if this individual experience is unique, or instead something that can be replicated for all the members of the virtual community. Indeed, the newly gained freedom of the participants, can also be a factor revealing that what others had thought about their participation as an act of positive freedom, was in fact a masquerade now that they are confronted with the positive freedom of others, a freedom that is universally defined but singularly interpreted. In the end, all of Marcuse's one-dimensional men are able, in a strange way, to form a nonetheless strange and ever-changing multi-dimensional society, and avoid, again in a very indirect way, any hegemonic dominance of its discourse. And yet it is more than just a type of classic liberalism that is described here because this model, by the means of the techno-legal template, is able to provide the structural channels for pluralism to exist.

That said, this pluralism is threatened whenever such practices have been filtered or rationalised with umbrella definitions for free culture, or open content or knowledge, which greatly limits the discursive scope of these sandboxes. In fact the free cultural process becomes much more interesting in terms of cultural diversity when it is *undefined* and tries to attack the immutable foundations of these sandboxes, by creating incompatible situations, as I have suggested earlier with, for example, non-military statements. For instance, the way license forking operates is indeed both effective and simple: isolate an issue that is not compatible with a mode of production, a creative process, a belief, or an ethical code, and then manipulate the terms of the permission in a way that will make this issue visible through the way the work is being shared and pub-

lished. The goal is to be explicit about a point of conflict by encoding the divergence in the legal apparatus of these new sandboxes. For instance the GPL is mutating into the eGPL, the Exception GPL, which allows the exclusion of certain groups or organisations from using the licensed material.¹¹⁹ Another mutant is John Magyar and Dmytri Kleiner's PPL, the Peer Production License, forked from the Creative Commons' BY-NC-SA license and that privileges work-owned businesses and collectives in which the different financial gains are distributed among work-owners.¹²⁰ The life expectancy of such licenses is always difficult to predict, but their existence proves the possibility of taming the free cultural normalisation and rationalisation, and the possibility to revert to the healthier and more diverse agonistic pluralism of the proto-free culture era.

Ultimately, the whole mechanism of forking sandboxes reveal the true greyness of a defined culture freedom, in migratory movements that keeps it alive. It all boils down to realising that these sandboxes have become a *home-sweet-home* for many, and the denial of the issues attached to them is not lack of compassion or empathy, but simply, as I discussed earlier, a matter of survival. However, every now and then exile is the only way out. Exile was actually the most fundamental argument for the first public justification of free software. As discussed in Chapter 1, this justification was very much linked to the need of departing from an original home spoiled by the computer industry, and

¹¹⁹ "EXCEPTION GENERAL PUBLIC LICENSE - Version 2, January 2009 - DRAFT 7," 2009, <https://web.archive.org/web/20090517011228/http://www.egpl.info/egpl-2.0.txt>.

¹²⁰ Kleiner, *The Telekommunist Manifesto*, 5.

set into motion a partly voluntary, partly imposed, journey towards new operating systems to populate. If understanding the legal aspect of free software is a useful method for extrapolating its influence on digital culture, it should always be examined in relation to the conditions of departure of those who participate in these practices. Within the realm of software, software migration is often depicted as a wilfull process in which one is moved from one technological environment to, hopefully, a better one. While the software and hardware upgrade cycles have become a well accepted mass consumer phenomena, the root of free software is, on the contrary, based on the refusal to take for granted that such improvements and migration is invariably positive. In that sense free software is the strongest example of software exile. Similarly, artists, designers, musicians and writers that are interested in free culture licenses, are responding in the form of a broader cultural exile, and because of the techno-legal template of free software, such cultural exile can be repeated endlessly.

It is also striking that this cultural exile, from one sandbox to another, exhibits similar characteristics to physical exile. Exile, regardless of the tangibility of its context, always comes at a price of solitude and loss. Because the latter must be compensated, the exile often reinforces a sharper, stronger, black and white vision of the world with an “exaggerated sense of group solidarity, and a passionate hostility to outsiders, even those who may in fact be in the same predicament as you.”¹²¹ Therefore it is

¹²¹ Edward W. Saïd, *Reflections on Exile and Other Essays* (Cambridge: Harvard University Press, 2000), *Reflections on Exile*, p. 141.

no surprise to witness anger, paranoia, aggressiveness, manias and overall quite emotional responses in the way members of these communities interact with each other and their sandboxed home. In fact, it does not matter what the object of tension is: a license, a program, a piece of hardware, an operating system, a metaphor, or even a compiler flag. Anything goes. At the same time, this tension is a very powerful creative energy, which is why it must be sustained at any cost.

Palestinian American literary theorist and critic Edward Saïd quotes Richard Ellmann to illustrate this point. He explains how James Joyce maintained by all means his quarrel with Ireland, in order to feed a state of creative loneliness in exile. An exile that he specifically chose “to give force to his artistic vocation.”¹²² It does not take much effort to see a similar pattern, in the way some artists and designers sustain a certain negative emotion towards the proprietary tools they used to work with, and transform this energy in the development of a tailored technical craft, through which their individuation is realised.¹²³ So like exile, software exile is indeed not an event in time, it is a time on its own, yet that is synced with the computer clock of the homeland. Alternatives proposed by proto-free and free cultural systems can quickly become places of dogmatic behaviour that is nurtured and nursed in this new home. The latter becomes a substrate for the creation of a liberated set of tools, licenses

¹²² Ibid., *Reflections on Exile*, p. 145.

¹²³ A similar point is made by Mouffe in her effort to develop the friend-enemy model from German jurist and political theorist Carl Schmitt. She refers in particular to the *constitutive outside*, a term coined by Henry Staten, and itself based on several ideas from Derrida. Mouffe uses this concept so as to develop a relational model of difference between identities and, unlike Schmitt’s model, one that is compatible with democratic pluralism. See Mouffe, *On the Political*, 14–15, p. 19.

and practices. To paraphrase Saïd, and once again transpose his reflections on exile to reflections on software exile, such behaviour finds its root in a discontinuous state of being that leads exiles to see themselves as belonging to a triumphant ideology, in order to reconstitute their broken lives, and of course the broken home directories of their operating system.

But most importantly, there is another facet to software exile, a more positive one, which is the detachment it can create in relation not just to one sandbox, but to every sandbox. Saïd, again, quotes Theodor Adorno: “it is part of morality not to be at home in one’s home.” Here I am tempted to substitute the word home with the system variables that represent home directories in all the popular multi-user operating systems, %UserProfile%, \$HOME, and ~, precisely to highlight the need of detachment from one’s tools, a detachment that can be quickly forgotten in the rush and excitement of conquering the sandbox blank files and canvases. Thus, possibly the biggest force of free software, and by extension free culture, does not lie in moving to a better home directory, or to embrace a digital and globalist cosmopolitan city crowd, but rather to reveal the ecosystem of these many sandboxes and their subculture, to understand, through detachment and distance, the context from which they emerged and how they can create different modes of inquiry. It is about actively observing patterns and not just passively generate them like a flip-flop stuck in an electronic sandbox. Ultimately it is about gaining awareness that this plurality and proliferation is not a fault but, again going back to the notion of agonistic pluralism, it is a democratic foundation to make sure these sandboxes can sustain conflictual positions and oppose their

different hegemonic vision. Finally, even though nomadic and purposeful migratory networks can bridge these different sandboxes, their existence is nothing other than a higher level form of sandboxing, itself driven by, and a manifestation of other ideological pursuits. There is no escape, and it's fine like that.

Conclusion

Summary of the Argument

In this thesis, I have explored what impact free and open source software principles and practices has on the making of art, and cultural production in general. My main research question was: in which practical and theoretical ways has free and open source software licensing provided a model of transformation for art and cultural production?

Such a question is timely and important for several reasons. First, as I show in the dissertation, there has been almost two decades of writing, experiments, and various attempts to adapt free and open source principles and practices beyond the realm of software engineering. Concretely, it means that there is now enough material, efforts and works to start discussing them and, to assess, for the first time, the viability of making non-software works and cultural expressions, using techno-legal systems similar to those found in free and open source software production. Second, today only a very few pseudo-free and free cultural licenses, like those from Creative Commons, are being used as alternatives to standard copyright protection. Do they represent all the possible alternatives for cultural freedom or only a very tiny sample? Of course, I explain why some of these legal documents became dominant, but I also discuss the plethora of other licenses available, and that cultural producers are also *free* to come up with their own terms, which is a crucial strategy for the license to effectively work as a paratextual artist's statement, but also an economic strategy, or the manifestation of a counter-hegemonic effort by cultural minorities. There is therefore a need to question the dominance of a few licenses that have become omnipresent and found their way, very

often unquestioned, into all sorts of places from clauses in cultural institution contracts that artists must sign for a commission, to open access academic journals, as well as web platforms legal framework for users to contribute or share content, but also as methods taught in academies and universities. In this situation, culture producers are not encouraged to articulate their work by the means of designing their own techno-legal media, but are instead asked to choose amongst limited and pre-fabricated options. As a result, these documents, which are inscribed in a discourse of transparency and openness, can also become smoke screens, which means it is not always clear who benefits from this free circulation of information. Third, the techno-legal models of social organisation introduced by free and open source principles and practices have been an overlooked annunciator of issues found today in so-called algorithmic societies and other environments where “code is law,”¹ a motto that was for instance recently revived with the rise of cryptocurrencies. In particular the shortcomings of such codification could already be perceived in free and open source communities where the political was either denied, or ignored, in favour of techno-legal assisted systems that claimed to replace human mediation in order to solve issues of power and control, a trend that has been more broadly generalised recently as *technology solutionism*.² As I have illustrated in the first part of this thesis, if on the one hand free software had enabled the empowering constitution and or-

¹ In reference to Lawrence Lessig, *Code and Other Laws of Cyberspace : Version 2.0* (New York: Basic books, 2006).

² Evgeny Morozov, *To Save Everything, Click Here : Technology, Solutionism, and the Urge to Fix Problems That Don't Exist* (London: Penguin Books, 2014).

ganisation of code-centric—software and legal code—communities, it is also to this date the biggest self-applied experiment in cybernetics, given the important role given to technology and regulatory processes to treat culture as a system that can be fully controlled. This came with several strings attached, as was discussed throughout the thesis, but notably in Chapter 6, the problem of reducing and simplifying culture to only a few specific processes and products.

To answer my main research question, I divided the thesis into three parts, named after Stallman's famous attempt to contextualise software freedom in his own terms: free as in speech.³ In the first part *Free as in... Culture*, I discuss what makes free and open source software principles and practices relevant to cultural production. This is articulated over two chapters. I argue in Chapter 1 that free software was not so much a paradigm shift in terms of software production, but what was exceptional about it was the techno-legal template it provided to help constitute and regiment communities. In Chapter 2, I show that such a template was able to provide an abstraction of the subcultural hero rhetoric, one reason why it was appropriated so widely by groups and individual outside of the original context of free and open source software culture. However, using the concept of agonistic pluralism from Mouffe, I argue that these appropriations eventually became subject to the aggregative and deliberative normalisation process from Creative Commons and Freedom Defined projects respectively, in which the desire to develop a consensual approach to cultural freedom, came at the price of excluding other princi-

³ Stallman, "What Is Free Software?" 2001.

ples and practices of cultural freedom that conflicted with these dominant projects.

In the second part, *Free as in... Art*, I look into the overlaps and difference between the discourse from free and open source software, its artistic adaption known as free art, and the free culture generalisation. This discussion is carried over three chapters. In Chapter 3, I use free art as an example of the appropriation of the free software techno-legal template in art, and I explain that despite the free culture umbrella, there exists irreconcilable differences between the different communities that are presented as the same movement. In Chapter 4, I argue that next to these discrepancies there was also a second stage cultural appropriation happening when other artists and practitioners started to use free cultural techno-legal systems in their work yet without engaging with the individuals or groups from which such systems originated. I then conclude the second part with Chapter 5, explaining how these different levels of cultural diffusion have resulted to misunderstandings and faulty generalisation, both by practitioners but also in their theoretical analyses. However, taking copyleft as an example, I have also shown that misunderstanding can also happen at another level, that is to say in the lack of recognition of how free culture exists at the cross-roads of different fields and historical contexts, making it difficult to provide an absolute reasoning of why artists engage in free cultural practices.

Finally, in the third and last part of the thesis, *Free as in... Trapped*, I discuss what kind of techno-legal and social systems are created by free and open source practices. In Chapter 6, I argue that so far the approach

consisting of strictly defining free culture, struggles to offer more than a system in which culture is limited to the sharing of files over the Internet. With such an approach, I explain that potentiality and accessibility of information—could I get these files now and what could I do with them—became the dominant form of criteria to determine the value of a work or cultural expression. I also explain that the impossibility of precisely defining free cultural sources prevented a complete transposition of free software principles to free non-software works and cultural expressions. In Chapter 7, I then explain that the free cultural discourse of potentiality and accessibility distracts from discussing the systems in which free cultural information is used. To give a name to such systems, I suggest using the metaphor of the sandbox to describe the techno-legal frameworks in which free and open source *things* are shared and produced, I also explain how sandboxing was historically introduced in the mix between operating systems and social systems. To conclude, in Chapter 8, I explain how the sandbox model could be used to understand the different mechanism of replication existing within free culture, notably taking software and license forking as an example. I also argue that this model explains why free and open source communities give the impression of constantly becoming, and that it also permits an indirect democratic process from which new discourses and counter-hegemonic efforts can emerge, but at the same time are threatened by free cultural normalisation which impoverishes their discursivity and tends to exclude practices rather than allowing cultural diversity.

A Model for the Transformation of Art and Cultural Production?

As noted in the introduction, the impact on cultural production of practices developed in relation to the ideas of free and open source software has been both influential and broadly applied. However, what this research highlights is that a line must be drawn between what free culture believes it is doing to culture, and what happens when practitioners actually engage with cultural freedom, that is to say, when they want to liberate their practice from so-called tools of the trade and established workflows, or when they want to free their work from traditional means of publishing, distribution, or appropriation. One is clear, orderly and rigid, while the other is messy, chaotic and adaptive. British scholar John Clarke refers to *bricolage*, that is to say, the juxtaposition, re-ordering, rearrangement of previously unconnected objects to produce new meanings, so as to illustrate the generative process of subcultural styles and cultural identities.⁴ What my research shows is that a situation of bricolage is almost unavoidable once practitioners are engaged with free culture. Regardless of whether this situation is accidental or conscious, it leads to the creation of many new codes of meaning. If artists, designers, writers, and musicians, who started to use and write free software as part of their practice have been in effect bricoleurs sharing a common starting point using directly, or inspired by, the free software techno-legal template, I argue these bricoleurs did not however necessarily share anything from

⁴ John Clarke, "Style," in *Resistance Through Rituals: Youth Subcultures in Post-War Britain*, ed. Stuart Hall and Tony Jefferson (London: Hutchinson, 1986), 175–91.

a cultural or political point of view, and were likely to engage, right from the start, in incompatible or conflicting ideological pursuits. And this is very fine.

This is where the line between the two kinds of free culture on which I attempted to draw earlier becomes crucial. Free culture as a messy collection of hacked identities and bricolage should not be mixed up with free culture as a universal model for cultural production. In the former there are various levels of cultural appropriation happening: from anarchism, rastafarianism, punk, hippysm, transhumanism, and more, as found in the early free software and art field and today's free-range free culture practitioners. With their broken laptops, DIY software and unstable media art, together they form a rich *supermarket* of styles,⁵ in which participants collectively think about societal issues, and derive new utopias from the original free society of Stallman. In this version of free culture, cultural freedom is not an end, but a means. But, by contrast, in the defined and tamed free cultural model, there is nothing but the uniform and normalised style of a creative industry working class, an efficient lifestyle with liberated software that *just works*, professional interfaces to a culture where the political is denied, and the only thing that matters is a productive free circulation of information. In this free culture, acknowledging the existence of diverging forces weakens the community or movement, license fragmentation and incompatibility is a problem, and specialists are the ones crafting techno-legal human readable tools for the masses to

⁵ Ted Polhemus, "In the Supermarket of Style," in *The Clubcultures Reader: Readings in Popular Cultural Studies*, ed. Steve Redhead (1997; repr., Oxford: Blackwell, 2009).

use. Here, cultural freedom becomes akin to a technocratic policy, where we are advised to buy into the label *free culture* without ever questioning what it means.

The strongest advantage of free culture is the opportunity it offers to claim back territories of knowledge and think collectively, as small-scale reflective groups, and not as obedient cooperative hordes. So when it becomes a universal ready-made solution and end in itself, free culture offers nothing but a variation of the systems it is thought to be an alternative to. In that sense, the history of free and open source software production and its several transformations should also work as a warning for practitioners willing to apply its universal productive apparatus to culture without critical assessment.

With that said, the rise of artistic and cultural interest in free and open source software principles and practices is everything but an anecdote. It is the embodiment of several elements that have announced important changes in artistic and cultural production at the turn of the millenia, which are ultimately more crucial than the inflated generalisation of openness and the use of digital commons in an artistic setting, implied by the deliberative or aggregative umbrella of free culture and Creative Commons licensing. Such elements are: the call to turn legal and technological rules into a novel system to make art; the reflection on the nature of alienation and authorship; the access and distribution of culture outside of official institutions and channels; the democratic dimension of art-making liberated from elites; the living archaeology of the creative process by bringing traceability and transparency; and most importantly,

the mark of an age of intellectual property and bureaucratic exaltation, which is pushing artists to develop their practice within the administrative structure of society, and further embed it in their creative process, even if, in a paradoxical manner, it is sometimes done to object to this very machinery.

There is so much confusion and misunderstanding about all these elements because they manifest and materialise differently at several levels, via a process of rationalisation that leads to the fragmentation of cultural freedom into new codes of meaning, the ideological and emotional nature of which can be contradictory to or incompatible with each other. As a consequence, free culture ends up being simply many different things at once:

- A toolkit for artists to expand their practice and free themselves from consumerist workflows;
- A template for political statements against authorities of any kind;
- A novel creative legal and technical framework to interface with and support existing copyright law practices;
- A lifestyle, and sometimes fashionable statement to go along with the marketing of all things free and open;
- An economic model that tries to reconcile the legacy of radical anti-property art practice with the reformist nature of social critique;
- An aesthetic in the sense of an audiovisual language, like meme culture, but also a number of novelty appropriative frameworks ranging from semionauts to circulationism.

In practice it is possible for a practitioner, and their audience, to cherry-

pick or only see one of these properties, and either ignore or not be aware of the others, making cultural freedom a series of multidimensionally one-dimensional ambiguous objects, open to different interpretations, just like the codes they were drafted in.

And yet, with all their imperfections, these appropriations are very important because they force cultural production outside of the path set by mainstream culture and ideologies. They push practices both into a corner and into strange places, where practitioners are forced to challenge the dominant *handy* productive apparatus of their field. For instance by forcing an animator to question what animation is, to force a movie maker to rethink what cinema is and the networked creation and distribution of moving images, to create a constraint in which the tools for graphic design and audiovisual performance must be reinvented, to help the writer reconnects with a forgotten legacy of self-publishing strategies, etc. In that sense the use of free and open source principles and practices in the context of art and cultural production relates closely to avant-garde practices, where different aesthetics of resistance are articulated. What is more, the collaborative aspect of free software production, and the free cultural licensing approach to the publishing and distribution of works, resonates strongly with politically engaged practices in which the communication of intentions and the need to rally together, becomes a call to collectively think about things, to take action and not passively accept the formalisation of issues and their solutions by specialists and professionals. This is why the abstraction of the subcultural hero rhetoric found in the free software techno-legal template, even if flawed, is an essential inspiration for empowerment and cultural diversity.

Remark on Sandbox Culture and Future Research

In this thesis I have introduced a discussion on sandboxing, and it would be interesting to see how it could be articulated beyond the free and open source context—something I have only slightly touched upon in Chapter 8—because it is a model that is very relevant to how social systems are constructed within network cultures.

Sandbox culture is a term that is sometimes used in connection with open-ended games or virtual world platforms, to describe the different activities happening within these environments. However, as discussed in this thesis, the idea of a sandbox culture can go far beyond the boundaries of software-rendered virtual realities. Or, to be more precise, this virtualisation can be articulated differently at every level of its different layers. For instance it rarely occurs that relationships and transactions within a sandbox can also be sandboxed at another level. Technology and its legal apparatus, by the means of manipulation or misunderstandings, generates a new imaginary, a magical thinking that inspires novel forms of organisation and production, which in return calls for the creation of more technology to support the newly bootstrapped culture. It is both fascinating and worrying to see how this affects our relationship with others and with said technology, and how the cohesive rules of a community inside a sandbox provide the *anchoring* needed to cope with an existence otherwise uprooted in global social, cultural, economic, and political systems. On their own, all these sandboxes have the potential to be perfect friction-less standalone universes, scaled down to a particular belief or lifestyle. Being able to detect our sandboxing is far from being

trivial. To be sure, a sandbox culture is not just another term to describe filter bubbles,⁶ fields,⁷ or subculture,⁸ but the precise techno-legal governance that shapes our vision of the world, and that it is purposefully designed by others or ourselves to do so. What is more, a sandbox is not purely metaphorical because its existence can be tracked down to its exact codification: software source code and code as enforced system of rules.

Sandboxing becomes tangible through the tensions and conflicts that arise from the inability to reconcile the messiness of human interactions with the programmatic rationalism of the rules, the codes, that are inscribed as the governance model within the sandbox. Its extreme form of cybernetic thinking hides behind the utopia they claim to offer. In a society that is increasingly programmed and scripted for efficiency and productivity, the binary nature of the software apparatus gives less and less room for negotiation, hesitation and reflection, no room for trust to be explored and grow at a human pace once it is outsourced and mediated by techno-legal infrastructures. Further research is needed to establish why this issue of trust seems to never be directly addressed, why it is always deflected with more sandboxing and more codification. Looking at the social component of proto-, past and current conflation between operating systems and social systems, it is clear that in the process of building digital infrastructures to inhabit, fundamental social mechanisms have been

⁶ Eli Pariser, *The Filter Bubble: What the Internet Is Hiding from You* (London: Penguin Books, 2011).

⁷ Bourdieu and Wacquant, "La Logique Des Champs."

⁸ Hebdige, *Subculture*.

moved into these architectures, to the point where they became indistinguishable. We should not be surprised if today we are at their mercy.

Appendix: Selection of Proto-Free Culture Licenses

This selection is ordered by year, then alphabetically for each year, as the exact date of publishing of these documents is not always provided. It is purposefully limited to licenses that aim to expand the scope of free software to other domains, and excludes licenses only concerned with software publishing. The selection stops in 2002, year of the publishing of the first Creative Commons licenses, which marks the start of a new era in the history of free culture licenses. This does not mean new proto-free culture licenses were not created after the introduction of Creative Commons licensing, but this happened less frequently.

This collection of licenses is by no means exhaustive, but should give an idea of the broad diversity of contexts and intentions present in the proto-free culture era, as well as indicate how the texts respond to each other, borrow and share terms, introduce changes in meaning, sometimes with subtlety, sometimes less so.

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Thus, the object of art is not equivalent to the artistic object, finite and defined as such. This is the essential goal of this Free Art license: promoting and protecting artistic practices freed from the rules of the market economy.

DEFINITIONS

- Artwork:

It is a common artwork which includes the initial artwork as well as all posterior contributions (consequent originals and copies). It is created at the initiative of the initial author who, by this license, defines the conditions according to which the contributions are made.

- Initial artwork:

It is the artwork created by the initiator of the common artwork, which copies will be modified by whoever wishes.

- Consequent artworks:

These are the proposals of the authors who contribute to the formation of the common artwork by making use of the reproduction rights, of distribution and of modification that the license confers to them.

- Original (source or resource of work):

Dated specimen of the artwork, of its definition, of its partition or of its program which the author present like the reference for all further updatings, interpretations, copies or reproductions.

- Copy:

Any conforming reproduction of an original as defined by this license.

- Author of the initial artwork:

It is the person who created the artwork at the origin of the tree structure of this modified artwork. By this license, the author determines the conditions under which this work is done.

- Contributor:

Any person who contributes to the creation of the artwork. He is the author of an original work resulting from the modification of a copy of the initial artwork or the modification of a copy of a consequent artwork.

1. OBJECT

The object of this license is to define the conditions according to which you can enjoy this work freely.

2. EXTENT OF THE USAGE

This artwork is subject to copyright, and the author, by this license, specifies the extent to which you can copy it, distribute it and modify it:

2.1 FREEDOM TO COPY (OR OF REPRODUCTION)

You have the right to copy this artwork for a personal use, for your friends, or for any other person and employing whatever technique.

2.2 FREEDOM TO DISTRIBUTE, TO INTERPRET (OR OF REPRESENTATION)

You can freely distribute the copies of these artworks, modified or not, whatever the support, whatever the place, for a fee or for free if you observe all the following conditions:

- attach this license to the copies, in its entirety, or indicate precisely where the license can be found,
- specify to the recipient the name of the author of the originals,
- specify to the recipient where he will be able to access the originals (initial and/or consequent). The author of the original will be able, if he wishes to, to give you the right to diffuse the original under the same conditions as the copies.

2.3 FREEDOM TO MODIFY

You have the right to modify the copies of the originals (initial and consequent), which can be partial or not, in the respect of the conditions set in article 2.2 in the event of distribution (or representation) of the modified copy. The author of the original will be able, if he wishes to, to give you the right to modify the original under the same conditions as the copies.

3. INCORPORATION OF ARTWORK

All the elements of this artwork must remain free, this is why you are not allowed to integrate the originals in another work which would not be subject to this license.

4. YOUR AUTHOR'S RIGHTS

The object of this license is not to deny your author's rights on your contribution. By choosing to contribute to the evolution of this artwork, you only agree to give to others the same rights on your contribution as those which were granted to you by this license.

5. DURATION OF THE license

This license takes effect as of your acceptance of its provisions. The fact of copying, of distributing, or of modifying the artwork constitutes a tacit agreement. The duration of this license is the duration of the author's rights attached to the artwork. If you do not respect the terms of this license, you automatically lose the rights that it confers to you. If the legal status to which you are subject does not make it possible for you to respect the terms of this license, you cannot make use of the rights which it confers.

6. VARIOUS VERSIONS OF THE license

This license could be modified regularly, for its improvement, by its authors (the actors of the movement copyleft_attitude) by way of new numbered versions.

You have always the choice between being satisfied with the provisions contained in the version under which the copy was communicated to you or else, to use the provisions of one of the subsequent versions.

7. SUB-license

Sub-licenses are not authorized by the present license. Any person who wishes to make use of the rights that it confers will be directly bound to the author of the initial work.

8. THE LAW THAT IS APPLICABLE TO THE CONTRACT

This license is subject to the French law.

INSTRUCTIONS:

- How to use the Free Art license?

To benefit from the Free Art license, it is enough to specify the following on your artwork:

[some lines to indicate the name of the artwork and to give a possible idea of what it is.]

[some lines to give, if necessary, a description of the modified artwork and the name of the author.]

Copyright © [the date] [name of the author] (if it is the case, specify the names of the previous authors) Copyleft: this artwork is free, you can redistribute it and/or modify it according to terms of the Free Art license.

You will find a specimen of this license on the site Copyleft Attitude <http://copyleft.tsx.org> as well as on other sites.

- Why use the Free Art license?

1 / to give access to your artwork to the greatest number of people.

2 / to let it be freely distributed.

3 / to allow it to evolve by allowing its transformation by others.

4 / to be able yourself to use the resources of an artwork when it is under Free Art license: to copy, distribute it freely or transform it.

5 / This is not all.

Because the use of the Free Art license is also a good way to take liberties with the system of goods generated by the dominant economy. The Free Art license offers an interesting legal framework to prevent any abusive appropriation. It is not possible any more to seize your work to short-circuit its creation and to make an exclusive profit from it. It is not allowed to take advantage of the collective work being done, not allowed to monopolize the resources of moving creation for the only benefit of some.

The Free license Art fights for an economy suitable for art, based on sharing, exchange and the merry work. What counts in art is also and mostly what is not counted.

- When to use the Free Art license ?

It is not the goal of the Free license Art to eliminate the copyright or the author's rights. Quite the opposite, it is about reformulating its relevance by taking into account the contemporary environment. It is about allowing the right to freedom of movement, to free copy and to free transformation of artworks. Allowing the right to the freedom of work for art and artists.

1 / A each time you want to use or enable this right, use the Free Art license.

2 / A each time you want to create artworks so that they evolve and are freely copied, freely distributable and freely transformable: use the Free Art license.

3 / A each time you want to have the possibility of copying, of distributing or of transforming a work: check that it is under Free Art license. If it is not, you are likely to be outlaw.

- To which types of artworks can the Free Art license be applied?

This license can be applied to digital artworks as well as to non digital ones. It was born out of the observation of the world of the free software and the Internet, but its applicability is not limited to the digital supports. You can put a painting, a novel, a sculpture, a drawing, a music, a poem, an installation, a video, a film, a cooking recipe, a CD-Rom, a Web site, a performance, in short all creations which can be claimed of a certain art.

- This license has a history: it was born at the meeting " Copyleft Attitude " <http://copyleft.tsx.org> which took place at "Accès Local" and "Public" in Paris at the beginning of the year 2000. For the first time, it gathered together software specialists and actors of free software with contemporary artists and people from the art world.

Freedom CPU Charter (2000)

~~~~~HEADER~~~~~  
CHARTER.txt (C) Yann GUIDON 2000 for the F-CPU project.

file created : nov. 23, 2000 by YG  
current version : dec. 30, 2000 by YG  
\$add revisions date/names here.\$

Like everything in the F-CPU project, it is a basis and subject for constructive discussions and it should not be considered as definitive. Everybody is asked to contribute to this decisive, non-technical side of the project. I have cut&pasted some parts of the previous "F-CPU licence proposal". It is still incomplete.

~~~~~INTRODUCTION~~~~~

The Freedom CPU project (F-CPU for short) is the only fully parametised 64-bit SIMD CPU core available today in source code form. Not only it is designed to be able to replace (one day) the best existing RISC processors in workstations, but it is being developed in a net-community environment by students as well as professionals as a hobby. Because their work is performed for free, they want it to remain free, just like Linux or the GNU project.

The purpose of this file is to introduce newcomers to the F-CPU design philosophy and basic rules. More about this can be read on the F-CPU mailing list(s) and manual.

Because the GNU Public Licence covers most of the needs of the project, it is the only licence that you have to comply with. It determines the rights and duties concerning the distribution, modification, compilation etc. of the "source code" of the processor (that is : the VHDL sources contained in this tarball).

However, the GPL doesn't apply to the "electronic" world and the implementors are completely free to do whatever they want with the derived physical devices.

You don't have to read the rest of this file if you only want to use the files without modification. For example, it is not revelant if you just install the bundle and try to compile the files. However, if you modify a file, add a new file, adapt a file for compilation with a tool, build the circuit or add features, you should carefully read this text.

This charter is intended to provide developpers with guidelines, "do and don't" rules that should be followed to keep the project up and running. If a chip is built from the F-CPU sources then distributed, the respect of these rules will determine if the chip can be labelled as "a F-CPU". The use of the F-CPU source files is completely free under the terms of the GPL, the implementation is not bound in any way, but the F-CPU development team follows these basic rules :

~~~~~GUIDELINES~~~~~

- o "The name of the game is freedom". It is forbidden to forbid others. "One's freedom ends where other's freedom starts". These three well-known basic rules favor reciprocal respect and positive unencumbered work.
- o We promote collaborative work, free communication and unconstrained sharing of knowledge and know-how. This project is not a way to earn money quickly and easily, but a mean to learn technics in a community, with the goal of redistributing the knowledge evenly.
- o The distribution, modification and knowledge of the sources (non physical forms of the design, as opposed to the "physical implementation" of this design) must not be bound or restricted in ANY way.
- o In particular, you need not be a customer of a F-CPU vendor in order to access the sources of any F-CPU version or derived work.
- o Similarly, in-progress works must be available upon a single request. An attempt to over-delay the transmission of the requested files can be interpreted as a "guilty" behaviour.
- o The reason for this break from the GPL principle is simple : the F-CPU is not the property of an individual or a company, but belongs to everybody. Anybody must be able to examine, use or modify any version of any document because it is not the exclusive property of a single person. If you have your kid in a kindergarten, you think it is normal to visit the location and see if your kid is safe or if nothing wrong can happen. Same goes with software that we write in community.
- o Do not promote secrecy. Just as the sources came to you openly, you should not promote secrets or hidden features. It is forbidden to patent existing features used

in the F-CPU. The F-CPU forums and mailing lists provide you with different ways to share your remarks, additions, propositions, etc. Secrecy has no advantage in the F-CPU community and corresponds to a self-exclusion from the group.

- o Do not bind the files to a proprietary software or obscure file format. Anybody should be able to reuse your work without being forced to acquire a specific software. Standard formats are highly recommended (ISO, ANSI etc), GNU software is preferred, freeware or public domain is ok, too. If you use a "specific" software, you are asked to add the required scripts or configuration files that interface the F-CPU source with said software, and publish them under the GPL.
- o When a source file is modified, the developer should update the comments and indicate his name, the date, and a short description of the modifications. It is the easiest way to keep track of the project's evolution. More about this can be read in the QUALITY.TXT file. Compliance with the quality guidelines can influence whether a file or directory can be officially part of the F-CPU package.
- o Please : document and comment your modifications or additions, because you can read and understand the existing sources. The lack of decent documentation, just like obfuscated source code, slows down the development team's work.
- o When a source file is added to the F-CPU file pool, it must be distributed with the GPL.
- o Whenever a file is created or modified, the developer has to include his personal copyright notice. It is a crucial legal protection mechanism because different copyrights get thus inter-mixed. This strengthens the relations and dependencies between the developers. If a legal problem arises, a single developer can not be attacked alone.
- o All documentations written about the F-CPU and the associated software must be distributed under the terms of the GFDL (GNU Free Documentation Licence). This applies to manuals, technical books, drafts or requests for comments (RFCs).
- o Personal opinions, articles or other individual expressions about the F-CPU are well covered by the copyright laws (that means that an article or conference doesn't need to be bound by the GFDL).
- o Even though the GPL allows to sell physical media containing GPL'd files, the present guidelines only allow it if the same files are available for free on the Internet with the conditions described here. This is consistent with the fact that the packaging of the files on a physical medium is a service only, it is not an exception to the present guidelines.
- o The modification of the F-CPU design is allowed under the sole condition that you agree to and respect these guidelines. You do not have to register yourself in a database, you do not need any authorization of any kind and you can do whatever you want with the F-CPU design, except : changing the copyright notices, altering these guidelines or use them against their spirit.
- o Unlike some "Open" standards and initiatives, you do not need to fill in a form, pay a fee or a licence to use the F-CPU design. In return, you may not restrict the direct access to the design that you have modified, even for the sake of collecting statistics or polling (or, in general, collecting individual/personal data or going through advertising pages).
- o Other guidelines will be added in the future.

~~~~~  
These recommendations can be enforced through the Copyright laws and are added to the terms of the GPL. This document is protected by the Copyright laws.

Licence ludique générale (2000)

Licence ludique générale

Version 1 – mars 2000
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Afin de protéger vos droits, cette licence doit faire des restrictions qui interdisent à quiconque de vous refuser ces droits ou de vous demander d'y renoncer. Ces restrictions vous imposent par conséquent certaines responsabilités si vous distribuez des copies des jeux protégés par la Licence ludique générale ou si vous les modifiez. Par exemple, si vous distribuez des copies d'un tel jeu, gratuitement ou non, vous devez transmettre aux utilisateurs tous les droits que vous possédez. Vous devez donc vous assurer qu'ils reçoivent ou qu'ils peuvent se procurer le noyau du jeu. Vous devez leur montrer cette licence afin qu'ils soient eux aussi au courant de leurs droits.

Enfin, tout jeu libre est sans cesse menacé par des dépôts de droits d'auteur. Nous voulons à tout prix éviter que des distributeurs puissent individuellement déposer la licence des jeux libres, pour leur propre compte. Pour éviter cela, il est bien stipulé qu'un éventuel dépôt de licence doit prévoir un usage libre pour tous. Aucun jeu diffusé sous forme libre et ouverte ne peut ainsi devenir propriétaire.

Les termes précis et les conditions pour la copie, la distribution et la modification sont les suivants.

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On entend par « noyau du jeu » la liste exhaustive de ce que le créateur du jeu considère comme faisant partie de l'exemplaire original : règles, annexes, appendices, pions, marqueurs, matériel divers. La composition de ce noyau peut varier au gré du créateur. La description de ce noyau doit figurer dans chacun des jeux auxquels s'applique la licence ludique générale.

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- a : toute version modifiée doit être présentée comme telle, et l'auteur et la date des modifications clairement identifiés.
- b : les auteurs et éventuels éditeurs des versions précédentes doivent être clairement indiqués, et en premier lieu l'auteur de la version originale. En couverture doivent être mentionnés au moins les cinq principaux auteurs ; en pages intérieures, un historique complet des versions successives doit figurer.
- c : la localisation de l'édition originale doit toujours être clairement mentionnée.
- d : toutes les obligations imposées par cette licence ludique générale doivent être respectées, et notamment l'obligation d'insertion du texte intégral de cette licence.

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- a : si vous souhaitez publier, à titre gratuit ou non, un jeu libre, prévenez-en l'auteur avec suffisamment de délais pour qu'il puisse vous faire bénéficier des dernières modifications.
- b : indiquez toutes les modifications substantielles, soit clairement dans le texte, soit dans un document annexé à votre version du jeu.
- c : par courtoisie, envoyez un exemplaire de votre édition aux auteurs du jeu.

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- b : que la distribution comprenne une offre écrite, valable pendant au moins les trois prochaines années, de donner à toute tierce partie qui en fera la demande, une copie du noyau du jeu pour un tarif qui ne devra pas être supérieur à ce que vous coûte la copie, selon les termes des sections 2 et 3 ci-dessus ; ou,
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Version 1.1
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20th August 2000,
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-- Chapter I --

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-- Chapter II --

Changing, Remixing

You may change or remix the Track as you want, as long as you make a note of the Name of the Author of the original and of the changes you made. You have to redistribute your remix under the TPL (See HowTo). Otherway it's not allowed to change or remix it.

-- Chapter III --

Public performance

You are allowed to perform this piece of music to the public, as long as you remark the Author. If you want to perform any remix or sth. that relates to the original you have to remark the Name of the Author of the original and the Name of the piece of music you want to perform.

-- HowTo --

What to do, if I want to distribute my tracked music under the TPL?

First of all, it's necessary, that this is really YOUR piece of tracked music. If there's any violation of any law, it's not allowed to distribute this music under the TPL. Then you have to give a remark of the origin of the samples you used, along with the track. You have to mark your track with your name (artist name is enough) and an adress, where the audience can reach you (e-mail adress is recommended). A very important point is, to make clear, that this piece of tracked music is distributed under the TPL, so you should remark it on a place, it could be seen. Then you have to distribute it on a place where mostly everyone interested could get it for free. (Internet should be the first place)

Common Documentation License (2001)

Common Documentation License

Version 1.0 - February 16, 2001

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EXHIBIT A

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EFF Open Audio License (2001)

EFF Open Audio License: Version 1.0

I. Preamble II. Terms of Use III. How to Use this License

I. PREAMBLE Principles

Digital technology and the Internet can empower artists to reach a worldwide audience and to build upon each other's ideas and imagination with extremely low production and distribution costs. Many software developers, through both the open source software initiative and the free software movement, have long taken advantage of these facts to create a vibrant community of shared software that benefits creators and the public.

EFF's Open Audio License provides a legal tool that borrows from both movements providing freedom and openness to use music and other expressive works in new ways. It allows artists to grant the public permission to copy, distribute, adapt, and publicly perform their works royalty-free as long as credit is given to the creator as the Original Author.

As in the software communities, this license is intended to help foster a community of creators and performers who are free to share and build on each others' work while freeing their audience to share works that they enjoy with others, all for the purpose of creating a rich and vibrant public commons.

More specifically, this license is designed to serve as a tool of freedom for artists who wish to reach one another and new fans with their original works. It allows musicians to collaborate in creating a pool of "open audio" that can be freely modified, exchanged, and utilized in new ways. Artists can use this license to promote themselves and take advantage of the new possibilities for empowerment and independence that technology provides. It also allows the public to experience new music, and connect directly with artists, as well as enable "super distribution" where the public is encouraged to copy and distribute a work, adding value to the artist's reputation while experiencing a world of new music never before available. Why is the EFF advocating a license?

Because, despite the fact that we are uneasy with the licensing, as opposed to sale, of both music and software, we see this particular license as a tool of freedom. Our goal is to use the tools of copyright to free artists and audiences from the portion of current copyright law that seems, to us, to be getting in the way of copyright's original purpose -- the creation of a vibrant public commons of music that we all can enjoy and that artists can build upon. As part of it, we hope to demonstrate some of what we believe should be the best practices in licenses, including respect for the rights and limitations of copyright law including fair use, first sale rights, as well as consumer protection laws and of course freedom of speech. The aim of this license is to use copyright tools to achieve copyright's stated objectives of spreading knowledge and culture while preserving incentives for the author.

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III. HOW TO USE THIS LICENSE

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To do so, convey or affix the following information to or about the copy or performance of the work:

The designation "(O)", representing "open" which indicates that the Original Author(s) have released the work subject to the terms and conditions of this public license;

Name of work's Original Author(s) (both the performer and the song writer);

Name or title of work (at option of author);

First Original Author's specified contact means usually an email or Internet address (at option of author);

notice, year created; and license version number.

Examples:

(O) Future Tribe "Gaian Smile" www.VirtualRecordings.com 2001 V.1.0

or

(O) Future Tribe "Imitatio Mundi" future@virtualrecordings.com 2001 V.1.0

This license is designed to provide artists with a mechanism to promote their creative talents and identity to millions of people through releasing certain recordings to the public. It is also designed to serve as a tool to allow musicians to experiment with new business models that do

not depend solely on a payment of fee-per-copy. Changing times require artists be creative in devising new business models for assuring payment and adequate compensation for their important contributions to society.

HyperNietzsche Licenses (2001)

1. La Licence HyperNietzsche

Article 1 : Parties

La présente licence est concédée par demeurant à ci-dessous désigné l' « auteur », à l'association HyperNietzsche ci-dessous désigné l' « HyperNietzsche »,

Article 2 : Objet

1. La présente licence a pour objet l' œuvre suivante :
2. Par la présente licence, l' auteur permet à l' association HyperNietzsche de publier l' œuvre désignée ci-dessus sur son site Internet. Cette œuvre, sur le site HyperNietzsche, sera soumise à la licence d' utilisation suivante :
3. À ce titre, l' auteur, par la présente licence, transmet à l' HyperNietzsche, à titre non exclusif, et pour la durée prévue à l' article 5 ci-dessous, ses droits de reproduction et de représentation sur son œuvre, sur tout support numérique, et notamment le réseau Internet.
4. L' auteur transmet également son droit de traduction sur l' œuvre. Si l' œuvre est traduite, l' HyperNietzsche s' engage à fournir gratuitement à l' auteur un exemplaire numérique de la traduction, et à lui transmettre les droits d' exploitation sur cette même traduction.
5. La présente licence est à titre gratuit.

Article 4 : Obligations de l' HyperNietzsche

1. L' association HyperNietzsche reconnaît que la présente licence est conclue à des seules fins d' enseignement et de recherche, et qu' elle ne peut donc céder les droits d' exploitation transmis temporairement par l' auteur, à titre gratuit ou onéreux, et pour une autre finalité.
2. L' HyperNietzsche s' engage à faire figurer en toute occasion le nom de l' auteur sur les exemplaires de l' œuvre.
3. De façon plus générale, l' HyperNietzsche s' engage à respecter le droit moral de l' auteur, et notamment son droit au respect à l' intégrité de l' œuvre.
4. L' HyperNietzsche s' engage à mettre en œuvre sur son site le choix éditorial opéré par l' auteur sur l' œuvre objet de la présente licence, et signalé ci-dessus à l' article 2 . 2.

Article 5 : Durée

1. La durée de la présente licence est fixée à dix ans, à compter de la date de sa formation.
2. La présente licence pourra être reconduite après le terme de dix ans. Si l' auteur ne signale pas expressément à l' HyperNietzsche, par lettre, courrier électronique ou autres, qu' il entend retirer son œuvre du site, la reconduction pour dix ans supplémentaires sera alors tacitement confirmée.

Article 6 : Loi applicable

1. Tout différend pouvant naître à l' occasion de la présente licence sera soumis à une conciliation préalable à tout recours devant les tribunaux.
2. La loi française est la seule loi compétente pour la présente licence, sans préjudice de l' éventuelle application des conventions internationales relatives au droit d' auteur.

2. La Licence Free Knowledge

Article 1 : Parties

La présente licence est concédée par, dans les conditions décrites ci-dessous, à tout utilisateur du site HyperNietzsche qui reproduira le texte objet de la licence en dehors des exceptions au droit d' auteur prévues par le Code de la propriété intellectuelle.

Article 2 : Formation

1. La présente licence se forme par voie électronique : en téléchargeant l' œuvre qui en est l' objet, l' utilisateur l' accepte tacitement.

2. La date de formation de la présente licence est la date du téléchargement de l'œuvre sur le site HyperNietzsche.

Article 3 : Objet

1. La présente licence a pour objet l'œuvre suivante :
2. L'auteur cède à l'utilisateur, à titre non-exclusif, et pour la durée de la présente licence, ses droits de reproduction, de représentation et de traduction sur son œuvre, sur tout support, y compris numérique, et dans tout pays.
3. La présente licence est à titre gratuit.

Article 4 : Obligations de l'utilisateur-cessionnaire des droits

1. L'utilisateur s'engage à faire figurer en toute occasion le nom de l'auteur, et son adresse de courrier électronique, sur les exemplaires de l'œuvre.
2. De façon plus générale, l'utilisateur s'engage à respecter le droit moral de l'auteur, et notamment son droit au respect à l'intégrité de l'œuvre.

Article 5 : Durée

1. La durée de la présente licence est fixée à dix ans, à compter de la date de sa formation.
2. La présente licence pourra être reconduite après ce premier terme de dix ans : l'accord exprès de l'auteur est pour cela exigé, et pourra lui être demandé par courrier électronique.

Article 6 : Loi applicable

1. Tout différend pouvant naître à l'occasion du présent contrat sera soumis à une conciliation préalablement à tout recours devant les tribunaux.
2. La loi française est la seule loi compétente pour la présente licence, sans préjudice de l'éventuelle application des conventions internationales relatives au droit d'auteur.

3. La Licence Open Knowledge

Article 1 : Parties

La présente licence est concédée par, dans les conditions décrites ci-dessous, à tout utilisateur du site HyperNietzsche qui reproduira le texte objet de la licence en dehors des exceptions au droit d'auteur prévues par le Code de la propriété intellectuelle.

Article 2 : Formation

1. La présente licence se forme par voie électronique : en téléchargeant l'œuvre qui en est l'objet, l'utilisateur l'accepte tacitement.
2. La date de formation de la présente licence est la date du téléchargement de l'œuvre sur le site HyperNietzsche.

Article 3 : Objet

1. La présente licence a pour objet l'œuvre suivante :
2. Si l'utilisation de l'œuvre est à des fins d'enseignement et de recherche, l'auteur cède à l'utilisateur, à titre non exclusif, et pour la durée de la présente licence, ses droits de reproduction et de représentation sur son œuvre, sur tout support, y compris numérique. La présente licence est alors à titre gratuit.
3. L'auteur se réserve le droit de céder ses droits de reproduction et de représentation sur son œuvre, dans tous les autres cas. La cession pourra être à titre gratuit ou onéreux : l'accord exprès de l'auteur doit pour cela lui être demandé.

4. Dans ce dernier cas, les modalités de la cession à titre onéreux seront précisées par l'auteur sur le site HyperNietzsche.

Article 4 : Obligations de l'utilisateur-cessionnaire des droits

1. L'utilisateur reconnaît que la présente licence est à des seules fins d'enseignement et de recherche : il ne peut céder les droits reçus temporairement à titre onéreux pour une autre finalité.
2. L'utilisateur s'engage à faire figurer en toute occasion le nom de l'auteur, et son adresse de courrier électronique, sur les exemplaires de l'œuvre, ainsi que la mention « usage à des fins d'enseignement et de recherche ».

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Article 5 : Droits de l'utilisateur

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- a) procéder à une copie, partielle ou intégrale, pour un usage strictement privé ;
- b) procéder à des courtes citations de la présente œuvre ;
- c) procéder à son analyse.

2. Dans tous les cas, l'auteur a droit au respect de son droit moral, et notamment :

- d) de son droit au nom ;
- e) de son droit au respect à l'intégrité de l'œuvre.

Article 6 : Durée

1. La durée de la présente licence est fixée à dix ans, à compter de la date de sa formation.

2. La présente licence pourra être reconduite après ce premier terme de dix ans : l'accord exprès de l'auteur est pour cela exigé.

Article 7 : Loi applicable

1. Tout différend pouvant naître à l'occasion du présent contrat sera soumis à une conciliation préalablement à tout recours devant les tribunaux.

2. La loi française est la seule loi compétente pour la présente licence, sans préjudice de l'éventuelle application des conventions internationales relatives au droit d'auteur.

4. La licence Limited Knowledge

Article 1 : Parties

La présente licence est concédée par, dans les conditions décrites ci-dessous, à tout utilisateur du site HyperNietzsche qui reproduira le texte objet de la licence dans le cadre des exceptions au droit d'auteur prévues par le Code de la propriété intellectuelle.

Article 2 : Formation

1. La présente licence se forme par voie électronique : en téléchargeant l'œuvre qui en est l'objet, l'utilisateur l'accepte tacitement.

2. La date de formation de la présente licence est la date du téléchargement de l'œuvre sur le site HyperNietzsche.

Article 3 : Objet

1. La présente licence a pour objet l'œuvre suivante :

2. La présente licence n'opère pas cession des droits d'auteur. L'utilisateur détient uniquement les droits consentis au titre des exceptions légales posées par l'article L. 122-3 du Code de la propriété intellectuelle, et présentés à l'article 5 ci-dessous.

3. Toute mise en réseau et toute rediffusion, sous quelque forme du présent texte, sont donc interdites, sauf autorisation expresse de l'auteur.

4. L'auteur se réserve le droit de céder ses droits de reproduction, de traduction et de représentation sur son œuvre, à titre gratuit ou onéreux. Les modalités de la cession des droits d'exploitation sur l'œuvre seront précisées par l'auteur sur le site HyperNietzsche.

Article 4 : Obligations de l'utilisateur-cessionnaire des droits

1. L'utilisateur s'engage à faire figurer en toute occasion le nom de l'auteur, et son adresse de courrier électronique, sur les exemplaires de l'œuvre.

2. De façon plus générale, l'utilisateur s'engage à respecter le droit moral de l'auteur, et notamment son droit au respect à l'intégrité de l'œuvre.

Article 5 : Droits de l'utilisateur

1. Dans tous les cas, l'utilisateur a notamment le droit de :

- a) procéder à une copie, partielle ou intégrale, pour un usage strictement privé ;
- b) procéder à des courtes citations de la présente œuvre ;

c) procéder à son analyse.

2. Dans tous les cas, l' auteur a droit au respect de son droit moral, et notamment

d) de son droit au nom ;

e) de son droit au respect à l' intégrité de l' œuvre.

Article 6 : Loi applicable

1. Tout différend pouvant naître à l' occasion du présent contrat sera soumis à une conciliation préalablement à tout recours devant les tribunaux.

2. La loi française est la seule loi compétente pour la présente licence, sans préjudice de l' éventuelle application des conventions internationales relatives au droit d' auteur.

5. La licence Système Informatique HyperNietzsche

Article 1 : Parties

La présente licence est concédée par l' association HyperNietzsche, dans les conditions décrites ci-dessous, à tout utilisateur qui entend reprendre le code source (de type HTML, Javascript, Java, PHP, SQL ou autre) de son site Internet pour toute création seconde.

Article 2 : Formation

La présente licence se forme par voie électronique : en reproduisant et en utilisant le code source du site HyperNietzsche, hors des exceptions légales prévues par le Code de la propriété intellectuelle, l' utilisateur l' accepte tacitement. La date de formation de la présente licence est la date de la reproduction du code source depuis le site HyperNietzsche.

Article 3 : Objet

1. La présente licence a pour objet les codes sources, tels que publiés sur le présent site, qui constituent la partie logicielle de l' HyperNietzsche. Ces codes sont une œuvre originale, protégée par le Code français de la propriété intellectuelle. Ils sont la propriété exclusive de l' association HyperNietzsche, personne morale, titulaire originaire des droits d' exploitation.

2. Si l' utilisation envisagée des codes sources objets de la présente licence est à des fins d' enseignement et de recherche, l' HyperNietzsche cède à l' utilisateur, à titre non-exclusif, et pour la durée prévue à l' article 6, ses droits d' exploitation, permettant de les réutiliser, les modifier, et de créer ainsi une œuvre seconde. La présente licence est alors à titre gratuit.

3. L' auteur se réserve le droit de céder son droit d' utilisation, dans tous les autres cas, et notamment lorsque l' utilisation des codes sources objets de la présente licence, et propriété de l' HyperNietzsche, a une finalité commerciale. La cession sera alors à titre onéreux : les modalités de cette cession sont précisées sur le site HyperNietzsche.

Article 4 : Obligations de l' utilisateur-cessionnaire des droits

L' utilisateur reconnaît que la présente licence est à des seules fins d' enseignement et de recherche : il ne peut céder les droits, sur les codes sources de l' HyperNietzsche, reçus temporairement, à titre onéreux, pour une autre finalité.

Article 6 : Durée

1. La durée de la présente licence est fixée à dix ans, à compter de la date de sa formation.

2. La présente licence pourra être reconduite après ce premier terme de dix ans : l' accord exprès de l' association HyperNietzsche, personne morale, est pour cela exigé.

Article 7 : Loi applicable

1. Tout différend pouvant naître à l' occasion du présent contrat sera soumis à une conciliation préalablement à tout recours devant les tribunaux.

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LinuxTag Green OpenMusic License
Draft v1.1, 22 April 2001

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Simputer General Public License (2001)

SIMPUTERTM GENERAL PUBLIC LICENSE

Version 1.3 7 May, 2001

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The SGPL is meant to aid in the proliferation of SimputersTM and its innovative extensions. The SGPL is designed to make sure that you have the right to use, modify and extend the specifications necessary to make a SimputerTM , and to manufacture and sell SimputersTM , and that you receive the Specifications or can get it if you want it and that you know you can do these things.

To protect your rights, we need to make restrictions that makes it illegal for anyone to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you make and sell SimputersTM , or if you modify the specifications used to make SimputersTM .

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These requirements apply to the Specifications as a whole. If you have developed devices that can function independently and are capable of being connected to or externally used in conjunction with SimputersTM, then this SGPL, and its terms, do not apply to the specifications for the manufacture of those devices. However, if you have modified the Specifications to incorporate any device or devices within the body of the SimputerTM, or if you have developed specifications for devices designed to be incorporated within the body of the SimputerTM, all such specifications, modified Specifications and devices created based thereon, shall be governed by this SGPL. When you distribute these specifications or modified Specifications, the permissions granted to other recipients under such SGPL shall extend to the entire whole, and thus to each and every part regardless of who wrote it. The mere aggregation of specifications for the manufacture of other devices not based on the Specifications with the Specifications (or with a modification of the Specifications) does not bring such other specifications under the scope of this SGPL.

At all times, the Specifications, the modified Specifications and all other

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4. You may, subject to the conditions of this SGPL, design and build a Device so long as you provide each person to whom such Device is given, with a copy of this SGPL as well as with a copy of the Specifications.

5. Notwithstanding anything to the contrary contained herein, you shall not commence any commercial activity in relation to any Device, whether it be manufacture, distribution, sale, or any other such activity, without first obtaining from the Simputer Trust, a license in accordance with the provisions of Section 7 of this SGPL.

6. You may design and build a Device based on any modifications to the Specifications provided that in the event you commence any commercial activity in relation to the Device you shall, no later than twelve months from the date on which the first sale of such Device is completed,

a) notwithstanding anything contained in Section 3, publish or cause to be published a copy of the modified Specifications based upon which the Device was built; and

b) deliver a copy of the modified Specifications to the Simputer Trust.

During the twelve month period from the date on which you complete the first sale of a Device till the date on which you are required, under the terms of this Section 6, to publish the modifications of the Specifications, you shall, subject to the terms of Part II hereunder, be entitled to exclusively manufacture and sell Devices based on the modified Specifications. In the event any dispute arises in respect of the actual date of the first commercial sale of the Device, the decision of the Simputer Trust in respect thereof shall be final and binding.

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b) The SimputerTM trade mark as well as the logo shall be displayed on all SimputersTM as well as in all promotional material, documentation, brochures,

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c) You shall not be entitled to sub-license the rights under this SGPL with regard to manufacture and distribution of SimputersTM or SimputerisedTM Devices or the use of the SimputerTM trade mark, or any modifications or colourable imitations thereof without the express written consent of the Simputer Trust. You shall not be allowed to utilise the SimputerTM trade mark or any adaptations or colourable imitations thereof in respect of any Device in respect of which a manufacturing and distribution license has not been granted by the SimputerTM Trust. Nothing contained herein shall limit your right to appoint tooling, manufacturing and fabrication agents as well as marketing agents and distributors in respect of the Devices provided that you retain ultimate control over the actual manufacture of the Devices and that all such agents and distributors agree to be bound by the terms and conditions of the SGPL.

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