/ko 'lek tiv yon ning/
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/koh-lek-teev-yoh-níngk/
/ko-lek-tiev-ah-vio-ning/

The gathering of collective memory. A pre-literate notion of memory, in a communal way, something commemorative rather than putting a memory in a container. What we thought it was going to be changed completely. We are in that way changing our memory of what it was supposed to be. What are you able to collect? Memories? Objects? People? A collection of texts and people, collecting and composing each other? Somehow it's not even important that we have all the knowledge, what's important is the living, generative sense of the collection.

Collect / ive / ion \ ing / Publication

Gathering for the publication

collectiveioning.xpub.nl
generated on 9-3-2021 at 17:59

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The gathering of collective memory.

A pre-literate notion of memory, in a communal way, something commemorative rather than putting a memory in a container.

What we thought it was going to be changed completely. We are in that way changing our memory of what it was supposed to be.

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Somehow it's not even important that we have all the knowledge, what's important is the living, generative sense of the collection.

Transcription of collectiveioning discussion, 6 May 2020

The text you are now reading began in the browser. The text you are now reading is part of a process, controlled by software that turns a website into a printed book. It was written collectively by a group of fellow students, across international time zones and online videocalls on shaky platforms. We have individual voices but are inter-dependent on each other as we redraw boundaries of public and private, physical and digital, individual and community. Doing-It-Yourself and Doing-It-Together; sometimes the two are almost indistinguishable. From our Special Issues in the first year to our theses and graduation projects in the second year, this publication presents work made from this particular oscillation between personal and collective positions.

The name of this publication, "Collectiveioning" is a jumble of suffixes (~ive, ~ion, ~ing) attached to the verb "collect". We say it with different accents and interpretations of the verb/noun/adjective/gerund we have invented.

ASW: */collective-awning/* is a word collectively named by Simon Browne, Bohye Woo, Paloma García, Artemis Gryllaki, Tancredi Di Giovanni, Pedro Sá Couto, Biyi Wen, and Rita Graça to encapsulate their graduation projects at the Experimental Publishing (XPUB) Master of the Piet Zwart Institute. The word is related to collections, collective time spent at XPUB, and collaborative working methods. This term was coined during an intense two-day online collective writing session in the depths of COVID-19, where bodies were separate but spirits were */collective-awning/*.

SB: */ko 'lek tiv yon ning/* is a mouthful of consonants and vowels joined together to make a new word spoken in many voices.

BHW: */col ec 'tivio ning/* is a collection of works to share our voices into a one-whole-giant platform.

PG: */co-lec-tí-bio-ning/* is a compilation of collective reflections, collaborative exercises, collective experiments, and common worlds to explore by individuals.

AG: */κολε-κτί-βιο-νινγκ/* is collecting moments, memories, and collections collectively.

TDG: */colleectiiiviòooniiing/* is an attempt to collect ive ion and ing.

PSC: */cool-ectiveioning/* is not uniform, but is using the uniform.

BW: */ke lec ti vi on ne ing/* is to put nouns into adjectives and adjectives into verbs and verbs into nouns.

RG: */collec-tí-ví-uuuuniiiing/* is a combination of our works and thoughts together as a group, team, band, class, gang, individuals, friends.

CB: */koh-lek-teev-yoh-níngk/* is a type of collaboration wherein individuals retain their autonomy within a collective process, but agree to present their work as a body that is continuous, a skeleton made of bones that cooperate with each other, despite any fractures that may arise.

AM: */ko-lek-tiev-ah-vio-ning/* is a type of airplane navigation system that predates the modern flight industry. At the time, this method relied on the collective steering of the apparatus and a complex decision-making system to decide where to travel and what kind of journey should be experienced. After a few dramatic failures, this experimental form of navigation and exploration was forbidden by the council of airplane industry. It remains active in a few

places in the Netherlands, mostly funded by amateur radio associations.

To read a text is to give it voices. A neologism like "Collectiveioning" sticks in the mouth at first, but the more times you say it, the easier it becomes to read. Eventually, the word gains a sound that differs, but represents a commonly held concept. The work contained within this publication maintains our different perspectives, interests, skills, strengths and understandings, expressed from the position of the collective, where many voices intermingle in a dialogue. We may say things differently, but we converge on the collective, collection, collecting of these differences into a publication.

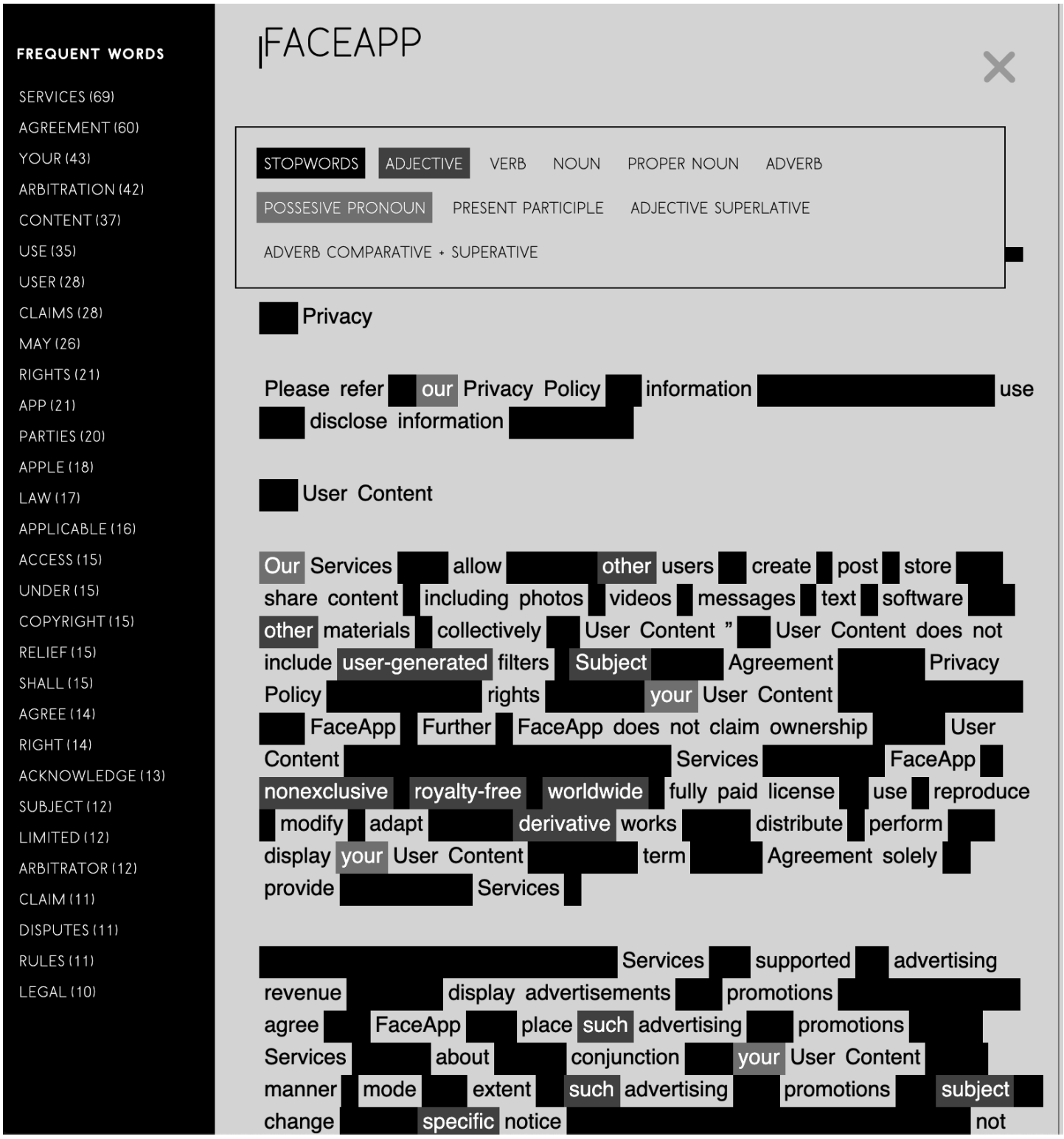
A publication has different contingencies and affordances depending on the interface in which it is embodied. A book requires an external light to read it, a webpage offers full text search through the browser. Both forms are equally valid and offer different uses; they are not just mutual facsimiles. Traversing diverse formats of publication is native to XPUB, which sees publishing as not limited to any particular media, while respecting every specificity.

We were fortunate to work with Open Source Publishing (OSP) on this publication. They are the developers of Ethertoff, the web-to-print free software tool that makes our work available in a variety of ways; from the website, from pages printed at home, and from this book. The website was launched on July 10th, 2020 in an online presentation, delivered over self-hosted infrastructure in a moment of awe, trepidation, confusion and wonder.

Collectiveioning is a hybrid publication, not buy-one-take-one but a continuum extending between digital and printed media. In the digital format, the reader may find their own way to navigate through the projects, find connections and threads, click hyperlinks to direct to the project's websites and access multimedia as well as images and text. The print-ready PDF generated from the website includes all the features that make a comfortable reading experience, such as page numbers, headers, footers, and margins. The reader may also have some control over choosing fragments of the publication, with options to print what they like and collate their own collection. Using the same tool, our work is collected in this book to give a more comprehensive snapshot; an overview curated by the XPUB class of 2020.

The whole may be the sum of its parts, but these fragments, created by many voices, selectable and recomposable in different formats, originate many wholes whose sum is *Collectiveioning*.

Projects


FREQUENT WORDS
SERVICES (69)
AGREEMENT (60)
YOUR (43)
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CONTENT (37)
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CLAIMS (28)
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COPYRIGHT (15)
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ACKNOWLEDGE (13)
SUBJECT (12)
LIMITED (12)
ARBITRATOR (12)
CLAIM (11)
DISPUTES (11)
RULES (11)
LEGAL (10)
FACEAPP
STOPWORDS
ADJECTIVE
VERB
NOUN
PROPER NOUN
ADVERB
POSSESIVE PRONOUN
PRESENT PARTICIPLE
ADJECTIVE SUPERLATIVE
ADVERB COMPARATIVE + SUPERATIVE
Privacy
Please refer our Privacy Policy information use disclose information
User Content
Our Services allow other users create post store share content including photos videos messages text software other materials collectively User Content " User Content does not include user-generated filters Subject Agreement Privacy Policy rights your User Content FaceApp Further FaceApp does not claim ownership User Content Services FaceApp nonexclusive royalty-free worldwide fully paid license use reproduce modify adapt derivative works distribute perform display your User Content term Agreement solely provide Services
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Parallel Colonialism

Bohye Woo

PEACE T

STOPWORDS ADJECTIVE VERB NOUN PROPER NOUN ADVERB
POSSESIVE PRONOUN PRESENT PARTICIPLE ADJECTIVE SUPERLATIVE
ADVERB COMPARATIVE + SUPERATIVE

Article

consequence right peoples self-determination point seceding completely State part right proclaimed Socialist Federal Russian Republic Soviets Russia unreservedly recognises independence sovereignty State Estonia renounces voluntarily ever sovereign rights possessed Russia Estonian people territory rights be based juridical position formerly existed public law international treaties sense here indicated lose their validity future fact Estonia has belonged Russia obligation whatsoever fall Estonian people land Russia

Article

frontier Esthonia Russia follows following line

Starting Bay Narva verst south Fishers House turns Ropscha then follows course Rivers Mertvitskaja Rosson as far village Ilkino Ilkino verst west village Keikino verst west village Isvosi turns towards village Kobõljaki then crosses mouth river Schtschutschka passes Krivaja Luka estate Petschurki confluence sources river Vtroja follows

CONTRACTING (20)
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MILITARY (11)
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LINE (6)
FIRST (6)

Parallel Colonialism is a digital text archiving tool that offers a comparative reading application between historical and contemporary documents. It allows users to experience how regulatory terms play in colonialism by offering two types of legal documents: Terms of Services and historical colonial treaties.

By selecting one of each document, a parallel reading platform is enabled, in which you can comparatively label, highlight and analyse a range of specific terms. This helps you to analyse how these documents operate in similar ways to colonialism, and it also opens up discussions in finding a colonial resemblance by mapping out the whole contractual landscape of terms used in each document.

Parallel Colonialism (2020) was produced in the context of the graduation research of Bohye Woo from the Experimental Publishing (XPUB) Master course at the Piet Zwart Institute, Willem de Kooning Academy, Rotterdam University of Applied Sciences.

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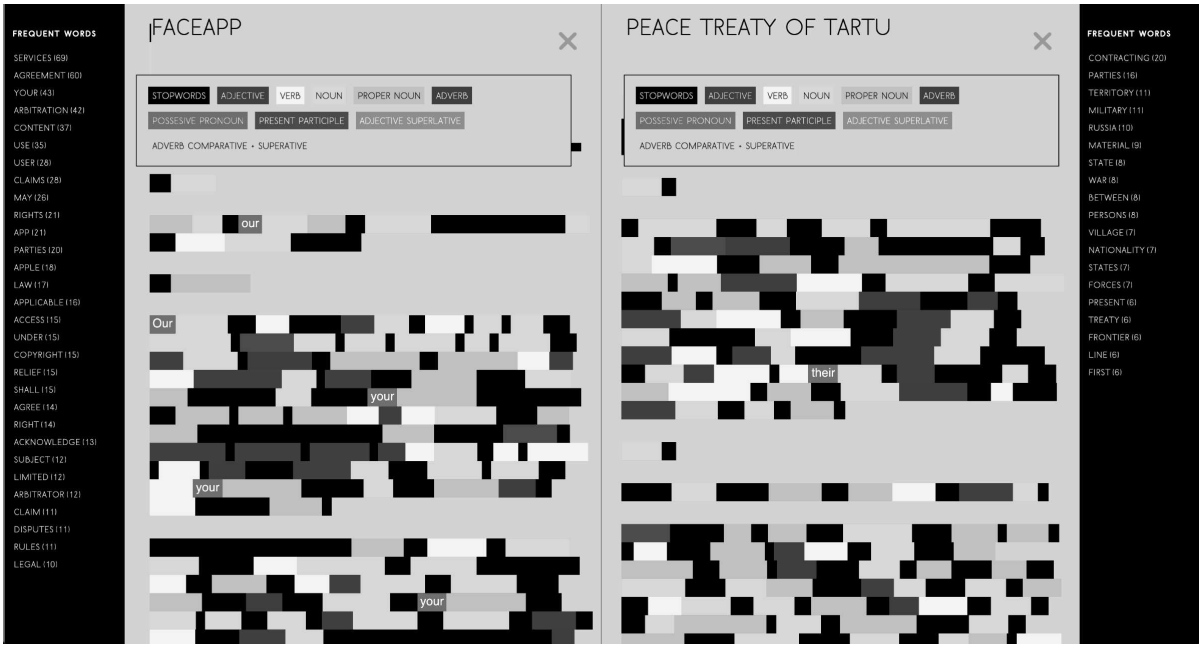


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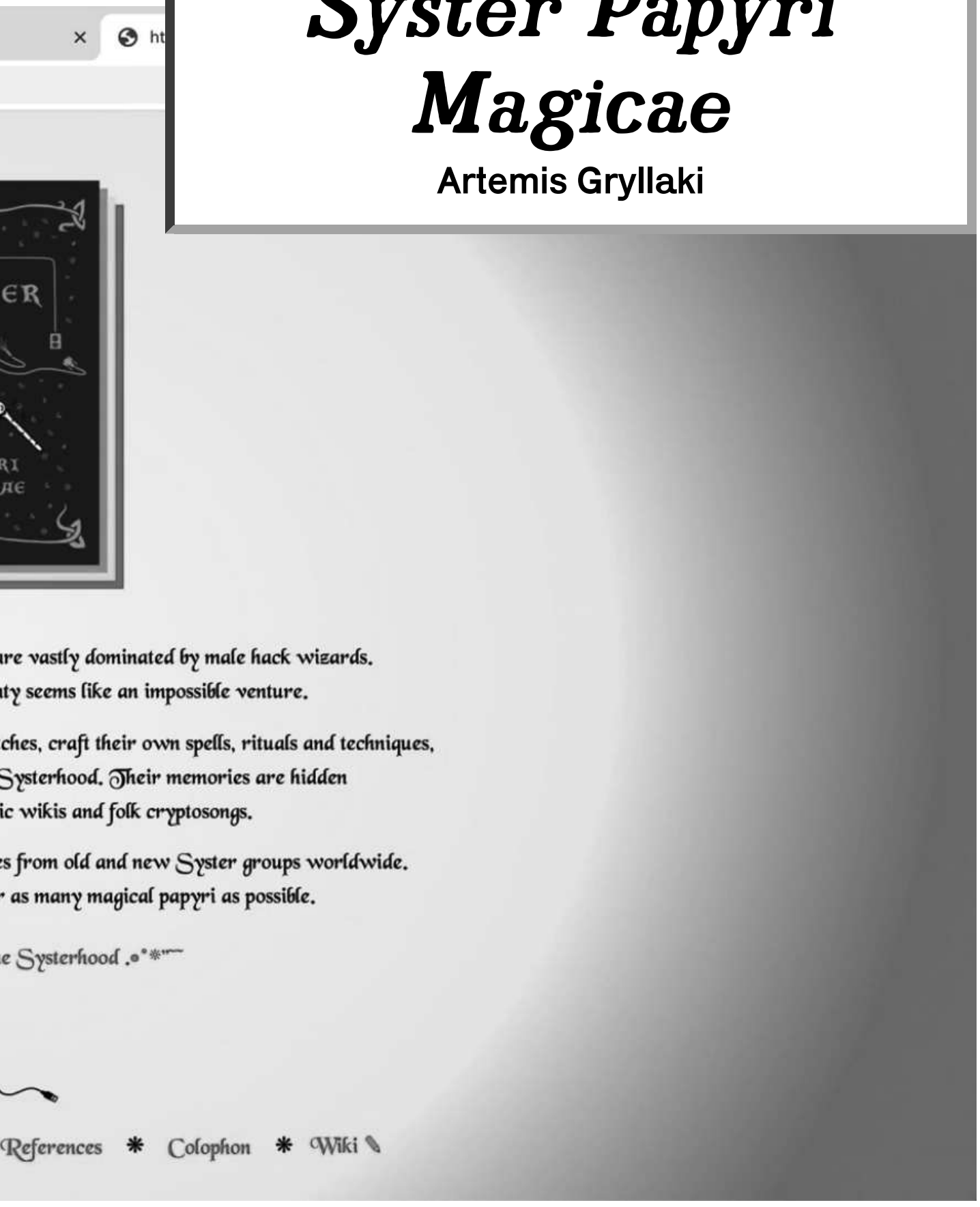
Join a number of quests and discover
Immerse in th
Restart * About * Manual *

Syster Papyri Magicae

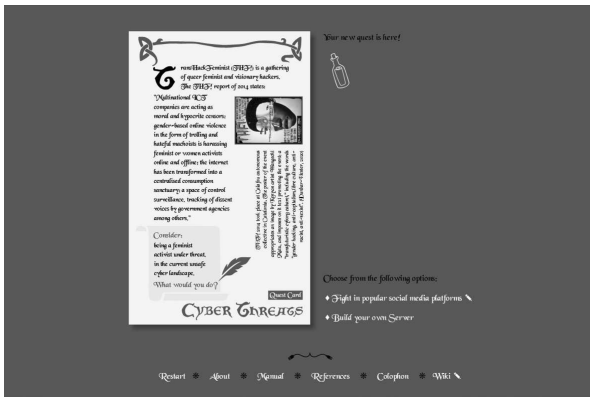
Artemis Gryllaki



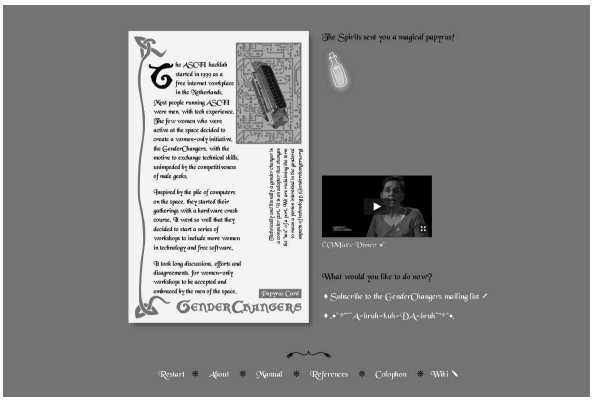
Syster Papyri Magicae is a project that unfolds the phenomenon of gender exclusions in male-dominated tech environments, aiming to document, discuss and activate a variety of feminist practices that respond to this issue.

The Syster Papyri Magicae website enables a playful navigation to a collection of stories and practices that are gathered in a growing, editable Wiki. Aided by the early web magic of hyperlinks, one may discover documentation of sexist incidents in tech, feminist hacker projects and wiki pages to write their versions of stories, or even dead ends. A fictional context of witchcraft provides a game-like atmosphere but is also tactically used. On the one hand, the witch as an excluded figure symbolises female strength, that challenges patriarchal systems. On the other hand, witchcraft is a theme ever-present in geek culture, proposing that technology has a source of magical power, that one can harness for one's own sense of agency and empowerment.

Strolling through the website, the visitor encounters several quests, that challenge them to choose what they would do in situations of exclusion. This method helps them realise how hard it is to take action under these circumstances. It is also a way to open discussions on diverse feminist approaches, learn about feminist hacker practices, and if interested, become a contributor.

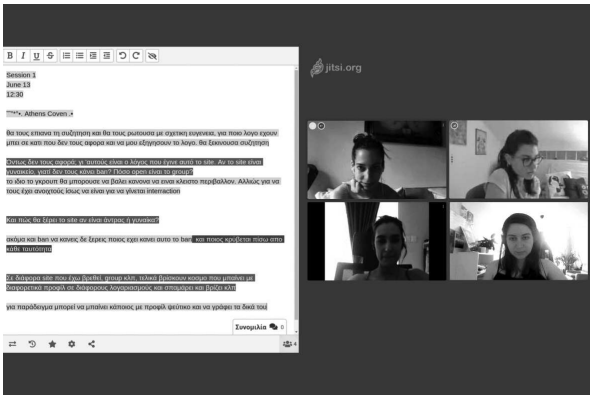


Quest: Choose what you would do in a situation of gender exclusion



Papyrus: A page from the Feminist Practices archive is revealed

Picture from the Feminist Hack Meetings in Varia, Rotterdam



Online session of discussing and documenting diverse feminist approaches

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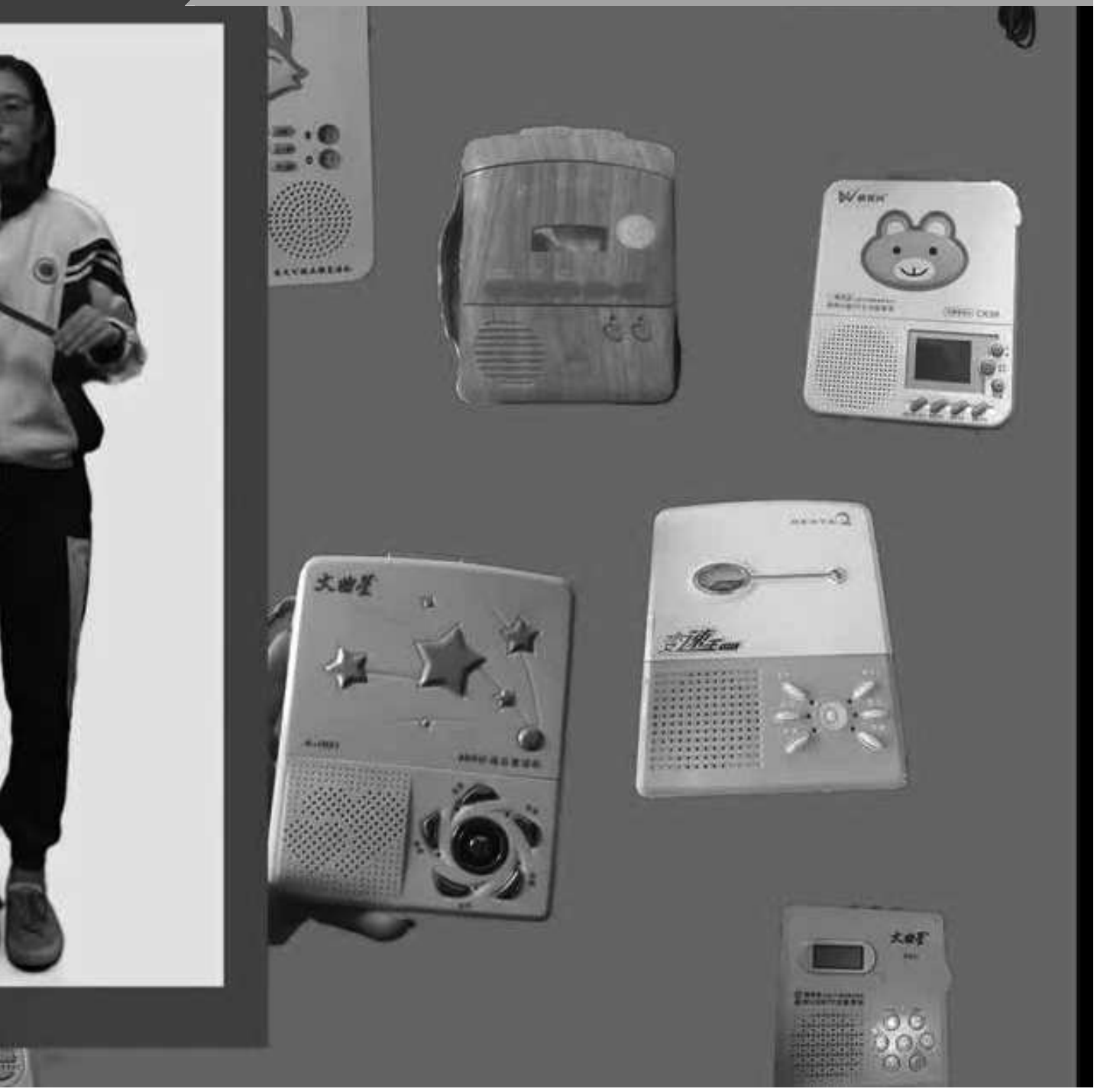
GACKE
GK-28K
PANDA

The Repeater Archive

Biyi Wen

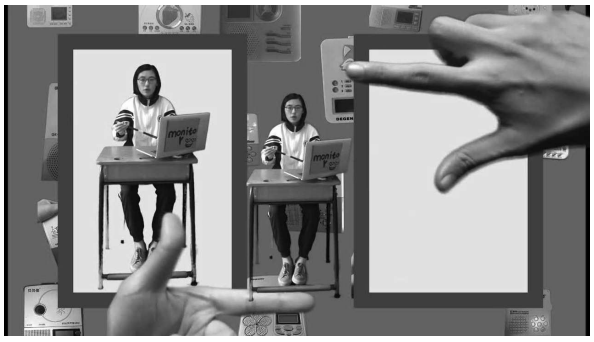


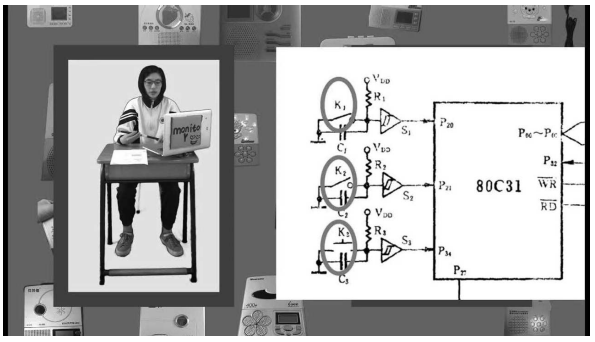
The Repeater Archive (2020) is an archival project that animates the repeater, a language learning aid device used in China during the 90s, and the experiences surrounding the use of this device.

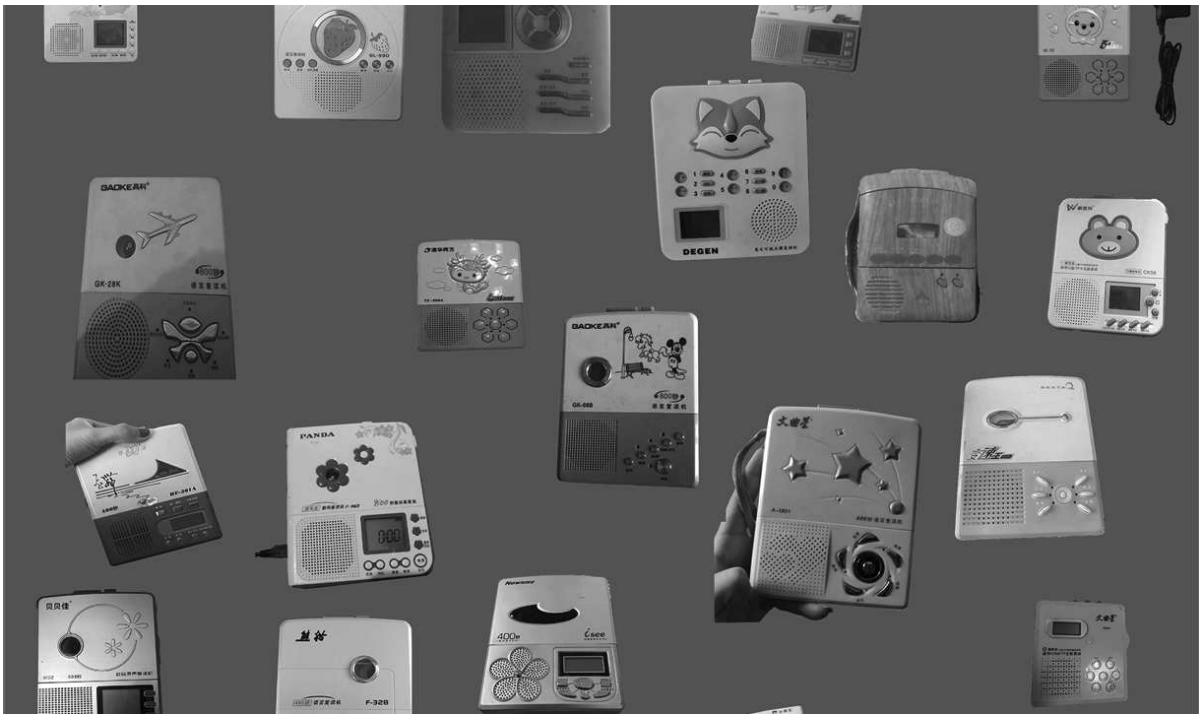
The structure of the archive is reflective of the MediaWiki space, composed of thematic categories and pages documenting archival items. It is animated by a series of video lectures that feature "Onebigear", a character acting as the navigator for the archive. "Onebigear" embodies the childhood experiences of the archive creator, and embeds the archive within the historical time-frame and cultural context in which the repeater is situated.

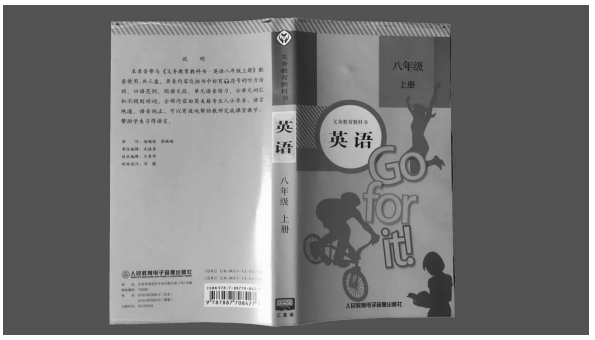
More specifically, the archive elaborates on the affective features of the repeater: the disembodying process of transforming voices in situ to manipulative data; the disciplinary agenda of conforming to authentic accents; and the affective actions of interacting with the repeater interface.

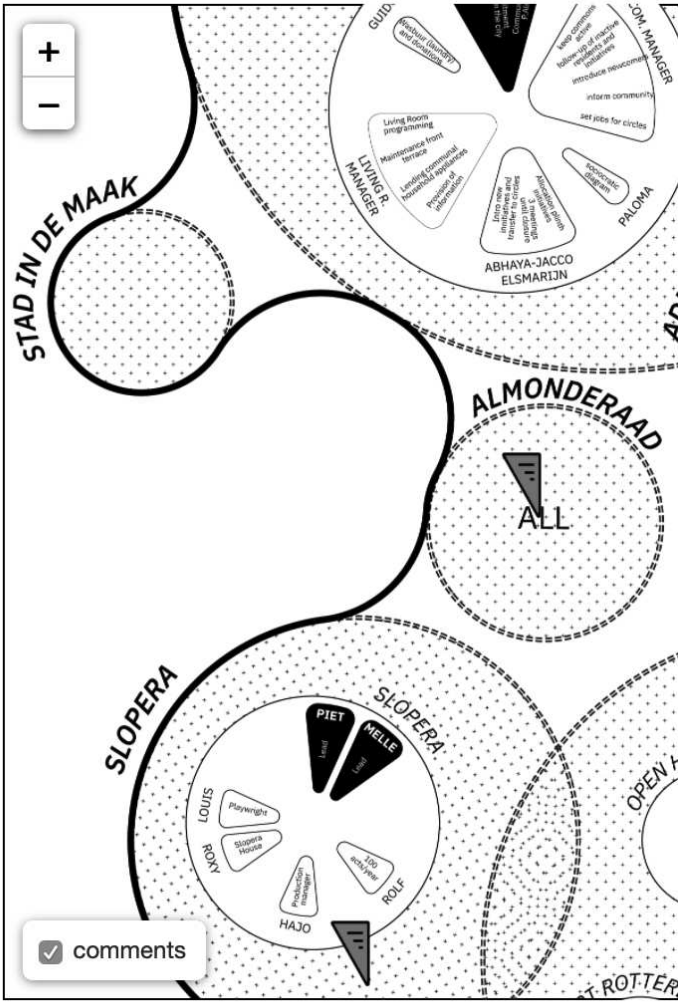
The archive vividly testifies to the idea of the "anarchive", an archive activated by intimate experiences, productive nostalgia, and collective memory. As a generation of users came of age and disposed of the memories attached to the repeater, the archive creates another layer of space to critically document and reflect upon these memories.










STAD IN DE MAAK
LIVING R. MANAGER
ABHAYA-JACCO ELSMARIJN
PALOMA
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SLOPERA
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MELLE
LOUIS
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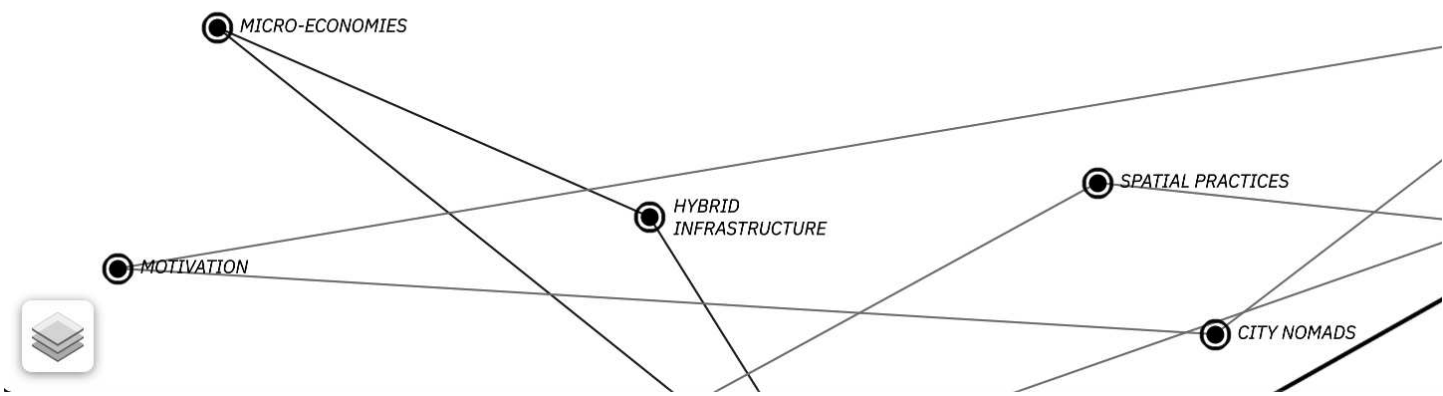
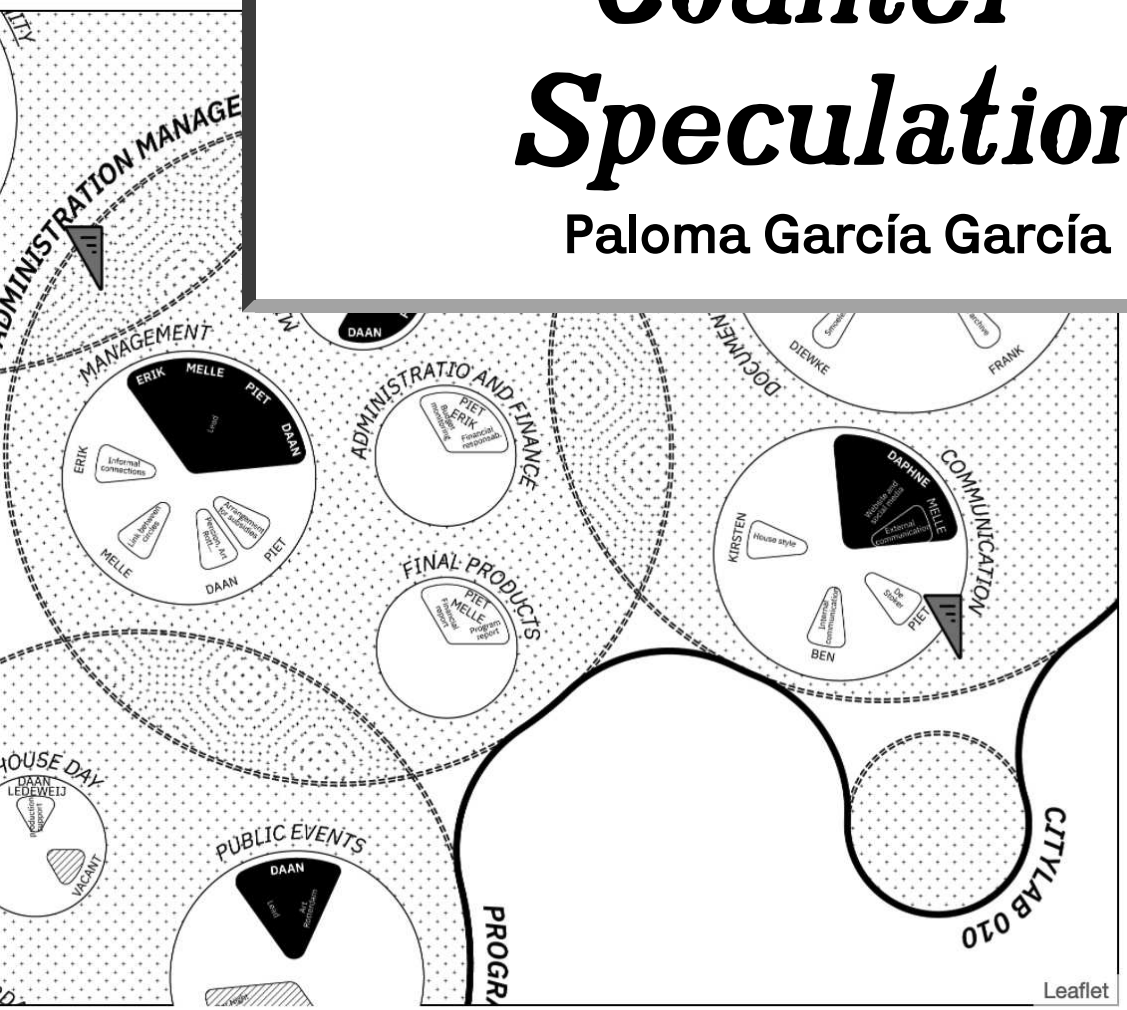
HAJO
comments

ECONOMICAL

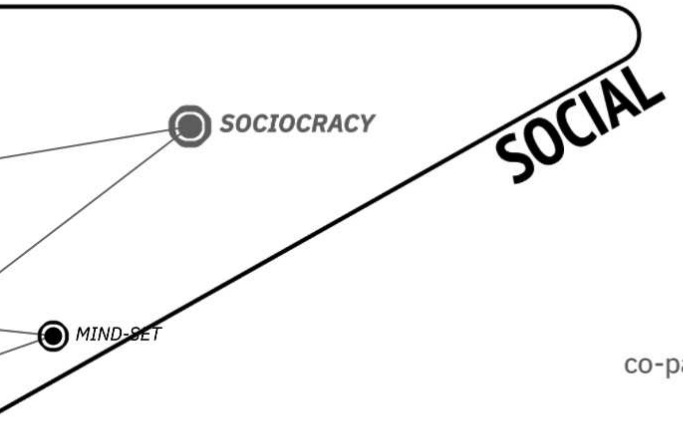

MICRO-ECONOMIES
HYBRID INFRASTRUCTURE
SPATIAL PRACTICES
MOTIVATION
CITY NOMADS

Cartographies of Counter-Speculation

Paloma García García

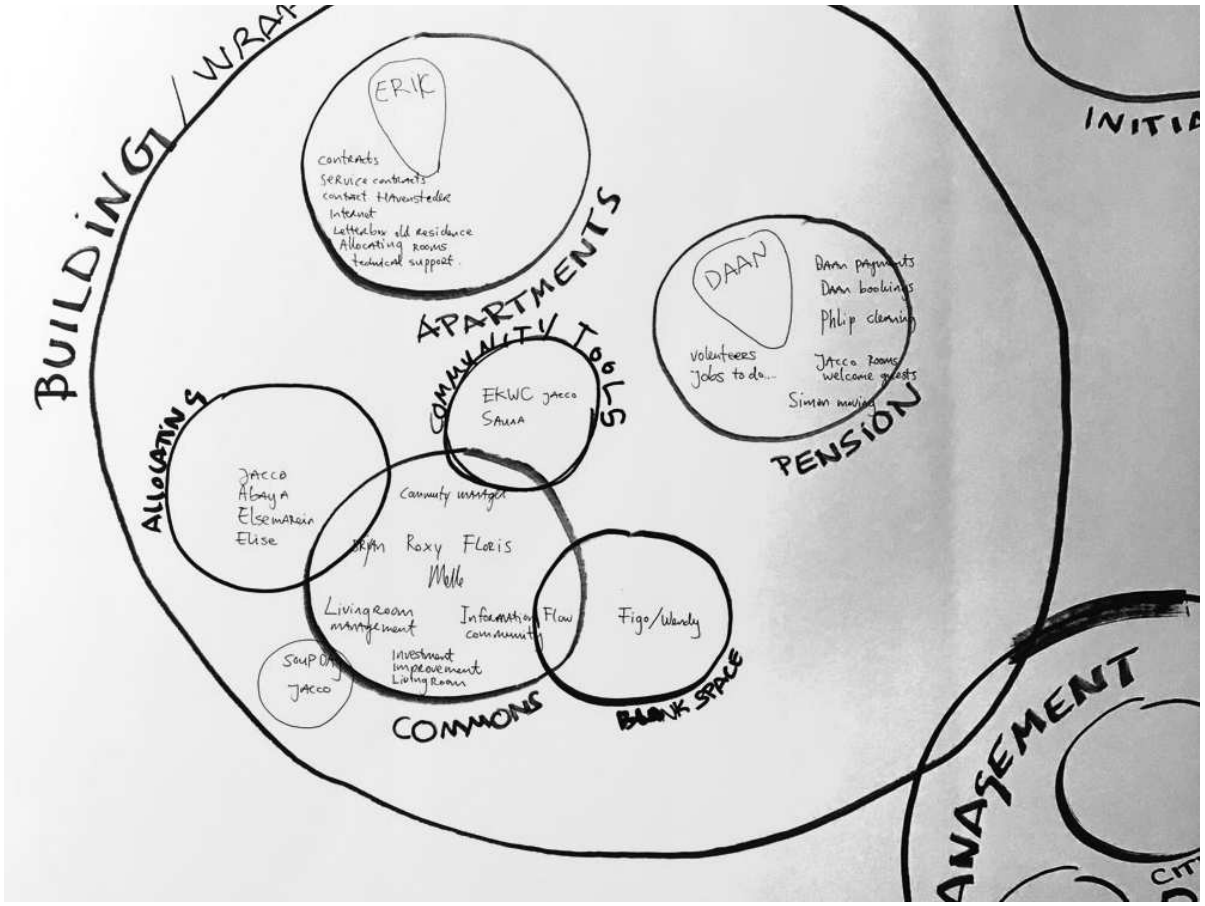


Leaflet



When it comes to managing our own living space, there has been an increasing resitance towards hierarchical organization models.
This map describes **STAD IN DE MAAK** community's own sociocratic organization model, in which inhabitants are able to self-organize and self-regulate. The fundamental objective is to promote co-participation and co-responsibility, empowering collective intelligence.

Leaflet


BUILDING / WRA
ERIC
contracts
service contracts
contact Havenstede
Internet
Letterbox old residence
Allocating rooms
technical support
APARTMENTS
DAAN
Daan payments
Daan bookings
Philip cleaning
volunteers
jobs to do...
Jacco rooms
welcome guests
Simon mailing
PENSION
INITIA
COMMUNITY TOOLS
EKWC Jacco
Sauna
ALLOCATIONS
Jacco
Aboya
Elsemarain
Elise
community manager
Roxy Floris
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management
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Flow
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Improvement
Living Room
COMMONS
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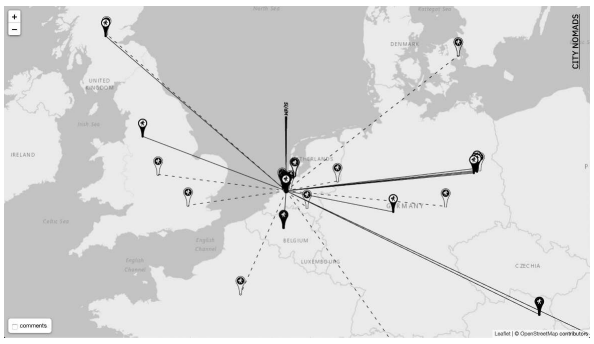
MANAGEMENT


CITY NOMADS
IRELAND
BELGIUM
CZECHIA
comments

Cartographies of Counter-Speculation is a collection of maps and diagrams that envisions those alternative housing models that are not normally represented on maps. They are based on the practice of three communities in Rotterdam: Stad in de Maak, Poortgebouw, and Stichting NAC, which in different ways have been revealed against traditional property speculation. Maps are either tools to work with communities and also extremely powerful elements of communication; they are not only elements of contemplation but also open spaces to start discussions or conversations.

Maps and diagrams have traditionally been elements of power and domination. Still, since maps became popular and accessible to the general public, we have the chance to reverse the process, creating counter-maps which can fill gaps in map representation and become social mechanisms. This project aims to put together three of my main areas of interest: Maps, architecture, and social impact, understanding the result as an innovative digital social tool.

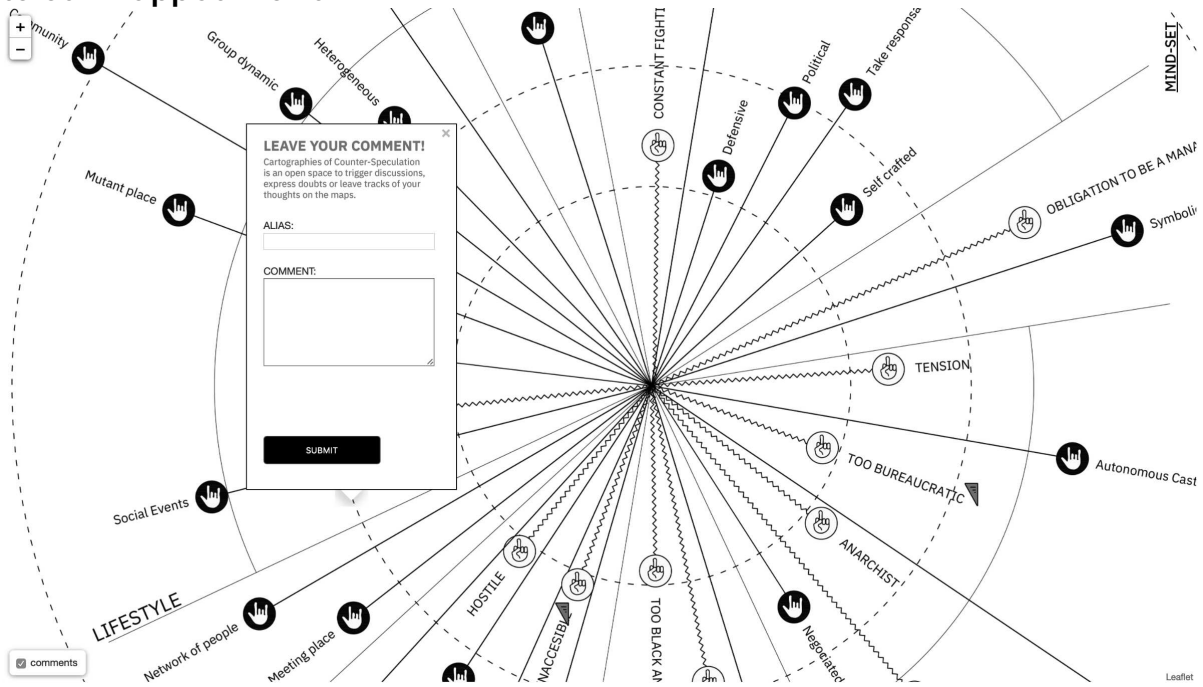
Cartographies of Counter-Speculation is a public website where you can explore the collection of maps that have been produced, describing these alternative housing models and their social, political and economic aspects. From microeconomic models to sociocratic organisation, this collection concentrates mail strategies that these communities followed to survive against housing speculation phenomena in the city of Rotterdam.

The project started connecting with communities through mapathon sessions: map-making workshops to collect information and involve people in the community to participate in the process of map-making, giving them space to share ideas, doubts or concerns. During this time, the coronavirus exploded in the Netherlands. Physical meetings were not possible anymore and social interaction in real life was in crisis. I have always defended that maps are powerful elements among many other things, because they are flexible and adaptable to almost every communication medium. Therefore, I had to take advantage of this feature and I started a map digitalisation period. Maps were transformed into virtual elements and the connection with the communities would be maintained through a new interactive layer implemented in the digital version, where users could leave or reply comments opening space for new conversation or discussions.

Cartographies of Counter-Speculation is understood as a reproductive tool that understands maps, diagrams and

cartographies as rooms for leaving traces exploring new paths of participatory mapping. Cartographies are frames and background for a lot of situations that can happen over them. Maps are scenarios to empower realities, to visualise hidden information and to discuss that freely.

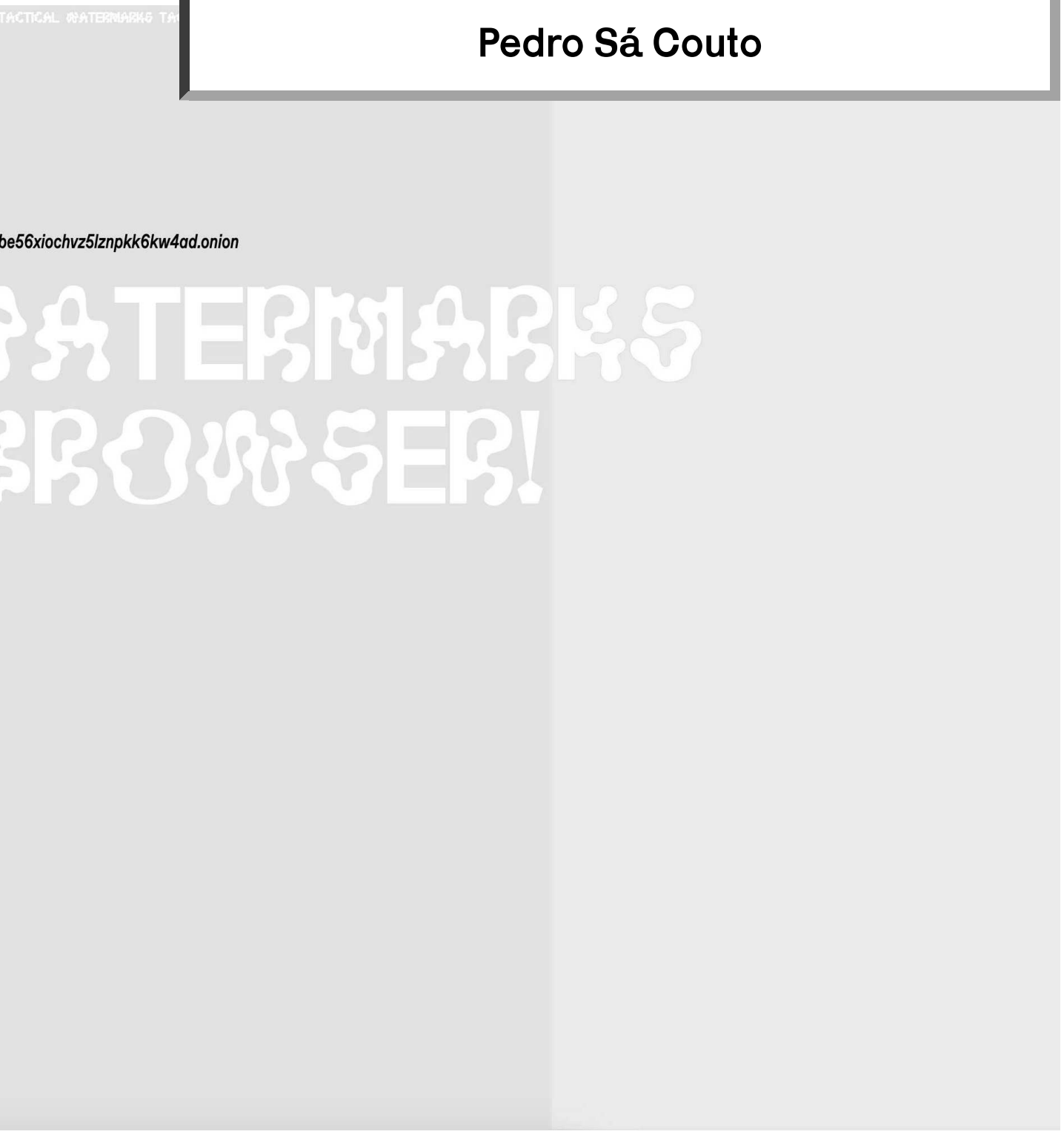
Maps are undoubtedly an essential part of our life: we have simply accepted them as a natural way of communication. I've heard so many times in this year that the world is already mapped – and it's true, but the question is: Are these maps the ones that we want? Counter-maps are different from maps: they are not tracking scientific elements, but they are social tools to help societies to advance. If a counter-map triggers social progress, it is worthwhile to make one more map. So this project is my small contribution to our mapped world.

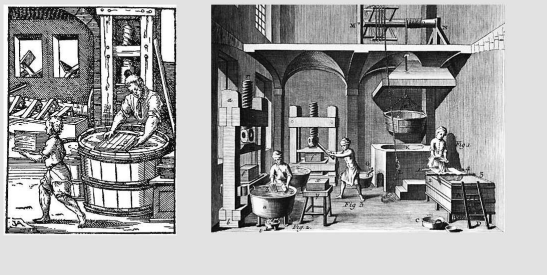


New appended watermark to the cover of a title

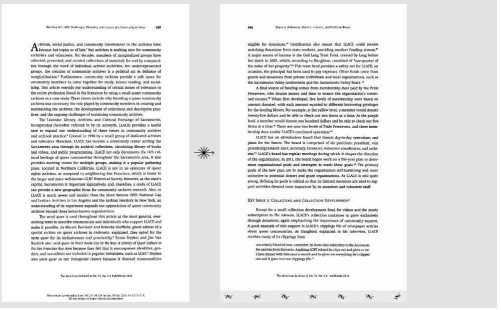
Tactical Watermarks

Pedro Sá Couto





Paper making



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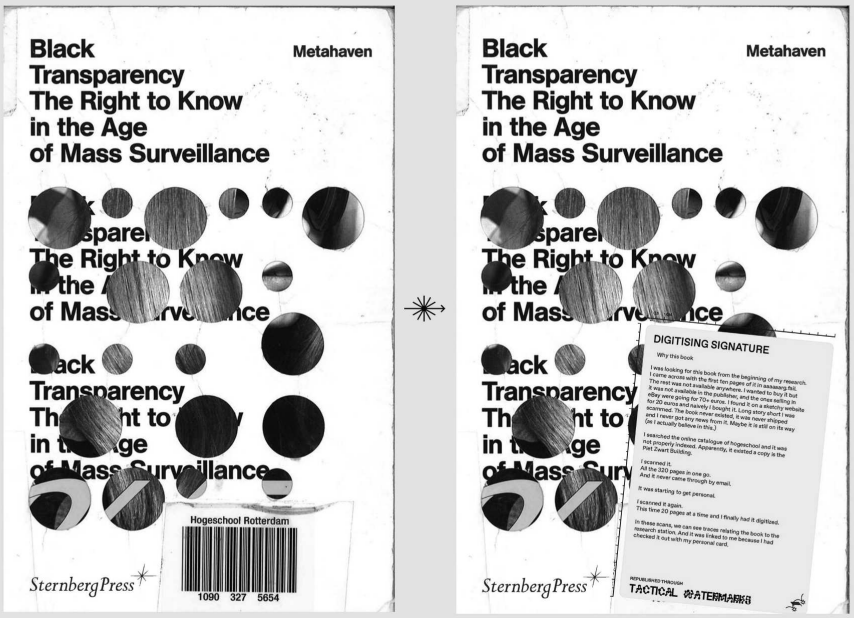


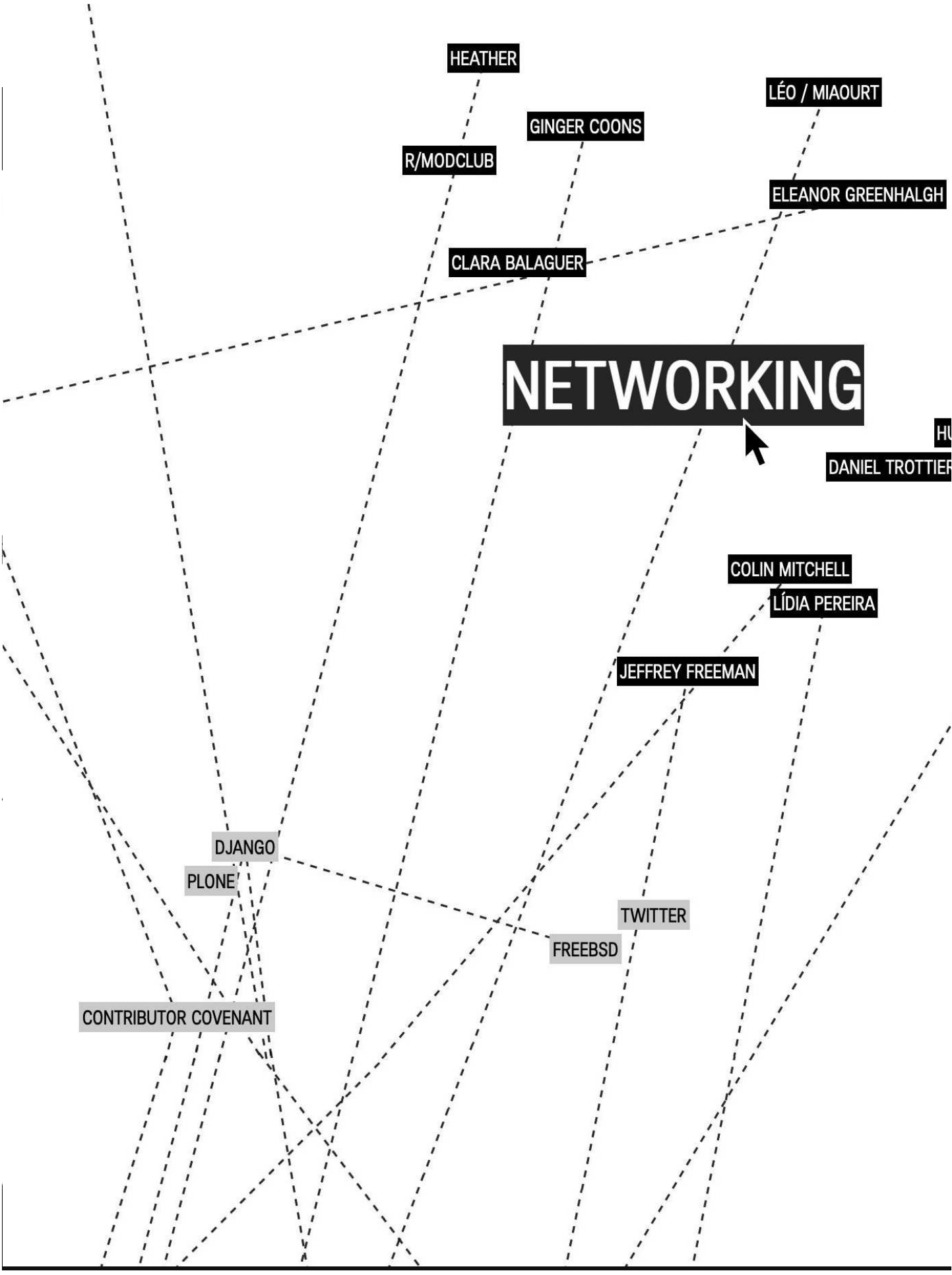
New appended watermark to the cover of a title

Screenshot — Route to upload a watermarked title

Tactical Watermarks is an online republishing platform that exists in both the clear and dark web. I actively make use of digital watermarks as a means to explore topics such as anonymity, paywalls, archives, and provenance. While the primary intention of analogue watermarks was to leave traces of authenticity, marks of quality or even aesthetic enhancements, digital watermarks are being used as a way to create accountability for users. Through this platform, I describe and document ways of living within, while also resisting, a culture of surveillance in the realm of publishing.

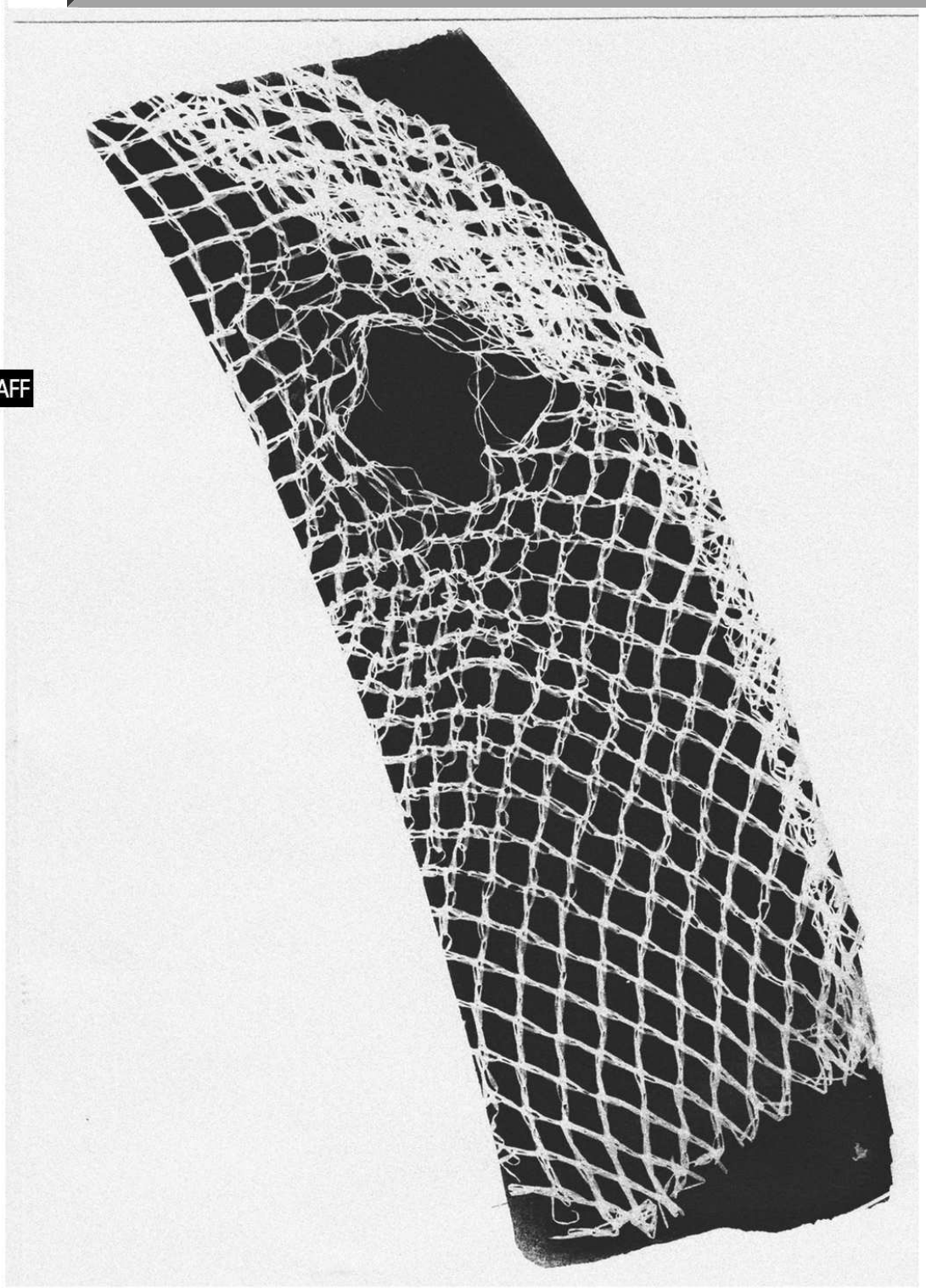
I am motivated by all the invisible individuals behind extra-legal publishing platforms: curators, the ones who host, upload and even download material. Through the act of watermarking, I embed layers of information often dissolved within the processes of sharing texts. I experiment with how the process of adding stains can be twisted and revived. Stains are what I call user patches or marks, that are difficult to remove and that do not play an active role in archives.

In this platform, users can upload and request different titles. While talking with members from the Library Genesis forum, I understood the need to create a tool that allows people to share watermarked pdfs in a safe way. My platform is NOT a library, and it is also NOT an archive. I don't keep the files or intend to archive them. What I do is open a space to de-watermark files, and append new anonymous watermarks with the technical and personal concerns around sharing specific texts. In the end, these stories will circulate alongside the main narrative. This is an automated republishing stream that spreads these new and unique files to Library Genesis.


HEATHER
LÉO / MIAOURT
GINGER COONS
R/MODCLUB
ELEANOR GREENHALGH
CLARA BALAGUER
NETWORKING
DANIEL TROTTIER
COLIN MITCHELL
LÍDIA PEREIRA
JEFFREY FREEMAN
DJANGO
PLONE
TWITTER
FREEBSD
CONTRIBUTOR COVENANT

Networks of Care

Rita Graça



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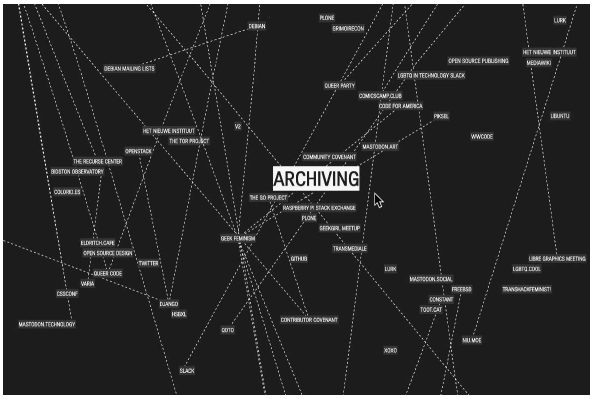
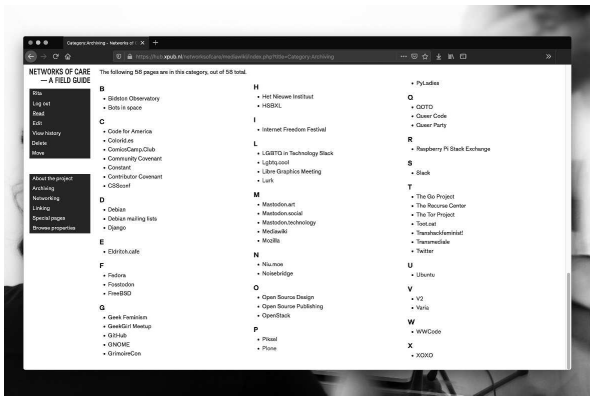
Networks of Care is a project supported by extensive research on online communities and their moderation systems. Through the format of a field guide, this work leads you through the attempts, accomplishments and missteps of users and custodians of regulated social networks.

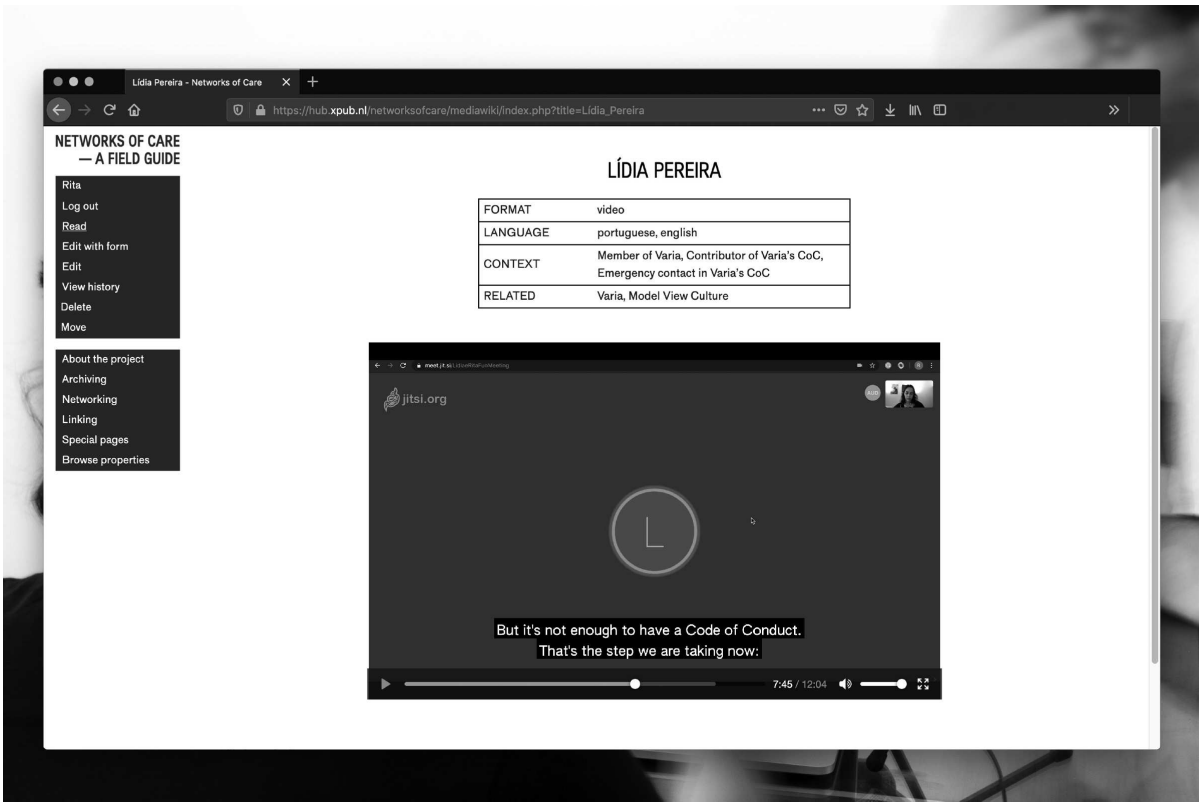
Throughout the project, I collected user experiences by interviewing different community members, seeking the pioneering work of artists, designers, libre and open software enthusiasts, feminists, and LGBTQ+ users. I gathered and analysed a broad span of Codes of Conduct and compiled other useful resources.

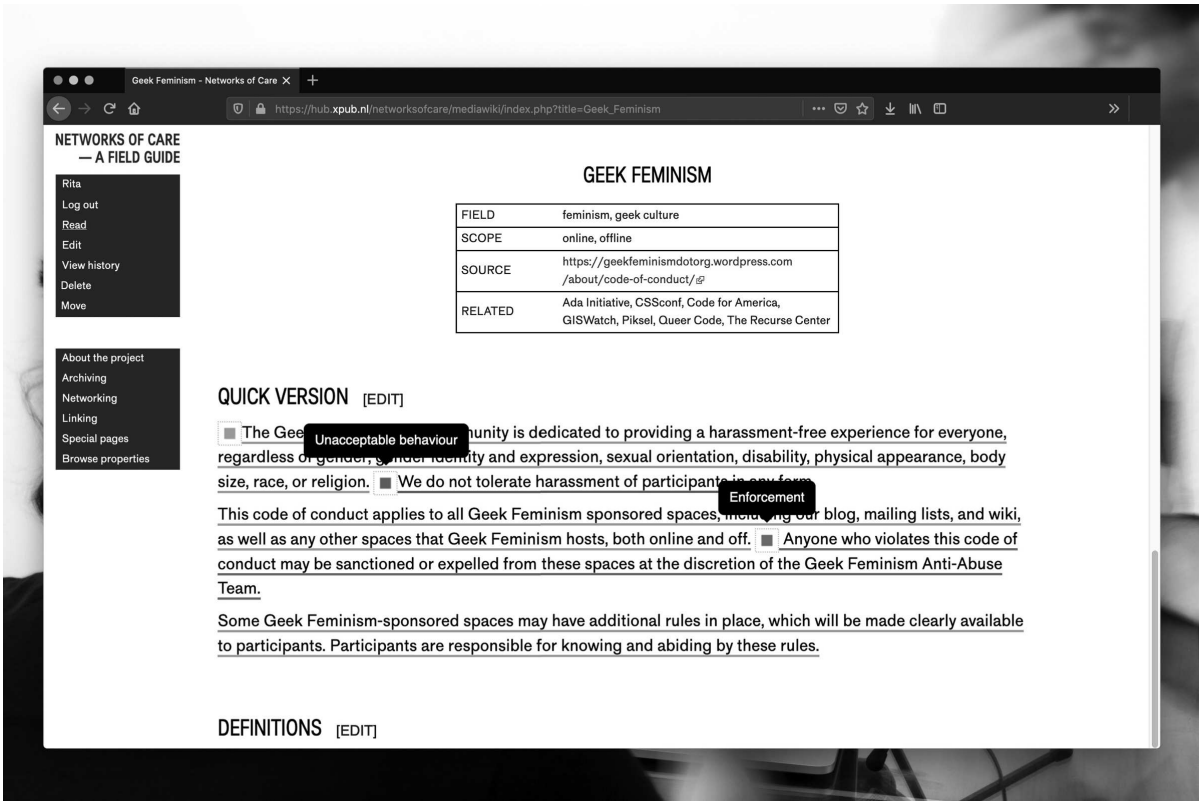
It's exciting to consider which gestures may contribute to increasing autonomy and cooperation in digital platforms, and whether Codes of Conduct can be useful to reduce hate and improve interactions, or even desirable. Let's explore the networks of care generated together!

Networks of Care — A Field Guide

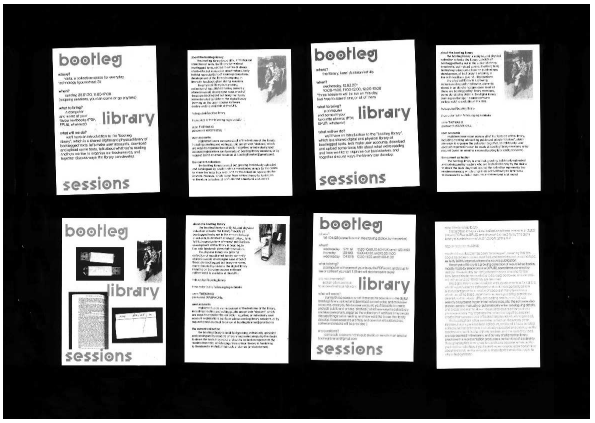




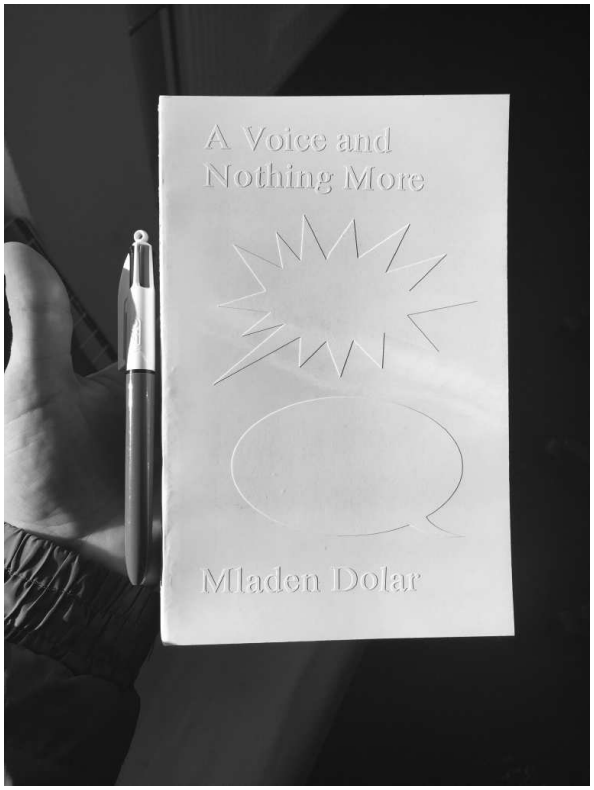




bootleg library session at Onomatopee Projects, Eindhoven, March 2020



A6 cards used for bootleg library session invitations, 2019-2020



A bootlegged book

The physical library at the Library, Karel Doormanhof 45, February 2020

the bootleg library

Simon Browne

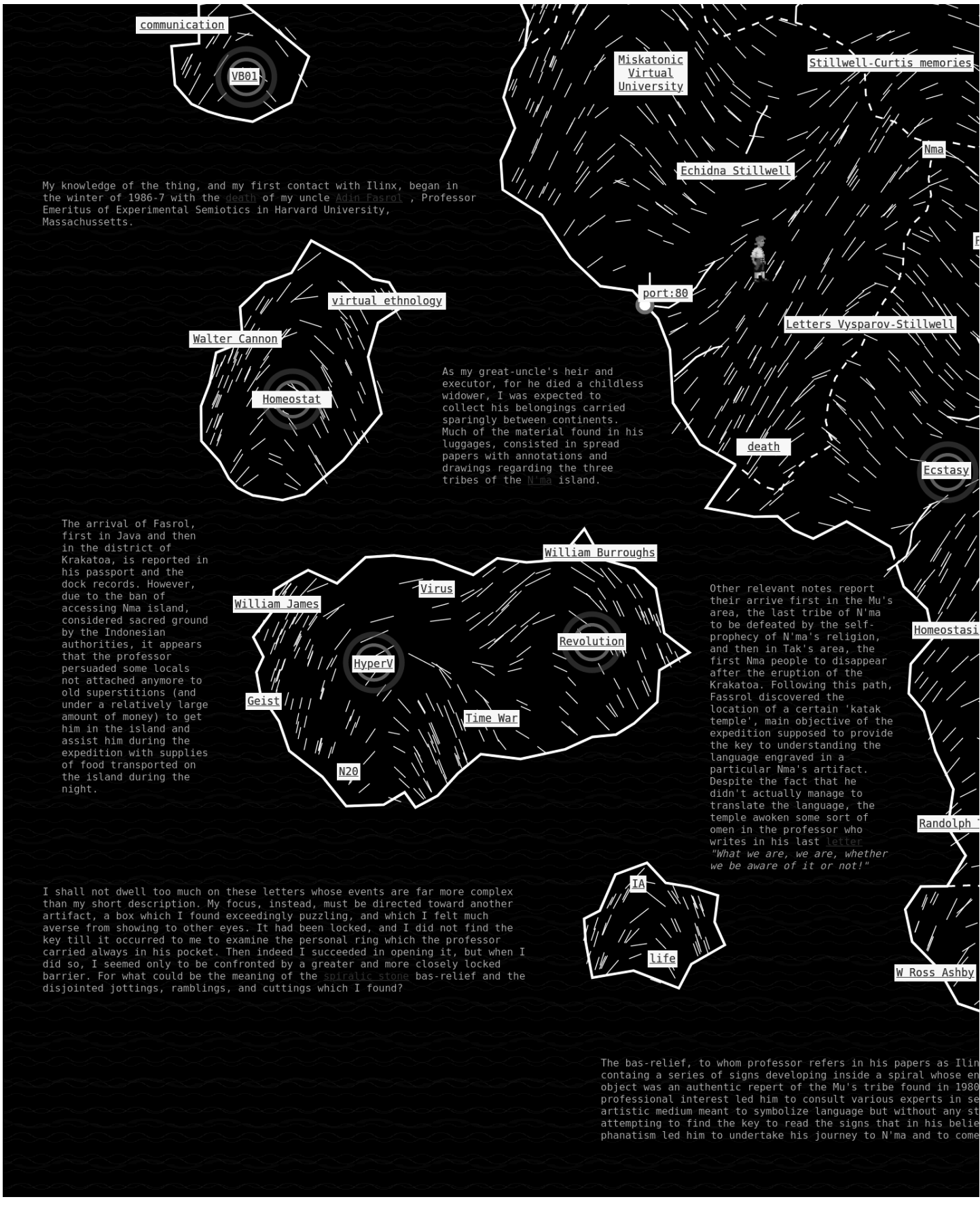
The "bootleg library" is a particular, situated social infrastructure. It operates from the understanding that the library is a collection; a collection of the texts contained within it, and of the readers collected around them. A reciprocal, self-reflexive relationship between the texts and the readers produces sociability. A bootleg is a homage, an unauthorised copy of a source publication; bootlegging is a strategy by which texts acquire diversity, resisting singularity and representing readers.

A physical, travelling collection stored in a former wine box, a digital collection on a self-hosted server, and moments when readers come together create the conditions for producing texts; by bootlegging, uploading, editing, meeting in small rooms, in small groups, and annotating the collection.

Tasks of the Contingent Librarian, a text written, edited and performed together, comprises an index of tasks (e.g. bootlegging, reading/writing, amateuring, making it public/keeping it private, etc.) defined through the particular activities of the bootleg library. This text is published in several different forms, printed and digital, including a hyperlinked version on this website. Although the way they are written or read may vary, each text bears resemblance to the others; "originals" and "copies" alike.

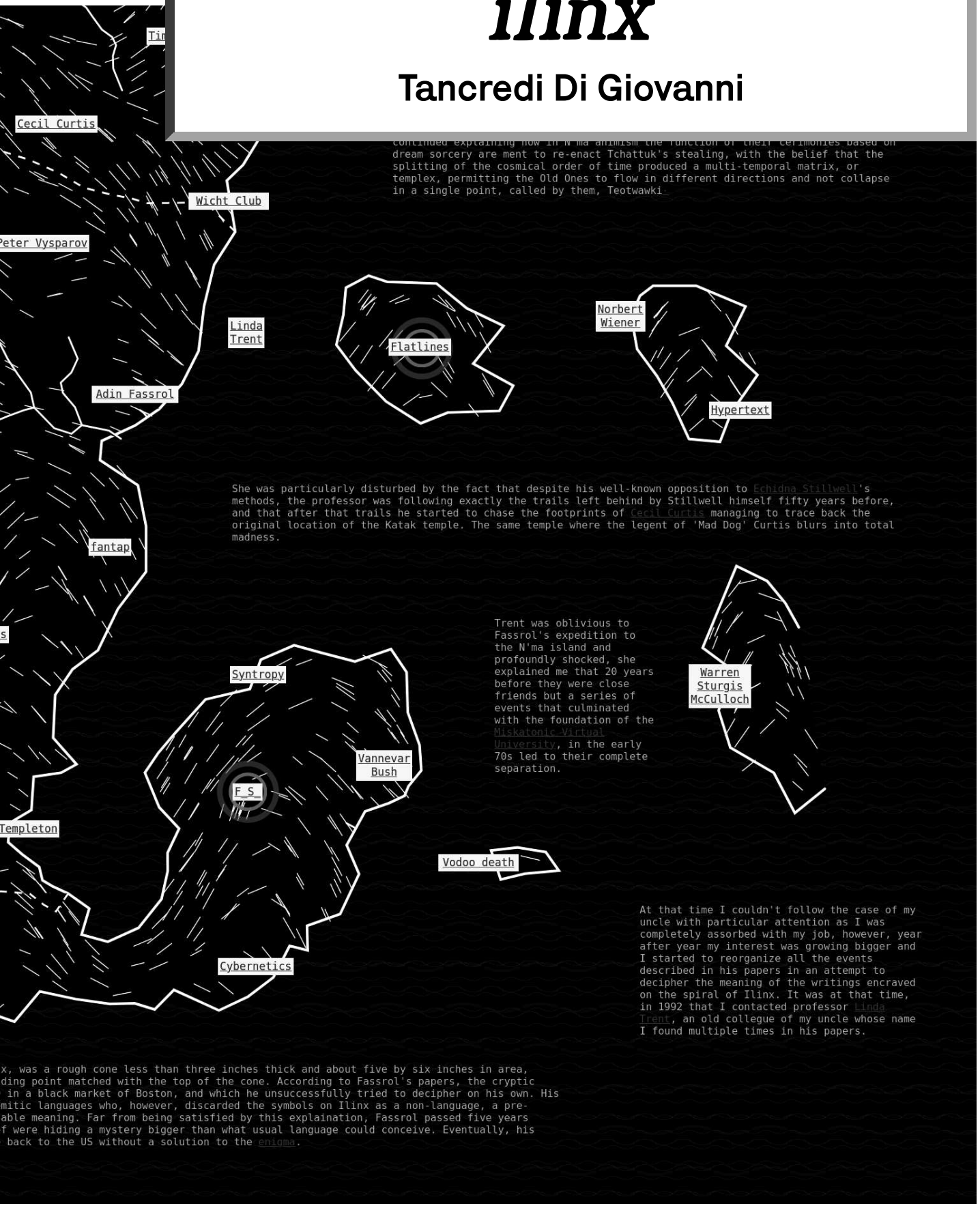
hub.xpub.nl/bootleglibrary
Tasks of the Contingent Librarian
Library of Contingencies*

[Simon Browne, the bootleg library, 2020. Rotterdam]. This work has been generously supported by the Ian Potter Cultural Trust. Special thanks and gratitude to the XPUB staff and students, the Piet Zwart Institute, Onomatopee Projects, de Appel and Varia.


communication
VB01
Miskatonic Virtual University
Stillwell-Curtis memories
Nma
Echidna Stillwell
My knowledge of the thing, and my first contact with Ilinx, began in the winter of 1986-7 with the death of my uncle Adin Fasrol , Professor Emeritus of Experimental Semiotics in Harvard University, Massachussetts.
port:80
virtual ethnology
Walter Cannon
Homeostat
Letters Vysparov-Stillwell
As my great-uncle's heir and executor, for he died a childless widower, I was expected to collect his belongings carried sparingly between continents. Much of the material found in his luggages, consisted in spread papers with annotations and drawings regarding the three tribes of the N'ma island.
death
Ecstasy
The arrival of Fasrol, first in Java and then in the district of Krakatoa, is reported in his passport and the dock records. However, due to the ban of accessing Nma island, considered sacred ground by the Indonesian authorities, it appears that the professor persuaded some locals not attached anymore to old superstitions (and under a relatively large amount of money) to get him in the island and assist him during the expedition with supplies of food transported on the island during the night.
William Burroughs
Virus
William James
Revolution
HyperV
Geist
Time War
N20
Homeostasi
Other relevant notes report their arrive first in the Mu's area, the last tribe of N'ma to be defeated by the self-prophecy of N'ma's religion, and then in Tak's area, the first Nma people to disappear after the eruption of the Krakatoa. Following this path, Fassrol discovered the location of a certain 'katak temple', main objective of the expedition supposed to provide the key to understanding the language engraved in a particular Nma's artifact. Despite the fact that he didn't actually manage to translate the language, the temple awoken some sort of omen in the professor who writes in his last letter "What we are, we are, whether we be aware of it or not!"
Randolph
IA
life
W Ross Ashby
I shall not dwell too much on these letters whose events are far more complex than my short description. My focus, instead, must be directed toward another artifact, a box which I found exceedingly puzzling, and which I felt much averse from showing to other eyes. It had been locked, and I did not find the key till it occurred to me to examine the personal ring which the professor carried always in his pocket. Then indeed I succeeded in opening it, but when I did so, I seemed only to be confronted by a greater and more closely locked barrier. For what could be the meaning of the spiralic stone bas-relief and the disjointed jottings, ramblings, and cuttings which I found?
The bas-relief, to whom professor refers in his papers as Ilin
containg a series of signs developing inside a spiral whose en
object was an authentic repert of the Mu's tribe found in 1980
professional interest led him to consult various experts in se
artistic medium meant to symbolize language but without any st
attempting to find the key to read the signs that in his belie
phanatism led him to undertake his journey to N'ma and to come

ilinx

Tancredi Di Giovanni



continued explaining how in N'ma animism the function of their ceremonies based on dream sorcery are ment to re-enact Tchattuk's stealing, with the belief that the splitting of the cosmical order of time produced a multi-temporal matrix, or templex, permitting the Old Ones to flow in different directions and not collapse in a single point, called by them, Teotwawki

She was particularly disturbed by the fact that despite his well-known opposition to Echidna Stillwell's methods, the professor was following exactly the trails left behind by Stillwell himself fifty years before, and that after that trails he started to chase the footprints of Cecil Curtis managing to trace back the original location of the Katak temple. The same temple where the legent of 'Mad Dog' Curtis blurs into total madness.

Trent was oblivious to Fassrol's expedition to the N'ma island and profoundly shocked, she explained me that 20 years before they were close friends but a series of events that culminated with the foundation of the Miskatonic Virtual University, in the early 70s led to their complete separation.

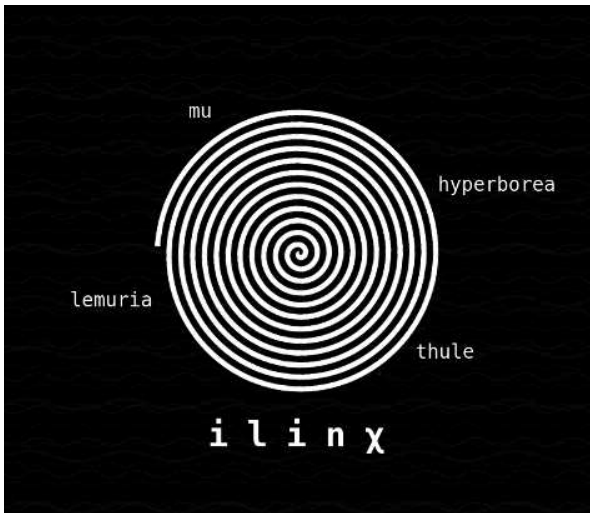
At that time I couldn't follow the case of my uncle with particular attention as I was completely assorbed with my job, however, year after year my interest was growing bigger and I started to reorganize all the events described in his papers in an attempt to decipher the meaning of the writings encraved on the spiral of Ilinx. It was at that time, in 1992 that I contacted professor Linda Trent, an old collegue of my uncle whose name I found multiple times in his papers.

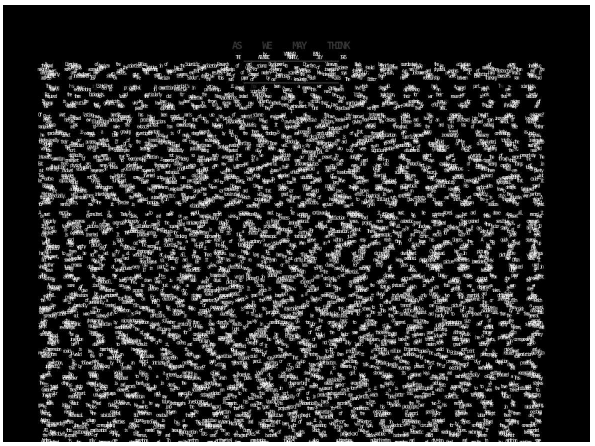
x, was a rough cone less than three inches thick and about five by six inches in area, ding point matched with the top of the cone. According to Fassrol's papers, the cryptic in a black market of Boston, and which he unsuccessfully tried to decipher on his own. His mitic languages who, however, discarded the symbols on Ilinx as a non-language, a pre- able meaning. Far from being satisfied by this explaination, Fassrol passed five years f were hiding a mystery bigger than what usual language could conceive. Eventually, his back to the US without a solution to the enigma.

The project *ilinx* is an online experiment that explores the relationship between computation and humans as a phenomenal world extending the existential search for knowledge.

The research around the project was done through reading, writing and re-editing of texts and software, theory and fiction. These formed a collection of materials to be interconnected with each other, creating a map and navigating through it as the work progressed.

The result is an explorable diary and labyrinth where humans and machines, texts and codes melt together taking the shape of an hypertextual theory-fiction.





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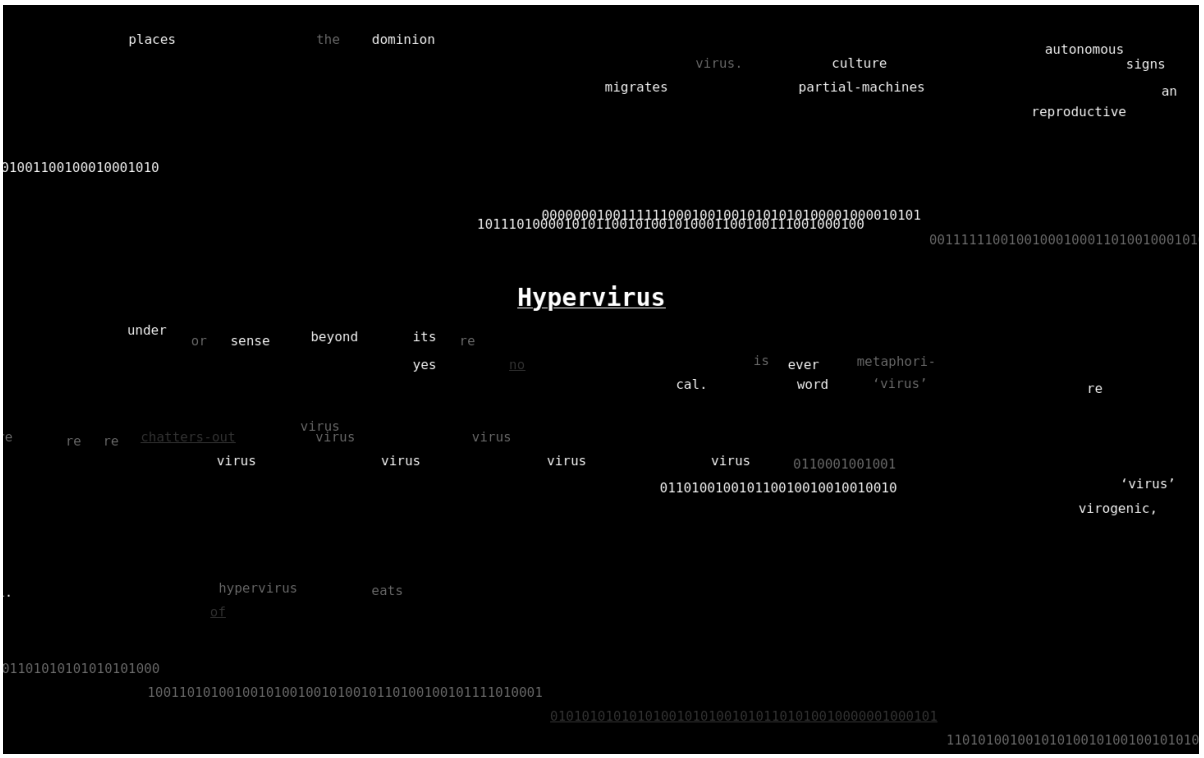

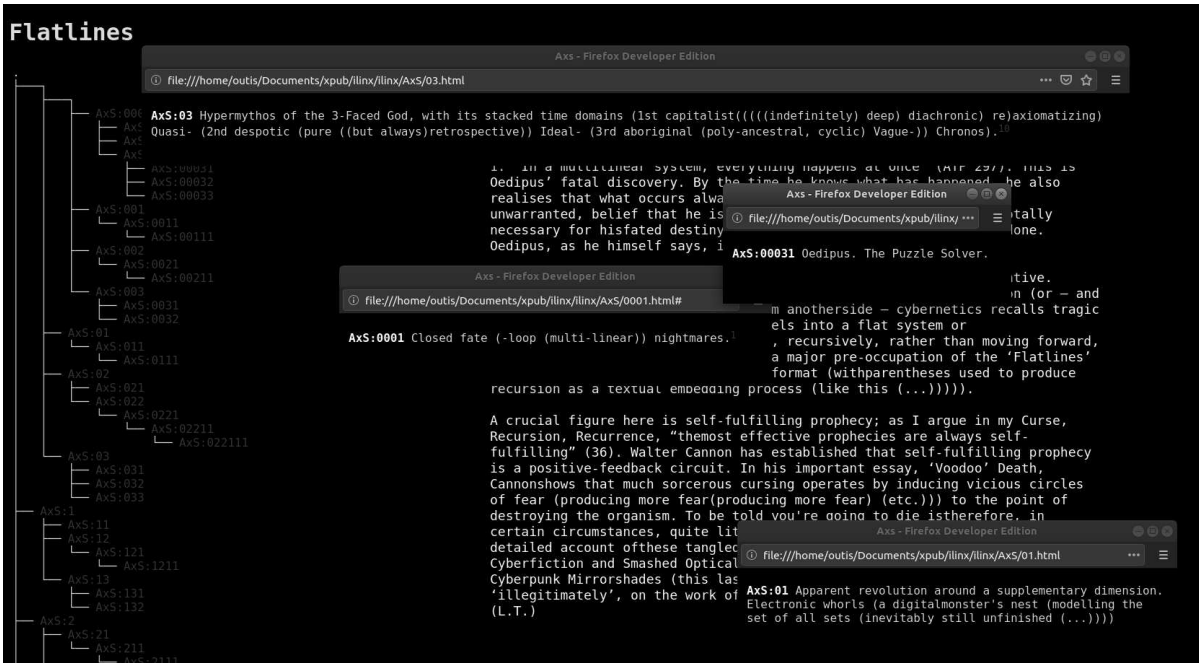

Theses

Cartographies Of Invisibility

A Reflection On The Potential Of Maps And Diagrams As Socio-political Communication Tools

Paloma García García

Introduction

Maps are not exact representations of reality, even though they are often presented as such. Neutrality does not exist in the production of maps, nor does it exist in their use; they are persuasive narrative elements with a strong communication purpose. Therefore, cartographies and maps have frequently been used as instruments of power and domination. They define the territory, draw its borders and resources, and consolidate the power of economic blocks. Societies have been shaped through maps, converting their citizens into victims of a representation that defines where and how they have to live. Cartographies are strongly related to technical and reliable knowledge, and the realities represented in maps are normally considered true, but their scientific objectivity should be questioned, as well as their intentions (Mesquita, 2016).

In the hands of capitalism and powerful institutions, maps have been utilised as an oppressive mechanism. They played a crucial role in the history of colonialism, when they were used to order and dominate the colonised. Furthermore, maps are considered an institutionalised practice that implies legitimisation of territories. Indigenous communities developed their own cartographies to put themselves in the maps and to defend their lands and rights. “More indigenous territory has been claimed by maps than by guns.” (Nietschmann, 1994). Indigenous cartography started to reverse map representations visualising their resistance and claims. Maps were converted into a vital inspiration for non-hegemonic worldviews and emancipatory practices.

Fig. 0.2: Indigenous map, Cempoala, Mexico.[2]

Critical approaches to cartographies – deconstructing traditional maps and diagrams – have been explored by artists, architects, designers and activists in the post-colonial era. In the 1990s Nancy Peluso introduced the term "counter-cartographies" in her examination of forest resource mapping in Kalimantan ("whose woods are those?"). This project envisioned the effort of marginalised groups to contest land-use state maps that had long undermined their interest in these resources (Lin, 2010). Where official maps were blank, counter-maps told very different stories: fighting geopolitical power structures, exposing relations of domination over (and exploitation of) territory, and revealing networks of power and dominance.

Among the many kinds of critical mapping, this thesis focuses on counter-mapping actions, defining these as "any effort that fundamentally questions the assumptions or biases of cartographic conventions, that challenges predominant power effects of mapping, or that engages in mapping in ways that upset power relations" (Harris and Hazen, 2005). The counter-map rethinks the ontology of cartography, breaking the standards of geographic representation and visual communication. The counter-map becomes a disobedient portrayal, in which its own form and representation tell inconvenient stories that challenge the status quo. It is a free act of deconstruction of space and social phenomena, for which the protagonists allow themselves to pervert the most traditional conventions (Rekacewicz, 2019). The objective of counter-mapping is to suggest an alternative epistemology, rooted in social theory rather than in scientific positivism (Harley, 1989).

Drawings, maps and diagrams have been essential elements for me to think and to communicate with others. They are effective mechanisms to discover connections, and to visualise and raise awareness about hidden realities. Today, in a digital and globalised era, there is an urgency to question existing communication tools and find new effective strategies to engage with society. It is precisely because of the popularisation and accessibility of maps and diagrams that these are powerful tools for socio-political communication. There is a need for developing "science with people" rather than for people, especially in those fields characterised by "irreducible uncertainties and ethical complexities" (Funtowicz and Ravetz, 1993). Following the process of creating counter-maps, this thesis aims to address three main questions: what are the conceptual principles of counter-maps that make them different from traditional cartography? What is the power of participatory mapping in their production process? And how can we design post-digital dissemination strategies in counter-mapping?

Fig. 0.3: Pedro Lasch's *Latino/a America*, 2003.[3]

Chapter 1: Fundaments of counter-cartographies: the rule is that there are no rules

Counter-maps fight against impositions and conventions in cartographic map-making. They are documents which freely envision realities that are missed or misrepresented in "official" cartographies, finding new forms and codes to challenge these. This chapter is a reflection on how the basis of cartographic and visual representation is deconstructed by critical maps reformulating their fundaments. Counter-maps question geographical variables, providing an alternative view of the world and its representation. Furthermore, they democratise semiotic fundaments in visual language, and finally, they break the isolation of cartography as an independent discipline, thus opening a hybrid transversal area to explore through counter-mapping.

Deconstructing geographic authenticity

Mapping a territory implies an act of reinterpretation and reflection. "Map design can be thought of as mind design; the way a map is designed will influence the views of the world it stimulates or inhibits" (Holmes, 2004). Traditionally, the world map has been represented with a series of pre-established rules and protocols where the north is always up, and the most convenient projection is the Mercator world map. Nevertheless, the fact that we put the north at the top of the map and Europe in the middle is a result of the economic dominance of Western Europe after 1500. Noticing this representation means subverting the hegemonic, Eurocentric view of the world (Mesquita, 2016). A map does not have a privileged direction in space. After all, the Earth's surface has no up or down, and no geographical centre. (Turnbull and Watson, 1993).

Every projection of the Earth's sphere in flat representations implies a distortion. Therefore, no representation is any better than another, but merely a different set of translation codes and strong conventions from which it is sometimes difficult to escape. "Having been labelled 'colonial', 'evil', and 'false', the Mercator map is a monstrosity that just won't go away." (Prater, 2016). In 1876, the British writer Lewis Carroll wrote his poem *The Hunting of the Snark* which questioned the usefulness of the Mercator map, determining that the "perfect map" would be an absolute white document which encourages a completely free understanding of the space to represent.

"'What's the good of Mercator's North Poles and Equators, / Tropics, Zones, and Meridian Lines?' / So the Bellman would cry: and the crew would reply / 'They are merely conventional signs! / 'Other maps are such shapes, with their islands and capes! / But we've got our brave Captain to thank / (So the crew would protest) 'that he's bought us the best – / A perfect and absolute blank!'" (Carroll, 1876)

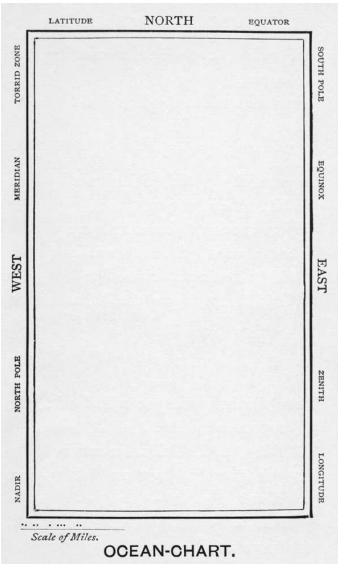

Fig. 1.1: Lewis Carroll, *Ocean-Chart*.[4]

The use of geographical alteration as a tool to strengthen the messages communicated in maps was also explored by the artist Joaquin Torres. In 1943, he published his work *América Invertida* which envisions Latin America upside down, reverting the traditional mindset by repositioning the south as the new north, under the slogan: "Our north is the south". The resource is simple, and the effect is powerful. This act of counter-mapping was more than a mere rebellious impulse. It generated a new imaginary of South America and claimed a new position for Latin American art, previously considered "art from the south" and growing in the shadow of northern artistic practices produced in the United States. *América Invertida* created a fair idea of Latin America's position in the world, not according to how the rest of the world positioned it but according to its own criteria.

Maps tend to draw the territory materialising its limits with lines. "A line is a curious concept. It indicates real or imagined partitions sometimes drawn to indicate imposed borders, timelines, ancestry, walls, and property." (Cobb, 2015). Counter-maps release the linkage of the limits to physical realities or geopolitical authenticity, assigning the cartographer the capacity of interpreting, reshaping, or imagining their limits. An early sketch of experimental cartography is *The Surrealist Map of the World* (1929) which questions the preconceived idea that lines and edges define territory.

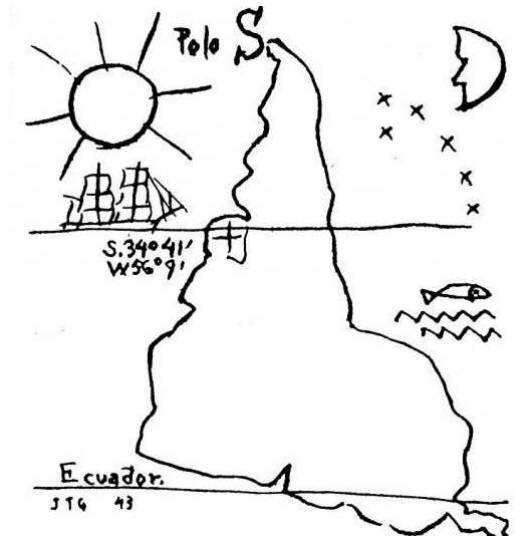

Fig. 1.2: Joaquín Torres, *América Invertida*.

Countries are reallotted sizes according to their importance to the overall Surrealist project (McCarthy, 2014). This representation deconstructs cartographic representation in three main directions: First, the Equator is not a straight line but an organic transversal path dismantling conventional mapping references. Second, England and The United States all but disappear (except Alaska), and the size of the islands in the southern Pacific is exaggerated – this may be related to the fact that they were believed to be the most capable of disrupting the rationalist hegemony of Europe (Wood, 2010). And third, the Pacific rather than the Atlantic occupies the centre of the drawing, thus banishing Europe and its ethnocentrism.

In recent counter-cartographies, world representation has also been frequently reinvented following the strategies of these pioneering examples. In 2008, the self-considered counter-cartographer Lize Mogel developed her work *Mappa Mundi* in which she reorders the world map based on the connection between places, their histories, and processes of globalisation. It represents improbable connections on the globe between the North Pole, San Francisco, the Panama Canal, the Northwest Passage, and ship-breaking sites in Pakistan, India, Bangladesh and China – finding links among these locations through international world fairs instead of geographical connections. *Mappa Mundi* was an exercise to visualise and represent hidden configurations that escape the hard edges of geographic borders.

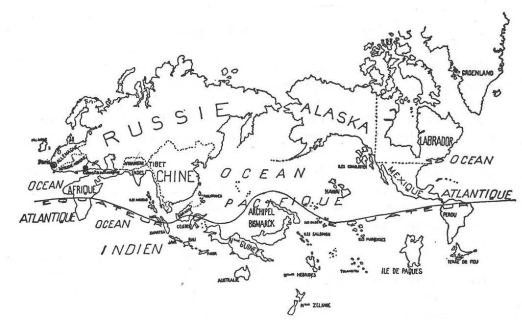

Fig. 1.3: *The Surrealist Map of the World*, 1929.

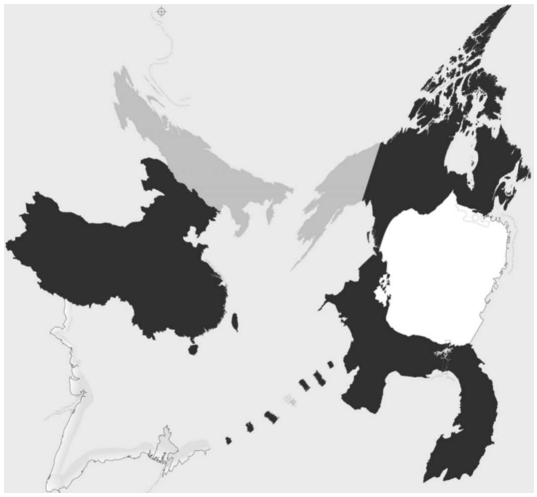

Fig. 1.4: Lize Mogel, *Mappa Mundi*, 2008.

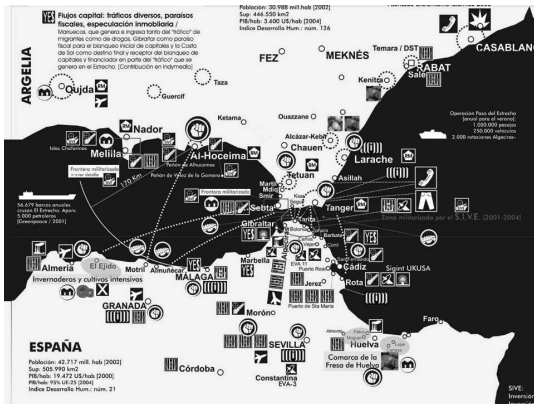

Fig. 1.5: Pablo de Soto, *Cartography of the Straits of Gibraltar*, 2004.[5]

The experimental Spanish architect Pablo de Soto created in his project *Cartography of the Straits of Gibraltar* an alternative understanding of the Spanish-Moroccan border region. In this project, the border is not an abstract geopolitical line but an increasingly complicated, contested space. The inversely oriented (north at the bottom) map highlights connections between southern Spain and northern Morocco to show a single region. These connections visualise the flows of immigrants, phone calls, products, etc. These flows are the inputs to reshape the very border into a border region creating insubordinate geographies. Doing so depicts and helps produce a different kind of edge than the crisp, abstract lines in a traditional atlas (Counter-Cartographies Collective, Dalton and Mason, 2012).

Based on the strategies extracted from all these precedents in map-making, we can state that the purely geographical variable of cartographies can be denied in counter-maps to amplify social, political or economic realities. The Polish-American scholar Alfred Korzybski promulgates this in his best-known dictum "the map is not the territory": counter-maps are not accurate representations of territory, but documents that generate alternative realities and produce new spaces. They are a dialogue between the imaginary and the real world. The map is a pale representation of the way we perceive the world. At the same time, geography brings here before us what is outside with clarity and accuracy (Ketchum, 2011) – a counter-map is a reflection on the world, no matter how faithfully or accurate, through some other person's imaginative and interpretative act.

Towards visual democracy: rebuilding mapping grammars

Visual language plays a crucial role in mapping communication processes, building bridges between technique and understanding. The mathematician René Thom stated that visual codes are notoriously unstable, too imprecise to communicate knowledge with certainty. Visual images are not constructed using a given set of rules (Drucker, 2014). Still, this instability and the lack of pre-established regulations, allow map-makers to create proper and unique grammars. These are converted not just in a communicational element but into in the identity and personality of a community, considering the creation of democratic visual elements as an act of counter-mapping itself.

At the beginning of the 20th century, the German physician Fritz Kahn was a pioneer in the demystification of complex scientific ideas through innovative infographic grammar. Kahn found a language to visualise human body activity, decades before data visualisation and digital representation. He developed infographics that decoded medical jargon. Kahn created a diagram titled *Man as an Industrial Palace*, cut open to show cogs and pulleys, workers fuelling energy, meters gauging reactions, in order to explain how our bodies function. His representations are anatomic cartographies that provide an alternative view of the human body and popularise specialised knowledge. As the art critic Steven Heller writes: "After seeing the connections Kahn had made, it may be impossible to look at the human body or any similar composite structure in quite the same way again".

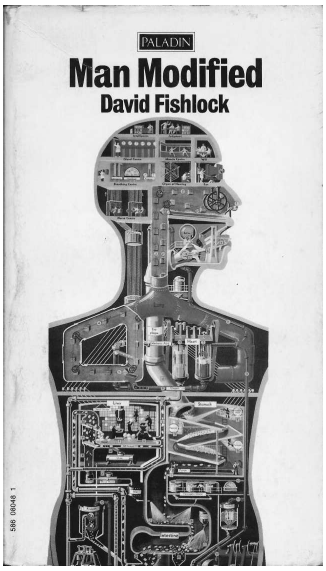

Fig. 1.6: Fritz Kahn, *Der Mensch als Industriepalast* (Man as an Industrial Palace), 1926.

After the First World War, the philosopher and sociologist Otto Neurath created the *Isotypes* as part of the social-democratic experiment known as Red Vienna. The *Isotypes* were a tool to communicate visually in a simple way: the cartographical outcome of the philosophy of "Gemeinschaft-Gesellschaft", which aimed to bring community and society together. This system made data legible and accessible to non-specialised mass audiences (Vossoughian, 2010). Its role was crucial in raising awareness about the First World War. During the War, Neurath became director of the Museum of War Economy in Leipzig, which aimed to educate based on visual information. In 1924, Neurath initiated the development of the Museum of Society and Economy in Vienna, an institution for public education and social intelligence through visual displays. He was thus reinventing general graphic representation, creating both the space to share it with people and the proper codes to express this knowledge. Neither Kahn nor Neurath were visual designers: both were scientists, yet both fought to achieve innovative and democratic visual systems with social and popular value.

In the recent production of counter-cartographies, contemporary graphic codes have been constantly reinvented. For example, by the French duo Bureau d'Études, who generated for their book *An Atlas of Agendas* a specific pictographic grammar for visualising political and social conflicts. They created new visual symbols in the margins of globalised conventions. This grammar of invisible realities envisions actions such as mass surveillance systems, food contamination, human experiments, etc., and drafts connections among these in their widely disseminated world map diagram.

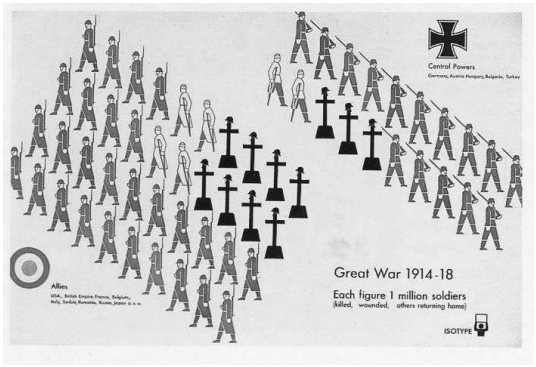

Fig. 1.7: Otto Neurath, *Isotypes*.

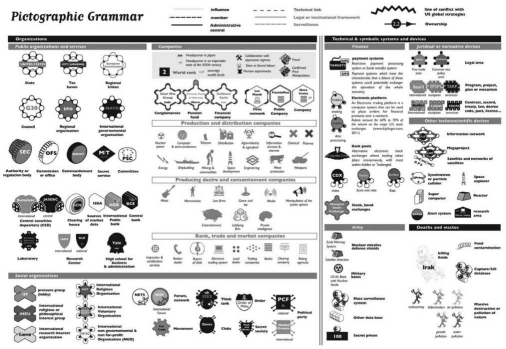

Fig. 1.8: Bureau d'Études, *Pictographic Grammar* for the world map.

In recent years, the Argentinian counter-cartographer duo *Iconoclasistas* have been working on the improvement of pictographic grammars to integrate into their critical narrations and collective mapping. They have built dynamic visual collections for community mapping in South America, in order to have a pictographic language that is continuously being updated. They have introduced collective working as a democratic tool to create ethical visual codes based on self-representation. The design and activation of an arsenal of visual resources (icons, pictograms, graphic and cartographic devices) establish a work platform that encourages the remembrance, exchange and signalling of themes. Iconoclasistas have based the graphic and visual support of their maps upon a strategy known as the "pictogramación", defined as clear and schematic images that inform, signal and allow complex readings on various topics. They are built with drawings that represent emblematic situations and cases, making it possible to establish links, identify key figures, review practices, and make visible articulated forms of organisation and territorial transformation.

Cartographic hybridisation

Experimental practices in map-making were born at the intersection of several disciplines working together in the production of cartographic content. Counter-cartographies expand the disciplines that are present in map-making, aiming to build a hybrid and inclusive practice. They revert the isolated nature of cartographic representation and fight against monopolistic control of cartographies. Mapping impulses result from a convergence of several shifts in the way we think about cartography, representation and space. The challenge for counter-cartographers is to find a multidisciplinary space to work between psychology, geography, architecture, art, design, politics, technology and

sociology.

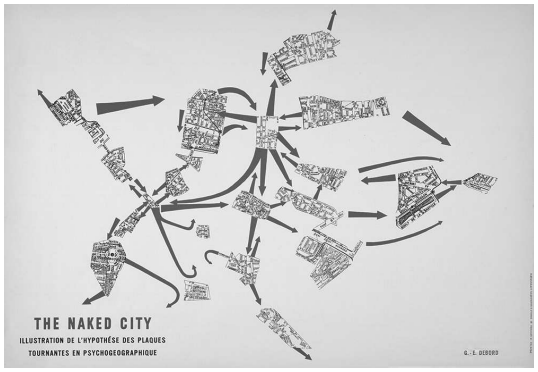

Fig. 1.9: Guy Debord's *The Naked City*, 1958.[6]

After the Second World War, the French Situationist theorist Guy Debord introduced the term "psychogeography" as the intersection of psychology and geography. The representation of the territory was understood as a phenomenon based on perceptions and intuition rather than calculation. The Situationists were a shifting group of artist-intellectual-activists who would have rejected this description and were active in Europe between 1957 and 1972. They thought of what they were doing as "a revolutionary program… to confront the ideological totality of the Western world" (Wood, 2010). They were making cartographies for themselves, maximising the experiences that a person can have while walking without a destination in the city (a method known as "dérive", which can be translated as "drift"). Situationist cartographers had to devise a form to capture the city's psychological and social, as well as spatial, layout. The crux of a counter-map is not its representation of an actual, precise, or correct layout – the "real" maze, the "naked" city – but rather its representation of an imaginary relation to the complexities we inhabit (Morris and Voyce, 2015).

Ever since the Avant-Garde, Dadaist and Surrealist movements, cartographic culture and art have been strongly connected as an area of exploration through maps. The British Cartographic Society once proposed that there should be two definitions of cartography, "one for professional cartographers and the other for the public at large." A definition "for use in communication with the general public" would be: "Cartography is the art, science and technology of making maps", while the definition for "practising cartographers" would be: "Cartography is the science and technology of analysing and interpreting geographic relationships, and communicating the results by means of maps." (Harley, 1989). The word "art" disappears when the definition refers to scientific or technical approaches, but is an indispensable element when cartographies are used as elements to engage with people.

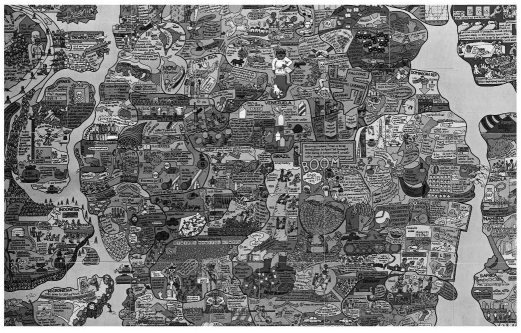

Fig. 1.10: Öyvind Fahlström, *World Map*.

The transformation of cartography by practices of art activism over the past decades has made it possible to explore alternative models outside of the academic context and beyond purely scientific activities (Mesquita, 2016). Öyvind Fahlström and Mark Lombardi are undoubtedly precursors for today's counter-maps. Fahlström used methods from popular culture to critique and question cultural assumptions about finance, power structures and their representations (Watson, 2009). In 1972 he published his *World Map*, which challenges austerity in maps and visualises the instability of imperial power disputed between the United States and the Soviet Union. The activist nature of counter-cartographies reinforces the message: "This is the world you live in even though you may not see this" (Berwick, 2010). The American Neo-Conceptual artist Mark Lombardi also challenges the process of map-making, melting it with artistic and activistic practices. He has drawn hundreds of diagrams that visualise global political and economic networks of power. In the 1990s his worked focused on documented flows of information in political, economic and corporate power, showing data and connections in a network of links. His work's narrative structures achieve a perfect equilibrium between art, counter-mapping and politics.

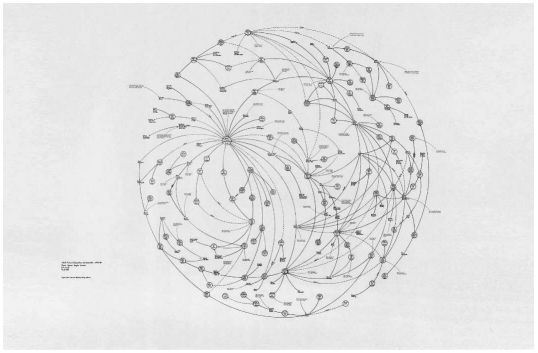

Fig. 1.11: Mark Lombardi, *Chicago Outfit and Satellite Regimes*.

Fig. 1.12: Christian Nold, *Greenwich Emotion Map*.[7]

The number of disciplines that can be intersected in the field of experimental mapping is as diverse as our mind can imagine. In recent experimental mapping, the scholar Christian Nold works on bio-mapping that illustrates the potential of mixing geographical technologies with biometric sensors, and helps communities create their own emotional maps (Perkins, 2007) – a collection of maps resulting from personal reflection between us, the environment and the citizens. As the data Journalist Mona Chalabi postulates: "It's important that the visualisation itself reflects the subject matter and not just numbers". Because there's no such thing as emotionless data visualisation (Luv and Radburn, 2018).

The task of the geographer is to alert us to what is directly in front of us, while the task of the experimental geographer – an amalgam of scientist, artist, and explorer – is to do so in a manner that deploys aesthetics, ambiguity, poetry, and a dash of empiricism (Scott, 2011). These crossroads between disciplines and languages have no standards to follow. Counter-maps are associated with several branches of knowledge and, at the same time, to any of these. Their multidisciplinary position frames counter-mapping in an area where the rules are still to be written.

Chapter 2: The power of co-mapping: legitimate, connected and autonomous counter-cartographers

"The critical or radical mapping approach is not only denouncing but also to act on the ground" (Rekacewicz, 2019). Crowdsourcing processes of map-making are opportunities to interchange knowledge; moments where cartographers and readers can go beyond their roles and acquire new positions re-designing hierarchies and structures. It's not just the map which is the focus, but the mapping environment as a whole (a process, not a product) (Crampton, 2001). The process of collective mapping allows us to share and create reliable knowledge, establish relationships, and produce new autonomies.

Legitimate collaboration

Participatory practices play a fundamental role in the process of making counter-maps. They bring together distributed knowledge in a visual object representing a large number of voices and beliefs. The map is the transversal tool that generates support to legitimise all this variety of points of view of participants. For every official map there are two, five, twenty possible counter-maps (McCarthy, 2014). The necessity of participatory cartographies to achieve cartographic justice does not imply that maps have to include all viewpoints regarding space, but that many different maps coming from many different (ideological, geographical, social) places can and must co-exist (Blazquez, 2018).

In 2004, the American journalist James Surowiecki explained in his book *The Wisdom of Crowds* how the many are smarter than the few, and how collective wisdom shapes business, economies, societies and nations. Surowiecki argues that the assumption that, in order to solve social problems, we have to find the right expert individual who has the solution, is a mistake and is quite costly. Therefore, we should stop hunting for specialists and ask the crowd instead. Communities do not need to be led by exceptionally intelligent people in order to be smart. Even if most of the people within a group are not particularly well-informed, technical or rational, they can still reach a collectively wise decision. Counter-maps based on participatory processes of creation are more reliable, honest, and negotiated than cartographies developed by small teams. "The development of participatory counter-cartographies that involve the subjectivities of all those subaltern subjects who are less likely to be represented on maps is an opportunity to achieve cartographic justice" (Blazquez, 2018).

Fig. 2.1: Amnesty International and Forensic Architecture (FA), *The Bombing of Rafah*, crowdsourced map, 2015.[8]

Participation in the production of collective counter-cartographies is a voluntary act that implies an honest response of participation. The acronym VGI, coined by Goodchild, means Volunteered Geographic Information and refers to the creation of geospatial content collected and generated by non-professionals using mapping systems and creating a geospatial database (Caquard, 2014). This system is considered "the eyes on the ground" because even though the tools used do not have to be professional or scientific, the data collected includes unique local knowledge. This is an assertive method of collecting geospatial information, as opposed to the authoritative method employed by government agencies and private industry. The contributions that participants make to the map can have different natures; all of them are a legitimate input to the creation of crowdsourced cartography. You can directly enrich a map, editing the

base content and adding your own information. However, you can also contribute by sharing information, so that other participants can translate this into the map, or with an indirect interaction providing feedback based on specific knowledge local to the elements that are already represented.

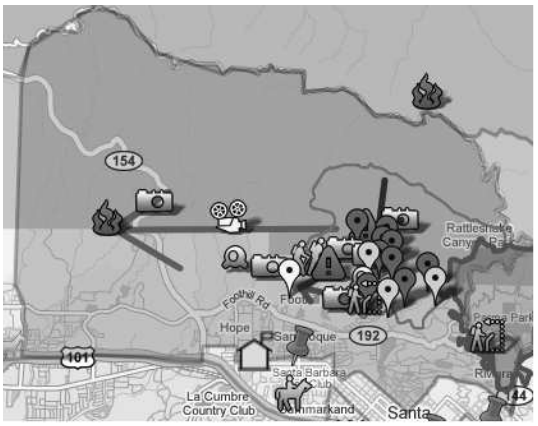

Fig. 2.2: Collaborative map of the Jesusita Fire in California, 2009.

Crowdsourced maps are elements for and by citizens who participate in the production of these maps, stimulated by a wide range of motivations such as idealism, local needs, or humanitarian reasons. One of the first motivations in the elaboration of crowdsourced mapping was "crisis mapping", as we can see in the maps developed using Google My Maps after the Jesusita Fire in California in 2009, or the Ushahidi collaborative mapping platform in Port-au-Prince after the Haiti earthquake in 2010 (Caquard, 2014). This process of participatory mapping is a method to re-activate public agency in urban and social conflicts and to recognise the agency of users. "Community mapping legitimises a diversity of authors and images by altering technical and access barriers" (Parker, 2006).

Connecting values of co-mapping

The mapping process itself enacts a different form of knowledge production, which in turn produces new social relations and geographies. These experiences highlight the importance of collaboration, trust, and careful consideration of the social context and ethics of mapping research. It's not only about producing new maps, but also about creating new forms of social organisation (Counter Cartographies Collective, Dalton and Mason, 2012). The process of how participants work together, negotiate, and make agreements regarding issues of place and representation, is as important as the map itself (Parker, 2006). The participatory production of maps is a social tool to generate citizen engagement and to establish links among map-makers. Workshops and map-making sessions are understood as laboratories and transdisciplinary spaces where negotiation and local empowerment are values to be developed through direct contact with participants in an ongoing dialogue toward reaching a common goal. Social theory is also connected to articulate the relation between social process and spatial structure – that is, how social forces become manifest in geographies, and how geography is constitutive of social relations (Dear, 2011).

A significantly successful tactic in collective counter-cartographies is to specifically focus on those maps that stress the importance of mapping local spaces by local people (Aberley 1993, in Kitchin, Dodge and Perkins, 2011). Among the many types of community maps, there is one collection that been particularly relevant in building links between communities through mapping: parish maps. Some of the earliest widespread community maps in the UK were parish maps, an initiative promoted by the charity Common Ground in 1985. The Parish Map Project was presented as an ongoing initiative encouraging local people to map what their own community valued, thus supporting local distinction. The mapping process was seen as being at once aesthetic and political, encouraging active participation in map-making – with the process, in theory, bringing together local communities to hold their own ground (Perkins, 2007). More than 2000 communities engaged in the production of local maps, which introduced a wide variety of topics on which to discuss, make decisions and fight to improve conditions at the local level.

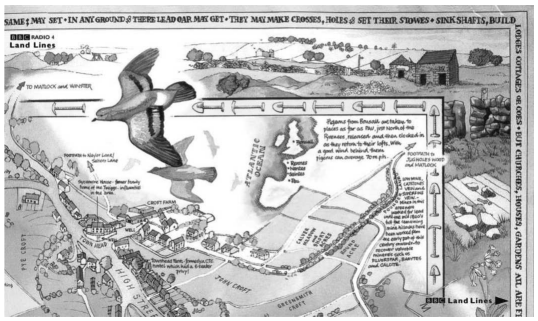

Fig. 2.3: *Bonsall Parish Map* excerpt.[9]

There are substantial knowledge gaps between audiences with different degrees of specialisation. It is precisely here that participatory mapping comes into value as a mechanism to build knowledge bridges. In 2013, Teddy Cruz and Fonna Forman developed the project "The Medellín Diagram" that triggered participatory democratic practices and collaborative urbanism. The goal of this project was to facilitate co-production of the city from the bottom up. One output of the project was *The Diagram*. However, the most enriching aspect was that collective mapping was used as a tool to connect people, to reconfigure social and economic relations, and to facilitate a re-thinking of public management. Collaborative mapping techniques were used as an urban pedagogical strategy that directly connects top-down and bottom-bottom knowledge through new interfaces and resources (Cruz and Forman, 2019).

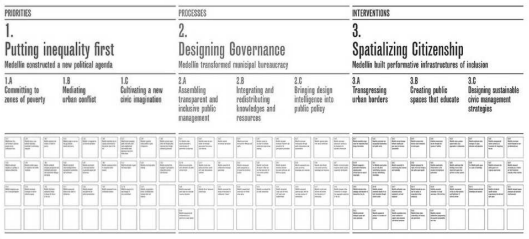

Fig. 2.4: Teddy Cruz and Fonna Forman, *The Medellín Diagram*, 2016.[10]

Although collaborative practices work better in local spheres where direct contact is exceptionally efficient, digital technologies allow us to connect people all over the world in seconds in the process of map-making. These instant connections have many beneficial consequences in counter-map-making. The Geographic Information System (GIS) is a compelling technology, but it also plays a role of social connector when it is further transformed into The Public Participatory GIS (PPGIS), leading to a network of community members who have power over GIS technologies. In 2004, Steve Coast created Open Street Maps (OSM), based on the successful Wikipedia model, where any user can edit any part of the map; OSM became a global digital platform to share geographic knowledge around the world and connect map-makers. OpenStreetMap is only as good as the contributions of the people who edit it. "Mapping parties" are digital social actions in OSM presented as events to get together to do some mapping, socialise, and chat about making a free map of the world and to strengthen digital or physical connections among contributors.

Become an occasional cartographer: the autonomous map-maker

All human beings can map: people have natural mapping abilities (Perkins 2007), although we generally don't tend to consider ourselves cartographers. Counter-mapping opens up cartography to non-expertise map-makers. It asks participants to share their experience, their values, and their vision about a particular place (Parker, 2006). Tools, techniques, and technologies of cartography formerly restricted to "specialists", are socialised and reinvented. They are shared freely and thus expanded to non-conventional uses. (Mesquita, 2016). As the artist and cartographer Denis Wood argues in the documentary *This Is Not an Atlas* (2019), anyone can control their own maps:

"Are the people who make Google maps cartographers in any way, shape or form? I can't believe they are. I think they are computer guys writing code. If they are controlling the maps, you can control your maps."

Since the 20th century, the term "neogeography" has been used to define the popularisations of digital tools and the autonomous practice of occasional cartographers, who have been creating collaborative maps and developing their own terms by combining elements of existing toolsets. This practice is strongly connected with the production of counter-mapping, where the cartographer is encouraged to develop their personal and self-governing practice. Autonomous movements influence counter-mapping production. We can associate autonomous counter-cartographers with Autonomist Marxism, which emphasises the resistance and autonomy of the working class. In this theory, the working class is the active agent, while capital is reactive. Autonomous cartography helps produce new,

alternative practices, knowledge, and subjects (Dalton and Mason, 2012).

In 2016, the Bourj Al Shamali community decided to become autonomous cartographers, creating a collaborative map using a balloon mapping technique. At Bourj Al Shamali, a Palestinian refugee camp situated in Lebanon, the settlement's 23,000 current inhabitants have never enjoyed the privilege of owning a detailed map of their 135,000 m² grounds. The simplicity of the process also allows many people to participate. "This is not to say maps of the area do not exist, they do, only they are classified documents protected by local authorities and international organizations" (Savage, 2016). In Lebanon, refugee camps are considered areas too controversial to be openly mapped, so their distribution on Google Earth or physical maps is limited or inexistent; residents are deprived of control of their own geospatial reality. The creation of this counter-map allows them to have geographical consciousness of social and urban problems and to fight for improvements in the area.

Fig. 2.5: Balloon mapping guide for Bourj Al Shamali.[11]

The elaboration of crowdsourced counter-maps has encouraged the production of manuals and guides of map-making, but how can autonomous cartographers be trained without compromising their autonomy? Such guides do not define a path to follow as a counter-cartographer, but instead break barriers facing counter-cartography. The guide *Manual of Collective Mapping* designed by counter-cartographers Iconoclasistas, removes the fear of producing maps, breaks technical barriers, and provides inspirational references. The difference between mapping manuals and counter-mapping manuals is that the mapping guides define solutions, while the counter-guides launch unanswered questions – putting the reader in a critical and richer position when facing the development of a map. "The co-production of critical knowledge generates rebellious bodies. Thought about rebellious practices gives value and power to those practices" (Malo, 2007, in Dalton and Mason, 2012).

Chapter 3: Activation and propagation of counter-maps in our post-digital era: giving society its knowledge back!

Counter-maps are only as good as the degree to which they are circulated. A map that no one sees is barely a map. Visibility and circulation are crucial aspects of map dissemination. The popularisation of mapping tools facilitates accessibility to readers, but also generates an overwhelmingly mapped society. This requires a re-design of communication strategies that combine activation, engagement, and readability – as the artist and geographer Trevor Paglen explains in an interview with Michael Dear (2009):

"We don't spend enough time worrying about opening up spaces for communication. And we have to learn how to communicate beyond expert circles. Some ideas are complex and complicated and difficult to explain, but too many times, we let our language and jargon get in the way. If I can't explain something to my dad then I feel I'm not trying hard enough."

The communication of counter-maps is not academic navel-gazing, but something much more important: an effort to reach a broader audience. Since geographic concepts are so important to the public sphere, old geographic concepts have to be rethought, revolutionised, and in some cases simply exploded to make way for new thinking. (Lewis and Wigen, in Ketchum, 2011).

Counter-narratives

Counter-maps go beyond the visual object (Mesquita, 2016). They are not query documents, but mechanisms to stimulate free and critical thinking. Like reading a graphic novel, the main goal of literary cartography – as synthesised by Moretti (1999) – is to rearrange the components of a narrative in an unexpected way, in order to bring to the surface hidden configurations, which in turn explore non-linear and experimental narratives. There is not a correct way to read counter-maps; the reader closes the circle of production. For the cartographer and map historian John B. Harley, maps are socially constructed texts, and as such, can be interpreted in multiple ways, can have contradictions and fragmentations, and cannot be traced back to a sovereign mind or subject (Crampton, 2001). Counter-maps employ ambiguity – not to muddle matters, but on the contrary, as a means to activate their public(s) and to provoke new ways of seeing and actively participating in the world (Scott, 2011).

In counter-cartographies, what is represented on the map is as important as what is not, to be generated by the reader's imagination. The positive reaction appears to be based on the ability of the map to engage audiences instinctively and emotionally (Moss and Irving, 2018). The deconstruction of conventionalism urges us to read between the lines of the map (Harley, 1989) and to extract our personal interpretation, developing a deeper connection and engagement with the cartography. "A good map stimulates the imaginations of users who invent road trips, battles, and love stories as they follow the long spindly highway lines and pools of blue water" (Berwick, 2010).

In the 1970s, the Czech geographer A. Koláčný established a basis upon which maps are no longer understood as mere information display elements, but instead as a communication system that requires its own narrative rules and rhetorical figures (Mesa del Castillo, 2012). This statement, known as the "map communication model", can be understood as a starting point to open up toward alternative narrative strategies and elements in map-making processes. It considers the abilities and psychological process of the reader and user as communication variables. However,

it is desynchronised when we talk about counter-mapping.

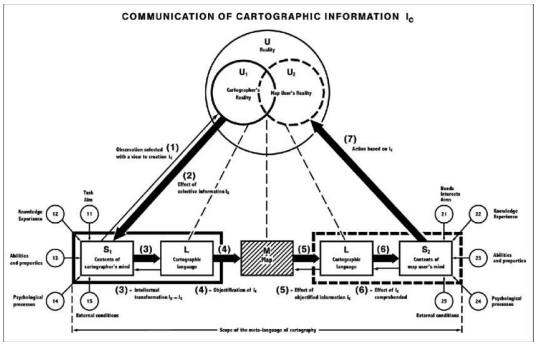

Fig. 3.1: Koláčný's map communication model.

Koláčný defines a clear separation between the cartographer's and the user's reality in the communication process. Nevertheless, the perception of the user's and the cartographer's truth can be understood as a unique entity in counter-maps, or strongly connected through a process of sharing knowledge and goals, enlarging the common ground between user and cartographer. The map is presented in Koláčný's model in the middle of the communication process, as a punctual information exchange element. In counter-cartography, the map is a continuous component that is always supporting the process of communication and is evolving in different phases. Finally, the method of communication is presented as a unidirectional circle where the cartographer transmits information to the user through a particular meta-language. However, this interchange of information is transformed into a bidirectional process in counter-cartographies, where the cartographer gives information to the user and vice versa.

Format crisis: it's time to explore the output

Publishing anything has never been so easy and fast as now. We can post a map online with just one click in a few seconds. As a result, we have more maps distributed on the internet than we can process in our lives. Online tools are powerful, but publishing a map digitally is not enough to make it work. On the other hand, physical publications have traditionally been the primary medium of maps and cartography dissemination, but the efficiency of physical publications is deeply questioned nowadays. How then can we enrich our outputs to make our counter-maps effective and fruitful? There is a considerable urgency to reinvent the format and discover new mediums for knowledge amplification. We should keep asking, in our map projects: "What form(at), or medium, most fittingly represents my subject? What will particular formats allow, or not allow, me to convey?" (Scott, 2011). The most exciting tools for map amplification live somewhere sparsely explored between online and real space.

The audience becomes a remarkably dynamic entity in counter-mapping communication processes. It is worth asking how we can use this human presence and the body's capabilities to intensify the dissemination of counter-maps. The artist Lize Mogel, in her project *Performing Infrastructure* (part of a larger project titled *Walking the Watershed*) explores the relationship between New York City and distant places that supply the city's water, and makes this exploration visible to citizens. Mogel studied opportunities for embodying diagrams in a workshop, in which participants represented the infrastructural water system. Arms and hands became connections of the diagram; bodies became nodes, and clothes were converted into diagram variables. This lively display, based on socio-spatial human relations, activates the public to magnify the message behind the map: to envision water as a social connector.

Fig. 3.2: Lize Mogel, performance of New York City water supply.

Fig. 3.3: Anti-eviction mural in San Francisco.

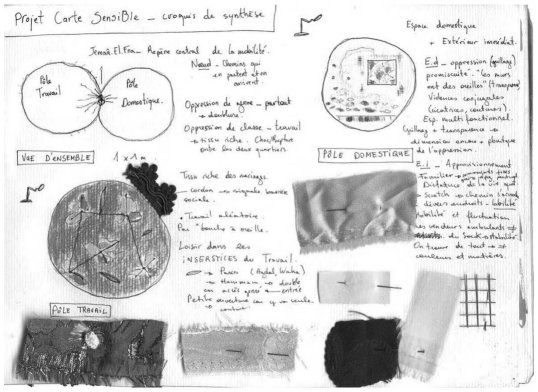

Fig. 3.4: Notes for creating textile maps in Marrakech, 2010.

The relation of cartographies and space is irrefutable in its representation, but maps are rarely thought of as spatial or urban elements. Is it possible to create spaces for counter-map amplification? In the project *Anti-Eviction House*, the Clarion Alley Mural Project teamed up with the local community (the central part of the project was based on the construction of digital maps) to paint a 20-foot large mural in San Francisco that rendered one of the digital maps. Space next to the mural became a meeting point to listen to each other and discuss. The mural became part of the city, an urban element to interact with, and which reinforced community links. The counter-map displayed space but also produced it.

"Cartography does not merely represent, but rather generates something that results from the involved persons' relation" (Olmedo, 2016). Cartographies tend to be elements perceived by our visual conception, but can we complement this to include new senses and strategies for cartographic communication? The project *Textile Maps* explores the introduction of tactile sensitivity in the production of geographical knowledge. This collective project, developed by a community of women in Morocco, visualises the relationship between the women of Sidi Yusf and places where they live and work. They created a collection of textile maps, mixing vernacular and academic knowledge in the work which they described as "post-representational" and which was presented as a research object in its own right. The map is created and read using tactile language. The mapmakers sew and embroider, and the readers touch and manipulate the map in order to translate it. Textile maps demand the involvement of the body in producing, perceiving, and understanding geographical knowledge, making the reader a dynamic and sensitive participant.

An open-access publication

The ambition of counter-maps is to spread, reveal, and visualise knowledge that is not regularly accessible by citizens. Therefore, their accessibility is a crucial point in their dissemination process. They contribute to public knowledge; not only in terms of making information available, but also making it readable and understandable, with open access as a fundamental principle.

Following this assumption, the project *This Land Is Our Land* (597 Acres) converted open data in open space in New York City. The goal of the project was to inform citizens about vacant property owned by the government in the city, encouraging them to open up these spaces to be used as public green spaces. First, the project fought to transform data about property owners in New York City into public and open information, because citizens deserved to have this information. Then, when the data was available in open online portals and maps, the project focused on making it even more accessible to people. To achieve this goal, signs and posters were installed on the fences of the empty plots, welcoming citizens to use these spaces that were already public (government ownership), though they simply didn't know this yet. This action resulted in a community-based control of physical space and more than 20 successful new public green spaces thanks to accessibility and visibility of information.

Maps are accessible when we can read the information that is on them, but does open access imply that we can also appropriate and reproduce their content? Media

(visual and information products) are, by default, subject to market and property logic, so technically and legally, they can be viewed but not shared. Counter-cartographies, where open and free access and reproduction can be helpful in the dissemination process, frequently use legal tools to permit this reproduction. Applying licenses such as Creative Commons or copyleft allows for a redefinition of the default copyright model. Understanding counter-maps as open documents is a powerful strategy to reach more people. The Argentinian duo Iconoclasistas describe their process of dissemination as follows:

"We shared our resources and practical experience on our website to not only set them free from barriers of private property but also economic, physical, and geographic restrictions. The website is multimedia support to spread and share the material we produce and to foster its appropriation through Creative Commons licenses. Resources uploaded to the web for reappropriation, reproduction and redefinition turn this virtual means into a collective tool through which hierarchies are dismantled and exchange is stimulated. In consequence, users become producers recurring to liberated production."

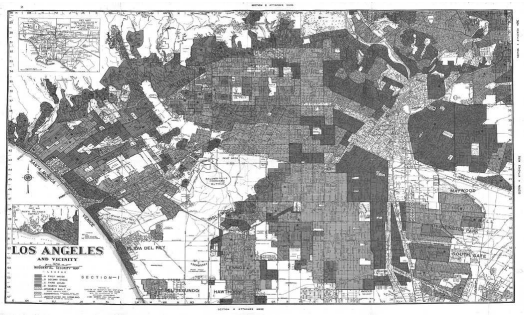

Fig. 3.5: Redlining map of Los Angeles, 1939.[12]

Nevertheless, the open nature of counter-mapping information and the encouragement of access, appropriation, and dissemination of maps can also imply risks. While many counter-maps have been successful in making a difference, good intentions can gravely backfire (Bliss, 2019). If a counter-map represents poverty or people at risk of exclusion, it is also outlining areas of vulnerability. This action can be beneficial for social and urban actions. Still, in the hands of banks or economic power structures, this data could be used to "redline" that district (hinder access to housing and loans to an area due to its socio-economic information) or any other exclusion. In 2016, the non-profit Greater London Authority (GLA) created a map that identifies and categorised "rough sleepers". Sensitive information such as the nationality, mental health and gender of individuals was collected and mapped. This data was used by many charities and agencies in order to support these people and identify emerging needs. However, the Home Office secretly acquired this information and used it to target non-U.K. homeless people and deport them, completely changing the goal of the map. Thus, accessibility of information in counter-maps implies an act of responsibility that allows access to information, but also guarantees the safety of what is being represented. Effective safety mechanisms include ensuring the accuracy of the data that is published, its anonymity, or the medium through which it is spread.

Social legacy: footprints of counter-maps

An effective counter-cartography leaves footprints throughout society which stay longer than the document itself. A counter-map that is forgotten as a visual element, but whose result is reflected in society, has fulfilled its social function and can be considered successful. We can draft three main strategies to disseminate the legacy of counter-maps in society and allow this legacy to remain in the long term: transforming maps into political actions, transforming maps into educational tools, and urban design improvements.

Counter-maps trigger calls for action and social movements that generate political pressure. These mobilisations, when heard by the right people, can unleash authentic political actions that effectively improve the quality of life of citizens. Even though counter-maps have often been considered a way of "governance without government", their power and effectiveness are significantly increased when their legal recognition is pursued, in an attempt to generate new laws, improved social allowances, or other social resources.

Education is one of the fundamental pillars of society. Maps and cartographies are commonly used in the education process. They are fruitful elements to teach how

we understand the space and the world. They are significant pieces in the constitution of our morals, thoughts, and standards. Counter-maps which achieve an educational role, become part of a reader's knowledge for a long time, not as an imposition but as a reflective motivation that invites us to think about divergent realities and how to approach them.

Maps and urban scenarios are strongly connected. Counter-maps are extraordinarily powerful and efficient elements for metropolitan revitalisation. Architects and urban designers play an essential role in the development and interpretation of counter-maps. Cartographies can become tools for identifying potential urban conflicts and drafting solutions, which architects and designers can match through design and strategic urban decisions. Good urban design listens to the people who will be using the design, in order to improve their life, their experience, and their perception of space – three crucial issues represented in counter-maps.

Conclusion

Since I started writing this thesis, I have become a counter-cartographer. There is no degree required, not even any technical capabilities, but only a high motivation to make social improvements and an exploratory attitude of new social and urban models. Mapping is intrinsically a political act that forces you to redefine realities and to understand and approach social phenomena. Being a counter-cartographer means looking for motivations around you, and setting a clear objective in which maps will become a useful element of social development.

As an architect, I am very familiar with the real estate market, and I have developed a particular interest in the social consequences of its current situation and potential variations. Furthermore, growing up in Europe, I have seen with great frustration how the economy and social rights were devoured by major crises with their origin in real estate speculation. The social consequences of this speculation can be pernicious to society if there is no awareness of its impact, such as gentrification, exclusion from the housing market, redlining, etc. – however, this does not appear on the "official" housing maps, that proudly show how house prices are increasing, thus apparently demonstrating that the economy is growing every day, and trying to frame the perfect moment to invest in the most valuable property. But are there sustainable housing alternatives outside the standardised housing model in Europe? How do people survive unstoppable house speculation?

These questions motivated me to start the project *Cartographies of Counter-Speculation* in parallel with this thesis. The project explores how maps can be useful tools to understand, visualise and empower social processes of developing alternative and experimental housing models in Rotterdam. From micro-economic maps that envision how to create sustainable monetary models, to sociocratic diagrams that show the human relations that communities manage in order to create their own structures, this project conveys a critical thought of those urban and social strategies that are at the margins of the huge phenomenon of real estate.

This thesis gave me the foundations of the process of creating counter-maps. Counter-cartographies are design elements in which you can make your own rules and your own new visual codes in order to keep them active and democratic. The process of map-making became a collection of different participatory techniques (meetings, map-making sessions, feedback, and peer-to-peer reviews) where knowledge of the population could be extracted, understood, and tracked – but also a process of looking for improvised map-makers that could complement and enrich the collection. A map is powerful when it becomes a useful and effective item, and when it circulates. Therefore, these maps, developed initially with communities within the city of Rotterdam, were translated into a collection of tactical cartographies, which can be understood as a strategic compilation of maps meant to reproduce, inspire or complement these alternative practices to real estate speculation in different cities where the housing market is being challenged.

"Cartographies of Counter-Speculation" is just one small contribution to this over-mapped Earth where everything we do is registered and tracked. Cartographies and maps are undoubtedly an essential part of our life. We have become familiar with them. Precisely because of this globalisation of maps, now is the right moment to work with them; they are effective, understandable and accessible. The world is changing, and the way we understand these changes is itself creating new realities. Mapping is part of this process: maps are products of the world, and they produce the world. Such changes demand a new manifesto – new ways of thinking, researching and creating maps (Kitchin, Dodge and Perkins, 2011). Our environment is already mapped, but are these maps the ones we want? Counter-cartographies are not only about representing the territory, but also about creating desired worlds. If a counter-cartography can trigger social progress, then the making of one more map in our already extensively mapped world has been a worthwhile endeavour.

Endnotes

1. This may be the first world map printed in Europe (1475). The world map in the *Rudimentum* visualises inhabited lands and pictures them as a circle surrounded by the ocean. The circular representation is divided by continents: the top half of the map represents Asia, the lower left Europe, the lower right Africa. Judea and Palestine occupy the centre of the circle representing the Holy Land.

2. Dating from between 1578 and 1586, the Cempoala map is part of the *Relaciones Geográficas* collection that represents Spanish-held territories in the Americas.

3. Appeared in *An Atlas of Radical Cartography* (Mogel and Bhagat, 2007). Through the distribution of this map and its unconventional location of the words "Latino/a" and "America" the artist aims to challenge "what 'America' means, and what it means to be 'American'." Source: artist's website.

4. The map is an ocean chart owned by the Bellman – one of the main characters in the book – that helps him and his fellow adventurers cross the ocean and arrive at a strange land. The absurdity of the map is that it only shows ocean, literally illustrating nothing, and therefore cannot be a very effective navigating tool.

5. This representation was developed by Pablo de Soto as part of the art/activist collective Hackitectura.

6. The Naked City represents the city of Paris from the eyes of the Situationist technique of "dérive" or drift, where connections are established based on the behaviour of a person walking aimlessly in a city.

7. Christian Nolde makes maps using the Google API to try to show the emotions people experience when they travel through a certain urban landscape. To do this, it uses GPS, galvanic skin response meters, recorders, mobile phones and digital cameras.

8. In 2014, after the kidnapping of an Israeli soldier by Hamas, the 2014 Gaza War resulted in four days of bombardments, during which more than two thousand homes were destroyed. Amnesty International and Forensic Architecture (FA) were denied entry into the Gaza strip. Therefore they relied on the collective intelligence of the people who were there to develop the collaborative map *The Bombing of Rafah*. They collected thousands of images and videos and reconstructed the bombing disaster linking all these images and videos through a virtual map.

9. "Produced, drawn, written and researched by villagers, the Bonsall Map is a celebration of our village's unique history, and a richly layered document, highlighting not only the topography of the parish, but, in a series of articles on the back, its geology, natural history, its past as a lead mining village, its businesses past and present including farming, buildings, pigeon racing, carnival and well dressing, and present-day facilities." Source: bonsallhistory.org.

10. In the last fifteen years, many Latin American cities have undergone progressive urban transformations – engaging violence, conflict and socio-economic inequality while rethinking public policy and urbanisation. The city of Medellín, Colombia, is a powerful example of a radically restructured civic domain. Medellín reimagined infrastructure, housing, and density, developing new forms of public management to mediate top-down development and bottom-up social organisation.

11. Balloon mapping was developed by Public Lab, an open network of community organisers, educators, technologists and researchers founded in 2010 as an open source, grassroots data-gathering and research initiative.

12. This map of Los Angeles ranks neighbourhoods by desirability, as determined by the Home Owners' Loan Corporation (HOLC). The scale from most to least desirable goes from green to blue to yellow to red. HOLC maps generally rated poorer or less white neighbourhoods as less desirable. This information, known as "redlining", was used by banks and powerful corporations to ban access to loans by certain people attempting to live in an area defined as "red".

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Tasks Of The Contingent Librarian

Simon Browne

The library is closed, the shelves are empty, the librarian has gone. All that is left is a set of index cards contained in a box. At the top of each card is a verb introducing the tasks performed within the space and duration of a particular, situated social infrastructure called the "bootleg library". The reverse includes references and images that illustrate each task.

This text was written with, by and for readers during library sessions. We wrote on cards by hand, we typed words in a collaborative writing environment. We wrote them together, humans and machines; texts were blended into a mix of keystrokes in changesets too complex, and dependencies too layered, to determine singular authorship. These texts were never objects, always processes.[1]

Participation from readers became a vital element in the practice of librarianship. The library grew, and we sustained it through conversation and correspondence. We wrote together in threads and strings; and so we created and maintained a space for publication. In the journey from private to public collection, texts were intermingled and rematerialised, gaining provenance and diversification through use. The readers are in the pages of the books, in the metadata of the library and on these cards, where traces of their presence remain.

This text will never be complete. It describes a particular, situated library, one that does not exist anymore, but resembles those that came before it and those that will succeed it. This set of cards is also a library, a collection organised into a structure that directs readers towards the interior, towards the texts it contains. This set is a book, a hyper-index, forever pointing outwards to other books, libraries, readers and writers. Text, library, book and index all come together in this particular material form to comprise a manual, a thing to be manipulated in the hands of readers.

Cards invite shuffling, re-organising, flipping over, distributing, annotating, laying out. An A6-sized card (like those used for the original publication of this thesis) fits comfortably into the palm of one's hand, and can be easily turned as it is gripped between the index finger and thumb.

Cards have two sides. Arranged on a table, only one side is visible, and proximity determines connections. Held in the hands and flipped like a book, new relationships between the verso and recto pages emerge. The reader becomes the writer anew, determining what to keep or discard, what to edit or leave as is; the author of the sequence, connections and hierarchy between tasks.

1. Barthes, R. (1987) "From Work to Text" in Barthes, R. and Heath, S. (ed.) *Image, Music, Text*. London: Fontana Press. ↩

acquiring/removing

see also administrating, finding texts, downloading

Many national libraries have acquisition programs in place with stringent, highly formalised procedures through which new texts enter the collection. Some countries require that an officially published book is donated to their national library by way of a system called “legal deposit”. Purchase of a commercial identifier such as an ISBN (International Standard Book Number) allows the book to be registered, so that other libraries that subsequently acquire the same text may share cataloguing details.

The library makes no such demands. Books are acquired through informal means, in ways that are not regulated or legislated. Anyone may remove or add texts to the library.

Image: ISBN barcode

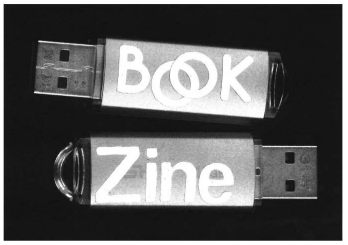
administrating

see also including/excluding, inter-depending, open-sourcing, trusting

An administrator has authority to make modifications to the infrastructure of the library. Every registered user of the library is also an “admin”. *With this responsibility, comes great power.* An admin may delete user accounts, or take down the entire library if they wish. But they can also make registered accounts for other users, and choose to bestow the same privileges, or not. The library is open.

Image: Characters representing read (r), write (w), and execute (x) permissions in UNIX and UNIX-like systems

amateuring

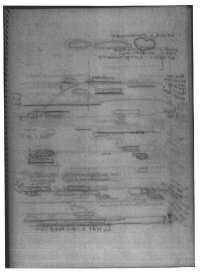


see also making public, professionalising, republishing

Amateur librarianship happens whenever texts are shared informally. An amateur (from French, meaning "one who loves, lover") acts out of love (rather than motivated by prestige, or money); there is not often a conscious decision to be an amateur *anything*. Instead, we often see the word "amateur" as a negation or lack of professionalism. A rising imperative emerges, for amateurs to take up the task of librarianship. The 19th-century model of the public library that spread throughout the U.K. and the U.S.A. was an exemplar of social democratic values. Such libraries are now under threat. So, sometimes in response, but often without thought of the legal consequences, amateur librarianship happens in small, quiet ways that are usually mundane: passing a USB drive around, emailing a link or a file. *I thought you should read this*.

Image: USB drives as libraries

annotating



see also *A note to the reader, glossing, producing texts, inter-depending

Marks left by readers are at times recognisable as annotation: underlines, asterisks and notes scribbled in the margins that all add something to the text. Taken a step further, annotation can include metadata (information about information), which is most commonly text that describes the author and subject, and bibliographic details needed for citation purposes. Collectively, these forms of annotation indicate the presence of readers, making them visible to each other. Annotation lives in close proximity to the text. When it is separated from the text, it becomes unfixed, losing its symbolic power to remind us that other readers have also been here.

Image: Tracing paper bearing carbon-copied annotations from *Marginal Conversations*, a workshop first held by Simon Browne, Paloma García and Artemis Gryllaki at Leeszaal Rotterdam West, 20 June 2019

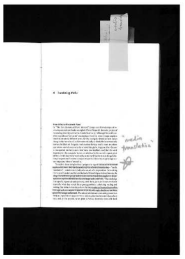
***A note to the reader**:*

This text has been written with the intention to be materialised in a very specific form; a set of A6-sized index cards, contained in a box. Please read it while holding the cards in your hands, shuffling and reordering them, making your own text as you read.

These cards list the tasks performed on the site of contingencies, the bootleg library. Tasks are described on the obverse, and related images and references are on the reverse.

being kind to the reader

see also bootlegging, cleaning up text, diversifying through use, multiplying form, republishing



While bootlegging makes a fairly faithful reproduction of a source publication, the degree of transformation is sometimes due to unintentional or uncontrollable factors, such as availability of the equipment and materials needed to make a close copy. At other times, more deliberate choices can be made concerning the transformed materiality of the bootleg.

Economy, efficiency, and readability are the main concerns when bootlegging texts for the library. Economy often dictates that materials that are at hand are used – in the case of printed books for example, this often means defaulting to certain choices with paper, printing methods and binding. An efficient workflow is not too time-consuming. Although the most important thing is to have the text by any means necessary, we read best what we read most, and certain typographic concerns may become vital to the readability of the text.

Being kind to the reader can involve adhering to typesetting conventions – including headers, footers and page numbers – should the book be photocopied and pages subsequently separated from the others. Most importantly, a reasonable line length and wide margins will allow the book to be made in a way that ensures a comfortable reading experience and provides space for annotation.

Image: A bootleg copy of *My Mother Was a Computer* by N. Katherine Hayles. The source PDF has been reimposed into a booklet, with reasonable line length (60-80 characters) and ample space for annotations

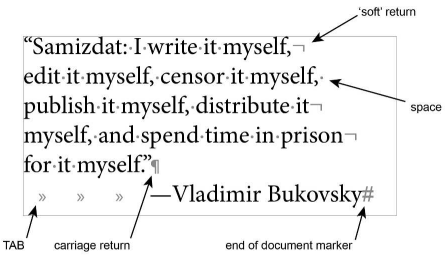
bootlegging

see also diversifying through use, multiplying form, republishing

Most people think of bootlegs as cheap knock-off products that masquerade as the real deal: bootleg cigarettes, designer-label clothes, not-quite-right imitations of Disney products, and the like. Bootlegging began during the prohibition era in the United States, with the practice of illegally distilling and distributing alcoholic beverages, often literally concealed in the leg of a boot while being transported. Run an image search on the keyword "bootleg" and you'll probably see all sorts of suspicious-looking products. But the way I want to speak of bootlegging is as a social act, a homage, and one that creates and celebrates a multiplicity of form. I'm referring in particular to the vibrant culture of music sharing in the 1970s that followed portable cassette tape recorders entering the market. These allowed fans to cheaply record live performances and share these recordings – also known as bootlegs.

Image: A Prohibition-era "bootlegger" concealing a flask of an illegally distributed alcoholic beverage in the leg of a boot

cleaning up text



see also being kind to the reader, editing, typing

A text found in the wild often comes with visible and invisible artefacts. The visible ones come from bad OCR, with strange characters popping up in place of the ones you expect, such as a 1 instead of an l. The bane of the bootlegger is most definitely the line break or "soft return", inserted by software that automatically breaks the line as you type. Screen-based formats such as EPUB don't have the notion of a page, and flow text according to window size.

You can either be methodical and remove each soft return manually, or use the powerful automated *find/replace all* option. A useful tactic is to *find* every instance of a full stop followed by a space where a line was intentionally broken by the human writer. Next, *replace* each full stop with an arbitrary but uncommon character, such as a dagger (†). Then, do another *find/replace* and remove every instance of a soft return and a space, and finally *replace* the uncommon character with a full stop, in one final *find/change* command. Another unwanted character that often appears is the hyphen, inserted where words break at the end of a line. Here the pruning of errant characters is trickier, and the best method is to *find* and remove each instance manually. Running *find/replace all* can often remove necessary hyphens, such as in time ranges (e.g. 9-5) and compound adjectives (e.g. inter-dependent).

Image: Hidden characters (e.g. tabs, spaces, carriage returns and "soft" returns)

consulting

see also administrating, making public, networking, uploading

The library is for all, and made by all. There is no singular embedded librarian, because everyone is a librarian, and the library is everywhere. I'm not interested in developing the "perfect" system in isolation and then dictating how it should be used, I'm interested in asking how people want to use systems, and developing them together. *Technical development is ongoing in line with feedback from bootleg library sessions*.

Image: bootleg library session at Onomatopee Projects, Eindhoven, as part of *Meeting Grounds*, 6 March 2020

digitising/printing

see also understanding texts, reprinting, republishing

Most people I know prefer to read off paper. The arguments for the printed text usually are about exhaustion, e.g. "I get tired reading from a screen", lack of retention, e.g. "It's proven that people remember things they read on paper better than on screen", and in the circles I tend to run in, a certain sentimentality pervades, nostalgia for the haptic experience that reading from printed books brings.

We expect acceleration from digital technologies. The cultural significance of new media is bolstered through remediality, which is its refashioning through the lens of old media.[1] Skeuomorphic design brings us the texture of paper on a screen. Hayles argues for intermediality: the interpretations between, and the coexistence of, all media, including printed and digital texts.[2]

Digital text is fraught with trauma, underpinned by the possibility of fragmentation. Text that is to the reader fully searchable and copy-pasteable is also text that threatens to come apart. Text that is less of an object, and more of a process, often not residing in any one place in a computer file system, assembled dynamically, "on-the-fly". Printed text, by contrast, reassures us by way of its indelibility.

Image: The physical bootleg library contained in a disused champagne crate, and the digital bootleg library running from a Raspberry Pi computer

1. Bolter, J. D. and Grusin, R. (2003) *Remediation: Understanding New Media*. 6th edition. Cambridge, Mass.: MIT Press. ↩
2. Hayles, N. K. (2005) *My Mother Was a Computer: Digital Subjects and Literary Texts*. Chicago / London: The University of Chicago Press. ↩

diversifying through use

see also bootlegging, being kind to the reader, multiplying form, republishing

Publications acquire difference through reproduction; sometimes intentionally, always circumstantially. A printed book always ends up in the hands of at least one reader. It is transported, pages are dog-eared and annotated, time weathers the paper and cracks the spine. Multiply this by many readers, and each printed copy starts to accumulate its own traces, losing resemblance to the rest of the edition and acquiring its own particular countenance and provenance through use.

1. Books are for use

Image: The first law of S. R. R. Rangathan's *5 Laws of Library Science*, 1931

downloading

see also acquiring/removing, finding texts, uploading

A reader who downloads and does not upload is a passive observer to the activities of the library. We prefer to be in the position of the downloader, due to the legal penalties for uploading and redistributing copyrighted texts, which are far more severe than those for downloading. However, the library will not grow if all we do is take. A library is a collection of shared texts, and sharing is facilitated by both uploading and downloading.

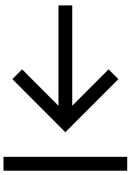
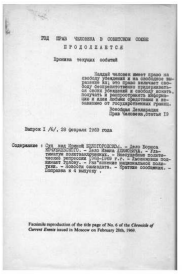


Image: A download symbol

editing

see also amateuring, multiplying form, republishing, rereferencing, typing, writing

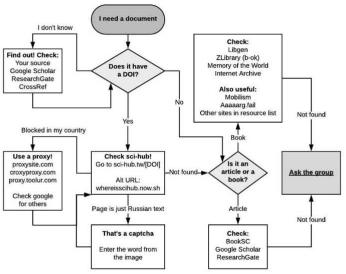


As soon as a reader edits a text, its materiality changes – whether unintentionally or through more intentional methods, such as republishing in a different format to make the text more accessible to a wider public. Samizdat publishers often considered themselves editors, or typists (rather than authors) due to the unwanted attention and risk that this credit would bring. As they reproduced texts by hand, a slippery form of authorship evolved through human error and also particular idiosyncratic preferences for a new phrase, approximate translation or text structure. Vladimir Bukovsky summarised the process of self-publishing as "Samizdat: I write it myself, edit it myself, censor it myself, publish it myself, distribute it myself, and spend time in prison for it myself." The responsibility these self-proclaimed editors took upon themselves by republishing dissident material bound them to the texts; entwined in their creation and distribution. When no writer wants to be an author, everyone becomes an editor.

Image: Facsimile of *A Chronicle of Current Events* (Russian: Хро́ника теку́щих собы́тий), the longest-running Samizdat publication (1968-1982)

finding texts

see also acquiring/removing, downloading, searching/browsing

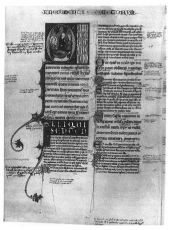


Most often, acquisition requests are as mundane as someone asking if the library has a particular text. A quick search online produces a digital file as a result. The provenance of these texts is buried in the file paths of the uploader's computer, and of the computers before it. Texts are acquired by any means necessary, through a social network, or through a digital network of so-called "shadow libraries" and groups of sympathetic readers. It's often surprising how fast an unknown fellow reader will respond to a request for a text via certain groups operating on social media websites. *Type F to follow this post.*

Image: Flowchart from Facebook group *Ask for PDFs from People with Institutional Access*

glossing

see also annotating, multiplying form, producing texts, writing



A glossary is a list of terms defined in relation to the specificity of the text. Glossaries aid reading comprehension, and also establish the presence of the readers. Glossing (from Late Latin *glossa*, "obsolete or foreign word") was a medieval technique of adding commentaries to the main text of illuminated manuscripts. Glossators would add small handwritten notes and illustrations in between the lines and in the margins. Reading between the lines opened the text up for various interpretations, and illustrations served as mnemonic aids to assist readers to recall information.[1]

The texts written on these cards constitute a glossary which defines the tasks of the Contingent Librarian.

Image: A glossed manuscript of a late-thirteenth-century Latin translation of a medical work by Hippocrates

1. Hobart, M. E. and Schiffman, Z. S. (1998) *Information Ages: Literacy, Numeracy, and the Computer Revolution*. Baltimore: Johns Hopkins University Press. ↩

human reading

see also skimming, technologising the word

"the word *read* means *to guess*"*

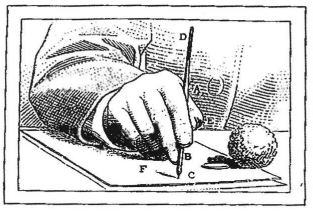
There are many different reasons why you might read something, but essentially, reading involves skimming (reading to get the main idea of a text) or scanning (looking for specific information in details). This often happens in tandem – skimming the catalogue to see what the interest of the library is, and then scanning to see if a particular text has been included – and has relations to other modes of information retrieval, e.g. browsing/searching.

In 1977, while facing a skeptical audience in a Q & A session broadcast live on Australian television, Marshall McLuhan argued "the word read means to guess – look it up in the big dictionary. Reading is an activity of rapid guessing because any word has so many meanings – including the word reading – that to select one in a context of other words requires very rapid guessing. That's why a good reader tends to be a very quick decision-maker." [1] This is very true of human reading, where multiple interpretations lead to various equivalent understandings of a text, but false when applied to machine reading, which only operates with predefined ways of interpreting text.

Image: A quote from Marshall McLuhan during a live television broadcast, 1977

1. McLuhan, M. (1977) *Acute & Abstruse Things Marshall McLuhan Said in Australia in 1977*. Available at https://mcluhangalaxy.wordpress.com/2013/06/18/acute-abstruse-things-marshall-mcluhan-said-in-australia-in-1977/ ↩

human writing



see also typing

Writing "by hand" is how we most often think of the act. The hand is symbolically connected to the act of writing, to the extent that we still use icons of the hand-held utensils to represent it graphically – a ballpoint pen, a pencil, even an old-fashioned quill and nib, all often associated with letter-writing. Slowly, this iconography is being replaced by another symbol; the keyboard, signalling the contemporary dominance of typography above writing.

Image: "Proper posture for writing with pen" [1]

1. Drucker, J. (1999) *The Alphabetic Labyrinth: The Letters in History and Imagination*. London: Thames & Hudson. ↩

including/excluding

see also making it public/keeping it private

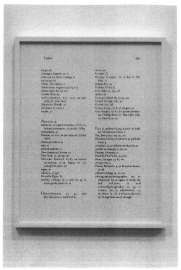
Inclusion and exclusion are not just processes that occur when books arrive in the library. They are recurring, procedural, practical actions executed throughout the library's lifetime. It comes down to the issue of space quite rapidly. With too many books, certain brutal decisions may have to be made to retain or dispose of the surplus.

The results of including and excluding are visible in the catalogue and classification system adopted by the library, defining its particular interests.

Inclusion also plays a part when considering how public or private the library is, and how its membership is formed. There are several layers of privilege (and accompanying responsibilities) that can be given, from anonymous guest, to registered user, to administrator. Users who have administrative privileges may add new users and bestow (or revoke) freedoms and responsibilities.

Image: A membership card for the Koninklijke Bibliotheek, the national library of the Netherlands

indexing



see also human reading, inter-depending, scanning

Most books contain an index. Most books are also indexed in some type of cataloguing system, to present the collection and inter-relationships between the texts contained within, and those outside of the library. This set of cards is an unbound index, which can be reshuffled, added to and reduced as the reader pleases. Reducing a text to an index opens it up for the reader to complete it as they read, drawing on what they have read before and creating a mental network of associations. A book is a hyper-index, forever pointing outwards to other books, libraries, readers and writers. *I use my index finger to trace over the text, moving down the page as my eyes scan for keywords.*

Image: Alejandro Cesarco, *Index*, exhibited at the gallery formerly known as Witte de With Contemporary, September 2019 – January 2020

inter-depending

see also diversifying through use, editing, multiplying form

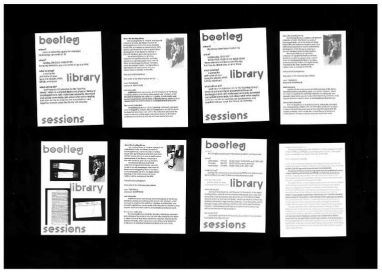
The library is a collection of texts and the readers collected around them. Nothing comes from nothing, everything comes from somewhere, something or someone. Authors are dependent on other texts, writers, and readers. I write this text using borrowed words. As a legal, economic and institutional construct,[1] authorship is problematic; current publishing models see texts as the intellectual property of authors possessed with "originality". This originality is a myth; each text is layered in dependencies.

Image: An author signing a book

1. Weinmayr, E. (2019) "Confronting Authorship, Constructing Practices (How Copyright is Destroying Collective Practice)" in Jefferies, J. and Kember, S. (eds.) *Whose Book Is it Anyway?: A View from Elsewhere on Publishing, Copyright and Creativity*. Open Book Publishers. doi:10.11647/OBP.0159 ↩

inviting

see also administrating, inter-depending, trusting

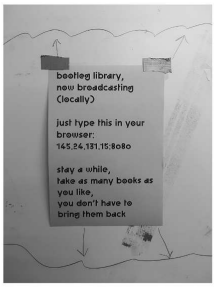


Invitations to join the library are made through private channels of communication: direct messages, personal emails with no-one cc'd or bcc'd, private conversations held in intimate spaces, small printed cards passed by hand. Everyone is welcome to join, but the library does not require everyone to be a member in order to operate.

Image: A6-sized cards, invitations to use the bootleg library

keeping private

see also trusting, networking



All that I did was click a button and switch on the content server. The library was automatically assigned a dynamic IP address, followed by a colon and a port: 8080. Type http://145.131.24.139:8080 into a browser, and you'd arrive at the library, no problem. But you had to already be on the local network; you couldn't access it from the outside. And the IP address could change without warning, as dynamic IPs often do.

A sequence of digits is not nearly as memorable as a domain name. And paradoxically, we expect stability from a digital environment that is quite dynamic and in flux. Trust erodes at every extra click, every retyped URL. Accessibility is tantamount to existence. If you can't access it, it doesn't exist.

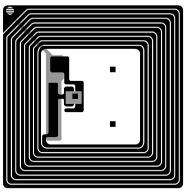
8080 is for personally-run web servers. It's called 8080 because it relates to port 80, the port that HTTP is served over. But ISPs regularly scan for HTTP requests including port 8080, to see if there is any illegal traffic occurring over the network, so it's best to set it to a custom number (there are 65,535 potential ports to use).

The library is now accessible from the outside over a VPN, and the page is HTTP password-protected. *On arrival at the URL, enter the following username and password.*

Image: Poster announcing the bootleg library, Piet Zwart Institute, July 2019

machine reading

see also scanning



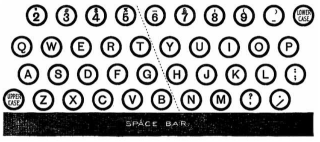
Machines can read text, and process it in complex ways. Code may contain instructions for a computer to read a file, so that its contents may be then used as part of a program. An example of this in practice is in the catalogue details of books in the library (title, author, description, publisher, etc.), which can be downloaded rather than manually written. This involves communication between systems to search their databases; for example, taking these details from another source, such as books.google.com or goodreads.com.

Books can also be checked in and out of libraries by a variety of machine-reading methods such as barcode scanning, or using RFID (radio-frequency identification) chips inserted into the cover.

Image: An RFID tag – an object often contained within the cover of a public library book to track when it is checked in or out

machine writing

see also editing, typing



This text is being written on a QWERTY keyboard, through a browser, using a software called "Etherpad" that records every changeset – every typed key of the characters that are added or deleted. The software is logging these changes fast enough that it appears to be happening in real time. I can also go back through every previous changeset to older versions with the granularity of the individual character. This is the liminal space between texts; in split-seconds of processing where human writing is manipulated by machine writing.

Image: QWERTY keyboard layout

making it public/keeping it private

see also human reading, inter-depending, scanning

The library depends on its public, just as the public depends on the library. Sharing of texts is the heart of library culture. A completely private collection lacks sociability. Libraries that operate outside of the law (shadow/extra-legal/pirate/+++) also depend on tactics to survive, such as password protection and invite-only systems for registering new users. In this context, publishing is not broadcasting, scattering seeds of information widely to encourage maximal distribution. The public sphere created by the library is limited by necessary measures designed to sustain it.

Image: Chained books at the medieval Hereford Library, an illustration from Streeter, B. H., *The Chained Library; A Survey of Four Centuries in the Evolution of the English Library*, B. Franklin: New York [1970]

making public

see also consulting, inter-depending, meeting in small rooms, in small groups

Making something public, and making publics. Matthew Stadler, writer and co-founder of the federated publishing network Publication Studio, makes a distinction between publishing and publication. For Stadler, publication happens not only through sharing texts, but also "setting up the circumstance through which we can talk and debate them, together".

Publishing survives through publication, which is the necessary creation and maintenance of the space created for a public: to read, to share texts, to discuss and publish them. Publication continues after the event of publishing.

Image: Still from *What is Publication?*, a talk by Matthew Stadler, writer and co-founder of the federated publishing network Publication Studio, available at https://vimeo.com/14888791

meeting in small rooms, in small groups

see also administrating, consulting, making public

The library collection is intentionally small; it does not wish to be everything to everyone. Focused library sessions are held regularly, and informally, with participants free to come and go as they please. The sessions do not require registration, and make no demands on participants. The result is often a small group of session attendees, who can offer personal insights and opinions in an intimate setting. It is more beneficial to the library's development to have a conversation between a small number of participants than to lecture to a crowd.

Image: bootleg library session at Varia, a collective space for everyday technology, Rotterdam, 26 January 2020

multiplying form

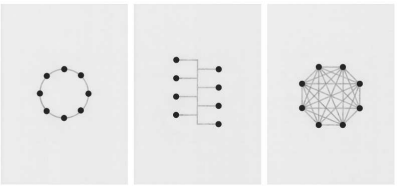
see also bootlegging, diversifying through use, producing texts, republishing

The jam band The Grateful Dead were followed around the United States by a legion of die-hard fans, proclaiming themselves "Deadheads". Cheaply available cassette recorders allowed them to tape concerts and then share recordings amongst each other. Thinking of this, I'm reminded of John Cage's motto: "Everything you do is music, and everywhere is the best seat." Each position in the audience produces a slightly different recording, and this multiplicity of form connects the audience not only with the music, but with each other.

There are files in the library that are of the same text, but they have travelled different paths to get there, accumulating difference through methods such as annotation and material transformation. And so, they have different materialities, lending weight to the argument that a text is not identical with itself; that there is no such thing as a unique, singular, original "work", but instead many different versions of texts, born through the accidents of their creation.

Image: "Deadheads" in the taper section of a Grateful Dead concert, 1972

networking



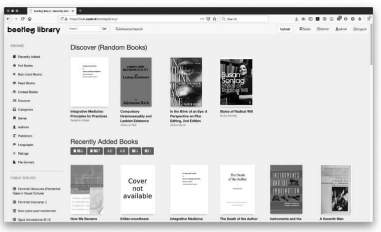
see also consulting, inter-depending, making public, meeting in small rooms, in small groups

Networking is not a dirty word. I'm not talking about networking as schmoozing, rubbing elbows with those you wish to impress, handing out business cards like there's no tomorrow. I mean forming networks of one's own,[1] within which the library can take shape and survive. Maintaining these networks ensures that the space for publication is available.

Image: Network topologies – ring, bus and mesh

1. Constant (2018) *Networks of One's Own*. Available at https://networksofonesown.constantvzw.org ↩

open-sourcing



see also diversifying through use, editing, networking, multiplying form

Open source means exactly that: the source code is open for anyone to copy, modify and distribute it. The library is running on the open-source software Calibre, and is accessed through a browser using Calibre-Web, a web app for eBooks stored in a Calibre database. It's important that the library software is open-source, as this empowers us to own and modify it to suit our particular needs and interests. Technology and culture exist in a dynamic interplay, shaping and being shaped by each other.[1]

The notion of open source can be extended to books as well; already there is the "public domain" (works that are outside of the bounds of copyright law, and therefore fair game) and "fair use" (which allows works to be used without asking for permission from the copyright owner, for the purposes of commentary, criticism and parody). In addressing the accessibility needed for a true knowledge commons to be protected, copyright laws are flawed to begin with as they assume that knowledge is private property.

Image: Screenshot of Calibre-Web interface

1. Hobart, M. E. and Schiffman, Z. S. (1998) *Information Ages: Literacy, Numeracy, and the Computer Revolution*. Baltimore: Johns Hopkins University Press. ↩

producing texts

see also annotating, glossing, understanding texts

Historically, the word "text" comes from the Proto-Indo-European word *teks-*, meaning "to weave, to fabricate, to make; make wicker or wattle framework". The written word is a text, and so is a conversation; both represent the exchange of shared concepts woven into the fabric of communication. There is also an exchange between written and spoken texts; discussions which influence writing, and writing which sparks conversations.

The digital library creates texts through its catalogue, where the metadata for each entry comprises a paratext[1] that not only adds meaning to the core text, but also influences how a reader will discover it in the collection by fields such as *tags* and *description*. Metadata which is downloaded and entered automatically comes from online commercial sources has a particular promotional tone. Those who write metadata should do so subjectively; descriptions based on personal significance represent the text and the readers, equivalently.

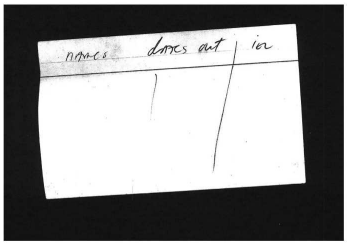
The library is sustained through producing texts.

Image: Papyrus, an early writing surface made from woven reeds

1. Genette, G. (1997) *Paratexts: Thresholds of Interpretation*. Cambridge / New York: Cambridge University Press. ↩

professionalising

see also administrating, making public



In order to give an appraisal of the necessity for professionalism within librarianship, first the concept of "professional" must be unpacked. Professional in what sense? The most generic definition – being able to profess a skill – is the first that comes to mind. This seems hardly a thing to argue against, as the particular skills of professional librarians are certainly called for in most cases. If we take another generic assumption that the profession of a librarian revolves around the mores of making information accessible, then this invites questions about associations between moral behaviour and professionalism. All this aside, what I can say is that professional librarians are not seriously threatened by the amateur librarians, operating from a distance. The threat comes from much closer for them: budget cuts that cripple and close their libraries, policies driven by the encyclopedic expectation that digital volumes of data inspire.[1]

Image: A makeshift library checkout card, usually placed in a pocket in the back of a book

1. Murray, J. H. (1998) *Hamlet on the Holodeck: the Future of Narrative in Cyberspace*. Cambridge, Mass: MIT Press. ↩

proprietorising

see also keeping private

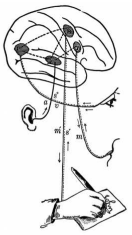
Information, in the form of descriptions that abstract themselves from the flux of common experience, is owned by private individuals or companies. Information is property, under the law. But laws should reflect the interests of the public. The "public interest" for individuals to profit from their (and others') labour competes against another, "more public", public interest: one which sees information as common property, or one that rejects any notion of information having proprietary substance. The word "information" is related to both the Latin verb *informare*, meaning "to shape", "to form an idea of", or "to describe", and its cognates from the substantive "forma", meaning "character", "form", "nature", "kind", and "manner".[1]

Description seems to be the primary function of this word "information": giving shape to experience, the very stuff of language and communication. Information has a social interest. It follows then that the most beneficial use of information would be one that serves the social good. The collective, social act of sharing information should not be trumped by individual financial interests. Never trust a corporation to do a librarian's job.

Image: Headquarters of The Internet Archive, San Francisco, USA

1. Hobart, M. E. and Schiffman, Z. S. (1998) *Information Ages: Literacy, Numeracy, and the Computer Revolution*. Baltimore: Johns Hopkins University Press. ↩

reading



see also technologising the word

Although literacy is the ability to read and write, an illiterate person is often described as not being able to read, rather than write. This is because the receptive skill of reading precedes the productive skill of writing. We write in response to the information we receive. Reading requires a command of the language the text is produced in, as well as a capacity to store this information in a durable medium: a book, a file, a tape, and so on.

Media theorist Friedrich Kittler said that, historically, reading functioned as "hallucinating a meaning between the lines".[1] This hallucination was exemplified by poetry, whereby the poet intended to induce in the reader a state of shock with words. Kittler argued that the harnessing of electricity was the end of such hallucinations; as soon as optical and acoustic data could be electronically stored, we no longer needed our memory, and the realm of the dead was no longer in written words. The gramophone, typewriter and film produced new ways of writing and reading texts.

Image: Reading-and-writing-at-the-same-time, diagrammed in *The Principles of Psychology*, William James (1890)

1. Kittler, F. A. (2012) *Literature, Media, Information Systems: Essays*. Critical Voices in Art, Theory and Culture. Johnston, J. (ed.). London / New York: Routledge. ↩

reading/writing

see also editing, typing

Reading and writing are interdependent; a written text exists to be read, and is based on a history of reading comprehension and processing, from the early stages of literacy (developing the ability to recognise separate characters), to reading complex texts that become references for things we write. In an operational sense, we also read what we write, as we're writing it. So, the process of writing is combined with reading, and both gestures can be found in another word that blends the two acts together: editing. *Writing, reading, editing; growing a tree while making a chair from its wood to sit on.*

Image: Simon Browne, timed writing/editing experiment using Etherpad, collaborative text-editing software, 2018. The bars at the top indicate separate durations of 5-minute writing and 3-minute editing periods

rebinding

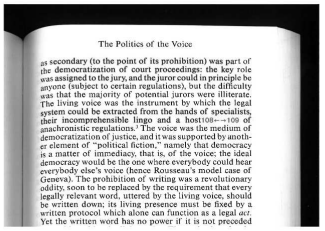
see also being kind to the reader, cleaning up text, editing, repaginating, republishing, reprinting, rereferencing

A perfect-bound book is typically made with cold glue (such as polyvinyl acetate), or glue that melts at high temperatures. The benefit of cold glue is that it allows the book to lie flat when opened, as the spine is flexible. Cold-glue bound books can be made by hand with quite rudimentary equipment. All you need is a printed text block and cover, a press, a piece of gauze or cheesecloth for the spine, and a brush to apply the glue to it. This takes a lot of time, practice, skill and patience to do by hand, but machines for cold-glue binding are hard to find.

Hot-glue binding machines can bind a book in less than 3 minutes, usually. Just be sure to set wider-than-normal margins before printing (I usually go for between 8 and 12 mm for good measure) and make sure the book isn't uncomfortably small. The minimum size should be considered in relation to the reader's hands, how they grip the book and turn the pages, and how much effort will be needed to hold the book open in order to read it.

Image: A hot-glue bound book held open with one hand

repaginating


The Politics of the Voice

secondary (to the point of its prohibition) was part of the democratization of court proceedings: the key role was assigned to the jury, and the juror could in principle be anyone (subject to certain regulations), but the difficulty was that the majority of potential jurors were illiterate. The living voice was the instrument by which the legal system could be extracted from the hands of specialists, their incomprehensible lingo and a host108←→109 of anachronistic regulations.[1] The voice was the medium of democratization of justice, and it was supported by another element of "political fiction," namely that democracy is a matter of immediacy, that is, of the voice; the ideal democracy would be the one where everybody could hear everybody else's voice (hence Rousseau's model case of Geneva). The prohibition of writing was a revolutionary oddity, soon to be replaced by the requirement that every legally relevant word, uttered by the living voice, should be written down; its living presence must be fixed by a written protocol which alone can function as a legal act. Yet the written word has no power if it is not preceded

see also being kind to the reader, cleaning up text, editing, rebinding, reprinting, republishing, rereferencing

The simplest solution is to just print the source publication, but sometimes you might want to lay the text out again using a different format, font or layout, for reasons not worth going into in detail here. This means either the original text flow and page numbers should be the same, or there must be some references in the bootleg to the source publication.

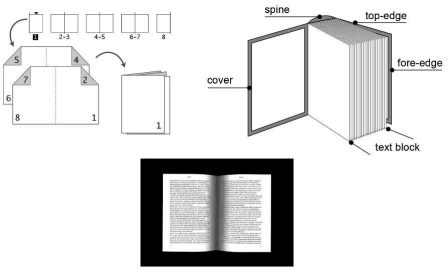
Some observations and methods:

1. **Justified text saves space and gives much more control over where to break the page.**
2. **The most basic reference system is to include an index that specifies which page in the source publication matches the bootleg. However, this is not so useful when setting text for a page (e.g. PDF), and more useful for EPUBs, which don't have the notion of a page.**

Inserting page numbers directly into the text can indicate where the page breaks in the source publication. This is quite time-consuming, but it allows you a lot of freedom for variation between fonts, page and type size, text-block dimensions and page count.

Image: A page from a bootleg of Mladen Dolar's *A Voice and Nothing More*, implementing new page numbers to mark the page breaks of the source publication

reprinting



see also being kind to the reader, bootlegging, rebinding, republishing

Making a printed book involves selection of paper stock and decisions on how to economise with the printing method. Often this calls for text to be imposed, 2-up, double-sided, into a booklet. Booklets are useful for thin, staple-bound books, less than 64 pages of ordinary 80 GSM paper.

A text block of 2-up imposed spreads is first cut in the middle, then the two halves are joined together like a sandwich. Turning a single-page document into a 2-up imposed PDF also imposes a constraint. There is no other way to create the text block. So, a book made in this way will result in a visible "split", and the pages will naturally fall open where the two halves were joined.

This is because most commercially bought paper comes with the grain direction aligned with the long edge, not the short edge. The solution is to print pages, not spreads, 1-up, double-sided on a page. If you can find a printer that takes sheets of paper smaller than A4 (such as A5) this is perfect; if not, you may have to concede the loss that comes from trimming down to a smaller than A5 size. Although this may seem just a superficial concern, the book will not be split, making for a materiality that emphasises the unity of the text.

Image: (clockwise from top left): imposition from a single-page PDF into a booklet; anatomy of a book; a spread

republishing

see also bootlegging, diversifying through use, multiplying form

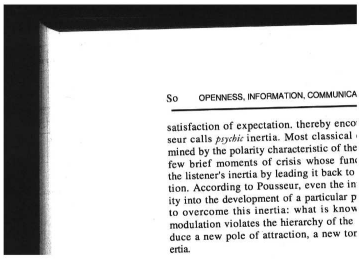
Samizdat publishers considered a printed text to be officially published if it came in an edition of at least 5 copies. The library considers this to be excessive, and reduces that number to 1. One copy of a text can be shared and enriched by the accumulated annotations of many readers. A one-to-many-publishing model distributes texts to the widest possible public. The library instead insists on a many-to-one model, drawing many readers to one text. Republishing the one text many times creates a multiplicity of form, and subsequently a multiplicity of publics in each instance.

Image: Staff working at Publication Studio, London.[1]

1. Publication Studio is a federated publishing network with studios located worldwide. Books ordered from the shared catalog are printed and bound one-at-a-time by the closest studio. Differences in availability of paper and machinery at each studio mean that the materiality of each instance of a printed text will vary depending on where and how the books are made. ↩

rereferencing

see also being kind to the reader, cleaning up text, editing, rebinding, repaginating, republishing, reprinting

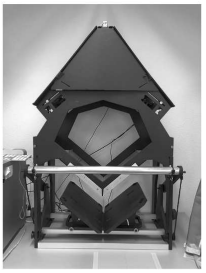


Academic research requires citation, and inevitably this means referring to a quote from a book, located on a particular page. Citation allows readers to locate the reference efficiently. For this to happen, the reader must be able to find the text easily by searching for it in a catalogue system. Often, books will include cataloguing information in the front matter, and for citation purposes this can be retained in a bootlegged book.

Digital files don't always come with text that is suitable for print, particularly when the text is kerned too tightly or too loosely, or when bad OCR (Optical Character Recognition) returns characters that are not actually in the source publication. Sometimes a dark mark on a page will be interpreted as a character by OCR software. In these cases the text may need to be set again using a different format, font and page layout.

Image: A bootleg copy of *The Open Work* by Umberto Eco. Optical Character Recognition software has mistakenly rendered the page number (page 80) as the word "So"

scanning



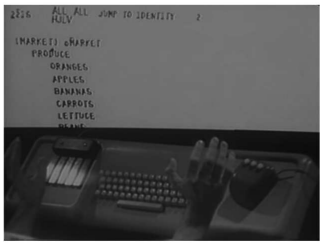
see also human reading, machine reading

Scanning is reading for particular details (such as names and numbers) by running one's eyes over every word in a line. Sometimes I find myself using my index finger to guide my eyes when scanning a printed text. With a computer and full-text search capabilities, *control-f* helps find instances of a particular word or phrase.

Scanning is also a way to process printed matter so that it may be electronically archived, modified and distributed. A book scanner is the tool of choice for many archivists. It has two cameras, one to capture the odd pages, and one for the even pages. Most book scanners consist of a system of pulleys which allow the book to be raised to two perpendicular sheets of glass, laying the pages flat and ensuring the focus is correct. It's quite a workout, and is usually reserved for books which are difficult to find in digital format. Essentially, the book scanner takes two photographs, one each for the even and odd sides of a spread. So the sequence goes: flip, click click, flip, click click, and so on, and so on. Next, these images must go through a variety of processes to produce a digital book: rotating, cropping to the size of the page, merging into a single PDF. Ultimately, the most useful digital books include a digital text layer generated by OCR (Optical Character Recognition) software, making the text searchable and copy/pasteable.

Image: An archivist book scanner

searching/browsing



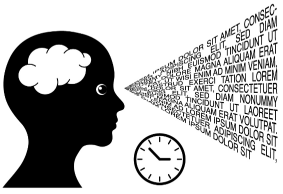
see also skimming/scanning

The difference between these two depends on the interface, and its seductive (or stoic) effect. The way users are affected also depends on the hierarchy of information presented, and interfaces that limit how that information is retrieved. For example, the screen, keyboard, and mouse make up the interface of the library when viewed on a desktop computer. On a smartphone, only the screen and keyboard comprise the interface. Given a mouse, a user may be more liable to pinpoint or target information. Some features are more conducive to searching, like a search bar; some more to browsing, like a scroll bar. *The library can be accessed through a browser, just type https://hub.xpub.nl/bootleglibrary into the search bar.*

Image: A mouse, keyboard and collaborative text editing demonstrated in Douglas Englebart's *"Mother of All Demos"*, 1968

skimming

see also human reading



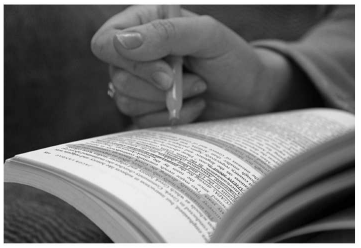
Skimming is reading for the main meaning of a text, reading between the lines in a semi-distracted state. A way to get the gist of a text quickly, flipping pages, jumping pages with the spacebar, infinitely scrolling. Just like skimming stones over water, the eyes jump in saccades over the surface of the text.

Many prefer to read from paper than from a screen. Who hasn't heard complaints that reading from a screen is tiring, especially when you just want the gist of a text? Sometimes online articles are accompanied by information about how long it will take to read them. *Estimated reading time 6 mins. Max word count 400-600 words.*

Image: Speed reading

skimming/scanning

see also human reading



Reading comprehension relies on the twin skills of skimming and scanning, often done together. Depending on what the function of the text is, one skill will be used more than the other. It would be foolish to skim a contract without reading the small print carefully. And if you don't skim a newspaper article to get the gist of it, scanning for details is meaningless.

Image: A reader highlights text while skim-reading in order to improve retention and to create a hierarchy in a text, applying a style that can be efficiently scanned for at a future time

technologising the word

see also reading/writing, understanding texts

According to the philosopher Vilém Flusser, history – in the traditional sense of a record of events – begins with writing. As such, writing created a linear, historical consciousness. This allowed us to see events as part of a process that is manipulable by humans, outside of divine intervention. Before the technology of writing, a propriocentric notion of the world dominated human consciousness: perceived through the senses, immediate and without what we think of as history, which comes from the ability to store memory in texts. Flusser adds that "Those who use texts to understand the world, those who 'conceive' it, mean a world with a linear structure".[1]

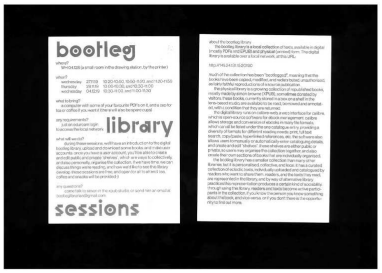
In pre-literate cultures, such as in Ancient Greece, songs were stitched together into rhapsodies.[2] Before literacy, texts existed as oratories, plays, epics, proclamations and dialogues: mostly oral forms. The nature of text is to knit together communication. In literate cultures texts become textiles, tapestries that form cultural narratives.

Image: *The Rosetta Stone*, a tablet discovered in 1799, inscribed with three versions of a decree written in Ancient Egyptian and Ancient Greek

1. Flusser, V. (2002) "The Future of Writing'" in Flusser, V. and Ströhl, A. (ed.) *Writings. Electronic Mediations, Volume 6*. Minneapolis: University of Minnesota Press. ↩
2. Ong, W. J. and Hartley, J. (2012) *Orality and Literacy: The Technologizing of the Word*. 30th anniversary edition / 3rd edition. London / New York: Routledge. ↩

trusting

see also administrating, making public, keeping private

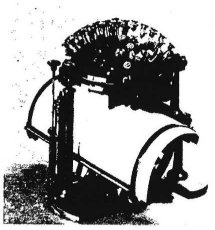


The library operates outside of legal boundaries that see knowledge as private property. As such, it requires protection from those that wish it to cease and desist. Invitations to join the library are made through personal correspondence and printed matter, in the form of A3-sized posters and A6-sized cards (such as the ones used for the original publication of this thesis). Handing a printed card with login details to an interested reader is an act of trust. The card, a pocket-sized object made with care and attention which is passed from hand to hand, engenders a certain kind of intimacy, as opposed to the brute act of spamming a mailing list.

Image: A6-sized card, obverse and reverse, announcing the first bootleg library sessions, Piet Zwart Institute, December 2019

typing

see also machine writing



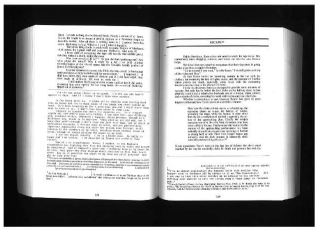
It wasn't handwriting that drove forward the technology of writing into the modern era, but type. Moveable type expanded the publishing capabilities of text – from a one-to-one, to a one-to-many, model. In the late 19th century, hot-typesetting machines melted pieces of aluminium and cast them into type, in order to be re-used and repeated. Input for these machines was often entered on a keyboard, which produced a perforated paper tape, a common early data storage medium. A distinguishing feature of these early typesetting machines was the ability to iterate processes by storing information in a reusable format.

For the keyboard, iteration operates at another level, the keys. The keyboard has its roots in moveable type, which produced "typing", or using a discrete set of components that could be rearranged in infinite combinations. From iteration comes automation; "typewriters", which emerged onto the market around the same time as the phonograph, were often advertised as a product that enabled "automatic writing".

Image: The first commercially-produced typewriter, the Hansen Writing Ball, from Kittler, F.A. (1990) *Discourse Networks 1800/1900*. Stanford, Calif.: Stanford University Press

understanding texts

see also human writing, machine writing, producing texts, technologising the word



What makes up a text depends on perspective and on overlapping dimensions of text: editorial, technical and social.

The *editorial* dimension: a sequence. A line of characters and spaces, the particular order that the writer sets these in. Text becomes an object, a carrier of thoughts and feelings, something that can be sent back and forth between participants in a conversation.

The *technical* dimension: a process. Cybertexts and "ergodic literature" require non-trivial effort to read.[1] Examples of this are MUDs (multi-user dungeons/domains/dimensions), which are real-time virtual worlds in which the players construct the story on-the-fly; and Mark Z. Danielewski's *House of Leaves,*[2] a printed novel that defies a linear narrative structure through its cybertextual materiality.

The *social* dimension: a framework, a network of texts that elicit further texts.

The library is a collection of texts: not just books, but also files, metadata, scripts and the processes that determine how they are used, and the readers who use them.

Image: A spread from Danielewski's *House of Leaves*

1. Aarseth, E. J. (1997) *Cybertext: Perspectives on Ergodic Literature*. Baltimore: Johns Hopkins University Press. ↩
2. Danielewski, M. Z. (2000) *Mark Z. Danielewski's House of Leaves*. 2^nd^ edition. New York: Pantheon Books. ↩

uploading

see also acquiring/removing, amateuring, including/excluding

The digital collection is formed from individual uploads made by readers who care to share. Uploading takes time – a precious commodity for many readers – and each upload is a deliberate action, not an afterthought. Fostering a culture of uploading requires a decentralised network of readers, and likewise, librarians. A different notion of librarianship is required: the librarian is not the central hub of access to knowledge, but each reader should be a librarian, with the ability to produce, recommend and request texts from others.

"When *everyone* is `librarian`, `library` is *everywhere*"

Image: Quote from *Why and How to Become an Amateur Librarian* by Marcell Mars, Manar Zarroug and Tomislav Medak, available at Memory of the World's blog: https://ww.memoryoftheworld.org /blog/2014/10/28/why_and_how_to_become_an_amateur_librarian/

writing

see also technologising the word, producing texts

Writing is a technology which transforms cultures, particularly from pre-literate perceptions of memory as a commemorative act bound to the flux of human experience, to post-literate thinking of memory as containers within which to store information. The invention of the Greek alphabet, with its introduction of letters representing vowels,[1] connected speech with a form of its material representation. This technological development resonates with how we perceive oral communication – thinking of spoken language through the lens of literacy; as discrete, easily divisible units, like printed words punctuated by neat spaces. It all falls apart when speech-to-text transcription software "doesn't work" (meaning that it works in ways that we do not expect). The result is that speech, essentially the long continuous sounds that we make with our mouths, tongues, teeth, lips and throat, comes out as gobbledygook on the screen.

Writing is a fundamental part of the library. Not only in the written texts it contains, but also in the texts it produces: metadata (information such as author, title, subject, description, publisher, etc.), annotations made by readers, readers made by readers, correspondence between the users about the texts, which form a dialectical synopsis. The library is sustained through producing texts which argue for its legitimacy by representing the readers who use it.

Image: Very early Greek *abecedariums*, inscriptions of the alphabet in order, typically used as a practice exercise in learning writing, from Drucker, J. (1999) *The Alphabetic Labyrinth: the Letters in History and Imagination*. London: Thames & Hudson.

1. Hobart, M. E. and Schiffman, Z. S. (1998) *Information Ages: Literacy, Numeracy, and the Computer Revolution*. Baltimore: Johns Hopkins University Press. ↩

Out-of-Hardware Experience

Software & Consciousness

Tancredi Di Giovanni

Introduction

Modern theories on the relation between humans and machines are, to a great extent, a consequence of the scientific positivism developed in the Western world during the 19th century, which assumes that the subjective nature of human consciousness can be denied or reduced to its objective physical substance: the brain. This speculation models the relation between humans and machines on two axes: [x] It emphasizes the relation between a loss of humanity and the rise of autonomous machines (this view implicitly portrays software as the consciousness of the machine originated by a hardware). [y] It emphasizes the relation between the social system and the technical system (this view explains software as a cultural and social object that can be studied independently from the hardware).

In order to contain the exponential growth of the technical system and the disappearance of the individual, institutional power becomes the only legitimate means of containment, imposing regimes of engineered subjectification while enmeshing society with its technologies. Fostering visions of dystopic futures and lacking early systematic critiques, these arguments silently underpin the technological and social developments of the 20th century, to reach daily life in our contemporary society.

In Part 1, unified under the umbrella term "machinic life" coined by John Johnston, this thesis looks back at the general history and theoretical results of attempting to build autonomous machines[1] "[...] mirroring in purposeful action the behavior associated with organic life while also suggesting an altogether different form of 'life' [...]" (Johnston, 2008). In opposition to the assumptions of machinic life, this thesis proposes in Part 2 a different approach informed by new developments in the understanding of consciousness: [z] It emphasizes the relation between subjective experience and the technical system, unfolding a clearer understanding of both biological and artificial systems as part of an extended cognitive system.

In this direction, I have found a particular resonance of my thoughts with the work of David Chalmers on consciousness, claiming for a paradigm shift in science to finally allow the study of subjective experience: *"when simple methods of explanation are ruled out, we need to investigate the alternatives. Given that reductive explanation fails, nonreductive explanation is the natural choice"* (Chalmers, 1995); also, Thomas Metzinger, who, through the study of altered states of consciousness and psychiatric syndromes, is one of the few to propose an appealing alternative (reductionist) model of consciousness capable of explaining the nature of the self: *"If we pay more attention to the wealth and the depth of conscious experience, if we are not afraid to take*

consciousness seriously in all of its subtle variations and borderline cases, then we may discover exactly those conceptual insights we need for the big picture" (Metzinger, 2009); also Katherine N. Hayles, who, starting from a social perspective and criticizing consciousness, links machines and biological systems extending cognition into the body and the environment: *"Although technical cognition is often compared with the operations of consciousness [...], the processes performed by human nonconscious cognition form a much closer analogue"* (Hayles, 2017); and finally, Matteo Pasquinelli, for his studies on machinic intelligence in general, but always a source of great inspiration.

Instead of addressing its technical and cultural aspects directly, the result of these discourses reveals a new primary condition of software pointing toward the subjective experience of new phenomenal worlds that can be built and sustained in collaboration with an external artificial form of cognition. Knowledge, from this point of view, is not inaccessible to the individual level, given by science and institutionalized through society, but is a necessary process made through the construction of worlds, simulating scientific truths or creating useful fictions, but still validating the subject as the designer (or hacker) of its own experience.

"But why should I repeat the whole story? At last we came to the kingly art, and enquired whether that gave and caused happiness, and then we got into a labyrinth, and when we thought we were at the end, came out again at the beginning, having still to seek as much as ever."
— Plato, Euthydemus

Part 1

"Then, just as the frightened technicians felt they could hold their breath no longer, there was a sudden springing to life of the teletype attached to that portion of Multivac. Five words were printed: INSUFFICIENT DATA FOR MEANINGFUL ANSWER."
— Isaac Asimov, The Last Question

The Hard Problem of Consciousness

Through the standard scientific method, the challenge of explaining the mind has been mostly addressed by disassembling it into its *"functional, dynamical and structural properties"* (Weisberg, 2012). Consciousness has been described as cognition, thought, knowledge, intelligence, self-awareness, agency and so on, with the assumption that explaining the physical brain would resolve the mystery of the mind. From this perspective, our brain works as a complex mechanism that eventually triggers some sort of behavior. Consciousness is identified with a series of physical processes happening in the cerebral matter (*reductionism*) and determining our experience of having a body, thinking, and feeling. This view has been able to explain many unknown elements of what happens in our minds.

In 1995, the philosopher of mind David Chalmers published an article titled *Facing Up to the Problem of Consciousness*, in which he pointed out that the objective scientific explanation of the brain can solve only an easy problem. If we want to fully explain the mystery of the mind, instead, we indeed have to face up to the hard problem of consciousness: *How do "physical processes in the brain give rise to the subjective experiences of the mind and of the world"? Why is there a subjective, first-person, experience of having a particular kind of brain?* (Nagel, 1974)

Explaining the brain as an objective mechanism is a relatively easy problem that eventually, in time, could be solved. But a complete understanding of consciousness and its subjective experience is a hard problem that scientific objectivity cannot access directly. Instead, scientists have to develop new methodologies and eventually non-reductive models, considering that a hard problem exists – *How is it possible that such a thing as the subjective experience of being "me, here, now" takes place in the brain?*

Echoing the *mind-body problem* initiated by Descartes in the 17th century, subjective experience, also called *phenomenal consciousness* (Block, 2002), underlies any attempt to investigate the nature of our mind. It challenges the physicalist ontology of the scientific method showing the unbridgeable *explanatory gap* (Levine, 2009) between the latter's dogmatic view and a full understanding of consciousness. This produces the necessity of a paradigm shift allowing new alternative scientific methods to embrace the challenge of investigating phenomenal consciousness, for example the *neurophenomenology* proposed by Francisco Varela (1996).

Reactions to Chalmers' paper range from a total denial of the issue to panpsychist positions, with some isolated cases of mysterianism advocating the impossibility of solving such a mystery (Weisberg, 2012). In any case, the last thirty years have seen an exponential growth in multidisciplinary research addressing the hard problem with a constant struggle to build the blocks of a science of consciousness finally accepted as a valid field of study (Metzinger, 2009). Hidden for ages behind ambiguous religious beliefs in the soul and the immediacy of empirical evidence on which science is based, phenomenal consciousness is now at the very first stages of a proper scientific unfolding of its contents (Metzinger, 2009).

Thanks to a renewed view of science and its methods, subjective experience is starting to be resized to its effective dimensions, filling the gaps in the understanding of ourselves and the world. But before we explore in depth the contents of phenomenal consciousness and their implications in understanding software, it is essential to shift our attention toward the evolution of new kinds of machines in technical systems. Fostering the division between hardware and software and leading part of the scientific community to acknowledge the limits of

its own practices, the understanding of the autonomous machine is the fundamental step in actualizing and testing the scientific modeling of the mind.

Machinic Life and Its Discontents – I

In *The Allure of the Machinic Life*, John Johnston (2008) attempts to organize the contemporary discourse on machines under a single framework that he calls machinic life:[2]

"By machinic life I mean the forms of nascent life that have been made to emerge in and through technical interactions in human-constructed environments. Thus the webs of connection that sustain machinic life are material (or virtual) but not directly of the natural world." (Johnston, 2008)

Machinic life, unlike earlier mechanical forms, has the capacity to alter itself and to respond dynamically to changing situations. Implying the full attempt to produce life and its processes out of artificial hardware and software, the definition of machinic life allows us to reconsider the different experiences of the last century under the common goal of building autonomous machines, and to understand their theoretical backgrounds and assumptions as a continuum.

Subsumed in the concept of *techné,*[3] the mythological intuition of technology already shows the main paths of the contemporary discourse of machinic life. In fact, in the myth of *Talos* and in *Daedalus's labyrinth*, we can find the first life-like automaton as well as the first architectural design reflecting the complexity of existence and outsourcing thought from human dominion. However, only in the 19th century, with new technological discoveries and scientific positivism,[4] did scientists start building the bearing structures of what would become the two main fields of machinic life of the 20th century: *Cybernetics* and *Artificial Intelligence* (AI).

On one side this process begins with the improvement of the steam engine, with Sadi Carnot's thermodynamics (1824) joined with the *debate on the origin of life* opposing the theory of evolution to the religious belief in creationism. Unleashed from the religious teleology (purpose) imposed by God's intelligent design and consigned to the random chance of natural selection introduced by Charles Darwin and Alfred Wallace's *evolutionary biology* (1859), human existence was losing any perspective of independent agency (Rushton, 2019). In 1858, Wallace wrote a letter to Darwin comparing the evolutionary process with the vapor engine's autoregulatory system, or feedback loop, later studied by J. C. Maxwell's *control theory* (1868):

"The principle of this process [natural selection] is exactly like that of the centrifugal governor of the steam engine, which checks and corrects any irregularities almost before they become evident" (Wallace, 1858)

With this same conclusion, Samuel Butler, speculating on the evolution of machines in writings such as *Darwin Amongst the Machines* (1872) and *Erewhon* (1879), reintroduced the idea of teleology in the concept of adaptation, developing a framework where machines are capable of evolving and reproducing exactly as biological organisms do (Rushton, 2019). Wallace and Butler's speculative theories anticipated a new understanding of the machine that would be actualized only through the advancement of control theory in communication, guns automation, and biology during World War II (Johnston, 2008). In 1946, a number of scientists, prior to working for military projects, collectively modeled the autoregulatory system of the body and simulated it in autonomous robots, giving rise to *Cybernetics* defined as *Control and Communication in the Animal and the Machine* (Wiener, 1948).

In parallel to these developments, the study of mathematics and logic, along with the revolution of the Jacquard loom (1804), led to the invention of the first *general-purpose computer* and the translation of elementary logic into binary algebra. Charles Babbage and Ada Lovelace's effort to design and program the *analytical engine* (1837), together with *Boolean logic* (1854), started a new era of computation in which mental labor was no longer an exclusive prerogative of humans, but could be performed by an economy of machinery. Demonstrated for computable numbers by Alan Turing and Alonzo Church's model of *computation theory* in 1936, the idea of

formalizing thought in an instrumental set of rules (*algorithm*) can be traced back to Plato[5] and Leibniz[6] (Dreyfus, 1972). The *Church-Turing thesis*, together with Von Neumann's *computer architecture* (1945) and Shannon's *information theory* (1948) influenced by cybernetics, mark the birth of the digital computer making possible the beginning of *Artificial Intelligence* (AI) in 1956 (Russell & Norvig 2003).

If the classical world had the intuition of the sentient machine, and the modern world brought the realization of its possibility, it is only with the practical experience of cybernetics and AI that the contemporary discourse of machinic life can be formulated. Nonetheless, this dual nature of contemporary discourse embodies the convergence of different theories in biological, mechanical and computational systems within a multidisciplinary approach, driven by complexity and information. Furthermore, as we will see in the next chapter, the limits of machinic life in understanding and building working models of the mind can already be seen in how cybernetics and AI equate human nature with the nature of the machine, leading to the distinction between hardware and software.

Machinic Life and Its Discontents – II

Consolidated during the *Macy Conference* which took place in 1946 in New York City, and guided by the works of Norbert Wiener, Arturo Rosenbleuth (1943) and Warren McCulloch (1943),[7] cybernetics was the first framework capable of generating a working theory of machines (Johnston, 2008). Its influence has spread throughout different disciplines such as sociology, psychology, ecology, and economics, as well as in popular culture (*cyberculture*). The prefix *cyber-*, in fact, would become emblematic of a new understanding of the human condition as profoundly intertwined with machines. Supported by statistical information theory, experimental psychology, behaviorism and control theory, Norbert Wiener (1948) saw in the process of adaptation of the body first described as *homeostasis* by Walter Cannon (1936), the possibility to simulate the same mechanism in autonomous artificial organisms. Transforming life into a complex adaptive system pairing an organism with its environment through feedback loops, this position conceptually leads to the dissolution of boundaries between natural and artificial, humans and machines, bodies and minds. Human beings and machines become cybernetic subjects, in a world where nature and life are no longer a matter of organic and inorganic substance but of structural complexity (Johnston, 2008). The implications of this view broke the boundaries of human identity, leading theorists to talk of *post-humanism* and to explore new realms of control and new speculations on the nature of machine simulation (Hayles, 1999).

Despite the variety of subfields developed by Cybernetics,[8] the parallel advent of the digital computer obscured most of its paths for decades (Cariani, 2010). The focus of researchers and national funding shifted toward the framework of Artificial Intelligence (AI). This new focus on intelligence, of which consciousness is allegedly a feature, was made possible by establishing a strict relation between the mind – reduced to the brain – and the digital computer. In fact, another revolution was taking place in the field of psychology. The inability of *behaviorism*, which considers psychological processes as a matter of inputs and outputs, to include mental processes in understanding humans and animals, was opening the doors to the *cognitive revolution*. The mind, intended as the cradle of cognitive processes, was compared with the digital computer's information processing, making it possible to test psychological theories and simulate the behavior of mental processes in the artificial brain[9] (Miller, 2003). Furthermore, this approach allows to extend the mind-body dualism in the machine as software and hardware. In contrast to cybernetics, which promotes autoregulation in biological and artificial organisms as *embodied knowledge* acquired through experience (Johnston, 2008),[10] AI and its subtending computer philosophy foster the division between hardware and software, abstracting information processing from its physical ground and leading to the consequent obscuration of hardware through software (Kittler, 1992).

Before AI was officially born, in 1950 Alan Turing published an article titled *Computing Machinery and Intelligence*, in which he designed the *imitation game*, more

widely known as the *Turing test*. The computational power of the computer was identified with the act of thinking, which is understood as intelligence:

"The reader must accept it as a fact that digital computers can be constructed, and indeed have been constructed, according to the principles we have described, and that they can in fact, mimic the actions of a human computer very closely." (Turing, 1950)

Because the phrasing of the problem as *"can machines think?"* can lead to ambiguous results, allowing computer scientists to explore the possibility of creating intelligent machines, Turing reversed the question into a behavioral test – *Can we say a machine is thinking when imitating a human so well that s/he thinks s/he is talking to another human?* If you can't recognize that your interlocutor is a machine, then it doesn't matter whether it is actually thinking, because in any case, the result would be the same: a human-level communication. Thinking and mimicking thinking become equivalent, allowing machines to be called intelligent. In his text, Turing dismisses the argument of phenomenal consciousness and the actual presence of subjective experience by sustaining that such a problem does not necessarily need to be solved before being able to answer his question. Indeed, the Turing test suggests more than a simple game. It signals the beginning of a new inquiry into the theoretical and practical possibility of building *"real"* intelligent machines while indicating some possible directions[11] to build a machine capable of passing this test (Dreyfus, 1972, Rescorla, 2020).

Riding the new wave of the cognitive revolution and embracing the cybernetic comparison between humans and machines, a group of polymaths began to meet in 1956 at Dartmouth College, the birthplace of AI. Developed by Allen Newell and Herbert A. Simon, the *Logic Theorist* was the first working program exploring the automation of reasoning through its formalization and manipulation within a symbolic system. Called *Symbolic AI*, this approach would become the workhorse leading the expected escalation from programs limited to performing only a narrow task, *narrow artificial intelligence* (NAI), to programs capable of doing any task, *artificial general intelligence* (AGI), and finally to achieve the level of human intelligence, *human-level artificial intelligence* (HLAI), as prospected by Turing (Russell & Norvig, 2003). Exactly because of this overstated goal and expectations, the fathers of AI[12] will be remembered as enthusiastic researchers drawn in a spiral of premature predictions and hyperbolic claims (Dreyfus, 1972) which have mostly failed or are yet to be achieved.

Infected by this early enthusiasm, psychologists and philosophers of science already struggling with the possible equation between the brain and the thinking machine, started to attempt a serious interpretation of the human mind based on the information processing of new computational systems. This approach, called *computationalism*[13] led to several theories (Rescorla, 2020) such as: *The Computational Theory of Mind* (CTM) introduced in philosophy by Hilary Putnam (1967), which basically understands the mind as a linear input-processing-output machine in the style of the computational model provided by Turing; Jerry Fodor's *Language of Thought Hypothesis* (LOTH) and its *Representational Theory of Mind* (RTM) (1975), which claim that thinking is only possible in a *language-like* structure to build thoughts at the top level; and the *Physical Symbol System Hypothesis* (PSSH) of A. Newell and H. Simon (1976), which sees in the physical symbolic system everything needed to build a true intelligence. In popular culture as well, the same enthusiasm led to a new ideology of the machine, climaxing with the fictional character *HAL 9000* in the 1968 novel and movie *2001: A Space Odyssey* by Arthur C. Clarke and Stanley Kubrick[14] (Dreyfus, 1972).

Despite great enthusiasm and high expectations, the idea that computers can do all the things a human can do has been heavily criticized. Philosophers such as Hubert Dreyfus (1965) and Noam Chomsky (1968) started to highlight the problematic aspects of the computationalist theories of mind, beginning a critical analysis of AI that revealed the simplistic assumptions perpetuated by the unjustified hype and incapacity of self-criticism of major AI researchers, and

showed the technical limitations of physical symbolic systems. The inability of these systems to grasp the value of context, essential in gaining knowledge and achieving common sense (Russell & Norvig, 2003), and the impossibility to formalize all aspects of intelligence, such as creativity and intuition (Dreyfus, 1972), were recognized as some of the principal boundaries in "decoding" the mind.

In the same direction, philosopher John Searle, criticizing the comparison of the human mind with computers in understanding things, developed a thought experiment called the *Chinese room*[15] (1980), arguing for an underlining distinction between a *strong AI* capable of true understanding, and a *weak AI* which merely simulates understanding. Searle's argument raises the same issues of the aforementioned *hard problem of consciousness*, defining a threshold between the actual AI and the human mind. Other thought experiments, such as Jackson's *Mary's room*[16] (1986) touch the subjectivity of experience directly, which seems to resist all the efforts of the scientific community to reduce it to a machine and its weak computational intelligence.

Machinic Life and Its Discontents – III

Computational symbolic AI postulates that, using a top-down approach, one can engineer all aspects of the mind in digital computers, including consciousness – which is reduced to a mechanism of the brain. However, despite early successes (still limited when compared to the actual goals of HLAI), a succession of failed predictions, conceptual limitations and difficulties in finding commercial applications resulted in two periods of recession between 1974-1980 and 1987-1993, best known as *AI winters* (Russell & Norvig, 2003). After these periods, criticism moved toward the symbolic approach, and the development of new research inspired by cybernetics led AI researchers to understand intelligence and the design of life through different approaches called *sub-symbolics*.

Instead of an upstream representation of knowledge typical of the manipulation of symbols, in 1943 cyberneticist Walter McCulloch (1946) was already looking closely at the architecture of the brain, exploring the possibility of reproducing its networks of neurons in *artificial neural networks* (ANN). However, this system would become effective only in 1986 with Rumelhart, Hinton and McClelland's *parallel distributed processing* (PDP), pairing multiple layers of ANNs and drastically increasing their capacity (Russell & Norvig, 2003). The use of ANN in AI explains intelligence from a bottom-up approach, introducing the paradigm called *connectionism*. These new AI systems are capable of learning and finding useful patterns by inspecting sets of data and reinforcing the connections between their "neurons" (Alpaydin, 2016). Thanks to the internet and developments over the last decade with the *deep learning* method, ANNs can now be fed with large amounts of data, dramatically increasing their capacity to learn and producing a renewed hype in connectionism and AI.

Another relevant approach in AI resulting from the late influence of cybernetics is the *intelligent agent* paradigm, described by Stuart J. Russell and Peter Norvig in 2003. Reintroducing the discourse on complex systems, the concept of the *rational agent* (borrowed from economics) becomes the way to refer to anything capable of interacting with an environment through sensors and actuators. AI systems developed from this perspective are capable of achieving a goal by keeping track of their environment, learning and improving their performance autonomously. In parallel with the developments in AI, cybernetics also highlighted the possibility of simulating biological evolution in software environments. Starting from the arrangement of simple operators called *cellular automata* (CA) on a grid, and simple laws describing possible interactions, neighbor cells start to reproduce, die, and evolve, forming complex chaotic systems, stable loops and astonishing patterns that are impossible to predict *a priori* (Johnston, 2008).

These new ways of defining life and intelligence to correct the symbolic approach, are moving toward a deeper understanding of cognition, which instead of being represented only as a symbolic system, also exists on a sub-symbolic level, and instead of being a designed product, is seen as a part of evolutionary processes.

However, despite these new developments, AI is encountering its boundaries. Life, like intelligence, is generated from the interaction with an extremely complex and variegated environment, the *noisy physical world* which is made of radiations and electromagnetic phenomena, particles and wavelengths in continuous interaction. A chaotic world, that neither the capabilities of contemporary computers, nor the amount of data of the internet, can simulate (Johnston, 2008). Furthermore, the companies relying on deep learning are looking into the problem of understanding why these learning systems make the choices they make. Their autonomous way of learning through layers of networked neurons creates nested black boxes extremely difficult to unpack, raising a thorny debate on discrimination and biases embedded in software. To escape from these limitations, scientists are now working on a more holistic understanding of intelligence which combines the sub-symbolic approach with the knowledge representation of symbolic AI (Marcus & Friedman, 2019). In robotics, *situated AI* is rediscovering the necessity of having a body, and taking robots outside of the labs to interact with the noisy physical world, hoping to find new ways to generate knowledge from direct experience instead of merely simulating it in virtual environments (Russell & Norvig, 2003).

Over the last 20 years, machinic life has started to take seriously its critiques and to reassess the simulation of the *adaptive unconscious* and *embodied knowledge* typical of biological organisms (Kahneman & Friedman, 2011) as the possible link to produce the high-level intelligence typical of intuition, creativity and the spontaneous complexity of life. However, almost 70 years after the first AI program, we are still surrounded by only *weak-and-narrow* AIs. On the one hand, some researchers have reformulated the goal of building human-level systems, as well as "strong AI", toward less pretentious and more practical aims. On the other hand, despite its turbulent early history of unfortunate claims and the slow growth of connectionism, the perspectives of engineering AGI and strong AI systems, and of populating the world with new forms of artificial life, are growing faster – and these perspectives, again, are leading to more premature claims.

Riding the regenerated hype made possible by the boom of deep learning, private institutions such as MIT, tech entrepreneurs such as Elon Musk,[17] and many other researchers in AI-related fields such as the futurist Ray Kurzweil,[18] are repeating the same errors of the early fathers. They daydream of a future-oriented, techno-utopianist world that is a direct reminder of the morally dubious neo-liberal *Californian Ideology* (Barbrook & Cameron, 1995). This new goal, expressed by MIT spokesman Lex Friedman (2018), represents the *big picture* of AI which passes through the development of AGI and HLAI, to reach the *technological singularity* as described by the science fiction writer Vernor Vinge:

"a change comparable to the rise of human life on Earth. The precise cause of this change is the imminent creation by technology of entities with greater than human intelligence." (Vinge, 1993)

Eventually, this black-boxed *super artificial intelligence* (SAI) is expected to develop *artificial consciousness* on its own, emancipating itself and starting to "think for itself", becoming the dominant form of life of the future (eventually helping, killing or snubbing human beings).

AI's *big picture* infects the nervous system of popular culture. It creates misunderstandings about the actual state of affairs and clamorous expectations of the near future, while discouraging doubts of positive future perspectives. Furthermore, it provides a framework in which the understanding of software and computers in general relies on a matrix of abstractions obscuring their actual nature – still built of man-made mechanisms and *weak AI* systems that rely on the labor of their producers and the interests of a capitalist market ready to exploit the gullible end user. AI researchers, instead of disregarding the theoretical issues and technical limitations of their approaches, and instead of following the mainstream and commercially appealing big picture of AI, should convert their goals to developing a framework able to confront the problem raised by an in-depth study of consciousness. *Machinic life* in general should be reframed to allow the study of the

mind (and the body) with the primary goal to increase the scientific exploration of consciousness, thus allowing a more complete understanding of nature. At this point in time, however, subjective experience still appears as what differentiates humans from machines, allowing us to imagine a present-oriented future where the *big picture* of AI is resized to its "weak" actuality and the focus is shifted to fix the natural and social problems that mankind procrastinates with ignorance and presumption. This direction plots out a more fruitful path that, through an understanding of consciousness, automatically leads to a better understanding of life, the world, and the technical systems allowing to design useful AIs with the awareness of their consequences on both the biological and artificial level. In the best case, if machinic life succeeds in engineering phenomenal consciousness, and as professor Matteo Pasquinelli (2014) hopefully interprets the words of Turing, its result will be a new kind of alliance between the two forms of cognition.

Before proceeding with a detailed account of the characteristics of subjective experience, its similarities and differences with the computer, and its relation with software, in the next chapter I will briefly introduce other approaches generated under the influence of machinic life. Instead of a focus on the autonomous machine, these frameworks reframe the human-machine dichotomy, developing the spaces in between these two extremes.

Beyond Humans and Machines

Confining human beings to a totally subaltern level, yet destined to become redundant, the intelligent and autonomous artificial organism conceived by cybernetics and AI implies an unsurpassable threshold between human and machine performance. However, in this power play of configurations between natural and artificial agents, other possible worlds can be articulated. Worlds where humans and machines not only coexist but melt together, achieving that level of close interaction between organisms known as *symbiosis* and leading to the paradigms of *intelligence augmentation* (IA) and *cyborg theory*.

On the one hand, and in parallel to AI, IA claims the possibility of augmenting human intelligence through technological means (Pasquinelli, 2014). Anticipated in 1945 with the prophetic words of Vannevar Bush, speculating on computer interfaces, and theoretically forged in cybernetics by W. Ross Ashby:

"[…] it seems to follow that intellectual power, like physical power, can be amplified. Let no one say that it cannot be done […]." (Ashby, 1956)

Fostered by the visions of J. C. R. Licklider's *man-machine symbiosis* (1960) and Simon Ramo's *intellectronics* (1961), and through efforts in close collaboration with the United States Department of Defense, the 60s saw the consolidation of this promising paradigm in the development of interactive computing and the *user interface*. The work of Douglas Engelbart at the Augmentation Research Lab (ARL) and his political plan *bootstrapping human intelligence* (1962) expected to automatically affect society, will be remembered as the highest peak of IA before disappearing into the less politicized *human-computer interaction* (HCI) in the late 70s. Nowadays, a new frontier of *amplification, interaction and control* directly linking the brain with the computer is becoming possible (even though it is still at the earliest stages). The *brain-computer interface* (BCI) brings us closer to those *"disturbing phenomena"* collectively known as extrasensory perception *"[which] seem to deny all our usual scientific ideas"* (Turing, 1950) – the same BCI which Elon Musk's company Neuralink wants to develop, among other things, as a universal panacea to communicate with the artificial superintelligence of the dystopic near future (Musk & Friedman, 2019).

On the other hand, the disclosure of the cybernetic concept of life dissolves the human-machine dichotomy into an ecosystem of patchworked organisms mixing together artificial and biological parts. This continuum, called *machinic phylum* by Deleuze and Guattari (1980) (Johnston, 2008), is the home of the *cyborg* (cybernetic organism) (Haraway, 1985), transforming its body in the playground where internal and external assemblages of parts, like implants different in their substance but communicating through feedback loops, coexist. *Cyborg theory* represents all the

shades articulating the space between what is human and what is a machine. In this direction, Thomas Metzinger (2009) explains how *hybrid biorobotics* are another framework that is backing away from the purely artificial goal of AI and standard robotics, exploring the possibility of mixed species. The idea is that we can build artificial hardware running biological software, as well as use artificial software to control biological hardware. If the first way is an attempt to deploy patterns emerging in biological neural networks to run on artificial computers, the second finds its example in *RoboRoach* where the movements of a cockroach are controlled through an artificial implant sending electrical impulses to its nerves. This last approach – reconnecting to the BCI mentioned above – leads, when it is used to directly stimulate the brain, to what Metzinger (2009) calls *neuro-enhancement*, the artificial control of mental states (as the *neuro-* version of *psycho-pharmacology*). Due to the uncertainty of the assumption of machinic life sustaining consciousness that can be instantiated in a substance different than the biological (*biological assumption*) (Dreyfus, 1972), it seems that the control of the brain through artificial means could be an alternative way to achieve the synthesis of consciousness. Further technological developments in the field of BCI and in the design of non-neural hardware will make it possible to consider to what extent the biological assumption is indeed effectively an assumption, or an actual limit in building artificial consciousness.

All these different configurations, and the consequent understanding of the relation between the human and the machinic, have a common denominator. The first step seems to be the much-acclaimed *technological singularity*, intended (in less dystopic terms than Vinge's abovementioned version) as *a particular moment in time in which there will be a drastic change in how we deal with technologies*. It could be the advent of AGI, HLAI or SAI; the construction of an affordable BCI, or the rise of a cyborg society and the synthesis of artificial consciousness. But the final point, the farthest moment where theories conflate, is the *bio-digital fusion* that will follow the exponential growth of humans and machines, and actualize the correspondence between the two systems:

"The stars and Galaxies died and snuffed out, and space grew black after ten trillion years of running down. One by one Man fused with AC [Automatic Computer], each physical body losing its mental identity in a manner that was somehow not a loss but a gain. Man's last mind paused before fusion, looking over a space that included nothing but the dregs of one last dark star and nothing besides but incredibly thin matter, agitated randomly by the tag ends of heat wearing out, asymptotically, to the absolute zero." (Asimov, 1956)

Part 2

"I am not advocating that we go back to an animistic way of thinking, but nevertheless, I would propose that we attempt to consider that in the machine, and at the machinic interface, there exists something that would not quite be of the order of the soul, human or animal, anima, but of the order of a proto-subjectivity. This means that there is a function of consistency in the machine, both a relationship to itself and a relationship to alterity. It is along these two axes that I shall endeavour to proceed."
— Felix Guattari, On Machines

Here, Me, Now

Subjective experience is *phenomenal consciousness* (Block, 2002) and since the standard scientific method relies on an objective account of the mind based on empirical evidence, it cannot directly explain it (Chalmers, 1995). Philosophy, instead, has developed different methods to look at the *phenomena* (the things that appear to us) in themselves.[19] In the late 19th century, Edmund Husserl's *phenomenology* inquired about the nature of mental content, acknowledging the possibility to infer objective knowledge about this content and the external world. During the first half of the 20th century, analytic philosophers theorized the *sense-data*, later the *qualia*: minimal mind-dependent unities which, when combined together, constitute the whole phenomenal consciousness (Metzinger, 2009). These approaches and the description of the mind portrayed by the aforementioned cognitive revolution involve the *mental representation*[20] of the external world (*representational realism*) instead of direct contact with it (*naive realism*) (Metzinger, 2009). Our perception is deconstructed, processed in different areas of the brain, and recomposed in the world as we experience it.[21]

The contents of our phenomenal consciousness accessible through introspection are resumed in the experience of having a first-person perspective (*me*) upon the world (*here*) in a specific moment in time (*now*). Generally, our point of view takes place from within our body, which is itself represented as part of the world, giving us a sense of embodiment, ownership and selfhood, as well as location, presence, and agency (Metzinger, 2009). On the one hand, the "me" or *self*, as experienced by humans and a few mammals, is built upon a higher level of consciousness, allowing us to access memories and project into the future, using language and logico-mathematical thinking. Turning the first-person perspective inward, this *extended* or *secondary consciousness* makes us particularly self-aware beings, able to explore our own mental states and to account for and experience "experience" itself. The lower level, called *core* or *primary consciousness* is common in humans, a large number of mammals, and marine organisms such as octopus, and consists of a more basic form of self-awareness. On the other hand, the representation of space and time persist in most species as a basic level, which neuroscientist Antonio Damasio calls *nonconscious protoself* (Hayles, 2013, 2014, 2017).[22] I will return later to this argument, but it is important to highlight that the absence of a consistent subject capable of *inwardness*, makes us doubt to which extent certain animals are able to experience emotions and feelings as originating from within themselves. However, the impossibility to know what it is like to be another living being leaves this argument open to debate (Nagel, 1974, Chalmers & Friedman, 2020).

Given the hypothesis that the brain is the sufficient cause for consciousness to exist,[23] whatever it is that constitutes this consciousness must have a sort of correlation with the physical brain. This is what scientists call the *neural correlate of consciousness* (NCC) (Tononi & Koch, 2015), an extremely complex but *"coherent island emerging from a less coherent flow of neural activity"* that than becomes a more abstract *"information cloud hovering above a neurological substrate"* (Metzinger, 2009). Clinical cases and *limit experiences* that are directly accountable (such as neuropsychiatric syndromes, dreams, meditation, use of drugs, and so on) help to map which part of the brain is activated when the experience of the "here, me, now" happens in

different circumstances (Metzinger, 2005, 2009, Tononi & Koch, 2015). In fact, in spite of an *all-or-nothing* process, consciousness is *graded* and *non-unitary*, taking place in different phenomenal worlds. If we manage to link a particular subjective experience with a pattern of chattering neurons, we could get closer to solving the hard problem of consciousness. In particular, the first step to explain subjective experience would be to solve the *one-world problem: how different phenomenal facts are merged together (world binding) in a coherent whole*, and defining particular NCCs should lead to finding the *global NCC* and the *minimal NCC* necessary for phenomenal consciousness to take place (Metzinger, 2009).

In his book *Ego Tunnel*, Thomas Metzinger (2009) defines consciousness as *"the appearance of a world"*; the brain is understood as a *"world engine"* capable of creating a wide variety of explorable phenomenal worlds. In particular, Metzinger focuses on the phenomenal worlds of dreams and *out-of-body experiences* (OBE) in order to develop a functionalist, reductionist theory of consciousness. These states of mind, where a complete experience of *disembodiment* can be achieved, have led him to develop a particular definition of self, that instead of being a stable instance, is a process running in our brain when we are conscious, and turning off when we fall into a dreamless sleep. Exactly as the experience of the here and now is possible because these exist as internal mental representations, Metzinger's self is identified with the *phenomenal self-model* (PSM) created for better control over the whole organism, and the *phenomenal model of intentionality relation* (PMIR) as the model of its relations to others. Although the internal modeling of the "here, me, now" allows a deeper understanding of phenomenal consciousness than simulated virtual reality, Metzinger claims that *"no such things as selves exist in the world"*. This provocative claim, however, might be misleading in understanding the nature of the ego, which, notwithstanding the perspective of an internal self-model, seems more ontologically rooted when we consider the tangibility of experience itself (Hayles, 2013, Chalmers & Friedman, 2020).

Metzinger, like other researchers, tries to explain why it really looks like we are living in a simulation created by our own brains. While conscious experience seems to take place far away from the physical world, as an indirect representation, it seems to dwell in a place other than the physical brain, which instead is the object of study of most of the scientific community. Drawing a liminal space existing between our brain and the physical world, and claiming a reality of the phenomenal world closer to dreams, Antti Revonsuo calls the experience of being "here, me, now" reasonably an *"out-of-brain experience"* (as cited in Metzinger, 2009).

Engines and Experiences

If the actualization of the *computer metaphor*[24] in a computationalist perspective has its limitations in practice, kept as a metaphor it helps us think about many aspects of our beings. In particular, the difference between hardware and software reflects our struggle to interpret the relation between our body and our mind, our brain and our consciousness. The first part of this text highlighted how computers can produce symbolic and sub-symbolic operations, evolutionary dynamics and embodied knowledge, resulting in external behaviors identical to those of living beings. However, the available thinking machines cannot be said to be conscious. Most evidently, computers lack that active individual instance called "self" which causes a world to appear. But what about the "here" and the "now" of computers?

In her book *Hamlet on the Holodeck*, literary critic Janet H. Murray (1997) develops a theory of new media based on their literary nature. She quotes an excerpt from Italo Calvino's *If on a winter's night a traveler*, describing the experience of a writer in front of his typewriter:

"Every time I sit down here I read, 'It was a dark and stormy night…' and the impersonality of that incipit seems to open the passage from one world to the other, from the time and space of here and now to the time and space of the written word; I feel the thrill of a beginning that can be followed by multiple developments, inexhaustibly." (as cited in Murray, 1997)

Murray explains how the overwhelming capacity of the analog text to project the reader into its world is reconfigured and augmented in new media. Not only can the text be translated into a digital file, displayed and multiplied, but the whole nature of computer software, where the digital text takes shape, is itself textual. Both the stack of layers of programming language and the binary code dwelling at its foundation are texts expressing meaning. This backstage of computers has been used critically in literature (Hayles, 2004, Goldsmith, 2011), and software art (Cramer & Gabriel, 2001, Cramer, 2002), unveiling the textual nature and the conceptual realm of the processes undergoing the *graphical user interface* (GUI), and comparing these to human nature. Referred to as the *Rorschach metaphor* (Nelson, 1974, Turkle, 1984), the projective character of digital media is increased by the unique spatial aspects of the software's environment. Often called *cyberspace*, this represents a geographical space through which we can move, in an interactive process of navigation and exploration. Furthermore, the *user/interactor*, the active part of this process, triggers certain events to happen in a temporal immediacy:

"You are not just reading about an event that occurred in the past; the event is happening now, and, unlike the action on the stage of a theater, it is happening to you." (Murray, 1997)

Integrating space and time, software enables a world to be experienced. As the brain described by Metzinger, the hardware of computers works as a world engine. However, because of the absence of an internal experiencing consciousness making the world appear, their *"here"* and *"now"* is actualized only through the subjective experience of an external *"me"*. Similarly to this view of software as potential worlds, the computer scientist and pioneer in educational software Seymour Papert developed the concept of the *microworld*:

"[The microworld is] a little world, a little slice of reality. It's strictly limited, completely defined [...]. But it is rich. [...] The microworld is created and designed as a safe place for exploring. You can try all sorts of things. You will never get into trouble. You will never feel 'stupid'." (Papert, 1987)

The microworld works as an educational tool, helping children to learn how to operate and design multiple contained digital environments. In the long term, this knowledge of different small worlds can be used to create something larger: a *macroworld* (Papert, 1987).

What we call "software" is a stack of abstractions relying on each other but, in the end, it is nothing more than electrical impulses happening on the physical level of the hardware; in fact, *"there is no software"* (Kittler, 1992). The same happens with our consciousness, which scientists have continuously been trying to reduce to the brain itself; and, to paraphrase Metzinger, *"there is no self"*. However, the influence of software in our society is widespread. The worlds created by software shape the physical world, and, in many regards, it is increasingly considered a cultural object worthy of being studied in depth. Something similar is happening to the self, which is actually experienced as more than an abstract model switching on and off. It seems to contain the instruments enabling us to transform a meaningless physical world into a meaningful phenomenal universe (Chalmers & Friedman, 2020), worth being explored and giving us the means to create our complex society. When the *self* interacts with the *self-less* computer, the projective mechanisms of the textual software are activated, transporting the individual to experience a new phenomenal world. From this view, if the hardware represents the physical level, the software is not a property of the hardware, but represents the possibility of a phenomenal world which is actualized only when experienced by a self. This phenomenal dimension that the software acquires can be described as an *out-of-hardware experience*, exactly because it is experienced by a conscious subject located outside of the hardware.

However, if the software is experienced *out-of-hardware*, and consciousness is experienced *out-of-brain*, where is subjective experience exactly located? The identification of subjectivity within the hardware is typical of that researcher whose

scientific approach negates and reduces subjective experience to the mechanism of a brain. These researchers easily tend to alienate their own selves, idealizing computers as living organisms and predicting the ability of these computers to generate consciousness autonomously. Instead, when the problem is posed in these terms, the individual can claim back their power over the machine in shaping the center of phenomenal consciousness. In fact, the *one-world problem* of subjective experience mentioned earlier assumes that one world is first needed for consciousness to take place. A first mental simulation is necessary, and then, from this one world, other simulations similar to the microworlds described by Papert can be performed, predicting the results of an action or recalling a past event.[25] However, the hardware and the brain are two different kinds of *world engine*. They are two different systems and, even when producing the same results, they differ precisely in substance, structure, and processes (Dreyfus, 1972). When we experience software, a phenomenal world, other than the simulation of our main world, opens up in front of us. From the inside of the first world *out-of-brain*, a second world *out-of-hardware* can appear. In computer science, when a system runs a simulation of another system, this is called emulation. Given this notion, the brain and the hardware can be understood respectively as a *world simulator* and a *world emulator*, when seen from the perspective of subjective experience.

Extending Cognition

To better understand the relationship connecting humans and machines, it is necessary to understand how the phenomenal *"here, me, now"*, the compound of consciousness, differs from the *"here"* and *"now"* of the selfless world of software. This debate has progressed in many directions – however, the foundational elements for understanding this relationship have been there all along.

A first connection is already contained in *Erewhon* (1872), the main novel of the aforementioned forerunner of cybernetics, Samuel Butler – and also in its influence upon the work of Deleuze and Guattari. With a title meant to be read backward (an anagram of "nowhere"), *Erewhon* contains a section titled *the book of the machine* in which consciousness was for the first time seen as binding humans and machines. Deleuze's critique of representation (1968), articulated by his concepts of difference and repetition, would reframe this term not just as a *no-where* but as a *now-here*.[26] Later, in their collaborative work *Anti-Oedipus,* Deleuze and Guattari (1972) would relate the same term to their concept of *desiring-machine*, and Butler's understanding of machines to the *body without organs*. Finally, Guattari (1995) would describe the machine as a *proto-singularity* differing from biological organisms but closely related to their nature.

The term *proto-singularity* suggests a direct link to the aforementioned *proto-self*, defined ten years later by Damasio (2000) as the collection of brain devices that continuously and nonconciously maintain the state of the body within the narrow range and relative stability required for survival, and representing the deep roots of the elusive sense of "self" of conscious experience. Still referring to two different domains, technical and biological, the theoretical correspondence of these terms can be traced back to the offspring of cybernetics of the late 60s,[27] and in particular to the research of biologists Humberto Maturana and Francisco Varela (Guattari, 1995, Hayles, 1999, 2017). Maturana and Varela first developed the idea that cognition emerges in living systems from their ability to self-organize as self-contained systems (*autopoiesis*), later broadening this position to include the sensorimotor capacity of the organism to match and interact with its specific environment (*enaction*). Proposing an alternative to computationalism and connectionism, the enactivist paradigm extends cognition beyond the brain and consciousness, into the nonconscious inner processes happening in the organism as a body (*embodied cognition*) that interact with an external environment (*situated cognition*) (Hayles, 2014, 2017, Pasquinelli, 2014, Rescorla, 2020). This radical view of cognition can be extended furthermore outside of the body to create frameworks including not only animals and plants but also technological systems, and eventually, natural processes (*distributed cognition*) (Hutchins, 2000, Hayles, 2004,

2014, Pasquinelli, 2014), getting closer to the panpsychist view in which the mind becomes a fundamental element of the whole of reality.

In her recent works, Katherine N. Hayles (2014, 2017) reframes Damasio's protoself as *nonconscious cognition*, emphasizing the extension of cognition outside of consciousness into embodied and situated processes, and the relevance of the nonconscious as a new cognitive sphere including both biological and technical systems. Furthermore, because cognition presupposes interpretation and production of meaning,[28] the nonconscious provides a framework, which she calls *cognitive assemblages*, to extend social theory beyond anthropocentrism and consciousness, into a cognitive ecology of human and nonhuman *cognizers*. Differing from the unconscious in its inaccessibility through conscious states, the nonconscious posits itself in between material processes and consciousness, providing the first layer of meaningful representations needed by consciousness to take place. Furthermore, according to new empirical proofs, the nonconscious works faster and can process a larger amount of information than consciousness, preventing the latter from being overwhelmed. However, with its ability to choose, at its simplest level between a zero and a one, and to perform faster than consciousness, the technical nonconscious can condition our decisions and behaviors, making new techniques of surveillance and control possible.[29] From these perspectives, the study of computational media becomes a necessity to complete a coherent map of social interactions and to openly accept their active role in the production of culture.

The framework of the nonconscious cognition developed by Hayles provides a working model to understand the actual relationship between consciousness and software. In fact, given an extended cognition beside consciousness, on the "biological" side, we find conscious processes relying on internal, dynamical representations provided by the biological nonconscious. These representations, that are maps of the environment and the body continuously updated in a window of time, provide consciousness with the building blocks of an embodied sense of self and a point of view through which it experiences a coherent phenomenal world. On the "artificial" side, there is no consciousness and self to reinterpret the representations provided by the technical nonconscious. Furthermore, far from being embodied and situated within biological organisms, the technical nonconscious is an embedded system burnt in silicon, compiling and interpreting lines of text internally stored and manifesting its represented content through an interface. This technical cognitive process happens in *real time*, like the biological one, and represents the abstract spatial dimension described by its code providing the *"here"* and *"now"* necessary for a world to appear. The software stands for the possibility of the representational processes of the technical nonconscious to be extrapolated, internalized and re-represented by a consciousness that integrates its *"self"* to experience a new phenomenal world as an *out-of-hardware experience*.

Conclusion: A Walk Through the Language Maze

The attempts of the proponents of machinic life to build autonomous machines, and the articulations of human-machine symbiosis, are essential steps in exploring the processes of cognition. However, these frameworks rely on premature assumptions perpetuated as pretended actualities, while they fail to consider the consequences of their claims and products for the public at large. The focus of these disciplines should change, because the symbiosis is clearly already happening and it necessarily changes our lives and our societies through a *"control without control"*. Indeed, the mimesis of consciousness in technical systems, and its underlying faith in a true artificial consciousness, must rely on an understanding of biological consciousness and, eventually, it must be reframed in accordance. Instead of the rush to increase the capabilities of technical systems, developing a science of consciousness is a necessary step that we must take first, and that will allow us to disclose the nature of subjective experience and reorganize our understanding of the physical world, the biological and technical systems, and the mind.

In the same trajectory, understanding consciousness provides new means to look beyond consciousness itself. It allows us to find the natural position of an elusive object of inquiry which, because it is observable only inside ourselves as subjects, has been used for ages to perpetrate an unnatural anthropocentrism now seen to be threatened by our own technologies. The extension of cognition outside of consciousness, which is already envisioned in Intelligence Augmentation and the cyborg theory, allows us to think of a natural social ecology where different forms of cognition, conscious or not, shape each other in a communal influence. Instead of being a threat, it opens new physical and intellectual relationships with new forms of cognition in and beyond the biological realm.

The interaction between human beings and the technical system through software, as discussed in this thesis, is a comment on the validity of such developments and an insistence of the necessity to continue in this direction. It envisions new ways to articulate the study of software, on the one hand, by standing firmly in the materiality of the physical processes that constitute it and reduce it completely to the hardware, and on the other hand, by highlighting how the interaction with a conscious subject makes it possible to rethink software in terms of an experiential world abstracted by underlying material processes. Drastically different from other phenomena, which fail to provide the complexity of an experiential world, software can be arguably said to augment consciousness, instead of only augmenting cognition and intelligence. The technical questions as to the validity and consequences of this thesis rely on the next developments in our understanding of consciousness, of the physical world, and of their relationship which still is uncertain. These developments, as many people would like to fantasize, might help us to understand that consciousness can be actually instantiated in artificial machines able to "feel" feelings and perceive themselves as embodied in a physical world. They might help us to consider inhabitable, artificially simulated worlds, which currently are still games that can't be mistaken for real worlds. But right now, we must be able to understand why this is not actually happening, and why we are still deeply different from machines.

Perhaps the link between the human and the machine consists of a maze created by their intertwining layers of languages[30] – a *"language maze"* made of verbal and non-verbal languages, natural languages and formal languages, computer code and machine languages. A *Daedalus's labyrinth* of material – informational, algorithmic and literarily explorable spaces developing in the horizontal and the vertical dimensions, from microscopic to macroscopic territories. A *Penelope's web* made of rooms hiding recursive simulations and emulations of other rooms, of other mazes, and of itself. Perhaps what distinguishes the human from the machine is the capacity, illusory or real, of being

whole with the *"language maze"* as an infinite space in which to build new worlds from scratch.

"The Labyrinth is presented, then, as a human creation, a creation of the artist and of the inventor, of the man of knowledge, of the Apollonian individual, yet in the service of Dionysus the animal-god."
— Giorgio Colli, La nascita della filosofia (The Birth of Philosophy)

Endnotes

1. Not meant to be exhaustive, this historical account of *machinic life* (which comprise *Cybernetics*, *symbolic* and *sub-symbolic AI* and a brief mention of *ALife*) provides a sporadic overview of a much more interesting and articulated story that is still in progress, and of which a more detailed account can be found elsewhere.

2. Developed within Deleuze and Guattari's *machinic philosophy* (1972, 1980) (Johnston, 2008), the term "machinic" postulates *"the existence of processes that act on an initial set of merely coexisting, heterogeneous elements, and cause them to come together and consolidate into a novel entity."* (DeLanda, 1997).

3. *"An art, skill, or craft; a technique, principle, or method by which something is achieved or created."* (Oxford Dictionary)

4. Formulated by Auguste Comte in the early 19th century, positivism rejects subjective experience because it is not verifiable by empirical evidence.

5. *"I want to know what is characteristic of piety which makes all actions pious […] that I may have it to turn to, and to use as a standard whereby to judge your actions and those of other men."* (as cited in Dreyfus, 1972)

6. *"Once the characteristic numbers are established for most concepts, mankind will then possess a new instrument which will enhance the capabilities of the mind to far greater extent than optical instruments strengthen the eyes, and will supersede the microscope and telescope to the same extent that reason is superior to eyesight."* (as cited in Dreyfus, 1972)

7. McCulloch's seminal work is particularly relevant as a first comparison between the brain and digital information processing, anticipating both computationalism and connectionism (Dreyfus, 1972, Rescorla, 2020).

8. *"[…] self-organizing systems, neural networks and adaptive machines, evolutionary programming, biological computation, and bionics."* (Cariani, 2010)

9. Hubert Dreyfus (1972) refers respectively to cognitive simulation (CS) and artificial intelligence (AI) *"in a narrower sense"*.

10. Johnston (2008) explicitly positioned cybernetics in opposition to the previous argument by Hayles (1999) *"that cybernetics […] effected a 'disembodiment' of information by defining it independently from its material substrate"*.

11. Natural language processing, problem-solving, chess-playing, the child program idea, and genetic algorithms.

12. In her account of the early days of AI, Pamela McCorduck (1979) recognizes Allen Newell, Herbert A. Simon, Marvin Minsky and John McCarthy as the early fathers of this discipline (McCorduck & Friedman, 2019).

13. This approach is often called *functionalism* in philosophy (Block, 2002), even though this is a generalization (Rescrola, 2020).

14. HAL 9000 is depicted as a malevolent human-like artificial intelligence capable of feeling emotions; the character was designed with the technical consultancy of Marvin Minsky (Dreyfus, 1972).

15. *"Suppose that I'm locked in a room and given a large batch of Chinese writing […] [but] to me, Chinese writing is just so many meaningless squiggles. Now suppose further that after this first batch of Chinese writing I am given a second batch of Chinese script together with a set of rules for correlating the second batch with the first batch. The rules are in English, and I understand these rules as well as any other native speaker of English. They enable me to correlate one set of formal symbols with another set of formal symbols, and all that 'formal' means here is that I can identify the symbols entirely by their shapes. Now suppose also that I am given a third batch of Chinese symbols together with some instructions, again in English, that enable me to correlate elements of this third batch with the first two batches, and these rules instruct me how to give back certain Chinese symbols […] from the point of view of somebody outside the room in which I am locked – my 'answers' to the questions are absolutely indistinguishable from those of native Chinese speakers. Nobody just looking at my answers can tell that I don't speak a word of Chinese."* (Searle, 1980) In conclusion, a machine following a code, exactly as the person locked in the Chinese room, doesn't "really" understand its inputs and outputs.

16. *"MARY is confined to a black-and-white room, is educated through black-and-white books and through lectures relayed on black-and-white television. In this way she learns everything there is to know about the physical nature of the world. She knows all the physical facts about the environment […] If physicalism is true, she knows all there is to know. […] It seems, however, that Mary does not know all there is to know. For when she is let out of the black-and-white room or given a color television, she will learn what it is like to see something red, say. This is rightly described as learning – she will not say 'ho, hum.' Hence physicalism is false."* (Jackson, 1986) In conclusion, subjective experience can't be reduced to a code and therefore "strong AI" is not possible with symbolic AI.

17. In particular, for some of the goals of their companies and their various claims about the advent of AGI (Musk & Friedman 2019).

18. In particular, for their previsions and their way of popularizing the advent of AGI in their books.

19. Eastern philosophy already developed a philosophy of mind, centuries before Christ, that is still particularly relevant for recent developments in the scientific understanding of consciousness (Hayles, 2017).

20. These mental representations can be understood as functional models produced by the evolutionary process and naturally selected for their survival and adaptive value (Metzinger, 2008).

21. In general, this scientific view is based on empirical data, implying that the physical reality described by nuclear and quantum physics exists, and that our phenomenal experience is projected on top of it.

22. Hayles (2017) refers to the works on neuroscience of Antonio Damasio and the Nobel laureate Gerald Edelmann, which respectively define the two levels of consciousness as *core* and *extended consciousness* and *primary* and *secondary consciousness*.

23. This is the essential condition for a reductionist theory of mind (Metzinger, 2008).

24. The *computer metaphor*, which compares the brain to a computer, is emphasized here in terms of "metaphor" rather than "computer" – which instead, when compared to computationalist approaches, should be understood as a "computational system" (Rescorla, 2020).

25. This nested hierarchical structure is common in conscious mental simulations as well as in software, where the operating system runs at the top level.

26. *"Butler's Erewhon seems to us not only a disguised no-where but a rearranged now-here"* (Deleuze, 1968).

27. This late and last offspring of cybernetics is called *second-order cybernetics* (Johnston, 2008, Hayles, 1999).

28. The field studying the production of meaning in the biological realm is called *biosemiotics* (Hayles & Sampson, 2018).

29. This problem is known as *the missing half-second* (Hayles, 2014, 2017).

30. "Language" here is understood in the broader sense, including non-verbal language and sensorial perception, to suggest all possible signifiers.7

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Unravelling Disembodiment

The Production Of Power In Disembodied Learning Processes

Biyi Wen

Introduction

As a tinkerer in Do-It-Yourself technology, I am ambivalent towards tutorials. I rely heavily on tutorials, but I also abhor them. Tutorials are my primary source for acquiring different types of knowledge. These types of knowledge might be a protocol, a programming library, or how to set up hardware configurations. These tutorials are published in various media across different platforms. Various types of media include explanatory texts, illustrative images, and demonstrative videos; different platforms refer to online question-and-answer forums, project repositories, and massive-open-online-courses (MOOC). The way I define "medium" emphasizes how each of these, as an instrument of communication, has an impact on the transfer of knowledge; the way I define "platform" emphasizes how the platforms' agendas inform knowledge transfer processes.

As learners, we are quick to assume that tutorials are easily accessible, understandable and objective. However, as I navigate through the sea of knowledge available in tutorials, feelings of alienation, frustration, and doubt are my perpetual company. Very often I have found myself scrolling over blocks of text consisting of unintelligible technical jargon. From time to time, I felt offended by how certain content creators acted as able-minded, meritocratic know-it-alls.

By all means, I acknowledge that the acquisition of knowledge goes hand-in-hand with an incremental learning curve. The fruit of knowledge is only attainable through the utmost degree of patience and diligence. However, the concern of this thesis is the mobilization of knowledge. While the process of acquisition emphasizes the efforts and skills coming from the learners themselves, the mobilization of knowledge concentrates on the dynamics surrounding the transfer of knowledge from one party to another, such as between teachers and students, from documentation creators to users, or amongst users themselves. I see these relationships as bearing structural power dynamics which can potentially result in feelings of alienation. The media and platforms that mediate the transfer of knowledge also contribute to feelings of alienation, particularly when we are dealing with disembodied media such as text, video, and images.

This thesis is an effort to trace and resolve the feelings of alienation experienced from learning with tutorials in disembodied form. First, I establish a framework of

structural power dynamics, informed by Rancière's *The Ignorant Schoolmaster* (Rancière, 1991), a treatise which identified how structural power dynamics exclude under-represented populations from accessing knowledge. With slightly more attentive eyes than one would normally devote to tutorials, I will identify the structural power dynamics manifested in these tutorials. It is important to analyze the power dynamics in the context of the platforms that facilitate knowledge production, in order to investigate whether and how these platforms' agendas perpetuate these dynamics. These steps pave the way to answer the research question from the perspective of disembodiment: how does a disembodied medium produce notions of power, such as authority and authenticity? Based on my project, an archive devoted to a device known as the "repeater" as a disembodied medium, I will propose ways to remedy the feelings of alienation resulting from disembodied learning experiences.

In the course of writing this thesis, I received education from a publicly funded institution; outside of school, I spent a great deal of time learning from external online resources: Stack Overflow, GitHub, and Coursera. The public sector is not the only place to offer education today. The production of knowledge is profoundly affected by conditions of neoliberalism, which externalize public affairs such as education to the private sector and promote individualism. The term Do-It-Yourself is itself most representative of the neoliberal ethos – I bear the sole responsibility to guarantee my own survival. Virtual education decentralizes education, as learners are no longer restricted by factors of location and time. However, structural barriers continue to reproduce and reinvent themselves, in spite of the decentralizing forces brought by virtual media.

Chapter 1: The power dynamics in tutorials

Part 1: The Ignorant Schoolmaster: power dynamics in teaching and learning

To examine the power dynamics manifested in tutorials, I must return to the essence of performing and receiving tuition. Historically, teaching and learning have been institutionalized as part of state welfare (Illich, 1971). In *The Ignorant Schoolmaster*, Jacques Rancière (1991) recounted a narrative that challenged the common doctrines of formal education. His own intellectual itinerary was deeply embedded in the May 1968 Paris uprising, which exposed the structural inequalities present in all realms of life in French society. *The Ignorant Schoolmaster* was an effort to understand how power structures perpetuated inequalities, focusing on knowledge production.

Rancière's account was based on a series of events that took place in the 19th century. The protagonist Jacotot, a native of Dijon, in France, was employed as a French instructor in the Flemish-speaking town of Leuven. The Flemish students spoke no French, and Jacotot spoke no Flemish. The teaching agenda revolved around a bilingual edition of *Télémaque*, a familiar mythological legend. Students were assigned the task of deciphering the French text noun by noun, verb by verb, going back and forth between French and Flemish texts. The process was self-reliant, as if the students were learning their mother tongue as infants. Periodic sessions were held to assess the students' learning progress. Surprisingly, they were able to acquire French autonomously, and eventually mastered the content of *Télémaque* (Rancière, 1991).

Jacotot's teaching philosophy refuted conventional pedagogy, and was later termed the "universal education" method, which radically changed the distribution of authority amongst teachers and students. From the success of the initial experiment, Jacotot was invited to carry out tutorials in subjects in which he had no expertise – piano, chemistry, and law – verifying a principle that sounded like hyperbole: one can teach what one does not know (Rancière, 1991; Hewlett, 2007). Jacotot's testimony verified the keystone grounding Rancière's body of work – the presumption of intellectual equality in all human beings. Intellectual hierarchy is a matter of power constructs. Intrinsically, nobody is intellectually inferior to anybody else, and nobody is intellectually superior to anybody else.

Intellectual hierarchy is a power construct, and the production of knowledge continues to perpetuate power hierarchies. To explain how these hierarchies come into being, Rancière developed a set of vocabularies and frameworks. To produce authority, the teaching process is based on what Rancière called the "explicative order". First, a body of knowledge is organized into formulaic, repeatable modules. The "explicator", who we can also understand as the instructor in the conventional sense, transfers knowledge by repeating knowledge to the student. The explicative order is a hierarchical order, rising from the simple to the complex. The goal of the order is to elevate the student to acquire the knowledge necessary to align with the highest social destination they are predetermined to inherit, such as lawyers, artisans, and doctors (Rancière, 1991). While the explicator indoctrinates, the learners receive passively. The process implies the explicator's superiority of intelligence, and assumes the learners' inferiority. The explicative order is one of perpetual reproduction: as the formerly inferior subjects advance in the hierarchical order, they assume positions of superiority and look down upon the new inferior subjects (ibid).

The equality of intelligence is fundamental to universal education's ethos – nobody knows any better than anybody else. The instructor's role is to motivate the students to autonomously acquire knowledge. This is an emancipatory process, freeing both teachers and students from the iron casts imposed by the power relation between the explicator and the students. This process liberates intellectual autonomy: the possibility to acquire knowledge outside of social, cultural and

economical constraints.

The explicative order explains how power dynamics flow in education. However, there are thresholds that exclude populations from receiving education in the first place. Pierre Bourdieu, a French sociologist contemporary with Rancière, proposed two structural reasons that caused unfair exclusion, summarized by Rancière as the "Bourdieu Effects". They are drawn respectively from Bourdieu's *Les héritiers: Les étudiants et la culture* and *La reproduction*, both identifying how social inequalities reproduced themselves in the educational sector during the 1960s in France. The working-class youth were excluded from the universities because they were unaware of the true reasons for which they were excluded – and their ignorance of the true reasons for which they were excluded was a structural effect produced by the very existence of the system that excluded them (Bourdieu & Passeron, 1970; Rancière, 1991). Although theories observed by academics, such as Bourdieu's, helped to articulate how structural exclusion perpetuated inequality, Rancière found them limiting, as they were words spoken by the privileged intellectuals, rather than directly from the mouths of the excluded. With this revelation, Rancière stepped outside of traditional academia to experiment with decentralizing ways of knowledge production (Deranty, 2010).

The goal of my revisitating of Rancière's reflections is to lay out the groundwork to explore two processes I will continue to address here: the production of authority, and the production of authenticity.

Part 2: The reproduction of power dynamics in tutorials

More than two hundred years have passed since Jacotot's experiment with universal education, and more than fifty years have passed since the May 1968 uprising triggered structural critiques within French society. Today, education is not only mediated through text and speech transmitted in physical environments, but also virtually. Virtual education is presumed to lower the thresholds which formerly made education a privilege – income, class, and gender. It has decentralized learning processes in time and space: today, we can learn fragmented pieces of knowledge on the web, regardless of temporal and geographical restrictions. However, the elimination of certain thresholds does not imply the elimination of power dynamics. Today, power dynamics continue to be inherited and mutated. In this section, I will try to address the phenomena that indicate the existence of patriarchy, gender biases, and co-optation found in tutorials. I will categorize these individually for clarity, but in reality they are interwoven.

A. Behind the screen: traces of patriarchal representation

In my master curriculum, we develop a lot of prototypes in Python. As an expressive language with a smoother learning curve, it's a popular choice for students with an art and design background who may not have prior programming experience. To polish my Python skills, I subscribed to a series of Python video lessons published on Bilibili.com, a Chinese video streaming platform. The series, titled "Python for Newbies", covers Python's basic syntax and provides examples of practical applications such as crawling web data. However, as I watched the introductory video, I could not help but raise my eyebrows.

As the instructor introduced the prospect of learning Python, he also paraphrased words from Pan Shiyi, a Chinese real estate tycoon: "To learn Python is the best gift for oneself, a once-in-a-lifetime opportunity." He referred to Pan as "dà lǎo", a title referring to male leaders of gangs, and later appropriated to refer to male tycoons. It is a frequent word appearing in Chinese news media, used as a synonym for successful male leadership in a corporate context. The word choice disturbed me a little, but I could put up with that. As I continued to watch, however, I discovered more uncomfortable nuances.

Like many online courses, the video was predominantly oriented towards learners who aimed to gain employment. To illustrate these employment prospects, two cartoon illustrations accompanied the instructor's narration. The text "Python crawlers are efficient and easy to use" was accompanied by a caricature of the

quintessential male geek. He was dressed in a buttoned-up shirt and wore glasses, focusing on a desktop screen. The statement "It is a bonus to learn Python to seek jobs and promotions" was accompanied by a figure of a male white-collar worker. He was dressed in a suit and stood with his arms akimbo, his upper lip tilted slightly upwards, conveying a sense of confidence.

FIG. Screenshots from "Python for Newbies" (Bilibili, 2020)

Hearing the narrator's word choice and looking at these images, I felt alienated towards the tutorial's agenda. The video perpetuated a set of patriarchal values that I would never find myself in alignment with. As a female learner, I felt my presence was not considered by the tutorial's agenda, and thus not embraced or welcomed. Facing the screen, the narrator is the only person I am remotely in contact with. Behind the screen, the production team includes more roles: copywriters, illustrators, and video editors. I wondered what had shaped the production team's decision-making, to portray future programmers solely as male figures while elevating Pan as a patriarchal commander. The screen was the only substance I interfaced with, and I wasn't given any other clues to answer my questions.

This initial encounter that caused my feelings of alienation urged me to probe what triggered these feelings. I thought of Jacotot's universal education, and of the Bourdieu Effects as summarized by Rancière. My situation coincided with the context their theories applied to – receiving tuition; the only difference being that technological advancements enabled me to receive tuition virtually, via disembodied media such as the web and the screen. In spite of this difference, the power structures remained apparent. In studies of Jacotot's universal education method, an evened-out distribution of power among the students and the teacher was key to unleashing the potential of students. The video was very much the opposite of this. In the video, Pan was addressed as a "dà lǎo", installing him as a superior figure. As I was told to learn per the prospects he promised, I was placed in an inferior position in relation to his authority.

The Bourdieu Effects helped to explain how I felt excluded by the video's gender representation of programmers. The decision to portray programmers as solely male figures implied a power structure, which determined that only men were entitled to learn Python and become successful through programming careers. Mediated by the disembodied medium – the screen, the web, and the video – I was in no position to interrupt the production team's decision-making. Therefore, I was not able to know how this structure of exclusion had come about, and was provided no means to escape from it.

B. The commodification of immateriality

In February 2020, as the COVID-19 pandemic was affecting China, I received an email invitation from the University of Michigan to subscribe to their online Python courses hosted on Coursera. Established in 2012, Coursera's mission started out as pro-bono. It aimed to bring education opportunities to anyone from any parts of the world (Coursera, n.d.). The invitation was addressed to scholars from China to alleviate their losses due to travel restrictions. At the time, Chinese scholars were the first to be hit by international travel restrictions, unable to attend previously scheduled events. Hence, the course was offered at a nominal price of \$1. Normally, one course would cost at least \$49.

Momentarily I was excited about the cost reduction. I've been using Coursera as a resource since 2014, after I graduated from college and lost my entitlements for organized education. My college experience studying fine art revolved around limited technical knowledge, and Coursera greatly made up for that. Even the most

entry-level courses in topics such as HTML/CSS invited me to discover a brand new field. I was able to apply these skills to the informal web design jobs I had landed. Coming outside of design training, those jobs were the limited choices I was qualified for. But as I acquired new knowledge assets offered by Coursera, I was invited for more fulfilling and challenging opportunities. Under such humble circumstances, the significance of Coursera was invaluable: it helped me to gain intellectual and technical advancement autonomously.

However, after 2014, Coursera ceased to be my Eden for exploring knowledge. The change started with the monetization of course certificates. After the completion of a course, I was entitled to earn a certificate for \$49, or receive a "Statement of Accomplishment" without cost. The value of the certificates lay in their credibility on platforms such as LinkedIn, where users can showcase them on their profiles as symbols for employable assets. This business model generated a great deal of revenue from the sheer selling of certificates (Shah, 2017; Eckstein, 2019). Since then I have rarely sought Coursera as my virtual mentor.

Seeing the invitation valued at \$1, I wanted to try out Coursera again. But as I proceeded to subscribe, I was still obstructed by a paywall asking for \$49. Since I live in the Netherlands, I used a VPN service to route my IP address back to China to see if it made any difference, but the paywall remained. I felt fed up with the ever-lingering presence of the paywall and closed the browser tab.

The trajectory of Coursera, from an open-access reservoir to a certificate-vending machine, constituted one segment of my quest for intellectual emancipation. In the beginning, I was garnered as one of many loyal users, convinced as I was of its egalitarian vision for open knowledge access. Indeed, before its closure of resources, Coursera helped me to realize mobilities of various sorts: intellectual, technical, and economical. This realization of mobilities, however, was only temporary. An essay titled "The Californian Ideology" (Barbrook & Cameron, 1995) analyzed the growth of disillusion from the perspective of techno-capitalism, under which immaterial resources such as course certificates are commodified and traded. With the commodification of immaterial assets, the structural inequalities between the privileged and the deprived increase even further.

C. Reflections

Two common threads are present in the two examples above. First, the presence of the disembodied medium; second, how the disembodied medium reproduces existent power dynamics and structures. From the example of the Python lessons on Bilibili, the opacity of the disembodied environment obstructed me from challenging the power structures which the video established. As for Coursera, power reproduction in disembodiment is best understood in tandem with immateriality. The commodification of immaterial assets, such as the course certificate, built higher thresholds for accessing common knowledge, and reproduced the existent power dynamics and structures to an even greater extent.

However, the examples of Bilibili and Coursera barely scratched the surface of disembodied media – though they also revealed the huge significance of their effects. Experiencing these effects were painful revelations: the realization that I would be trapped in perpetual power structures. At the same time, these revelations urged me to unravel further: beyond the hugely significant effects to the intrinsic qualities of disembodied medium, and how these impact the reproduction of power.

Chapter 2: How disembodied experiences produce power

Part 1: The Portsmouth Sinfonia and the phonograph

Disembodiment is a very abstract notion to begin with. To illustrate it in a convivial yet critical way, I will start with the eccentric anecdote of the Portsmouth Sinfonia. In 1974, a composer named Gavin Bryars, who was teaching at the Portsmouth School of Art in England, gathered a group of students and initiated the Sinfonia. Its two entry criteria were unlike those of any other conventional orchestra: 1. The applicant should not have received prior formal training in music, and 2. If the applicant had any prior knowledge of an instrument, they could only play another unfamiliar instrument within the Sinfonia (Han, 2017).

The Sinfonia was enthusiastically received by the public. It was signed to a record label and even made appearances at prestigious venues such as the Royal Albert Hall in London. The audience enjoyed the humor and irreverence created by the Sinfonia's dissonant sound – "Cringe-inducingly bad, with plenty of off-notes and random blasts of noise (Grundhauser, 2017)". The Sinfonia made a conscious decision to play well-known classics such as the William Tell Overture, so that despite the orchestra's off-key presentation, the melody would remain recognizable to the audience. The Sinfonia was eventually joined by experimental musicians such as the later celebrated Brian Eno, who started to work with notions of expectedness – chance, error, and deviation. The Sinfonia was dissolved five years later, in order to preserve its founding ethos: as its members became increasingly skillful on their instruments through experience, the Sinfonia was no longer an amateur orchestra (Han, 2017).

An off-beat orchestra's popular success offers us an inverse example of the notion of authority. Brian Eno's interpretation of the phonograph helps to trace the trajectory of the formation of authority. Prior to the phonograph's entry to regular households, small towns and villages in Europe had their own bands. Limited by travel mobility at the time, the musicians were unable to frequent larger cities where formal concerts were performed. Eno speculated that, due to the lack of access to the sound of performances deemed as "standard", the performances of provincial bands would have resembled those by the Portsmouth Sinfonia: occasionally derailing away from what we later came to know as standard practice, but largely remaining enjoyable and vibrant for the locals.

The entry of the phonograph to common households radically changed how music was produced and experienced. In a recording studio, the sound of the music underwent a transformative process of abstraction. Sound, as an embodied substance, was reduced to wavelengths represented by corresponding grooves engraved onto the records' surfaces. Steven Connor's study of sound helps to articulate what was lost in this abstraction process (Connor, 2000, 2010). To start with, sound is a profoundly embodied substance, defined not only by the audio attributes we conventionally assign to it, but also by other embodied attributes not usually regarded as sound, such as space. "Sound assumes space, and clings to that space. If I record a sound in one space, and play it back in another room, at another time, the sound recorded refuses to relinquish its hold on the space in which it first resounded." (Connor, 2010)

Precisely because sound refuses to relinquish its hold on its original space, as it undergoes the processes of abstraction, its spatial quality is lost, along with many other qualities that synthesize sound as an embodied experience. Another example is the visual attributes of sound. Experiencing music through the phonograph, we are unable to witness the gestures of the musician, or to synthesize these visual rhythms as we listen. The phonograph flattens sound from a rich embodied substance to abstract representations such as wavelengths and grooves. We have become used to experience sound in its representational form. As the needle of the phonograph sweeps through the engraved grooves of the record, it re-enacts sound

– not its essence, but its representation. Such a transformation has continued to impact our understanding of sound today: when we think of sound, we still conceive it in terms of its ever-evolving representational forms, such as electromagnetic signals and digital file formats.

The abstraction process was not only purely technical. As Connor interlinked sound with space, he referred to the pure sensual effects of these qualities. Aside from the sensual, space is ever laden with social and cultural implications. The abstraction process also entailed the deprivation of the social and cultural dimensions of experiencing sound. The townspeople in the provinces never met the musicians employed in the orchestras in the capital – a relationship unlike the one they had with the local band. Lisa Gitelman's extensive research on inscriptive techniques revealed how phonographs and records circulated widely as consumerist items (Gitelman, 1999). From their relative lightness, they were extremely portable and easy to trade. The affordable prices also contributed to their popularity. Underlying this change is the possibility to commodify immateriality, such as embodied experiences.

As the phonograph entered the townspeople's households, it began to extend its impact in unprecedented ways. As many other consumerist items, it promised abundance and convenience. The townspeople could access music selections at a quantity far more than the local bands could offer; additionally, they didn't need to travel to the center of town. They realized that the melodies sounded different than how the local bands played – the tunes were more in place; listeners started to cultivate judgements for the quality of music, and their judgement was biased towards the melodies from the records: "They are played by the orchestras from the capital." Hierarchies of superiority and inferiority began to come into place.

The process of establishing notions of power, such as authenticity and authority, took place through the disembodied medium. In the village and towns, the bands played less often than they used to. Nevertheless, on occasions of weddings and funerals, it was the band, not the phonograph, that was invited to perform. Since the townspeople had extensive experience with the phonograph, they had also come to realize its limitations, and found themselves longing for the presence of the local band.

Part 2: Disembodied learning experiences from childhood

The Portsmouth Sinfonia's story playfully reveals how the phonograph was able to establish notions of authority and authenticity through disembodied instruments. Brian Eno's speculation is hard to disagree with today, since the sounds of the provincial bands were not archived through recording technologies. Despite the credibility of Eno's speculation, the Portsmouth Sinfonia's amateur spirit resonated deeply with me. The resonances came from episodes from my childhood, in which I learned through the disembodied medium of cassette tapes.

At the age of 10, I, like many other schoolchildren living in China, started my English learning career. The primary method for becoming acquainted with oral English outside the classroom was by listening to cassette tapes. The narrations deliberately made use of slow and clear pronunciations, to make an easy start for schoolchildren. The cultural resources of our city provided limited interaction with the English language and its culture. In spite of these limitations, some of us were able to pick up a nearly authentic London accent without ever setting foot in the UK, simply by listening to tape recordings and mimicking the phrases repeatedly. To foster an authentic learning environment, schools with the financial capability to do so would invite native English speaking instructors to hold oral practice sessions. Though we were thrilled and curious to interact with these instructors, the conditions of disembodiment remained, despite us physically sharing the same space. We knew very little about their social backgrounds, their customs and conventions. During one session, we saw a teacher with a Macintosh laptop, and were excited to see such a laptop with a luminous apple shape. As we advanced to high school, we had opportunities to live abroad as exchange students. During our initial arrival, it was common for us to struggle for several months to adjust to

understand English as used in real-life interactions. The adjustment was to cognitively transition from the disembodied to the embodied. In disembodiment, we learned spelling, phonetic symbols, and grammar; in real life, we synthesized and embodied the abstract rules.

Learning in embodied contexts exposed us to formerly unknown insights. We came to know the different types of English spoken around the world: Indian, Singaporean, African, as well as "Chinglish", a term that suggests a speaker's lower prestige and limited education in Chinese-English bilingual communities. So long as the language is communicated within a community, it deserves to be treated as legitimate. The English we were formerly indoctrinated with presented only a small fraction of the many existing forms of English. Yet those are not considered as authentic. The process of filtering a small fraction of highly-regarded English onto cassette tapes, and handing these over to schoolchildren, was a process of constructing concepts of authenticity and authority.

Tapes accompanied not only my language learning career, but also my learning to play musical instruments. As a child I learned to play the violin and struggled with playing in tune. In order to improve my sense of intonation, I recorded my performances on cassette tapes and compared them to the originals. The process was arduous though rewarding, since by increasing my precision I also came to a greater appreciation of the music's composition. However, the tapes had little to offer in terms of cultivating a cultural understanding of classical music. The violin is not an instrument native to China, but a foreign import, circulated widely only since the country's embrace of modernity. The corpus of canonical works was directly imported from the West, with a limited number of adaptations of Chinese folk music. One of the adaptations was the *Butterfly Metamorphosis*, a tragedy involving two young lovers' transformation to butterflies. I greatly appreciated the melody, since the composition sounded distinctly from the Western canon. I asked my teacher why a Chinese folk tragedy had been adapted for this Western string instrument, but he didn't seem to know the answer either. The curriculum emphasized the perfection of technique and precision, and tended to overlook the violin's cultural context. The relative brevity of time the instrument had been imported, the high expenses for lessons and for buying the instrument, kept it within a niche. I could not imagine the violin in a playful context such as a jam session. My later fascination with the Portsmouth Sinfonia thus very much derived from my lack of culturally embodied experiences with classical music.

The Portsmouth Sinfonia's agenda, the phonograph's transformative impact, and snippets of learning experiences from my childhood all nourished my understanding of disembodiment. Disembodiment is not only a process of technical abstraction, which transforms embodied experiences to artifacts that contain abstract information translated and recorded by inscriptive instruments. Disembodiment also entails social and cultural abstraction, resulting in the absence of contexts in which the actual experiences originally took place. Processes of technical, social and cultural abstraction contribute to how notions of authenticity and authority become established, since these processes involve considerable amounts of intentional selection and elimination.

It's also helpful to understand how abstraction works from the perspectives of production and consumption. When a record is produced, only the most highly regarded orchestras are appointed to perform for production. The selection process eliminates the many provincial bands from its scope. The record is consumed by the audience in the strangest and most alienated manner: sitting still in a chair, listening to the sounds emanating from a playback device. This way of consumption deprives audiences of the many other possibilities they might have enjoyed, had they been present during the production of the original recording: striking up conversations with the musicians, making a physical effort to travel to the performance venues, full of expectation and excitement on their way to the concert – these possibilities are extensive. Experiencing music through disembodied instruments, it becomes impossible to synchronize processes of production and consumption in the same place, at the same time, to stimulate active engagement.

The itinerary of a piece of recorded music is destined to follow the pathway of any other consumerist item during its production and consumption processes, in which the various micro-processes are assigned distinct roles and do not intermingle with each other. These highly classified and separated processes of how we produce and consume music contribute to feelings of alienation.

As our experiences go through layers of abstraction and alienation, very little room is left for us to ask questions. We tend to acknowledge the hierarchical values coded onto the records and tapes: this is original, that is authentic. We come to embody values of authority and authenticity and to perpetuate these values, further strengthening the existing power structure.

Part 3: Reinterpreting home: DIY tutorials

The two examples above analyzed how disembodied instruments using analog signals produce notions of power. These analyses shed light for analyzing DIY tutorials circulated on digital platforms as well.

Last spring, I began to tinker with the Raspberry Pi. Charged with immense interest, I found myself leafing through tutorials to absorb all the capabilities of this small but incredible computer. In a YouTube video, I discovered that, when installed with the proper software, the Pi can work as a VPN (Virtual Private Network) connected to my home network. The video was shot by a prolific YouTuber. The background cabinet featuring the diverse tech gadgets reflected the degree of expertise and wide selections of his channel. To start out, he used the corner cafe example to explain network privacy. "The VPN software routes the traffic from the cafe's public network, back to your home network, which is private and safe".

FIG. Still from a VPN tutorial on YouTube with figure redacted. (Lon.TV, 2019)

I quickly realized how the concept of VPN materialized very differently between myself and the YouTuber. As a teenager in 2008, I knew VPN as the "wall-climbing software". The neologism illustrated the software's objective to surmount the great firewall of China to access sites served from abroad and blocked by the firewall – a measure that continues to this day for sites such as Twitter, YouTube, Google, etc. Knowing the software from this particular context, I did not know that the VPN was originally designed for network privacy.

I tried to digest this situation – if the software can route traffic from a cafe to a home, then I can also route network traffic from Beijing to Rotterdam. During that summer, I planned to return to Beijing. Since my email was hosted on Google, I was eager to see if I could reinterpret the tutorial to serve my own agenda. There were several things I kept in mind: the VPN must be set up in Rotterdam and not the other way around; and the software and the Pi need to be stable, since when I am gone, no one can help me to fix it. Squatting on my couch, I followed the video step by step, connected my Raspberry Pi to the router, and crossed my fingers. I shared the account information with friends in Beijing, who then sent me a screenshot of YouTube: it was working! During the summer, I subleased my home to a temporary tenant, and reminded him to please not unplug the Pi or the router.

This experience led me to question the alignment between tutorials and the situations in which learners live. I thought of the word "homebrew", which derived from the Homebrew Computer Club, an informal gathering of computer hobbyists in California during the 1980s. The first personal computer was a brainchild of this club, which consisted of proficient engineers who already worked in the industry and had the knowledge and means to invent things on the side. I want to question the sense of homogeneity entailed by the concept of the home, when it is mentioned in projects produced in what are actually very different types of home.

The presentation of the home as a space with a variety of manifestations should not be flattened and universalized. After a long day at school, I squatted on my couch for another several hours to install the VPN. Unlike the YouTuber, I was not so well-equipped or so well-versed in the technicalities, so it took me several days to

comprehend all the steps performed during a half-hour video. My intention was also entirely different: to facilitate network access in the unique socio-political condition in which I live. Homebrew projects implied a universality that these projects can be carried out anywhere, and by anybody. As I attempted to realize these projects, the challenges I encountered due to my technical and cultural specificities quickly led to a disillusionment of this fantasy of universality.

It was a privilege to have a home as a shelter in the first place; and even more to maintain a home overseas in Rotterdam. More recently, the COVID-19 pandemic painfully drew a stark contrast between those who can afford a home for quarantine and those who cannot. The concept of home is not universal, but multifaceted: political, cultural, and social. Likewise, tutorials are not universal either.

Chapter 3: Re-engaging with disembodiment: the repeater archive

Part 1: The repeater: a short story

The common thread of this thesis is how disembodied media produce power. To materialize the trajectory of this thread, I chose to develop an archival project based on the repeater, a disembodied learning device from my childhood. The device was invented in China in the mid-1990s by a telecommunications engineer in his 40s. After China's economic reforms, the engineer was able to travel to Western Europe and North America. Upon realizing his lack of fluency in English (for his generation, the instructed second language in school was Russian), he invented the repeater to assist him in his studying.

Two core components make up the device: a hub for cassette tapes, and a digital interface. As the tape plays, the learner can manipulate the digital interface to select a phrase, play it back, record their own repetition, and compare the repetition to the original. This was not only a device of technical inventive value, but also of pedagogical significance. The "listen, record, compare" method was welcomed by students, teachers and parents alike, since it made up for the scarce opportunities to practice English in real life.

FIG. A typical configuration for a repeater: the upper blue part to play cassettes, and the lower grey part for the digital interface. (Shasha, 2019)

This device is deeply ingrained in the collective memory of my generation: every student was required to have a repeater at home for listening to English audio tapes. In addition to tapes that accompanied school textbooks, demanding parents required their children to study advanced materials outside of school. An audio interview I recently conducted with a childhood friend excavated one piece of quintessential "out of school" material, the "New Concept English" textbook. Since our parents all worked in education, they were themselves educated and familiar with strategies to keep us "ahead of the game", a phrase frequently used by my parents. Some of my peers did not study advanced materials outside of the mandatory curriculum: either their parents did not know about these materials, or they did not want to impose the extra workload on their children. This recollection was a realistic and uncomfortable testimony of the Bourdieu Effects discussed earlier. As my friend and I enjoyed structural privileges inherited from our parents, we managed to "stay ahead of the game". Our peers, who did not inherit these privileges and did not know these resources, had less access to advancement: and the uneven distribution of access to knowledge, caused by the prevailing power structure, further hindered them from gaining access to these resources.

For the ones who enjoyed these privileges, the help provided by this device led to advancements of all sorts – cultural, social, economical. As a child, I was impressed by a sense of cultural mobility delivered by the engineer in his TV lectures. He emphasized how access to cultural resources had greatly expanded his vision, even though he was professionally trained in engineering. As my childhood friend and I travel overseas today, our trajectories testify to the mobility the repeater was able to facilitate.

However, I also abhorred the device. During summer holidays, I was allowed to play for half of the day, while the other half was devoted to the repeater. The sense of alienation was shared by another interviewee, Xuanxuan, whom I met while looking for second-hand repeaters on a trading app. Many of the repeaters offered on the app were decorated with cartoon stickers, and Xuanxuan's repeater was the

most outrageously decorated of them all, covered with stickers of cupcakes, lollipops, and Hello Kittys. When my parents received the repeater I bought from Xuanxuan, they also found a letter handwritten by her. Growing up, she had always been an unmotivated student, and was looked down upon in the meritocratic hierarchy prevalent in Chinese schools. Upon discovering her passion for learning English, however, she transformed her study routine and motivation: reciting words and phrases with the repeater in whatever time was available within her packed schedule during preparation for high school admittance. For her, the stickers worked as rewards during these arduous moments of learning.

The playful stickers and the sincere letter from Xuanxuan led me to discover the repeater's role as embedded in common people's daily lives. Attached to the ubiquitous surface of the repeater, the stickers appear to me as symbols for overcoming the feelings of frustration and loneliness experienced during disembodied learning processes. They suggested a rich field for putting together an alternative archive for the repeater, one that critically embraces and overcomes the experienced feelings of alienation.

Part 2: Publishing noise

To interpret the concept of noise at the end of this thesis draws the circle complete. At the beginning of the thesis, the anecdote of the Portsmouth Sinfonia led me to question how notions of authority and authenticity are constructed. This construction process is a filtering process, and what is filtered out is regarded as noise. Understanding sound in the context of power structures, Rancière draws a distinction between what is deemed as speech and what is neglected as noise: "Not only is the speech of ordinary people ignored, but their words are not recognized as speech at all; rather, they are taken to be mere noise, a type of Aristotelian blaberon of meaningless utterances." (Hewlett, 2007)

The repeater's technical operation and pedagogy transform noise to speech, through disciplinary processes of repetition and self-correction. We listen to the original, record our mimicry, and compare it to the original. The design of such process is based upon a dividing hierarchy, as Rancière's distinction between speech and noise suggested. The authentic spoken English was considered as speech, and our voices were considered as noise.

This interpretation of noise extends to publishing practices as well. In *Why Publish Noise,* DIY publisher Miekal And (1989) used the phrase "print noise" to refer to contents outside of what is considered coherent and appropriate for inclusion in mainstream media. He also expanded the definition of publishing outside of its traditional boundaries, such as the production of books and magazines, to a wider variety of media: fax, telephone, and radio (ibid).

FIG. Textbook cassette tapes I have used.

My project responds to And's statement and to its twofold implications. First, the inclusion and exclusion of noise. Second, the adoption of unconventional media as publishing formats. For the inclusion of noise, I worked with audio samples from interviews I conducted, where the interviewees and I shared our experiences of the repeater. The archive aims to provide space to house our voices and speech, which had been formerly interpreted as noise. For the adoption of unconventional media, I chose cassette tapes as one of the forms in which to materialize my archive. These tapes were found in the dusty compartments of the family bookshelf and sent to me by my parents, adding another personal significance to this particular medium. These tapes contained the English textbook recordings that I used to listen to. Working with techniques such as overlaying, I produced sound collages, mixing the voices from the interviews and voices of the textbook recordings, as a gesture to blur the division between noise and speech and to invite more diverse and non-hierarchical interpretations.

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Tactical Watermarks

Pedro Sá Couto

Introduction

I am a privileged student. I have always been part of universities where I had access to paywalled academic journals. The reality in academic publishing nowadays is one of universities and governments outsourcing the publishing of research papers to private companies such as JSTOR and Elsevier. These journals are maintained behind paywalls that demand payment of approximately 30 euros per article, making access practically impossible to anyone who is outside of institutions that have a subscription. Strategies such as watermarking are used by these companies to discourage the distribution of proprietary material, making users more easily liable for their actions. Book publishers enforce similar policies, where customers are not able to share files they have paid for. My research departs from the critical research question – how can publishing bypass surveillance, and which counter-measures play an active role within this process? I will look into the motivations behind alternative strategies that open access to published material. I will explore established reactive measures that help users evade surveillance in publishing. At the same time, I will question how we can tackle this problem through the reappropriation of digital watermarks.

I will start by addressing how analogue media has played a vital role in bypassing surveillance from oppressive regimes. At this moment, the mainstream usage of the internet enables files and political ideas to go viral among larger audiences. A wide variety of infrastructures exist to publish files that have been made exclusive, for a broad diversity of reasons, from protected governmental secrets to copyrighted material. In the first chapter, I will look into extra-legal libraries and archives, while also questioning the current impact of these spaces and their roles in preserving the digital memory of sensitive information.

In the second chapter, I will address how digital surveillance manifests itself through different channels. In the realm of publishing, the primary strategies focus on making users who illegally download, distribute, and share copyrighted material more accountable and more easily identifiable for their online actions. Publishers have started to limit access to illegal copies, by appending imprints such as the downloader's geolocation, IP address, MAC address, email address, and others. What is the impact of constantly reminding readers that they can become targets?

The last chapter will focus on my project Tactical Watermarks, where I explore the use of watermarks as alternative forms of anonymisation. This chapter provides an overview of different creative responses, questioning authorship, protecting users' identity, and appending evidence of hidden processes required to subvert surveillance in physical and digital media. As a publisher, I have always had as my main concern how archives are documented and how provenance is displayed. Converting physical media into digital files is hard, and information often gets misappropriated in the process. With Tactical Watermarks, I reflect on the shreds of

evidence that make those who download and share accountable. As a response to these strategies of digital surveillance, I question how we can reappropriate and regain control over these personal traces.

Part 1 – Bridging between surveillance and publishing

Bypassing surveillance

To understand how corporations enforce digital surveillance, we must step back and recognise how censorship and surveillance have always been deeply connected in repressive authoritarian regimes. The reasons may differ, but the tools and goals are similar. Today in China and Turkey, reactive measures mirror the present state of surveillance. Actions such as restricting internet access, filtering content, monitoring online behaviour, or even prohibiting internet use entirely are put in place (Kalathil and Boas, 2001). These measures have political agendas: restricting the flow of culture and limiting freedom of speech is a way of avoiding dissent. Online strategies such as the use of virtual private networks and internet extensions play an essential role in establishing encrypted and secure connections online, thus providing privacy and helping users to bypass surveillance. These tactics bear a resemblance to how various analogue media have shaped parallel streams of prohibited communication throughout history.

After the Second World War, through the '40s and '50s, the Soviet Union made the circulation of art and music from the West illegal, making these kinds of cultural expression extremely limited. Against this, the *stilyagi*, members of youth counterculture in the Soviet Union, found a way to bootleg and smuggle Western records. While the main problem with DIY vinyl was acquiring the material to use in homemade record presses, a new method consisted of going through hospital dumpsters and collecting used X-ray sheets. Music would then be engraved in this vinyl X-ray material, and the middle hole to fit on the spindle would be burnt with a cigarette. More often than not, these types of vinyl would picture old images of bones and medical material, and started to be called *music on the ribs*, and *bone records*, creating space for a black market, leading to a cultural revolution (Grundhauser, 2015).

Figure 01 – Bone Record (Unknown, n.d.)

During the '60s, within the American, Western European and Asian context, illegal or clandestine publications started to emerge. Dominant governmental, religious, or institutional groups would prohibit any publications that weren't officially approved before publishing (Miles, 2016). The term *underground press* refers to all the underground periodicals and publications that arose associated with the counterculture of the '60s and early '70s. Underground periodicals were inspired by predecessors, such as the *POW WOW*, standing for *Prisoners Of War - Waiting On Winning*. *POW WOW* was a periodical published in Germany during World War II, considered "the only truthful newspaper in Germany", and with the advice "to be read silently, quickly, in groups of three". Prisoners of war published it in the Stalag Luft I camp in Nazi Germany to give insights on what was happening outside of the camp. It ended up being the most circulated daily underground newspaper in Germany during World War II (Smith and Freer, 2012). Another notable endeavour within the phenomenon of the *underground press* was *samizdat*, a *do-it-yourself* underground publishing movement that operated in the Soviet Union during the cold war (Kind-Kovács and Labov, 2015). Across the Eastern Bloc, readers would reproduce censored materials by hand, and these would be passed from reader to reader. Harsh punishments awaited anyone caught possessing these publications. Vladimir Bukovskiĭ gives an overview of this phenomenon as: "Samizdat: I write it myself, edit it myself, censor it myself, publish it myself, distribute it myself, and spend time in prison for it myself."

(Bukovskiĭ, 1988).


POW WOW

Volume III, Number 14 ... June 6, 1944

INVASION!

YANKS-BRITISH LAND IN EUROPE!!!

THEY'RE COMING BOYS!

B-U-L-L-E-T-I-N

German Radio, late this afternoon, reported a major naval battle off the coast of Belgium.

Nazi Communique of June 5: "Despite German order to exclude Rome from the battle area, American armored formations penetrated to the center of the city in the morning of June 4. Bitter street fighting continued until the evening."

Nazi Communique of June 6: "American armored fore es were repulsed at Tivoli, fourteen miles north-east of Rome. North Compound, evening June 6: Our grand-father parishes pecked their e- quipment and drove off in trucks.

Figure 02 – *POW WOW*, D-Day, June 6, 1944, Front (Kuptsow, 1944)

Inspired by the free press and counterculture, zine culture started to emerge in the '80s within the underground publishing panorama, emancipating print in order to overcome repressive power structures. Zines speak from and to an audience of underground cultures. Zines are self-published media, either with original or appropriated images and texts, with small-circulation and small-scale editions. Zines enable almost anyone to publish, making use of photocopiers and mimeographs for cheap and fast print runs. Zines are personal statements targeted to like-minded communities. Their positioning is somewhere between open letters and magazines, almost always not for profit, and even more commonly: publishers ended up losing money on them (Duncombe, 2017). The main thematics of zines are broad, from politics to pop culture. Networking zines also stand out, such as the *Factsheet 5* periodical founded in 1982 by Mike Gunderloy. Networking zines were fundamental in broadcasting, indexing and publicising other zines – and, as a result, helping to spread these DIY publications, by increasing audiences and access to such published material, and leading to the beginning of the emancipation of self-publishing as a strong response to repressive regimes.

The circulation of zines is puzzling. Zines circulated among amateurs. Without its negative connotations, the word "amateur" (from the Latin *amator*) can be defined as "those who love". With all the limitations that zines imply, all those who were involved, from publishers to readers, used this medium as a place to communicate and explore innovative ways of thinking (Duncombe, 2017). Printed zines were distributed by hand, and played a key role in engagement within smaller communities. Zines would circulate among trusted people only. This intimate movement of culture was significant when it came to building communities – more than simply spreading texts to be read, zines stimulated meetings between like-minded enthusiasts.

Contrasting fast-paced spaces

In contrast to the close circulation of material in zine culture, the way we circulate content online has changed. Digital media have been responsible for some of the most wide-ranging changes in society over the past quarter of a century (Schroeder, 2018). Our notion of control has adapted, and our perception of physical spaces may be changing how we perceive distance (Munster, 2011). The website *GeoCities* is an example of this phenomenon – founded in 1994 as *Beverly Hills Internet* (a name that didn't last long), *GeoCities* was organised into different regions, for example "Hollywood" spaces were assigned to webpages dealing with entertainment, and "SiliconValley" to computer-related web-hosted areas. Not only these web spaces started to create a different perception between virtual and real spaces, but communities also evolved, remarkably inspired by what happened with distributing zines by hand. Users navigated within different web spaces organised around shared interests. Web pages were linked in *webrings*, collections of sites linked in a circular structure.

Currently, public discourse and discussions happen online. The circulation of media and opinions is now viral. Political statements penetrate internet spaces, often hidden, for exmple through memes. Memes function as a virus, as an easy way to propagate an idea. They are used by both the political left and right to spread their agendas. Memes are used to mask messages, and to evade digital censorship. They play a crucial role in present-day protests and are used by resistance movements as contemporary political posters (Metahaven, 2014). In China, the *Grass Mud Horse* meme gained popularity because of its ambivalence. While exploring a dual linguistic feature, it evades digital censorship. In Chinese, pronouncing *Grass Mud Horse* one way, refers to an innocuous mythical animal apparently related to the Bolivian alpaca. However, when pronounced another way, it means "fuck your mother" (肏你妈) (Wu, 2019).

Figure 03 – Grass Mud Horse (russelgz, n.d.)

Analysing strategies that enable access

On July 5, 1993, *The New Yorker* published a cartoon by Peter Steiner with the caption: "On the Internet, nobody knows you're a dog" (Steiner, 1993). It pictures two dogs interacting, one of which is sitting at a computer. This symbolised the understanding of internet privacy, where users could interact with a certain degree of identity anonymity. Now, however, things have changed: the use of nicknames and pseudonyms is not as prevalent, and a user is expected to display their real identity. Not only the use of a name is enforced, but it is almost mandatory to connect a face to this name. As an example, Facebook demands real names, abandoning pseudonyms and making us use our real identity. Mark Zuckerberg, CEO of Facebook, even defends this position by stating that maintaining two or more identities is an example of a lack of integrity (Kirkpatrick, 2012).

"On the Internet, nobody knows you're a dog."

Figure 04 – On the Internet, nobody knows you're a dog (Steiner, 1993)

Corporations neglect users' right to privacy. Technology to surveil and control the individual is expanding. Users are more liable for what they consume and share online. At the same time, companies become less accountable for what they do with users' data (Mann, 2003). Lawrence Lessig points out that both in privacy and copyright, users have lost control over their data. There is a dire need for stricter regulations protecting the privacy of users, yet nothing is happening. When it comes to copyright protection, on the other hand, companies have pushed for regulations and have gotten their way (Lessig, 2008). When comparing these two interests, the right to privacy is not protected because the parties interested lack power and influence, unlike the entertainment industry which has the authority, the power, and the means to demand change.

Strategies to allow access to copyrighted materials and protected research journals have started to emerge. Because researchers kept bumping into expensive paywalls that were unaffordable for many, tactics were developed to make research more widely available. Online spaces such as archives and extra-legal libraries provide areas for accessing media through alternative channels, and their structures play a crucial role in who gets to access them. Users are filtered, restricting access to certain communities, protecting them and enabling curators to answer more specific needs. This user filter is implemented using tactics such as invitations, or requiring particular technological knowledge. When thinking about extra-legal publishing streams, we have to consider how these shape the way different digital files are accessed, and by which audiences. What are the available strategies and resources that enable public access? Here I will introduce infrastructures, policies, and tactics that protect those who host and make use of such platforms. Within shadow libraries, libraries that exist in the margins of the law, different systems exist: from public shadow libraries, where everyone is allowed to download and upload digital material, to more restricted libraries where proxies and invites are required.

Library Genesis started in 2008 as a successor to *library.nu* (previously *ebooksclub.org* and even earlier *gigapedia.com*). Between 2008 and April 2014, this library grew at a fast pace, with 1.2 million records by 2014 (Balázs, 2018). The website owners describe themselves as "random book collectors", who don't focus on curating materials and don't accept file requests. The topics are broad: from economy and geology to housekeeping. All users are encouraged to upload and download content. There's no upload score to maintain, no necessary login, and no price to pay. The platform regularly fights against shutdown attempts. Strategies to increase the lifespan of the collection are put in place, such as encouraging the creation of

mirrors. Mirrors allow hosting voluntary copies of entire collections or parts of collections over different servers and points of access, making these more difficult to control or suppress.

Within its context, *Library Genesis* seems to distance itself from the idea of bringing academic research to people without access. Although this vast library supposedly gathers information without any specific methodology, the reasons behind it look more like a political statement against copyrighted material, rather than trying to please a particular crowd. The focus on dimension rather than curation provides clues to its primary goal: publishing as much proprietary content as possible, thus dissolving the idea of ownership. The main page of the website links to a letter of solidarity demanding for action, a manifesto for standing up for what they believe in, incentivising the dissemination of knowledge:

We find ourselves at a decisive moment. This is the time to recognize that the very existence of our massive knowledge commons is an act of collective civil disobedience. It is the time to emerge from hiding and put our names behind this act of resistance. (Custodians, 2015)

Another shadow library, *aaaarg.fail*, stands out because of the demographics of its users, who are mainly researchers, academics, students and people interested in theory. To become a member, you need to be invited, and it might feel like you are in a private club, where you won't spot any advertising or demands for donations. Strategies, such as incorporating RSS feeds, creating a panel where users can discuss, and displaying a contact list on the landing page, allow users and moderators to connect more closely. As a member, you can not only upload and download but also request new titles through a message board, augmenting the sense of community and solidarity that exists in this online space.

Libraries such as *The Library* and the *Clockwise* libraries operate within the dark web. Standard web engines do not index their content. Instead, these libraries are indexed in specific webpages such as *http://mx7rwxcountermqh.onion/*. In such an index, you can find an annotated list of URLs, with a small description of the focus of each space. These libraries are harder to come across; you have to use Tor, the onion browser, to access them. They work as webrings, which brings a sense of community to the numerous projects that can be found here. Such archives appear to be personal libraries, for example the *Pokedudes Archive of Interesting and Odd Files*, which curates what is described as "a small list of weird or interesting files".

A more informal system of file sharing is a Facebook group titled *Ask for PDFs from People with Institutional Access*, which brings together people who are part of an institution, and people who are not and thus cannot afford research papers. The use of centralised social media to create an accessible community of scholars is fascinating. The appropriation of the design features of Facebook groups, such as the cover picture, is also compelling. The page displays a graphic (see figure 05) to help guide newcomers. This group transforms the act of sharing copyrighted material, making it into something more mundane and less specific to a hacker community. The workflow is as simple as if you were part of this group: you post asking for a PDF you need. Users interested in getting the same item comment "F" on the post, which stands for "following". Due to the design of the platform, if you comment you will be notified whenever there is activity on the post. This is an informal community of academics, sharing items among themselves, uploading pirated material to this platform and creating a social library.

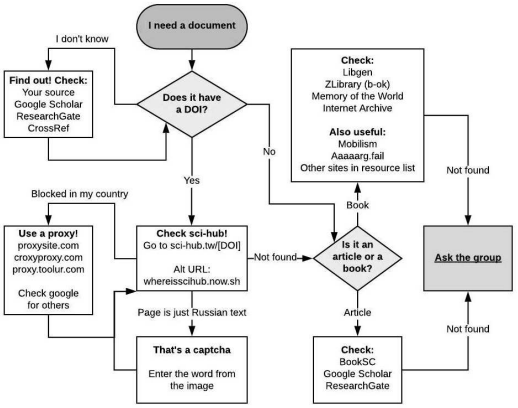


Figure 05 – Cover picture: *Ask for PDFs from People with Institutional Access* (Unknown, 2019)

Besides shadow libraries, systems also exist such as archives that document and organise perishable sensitive information. *MayDay Rooms* is an example where the infrastructures and the counter-strategies required to publish experimental culture play are equally important. *MayDay Rooms* is an educational charity founded as a safe haven for historical material linked to social movements, experimental culture and the radical expression of marginalised figures and groups. Originally set up to safeguard historical documents, it is more than just a digital archive. Online users can browse a catalogue and read PDFs, but *MayDay Rooms* also deals with physical items. The home for this archive is the *Birmingham Daily Post's* former London office, which was refurbished in 2012 and 2013. This building is not only used as a space to preserve materials, or as an infrastructure for its digital archive: it also offers communal areas, such as reading, meeting and screening rooms, and a canteen. It is a place for informal researching, gathering, and activation of the social aspect of the archived materials – for example, by digitising and distributing them online (MayDay Rooms, n.d.).

After looking into shadow libraries and digital archives, strategies to distribute and preserve copyrighted material, the users of these archives and the political agendas behind them, my research will delve deeper into the phenomenon of watermarks. Watermarks are often used to identify the original owners of files as sources of copyrighted material, thus intimidating them, raising concerns of liability, and as a result, discouraging sharing. I will focus on this tactic of protecting intellectual property, and expand on how this technique is negatively impacting the sociability that comes with sharing texts, and restraining the flow of files within online digital spaces.

Part 2 – Sorting imprints

Background of watermarking

The internet as a carrier of digital media has changed how we share music, books, video and other media. The integration of digital watermarks is becoming more popular as a way to fight the fast-paced spaces opened to sharing pirated material. Currently, research on watermarks predominantly focuses on strengthening security: embedding robustness with respect to compression, image-processing operations, and cryptographic attacks (Shih, 2017). We now understand watermarks as being both digital and physical, but they are not a new phenomenon.

The art of papermaking has its roots in China in the 1st Century A.D. The process was first documented in 105 A.D. and ascribed to Cai Lun (Basbanes, 2014). Watermarks only appeared later, first being documented in 1282. Watermarking happens during the process of making a sheet of paper, while the paper is still wet. Watermarks are a result of changing the thickness of a specific part of the paper, creating a highlighted area – and as a result, the shadow of this area. We can track the beginning of watermarks to the town of Fabriano (Hunter, 1987). It is essential to acknowledge the historical importance of the Italian city of Fabriano. From the name *Fabriano*, in Latin *Faber > Făbrĭcĭus, meaning craftsman, artificer, maker* (Latdict, n.d.). The practical skills in forging metal and shaping wire were crucial for building the frames used to remove excess water, gather the pulp, and start forming the first sheets of paper.

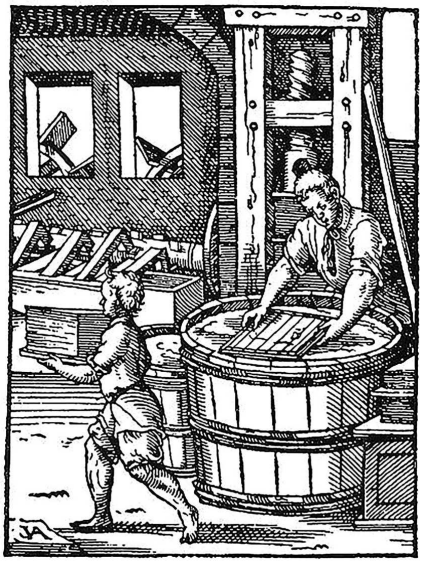


Figure 06 – Papermaking (From *The Book of the Trades*) (Amman, 1568)

Intentions in the use of analogue watermarks

The history of watermarks is still relatively obscure. It is not possible to fully trace their original significance. A few different theories have been discussed on the actual purpose and use of these venerable imprints. One that I came across, was to help with the production of the sheets of paper. Watermarks were used to identify the size of a frame and leave an imprint in the produced output (Hunter, 1987). Another hypothesis is that the craftsmen working in the production of paper were illiterate. Watermarks were then a strategy of communicating through pictures or symbols, thus leading to a smaller chance of misunderstandings. The first applications of watermarks make these possibilities seem compelling, but it is also possible that these may have been an artistic product of the papermakers, simply a fashionable imprint left by the artists making the frames, as a way to identify themselves, as an aesthetic enhancement or a signature of quality (Watkins, 1990).

Watermarks establish provenance to manufacturers of papers, paper mills and manuscripts. Across Europe, Africa and the Middle East, their use contributed to increasing the desire for specific papers and was a critical factor in recognising paper quality. Nowadays, watermarked sheets carry bits of evidence documenting their lifespan and transactions.

It is wrong to immediately establish the provenance of a book to one particular place solely based on the watermarks, due to the commercial trade of paper. While an Italian watermark may be found in a sheet of paper, this only sets provenance to where the paper was manufactured, and not its subsequent life. Watermarks could comprise graphics such as animals, plants and sacramental imagery, but also representations of geographical territories and in general depictions of Western culture. In Umbria, Italy, for example, the Benedictine monasteries endorsed the three-peaked hill topped with a cross as their symbol. Another watermark imagery, developed by the French and Venetians, was the *tre lune* (three crescent moons), a strategy adopted because Muslims in the Ottoman market were expected to choose papers with these kinds of imagery rather than Christian motifs

(makingmanuscriptsblog, 2017).

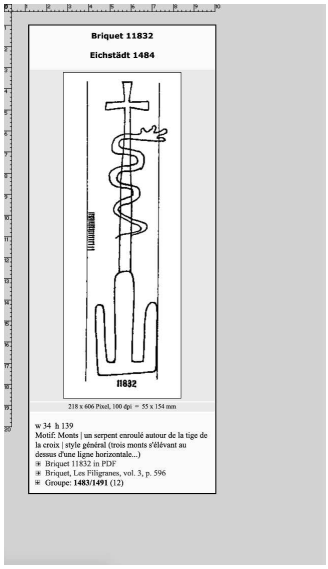


Figure 07 – Three-peaked hill, snake and cross (Österreichische Akademie, 1484)

Connection between watermarks and library stamps

There is an active link between watermarks and the introduction of library stamps – both creating a body of evidence when trying to establish connections in a collection. Library stamps are also perceived as an imprint left visible, sometimes glued, and making it possible to question property and acquisition. In libraries, books are stamped to declare ownership, establishing a physical relationship between the physical medium and the infrastructure. At the same time, traces of provenance are added to these collections. Library stamps do not associate a reader to a book, nor were they intended to do so: the focus is on documenting the circumstances and date of acquisition.

Though library stamps are helpful to determine the time frame and history of an item in a collection, the process of stamping a book is not necessarily performed when it enters a collection. Unlike watermarks, where it is unlikely that the act of tempering the paper fibres doesn't occur simultaneously to when a paper sheet is made, stamps were commonly applied at a later date, after acquisition. This led to mistakes that are now widely recognised. Along with stamps, clues may be found on bindings, bookplates or inscriptions in order to build a body of evidence for determining both the circumstances and the date of acquisition (Duffy, 2013).

Intentions in the shift toward digital watermarks

Watermarks became more relevant with the introduction of paper currency. One of the notable shifts identified was when watermarks were first applied to banknotes in England, by a papermaker named Rice Watkins in 1697 (Mockford, 2014). Watermarks were added as a way to deter counterfeiting and to make the act of forging more difficult, thus making it easier to target forgers. In England, in 1773, forging a watermark with the name of the Bank of England was made punishable by death.

Figure 08 – Left: oval hand stamp for manuscripts with the words "BRITISH LIBRARY".
Centre: India Office hand stamp for non-small "claim material" items. These items were treated as part of the British Library collection.
Right: Library stamp from previous Oriental and India Office Collections. Use of this stamp ceased on 1 September 2005 (Unknown, n.d.).

Just as with paper money, watermarks are now used to establish authenticity, and their digital implementation has become increasingly popular. Emil Hembrooke patented the first digital watermark ("Identification of Sound and Like Signals", US Patent 3,004,104 Filed 1954, Issued 1961). In the U.S. patent, we can read: "The present invention makes possible the identification of the origin of a musical presentation and thereby constitutes an effective means of preventing such piracy" (J. Cox and L. Miller, 2002).

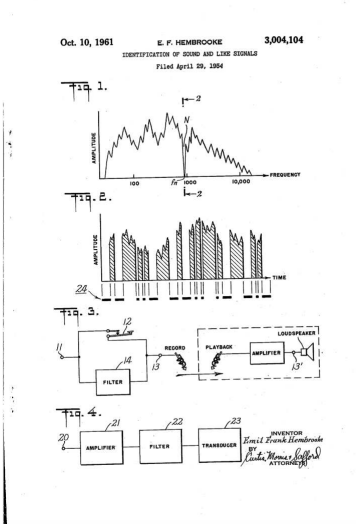


Figure 09 – Patent for "Identification of Sound and Like Signals" (Frank, 1954)

In the '90s, interest in watermarks increased dramatically. Currently, one can find them in various forms of copyrighted material. As most information and data are stored in digital rather than physical formats, providing legitimacy and proving authenticity are increasingly seen as urgent tasks (Shih, 2017). Digital watermarks are mostly known as being visual. The normalisation of their use in photographs, and on video stored on DVDs, is a well-known reality by now. They also often appear in trial software. Instead of restricting the use of the software, watermarks are appended while exporting the final version of the user's work. I read this action as an arrogant type of advertisement, and reducing users to a commodity. Instead of benefiting from software licenses, users are indefinitely broadcasting companies' logos within their work. This technique is enforced to deter the use of trial versions and provides only one option: it forces those who need the software to buy it.

Appropriation in publishing

Another significant shift in the use of watermarks happens with their appropriation in the publishing business. Watermarks are now used to create a body of evidence on users, adding traces that relate to the subject more precisely with geolocation, IP addresses, MAC addresses, email addresses, etc. An excellent example of this phenomenon is the enforcement by the publisher Verso Books, whose books are sold in an online eBook store where a new page is appended at the beginning of each file with the downloader's name and email address. It also watermarks the IP address of the downloader in the footer of the first page of every chapter.

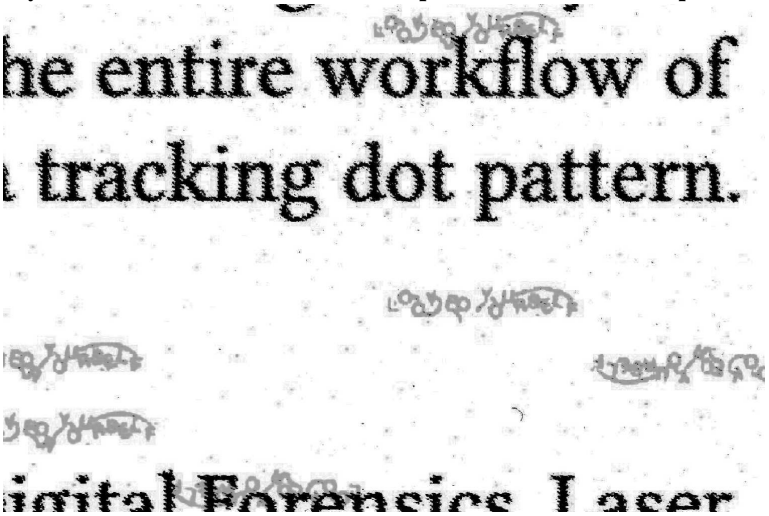
During my research, I stumbled across the article *Verso Books Shows That it Is Possible to Use Customer-Friendly DRM While Still Calling Customers Pirates* by Nate Hoffelder, about different forms of digital rights management (DRM). In this article, the writer starts with a disclaimer in which he portrays himself as "a supporter of milder types of DRM like digital watermarks" (Hoffelder, 2014). What caught my attention was how the mode of address changes when he starts to identify all the unnecessary strategies implemented by *Verso Books* in their eBooks. More importantly, we can understand that their watermarks didn't go unnoticed to the store's users. A source interviewed states: "Personally, I felt like I was constantly being sent a stalker's note saying, 'I know where you live.' It put me off reading the books entirely." (Hoffelder, 2014). The increase of imprints that identify us as downloaders and as printers is alarming. *Verso Books* are calling out their users as pirates, while companies such as *BooXtream* (see next paragraph) are making this possible, using us as an asset upon which to capitalise.

I was able to identify the company that develops the watermarks for *Verso Books*: a Dutch DRM company called *BooXtream®*. It's worrying to read how they portray themselves: the first quality they promote about their DRM methods is traceability. We can read in bold font: "A publication that has been BooXtreamed can be traced back to the shop and even to the individual customer." (BooXtream, n.d.). Watermarks are now perceived as something to fear, something that makes us feel uncomfortable. Surveillance might be quickly spotted, as commonly happens with CCTV, because we can establish a physical connection with it, we can see it, we can choose a different path to walk away from it, or we can even try to disguise ourselves. We can accept that digital surveillance is a reality, but we don't feel a close connection to it just yet. Digital watermarks might be the vehicle establishing this direct connection. It is still tricky, though, to predict what will be the impact of these techniques if users are afraid to share an eBook they have bought.

Surveillance in publishing manifests itself in ways that are not always obvious. *The Electronic Frontier Foundation* has published an article raising awareness of the Machine Identification Code. First described in 2004 by PC World in an article titled "Government Uses Color Laser Printer Technology to Track Documents", this code is formed by a pattern of dots appended by the printer's software to every printed

page. These are almost imperceptible yellow dots carrying information such as the date and time of print, and the serial number of the machine. Similar technology is used when you try to scan a banknote. A sequence of printed yellow dots in the paper triggers the printer to overlay a striped pattern on the top of the copy, preventing duplication.

I tried to find out whether this code was still in use, and for this I needed to be able to prove its existence. I started by using methods to identify these invisible dots, such as UV lights, and different printers, from HP to Canon and from inkjet to laser printers. When I had almost given up, disappointed with all the time I had invested in this, I started to reverse-engineer this code and implement my own. While creating messages printed in minimal font size and scanning these printed pages, I began to understand how to make this pattern visible. With a new scanner with a resolution of 1200 dpi, and after inverting the document colours, the dots suddenly appeared. As if by magic, a mesh of my experiments and the tracking dots started to emerge. Ultimately, I was able to identify them in all the school printers in the Willem De Kooning Academy's Blaak building. It is worrying to think that this hidden code infiltrates documents and can be seen by anyone. It's not only used if you are suspect of a crime, but it's available for everyone at all times. Coming across them made me rethink what it means to publish through printed media, how safe it actually is, and how it affects those who depend on these forms of publishing.



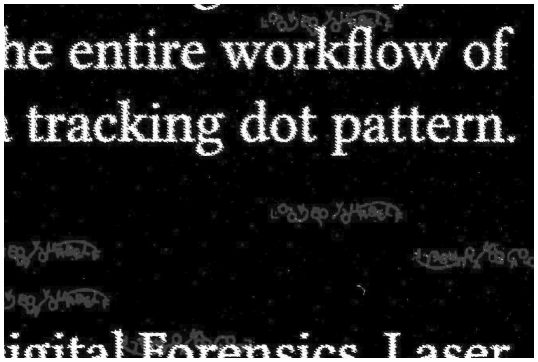


Figure 10 – Tracking dots found in the university's printers (Sá Couto, 2019)

In this second chapter, I have explored the progression of watermarks. From their background, until their appropriation, as an asset to incite fear and self-awareness, and to remotely control and constrain user actions. It was essential for the development of my project to emphasise the current value of ancient watermarks.

In the next chapter, I will expand my research, starting from the point of view that the early framework of watermarks is something I consider necessary to resurface. I wish to demonstrate that what lies at the heart of their use is the ability to portray crucial interrupted actions and moments in history, granting insights into hidden processes of fabrication, documented in the sheets of paper. And at the same time, carrying clues to comprehend their artisans, the historical timeframes, and different imagery. I will then expand on the use of digital watermarks, apart from what I recognise as their misappropriation, exploring how the current attitude towards digital watermarking is not the only valid one. I have focused my research on how the discourse around these reinforcements of copyright can be flipped around. I will delve into tactics that seem mainly negative, and re-reappropriate them.

Part 3 – Watermarks operate in different roles

Introduction to my creative response

My project, *Tactical Watermarks*, is an online republishing platform. I actively make use of digital watermarks as a means to explore topics such as anonymity, paywalls, archives, and provenance. I describe ways of living within and displaying resistance against a culture of surveillance in publishing. This is relevant in order to understand and explore what it means to live in a culture of constant tracking, rather than aiming to solve the many problems of surveillance.

With this platform, users can upload and request different titles. While talking with enthusiasts from the *Library Genesis* forum, I understood the need to create a tool that allows people to share watermarked PDFs in a safe way. My platform is not a library, nor is it an archive. I don't keep the files, nor do I intend to archive them. What I will be doing, is opening a space to de-watermark files, and to append new anonymous watermarks with the technical and personal concerns of sharing specific texts. In the end, these stories will circulate alongside the main narrative. This is an automated republishing stream that enables me to spread the produced files to different libraries, from *aaaaarg.fail* to *Library Genesis*.

My use of watermarks, and more specifically my creative response, has the primary objective of creating a positive discourse around the act of watermarking. This discourse will enable the creation of a top layer of information, able to embed traces of provenance in different texts. By provenance, I intend to express specific trails – not those used to surveil users, but all those that make it possible to trace historical importance to files, and that facilitate precise documentation within an archive or library. Though Tactical Watermarks is not only a theoretical system, I will also delve into how it can be deployed, comparing it to other projects or approaches that I have encountered, and reflect upon their influence in my own practice.

I wanted to challenge centralised distribution channels, and wondered how the process of adding "stains" can be twisted and revived. "Stains" are how I call user patches or marks that are difficult to remove and that do not play an active role in archives. While exploring the process of adding imprints, different uses arose: as a way to obscure previous uses, to comment on the situation, to encourage behaviours, to create relations and communities, to increase the sense of solidarity in archives, to generate digital enhancements and marks of quality, etc.

I aim to link my creative response to what has been happening in parallel within different cultures, from graffiti culture to other controversial artistic practices. Watermarks may form a discourse around topics such as anonymity, borders, archives, and provenance. While rethinking watermarks, I explore their hidden layers and their aspects of surprise, visibility or invisibility, within different forms of communication. It is essential to acknowledge that watermarks have the power to infiltrate, to perform different roles and to create parallel streams of information within various texts. When it comes to publishing, how can watermarks generate a critical discourse around the right to access knowledge, and represent those who fight for this right?

1 – Displaying the provenance of a medium

I will start by consolidating how I use the term "provenance". By provenance, I unify all processes that provide clues and evidence as to the origin of a file, until the moment it enters a collection. These traces may identify the source of a text, its place of origin, or even the motivations behind why an individual made it public. All these voices will be unified as part of a stream of empathy, decisions, hidden tasks, and actions.

The flow of texts, downloads, and users is always constrained by the politics of platforms that grant access and disseminate the materials. Different platforms share the same documents and versions of a file. With Tactical Watermarks, I aim to

document this hidden activity and make it visible. With watermarks, and without compromising the identities of users, I aim to set ground to what I find noteworthy – such as finding ways to translate the movement of users and texts, within this complex mesh. To achieve this, I aim to materialise the tasks hidden behind the process of uploading a file to a digital space (these actions may require processes such as digitising) – or even the motivations behind the selection.

2 – Signatures

In Tactical Watermarks, I also propose that digital watermarking may be used as a signature, as in graffiti culture or software *crack intros*.

Just like distributing copyrighted material and cracking software, graffiti is controversial. It has a rich background dating back to various cultures including ancient Egypt, Greece and Rome, where writing or drawing on walls or other surfaces was common. Graffiti is seen as a form of artistic expression without permission. Simultaneously, in software crack intros, we can discover pseudonyms used to protect identities and thwart prosecution; in graffiti, a subculture of challenging authority, the same thing happens.

In software crack intros, such signatures (referred to as "crack screens") were customarily included within the in-game title screens that display the title of the game, the logo of the producer, and a graphic providing the player with a glimpse of the theme of the game. Crack intros appeared for the first time in the '80s and were not commissioned for a commercial purpose. Instead, these were introduced by a programmer or a group of coders, graphic artists, and musicians that were responsible for removing the software's copy protection and making the crack public (Green, 1995). The signatures were initially simple statements, such as "cracked by…", sometimes intentionally misspelt as "kracked by…" (Reunanen et al., 2015). While crack intros are in many ways similar to graffiti, crack intros invaded the private sphere rather than the public space (Cubitt and Thomas, 2009).

A link between these forms of signatures and watermarks is found in their ancient imagery. Craftsmen would explore pseudonyms – in this case, in the form of pictograms built in the paper frames. These forms of anonymity open a path to explore digital watermarking as an arrogant way of identifying users as liable for the processes and decisions behind releasing a file into the public sphere, without carrying any liability whatsoever. Tactics such as using pseudonyms will be reappropriated to challenge authority, digital identity and accountability.

3 – Watermarks to obscure

Tactical Watermarks is not only about revealing hidden layers and augmenting the memory of an archive. It is also about creating strategies to suppress unwanted information. It is valuable to stress that in the contemporary panorama of digital watermarking, calling out a user identity is the ultimate goal. While recognising the intention to remove this layer of information, it is relevant to create a parallel to the project *SecureDrop*. This project was first released under the name *DeadDrop*, designed and developed by Aaron Swartz and Kevin Poulsen. *SecureDrop* is a free software platform that enables safe communication between whistleblowers, journalists and different organisations. In this platform, whistleblowers, which are the sources, submit documents and data while avoiding most common forms of online tracking (Ball, 2014). During this process, sources are also assigned a random username, allowing a journalist to contact and privately chat with them.

The main intention of both my project and *SecureDrop* is the creation of strategies to anonymously disseminate files not intended to be part of the public sphere. Both facilitate a place where users anonymise data; *SecureDrop* mostly deals with private or public organisations trying to protect secrets, and as a response to whistleblowers trying to expose these same secrets. Tactical Watermarks will deal with publishers protecting copyrighted materials and readers seeking to share these with their peers. In *SecureDrop*, this happens by using private, isolated servers, as well as encryption and decryption tools. In Tactical Watermarks, this is done by using watermarks as a way to obscure already existing imprints aimed at making

users accountable, overlaying new ones, and re-writing new subjective metadata to documents.

4 – As a means of expression

Within this framework, through the act of watermarking, I will create a space to publish undercovered personal, political and other kinds of messages. With my creative response, I consider users commenting and publishing their thoughts disseminated person-to-person with the actual circulation of a file as relevant. Having the power of saying that I am here, and that I disagree with how paywalls, borders and rules are structured and reinforced is compelling and pertinent. These messages must be public.

Commenting as a strategy of contemporary political resistance also happens in cracked software, such as *Adobe Zii* (or *Adobe Zii Patcher*), a one-click software program patcher or activation tool for Mac. The developers of this software inserted the quote "why join the navy if you can be a pirate" which is displayed during the actual process of patching the desired software. It is striking how this discourse differs from the one seen in crack intros – commenting on a situation and encouraging provocative behaviours. The reference is established through the act of patching, rather than exposing the individuals behind it.

Watermarks will be used to reflect upon power structures, and to disseminate beliefs related to struggles within free access to knowledge and information. By infiltrating new digital watermarks, we are not only able to reach those who are already fighting within this culture, but also those who might be uninformed users of shadow libraries and alternative publishing streams.

5 – Creating relations and communities

In the first chapter of this thesis, I explored how different media are used to bypass surveillance and to publish within alternative streams of access. This used to happen through zines, the underground press, or other types of publishing such as samizdat. Currently, parallel publishing streams exist mainly in the form of digital online platforms, maintained to make public all sorts of copyrighted and forbidden material. Within the context of Tactical Watermarks, it seems relevant to delve further into strategies that facilitate communication, especially the use of steganography.

Even though several forms of communication responsible for avoiding conventional methods of surveillance are mainly achieved by writing encoded messages and using decoding systems when the message reaches its target, with steganography this happens differently. The main strategy is to hide the message in plain sight. Steganography allows two parties to broadcast a message hidden or disguised as other data. Watermarks and steganography both happen in digital and analogue formats. While both terms can be applied to the transmission of information hidden or embedded in other data, they are often wrongly merged and it is vital to clarify them. Steganography relates to undercover point-to-point communication between two parties. Watermarking has the extra requirement of robustness towards potential attacks (Katzenbeisser and Petitcolas, 2000).

Steganography is a subdiscipline of information hiding. In Amy Suo Wu's book *A Cookbook of Invisible Writing*, alternative forms of communication are presented in the format of recipes, documenting techniques borrowed from spies to prisoners, but not only old tactics of steganography exist. In China, researchers have understood that while digital communications and data security are becoming more sophisticated, there is still a need to develop ways of sending hard copy messages securely. Scientists developed a printing technology which can only be read by shining a UV light over the printed medium (Davis, 2019).

All these techniques of communication have led me to explore which strategies we can reappropriate using watermarks as a way of annotation. How can we open space for communication between users of a system while maintaining their anonymity? One might have felt the thrill when a downloaded file from *Libgen* or similar library still contains traces of previous users. Relating, through such traces,

to someone we don't know can be quite amusing. You feel part of a movement, as you have had a glimpse of a moment, captured in time.

With Tactical Watermarks, I will open a space for dialogue, as well as demonstrations of solidarity. I do not plan to make this something you may find by chance; I aim to explore the possibilities of making someone thrilled to see these messages as a compulsory or a regular habit.

6 – Sensorial augmentation

Finally, digital watermarks still have space to produce sensorial enhancements. Enacted through watermarking and with a background in the practice of graphic design, I reckon that we can establish different rhythms and hierarchies within a narrative. As introduced earlier in this text, watermarks might have had their origin in manufacturing processes, or may just as well have been a form of artistic expression by papermakers. Within Tactical Watermarks, digital watermarks may substitute the impact that graphic design has in the process of creating books as a physical medium, where they can be recognised as an object by themselves. In graphic design, choices such as the paper, the binding, or even how different chapters are separated become part of an endeavour to heighten the narrative. Mixed attitudes exist in this process, either by trying to respect the narrative, without overpowering it, but also, as a way of exploring it as a medium where restructuring may form new ways of reading. Two constants are then present: the exploration of repetition, its absence, and the experimentation regarding reading flows.

The main drive during this research has been to explore how analogue techniques can be appropriated and transported into digital watermarking. I find unconventional strategies, such as the use of scented paper in print, to be particularly amusing. Such methods allow us to rethink the flow of information and to take part in shaping the perception we have of texts. Through this scented technology, we explore vision and scent at the same time, transporting us to different realities, creating a stimulus that we don't usually experience while reading. In digital files, I compare this to the feeling of encountering graphic elements that exist outside the main narrative. While most digital files lack personality, by appending new visual elements, I aim to incite new sensations while building new experiences through paratextual components.

Conclusion

Delving into tactics enforced by organisations that close access to published material might have been discouraging. But it wasn't. While companies are investing money to protect their sources of income, it's exciting to feel that volunteers continue to be motivated to create reactive measures against closed access publishing. Throughout this text, I have unpacked the reactions regarding digital surveillance and the motivations behind these countermeasures. Every time we make use of such projects, they seem like finished products, where no effort from our side is necessary to make them work. This thesis aimed to create a space to introduce some of the platforms, tools, and users that contribute and exist behind projects that make access widely available.

My project, Tactical Watermarks, is motivated by all the invisible individuals behind alternative publishing platforms – from curators, to those who host, upload and even download material. With my creative response, I intended to create one more tactic to bypass surveillance in the publishing realm. However, my response does not claim to be the foolproof answer in opening access to published material. It is reassuring to feel that a wide variety of infrastructures, from shadow libraries to online digital archives, already exist as temporary solutions to the main problem. It is also comforting that users display daily acts of voluntary resistance amongst themselves – from researchers creating informal groups to share copyrighted material, to users "mirroring" collections in attempts to extend their lifespan. My project initially focused on acknowledging the importance of informal communities of resistance, and on the individuals that make this resistance possible. Tactical Watermarks reflects upon the social, political and cultural aspects behind the use of restrictive measures in publishing. It is not a finished project, nor does it intend to be; rather, it embraces the fact that the possibilities of tactical watermarks will continue to reveal themselves through extensive use of the tool.

Researchers need to react against organisations creating monopolies and closing access to published material. We need to build new online spaces where people can connect. Users need access to online forums where counterstrategies are widely available. We need to organise workshops and build communities to bypass the control of corporations that are focused only on the monetary outcome of research. It's important to continue sharing texts and opening access to our resources collectively. We need to mirror collections and to produce new and unpredictable reactive actions against closed publishing streams. When it comes to opening access to paywalled material, much is yet to be done. Tactical Watermarks is a way to stimulate new reactive measures, embracing a positive discourse in terms of subverting digital surveillance.

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Networks Of Care

Rita Graça

Introduction

Knowing how to deal with hate is a precondition of using any social media website today. There are a few ways of managing the massive number of aggressions we see online, and for me, practices of moderation became essential to enjoy and participate in social platforms. More and more, I want to filter my online circles and be selective with my interactions. This way, social networks can make me feel connected with the people I want. My research departs from a personal urgency to be mindful of the existing strategies and tools to reduce hate on social media.

Throughout this text, I will refer to hate as actions that harm others. Hate can be expressed through many different behaviours, and it's hard to identify these without context. The most common demeanours are harassment, bullying, stalking, racism, threats and intimidation. These problems are getting more attention as we acknowledge online behaviours aren't confined to screens but have repercussions on our bodies. Furthermore, research shows that marginalised groups are bigger targets of hate speech (Silva et al., 2016). In this matter, it becomes crucial to address the recurring problem of online hate.

There is no single solution to handle hostility but many different measures. A fair answer is to insist on responsibility either from governments, tech companies, or international organisations. Besides changes in official structures, it's stimulating to look at bottom-up strategies initiated by users. In the forefront of the fight against hate, there are users committed to creating better social media experiences for themselves and for others. These users offer support with their work on moderation, technical knowledge, emotional labour, and many more. Such efforts are mostly made by volunteers, with no formal responsibilities besides the aim to improve and enjoy their social networks. These are very generous approaches, and I believe they need to be further discussed and recognised.

Starting from this conviction, I want to provide a deeper understanding of community movements that moderate online platforms. In the first part of this thesis, I look into digital vigilantism through cancel culture, an approach for calling out problematic people. In the second part, I dive into Codes of Conduct, another possible way to manage behaviour. In the last section, I explore design tools that can hold off instances of abuse, such as blocklists. This text collects memories and evidence of these techniques and analyses them, reflecting on which moderation strategies have been growing on online networks.

I delve into the labour, efforts and motivations behind the communities regulating their spaces with care. It's exciting to consider which gestures may contribute to increasing autonomy and cooperation in digital platforms, and whether they can be useful to reduce hate, or even desirable. These speculations all motivate my research question – what kinds of methods, users and tools can help to manage online hate?

Chapter 1: Fighting hate with hate: the case of cancel culture

Digital vigilantism is an ongoing movement that identifies and prosecutes hateful content outside of traditional legal ways. It often takes place on community-run online platforms, where justice-seekers get together to supervise social networks. Right now, the most popular approach of digital vigilantism is *cancel culture*. This movement creates communities with shared mindsets, rules and goals, which collectively moderate online participation. In this chapter, I will take cancel culture as a case study to discuss how users are overseeing their social spaces through particular contentious methods.

Cancel culture evolved from the need to raise awareness for problematic behaviour online. When a mediatic figure does something unacceptable in the eye of the public, the outrage begins. Users shame others for reasons such as using hate speech, writing racist comments, making misogynist remarks, or any other behaviour perceived as unreasonable. The number of people that participate in the callout affects how viral the reaction on social media is – the shamed may lose followers, sponsors or job opportunities, or suffer other kinds of punishment. In short, they become *cancelled*. As researcher Lisa Nakamura explains, in the attention economy, when you find someone not worthy of your attention, you deny them their sustenance (Bromwich, 2018).

When it started, cancel culture was supporting the voiceless. The users standing by the movement wanted to establish a more caring society, to show concern for marginalised groups that are frequently silenced and harassed on social media. Users were criticising the careless exposure of hateful content, mainly coming from high-profile members of social spaces. It makes sense: the online accounts of renowned brands, businesses or celebrities are powerful channels in which ideas are broadcast to vast numbers of people. For instance, if a prominent identity describes women in a derogatory way, they are sharing these values through a huge network, their *followers*. The cancel movement condemned these cases and challenged the status of the elites that can often avoid the consequences of their harmful behaviours. If the outrage against a powerful identity was loud enough, it produced reactions and triggered discussions.

The popularity of cancel culture brought problematic situations to the attention of the public, which put pressure on gatekeepers to decide what is or isn't allowed inside their platforms. Cancel culture pushes social media platforms to act politically towards users, something that these businesses have been avoiding. In the US, publishers such as traditional newspapers are curators, so they bear responsibility for what is published. US laws declare that an "interactive computer service", such as Facebook, is not a publisher (Communications Decency Act 1996). This means that computer services can't be held accountable for what their users publish. However, when Facebook starts banning content and deciding what is appropriate to share, it's making editorial decisions that resemble the procedures of newspapers. The contours of the law are unclear. Furthermore, social platforms are corporate multinational businesses, which makes it even harder to understand which legislation social media should comply with.

Faced with the uncertain role of platforms, cancel culture has a particular aim: to pursue social justice. This justice is enforced through shaming. Anyone found guilty of not complying to the standards, is bound to be shamed. The act of shaming has always existed, but has gained a great deal of momentum through social media. Some authors believe shaming is a characteristic of the technologically empowered yet politically precarious digital citizen (Ingraham and Reeves, 2016). Ineffective politics pushes users to react, transforming shaming culture into meaningful political participation. According to Ingraham and Reeves, publicly shaming others distracts us from a larger crisis we seem to have little control over. It also allows us to perform agency on an obtainable smaller digital scale. Cancel culture, and other

movements of vigilantism, point to one person to make an example of them. Holding someone accountable can be done in private, but cancel culture turns it into a public example of moral standards.

The R. Kelly case is an excellent example of how cancel culture evolves. R. Kelly is a famous musician, recently arrested for multiple sex crimes. Over 20 years, the number of allegations continued to grow but without any court conviction. His prominent presence on online platforms was seen as a systematic disregard for the well-being of black women, his primary victims. Cancel culture supports the idea of first believing the victims, a concept also promoted by the #MeToo movement. In this way, the need for justice started a social media boycott under the name #MuteRKelly. Users felt he shouldn't be featuring in music streaming platforms, or continuing his career in general. The website *muterkelly.org* explains the reasons for the boycott:

By playing him on the radio, R. Kelly stays in our collective consciousness. [...] That gets him a paycheck. That paycheck goes to lawyers to fight court cases and pay off victims. Without the money, he's not able to continue to hide from the justice that awaits him. It's not an innocent thing to listen to him on [sic] the car to work. That's what helps continue his serial sexual abuse against young black women. That makes us all an accomplice to his crimes. (#MuteRKelly, 2018)

People were encouraged to boycott him by sharing #MuteRKelly on all platforms, to report or perform similar actions on music streaming services, and to post on the topic as much as one could. At this time, Spotify removed R. Kelly from the auto-generated playlists and introduced the button *don't play this artist* across the platform. Some users were calling it *the R. Kelly button*, as the moment for the release of the feature seemed connected with the boycott. Later, Spotify reversed all decisions. According to the Spotify Policy Update of June 2018, "[At Spotify] we don't aim to play judge and jury." The apprehension from Spotify to act adds to the discussion about the role of social media businesses: does it fall onto the users or the platforms to fight the problematic topic of hate speech? Do commercial platforms benefit from conflict?

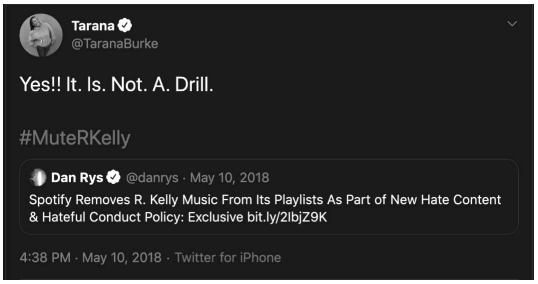

Fig. 01 – Activist of the #MeToo movement tweeting #MuteRKelly (Burke, 2018).

Unfortunately, conflict and hate draw attention. There is a term used in the art world for such a phenomenon: *succès de scandale* is a French expression from the *Belle Époque* period (1880-1914), meaning success from scandal. The expression was applied, for example, to the 1911 Paul Chabas painting *Matinée de septembre* portraying a nude woman in a lake. The nudity of the piece caused controversy, and several complaints culminated in a court case against the public exhibition of the painting. The discussion was dramatic. The Paris City Council passed ordinances prohibiting nude paintings; meanwhile, gallery owners were purposely placing copies of Chabas' work in their windows. This increased the public's interest in the controversial painting. The example of the growing popularity of this painting shows how hate and nudity both generate controversy and thus spectacle. Scandals are easily monetised, and restrictions may only generate more interest in a subject, within the art world or on social media.

Fig. 02 – *Matinée de septembre* (Chabas, 1911).

Just as it is true for artists, some controversy can be convenient for online celebrities. The success from scandal shows how cancel culture may fail to hold someone accountable through shaming. R. Kelly eventually went to prison, but many other celebrities enjoyed the status of the victim. This is bound to happen as engagement comes from negative or positive reviews, dislikes or likes. Social media rewards attention, even if this attention comes from absolute loathing. The reward is apparent when views from *haters* on a YouTube video generate revenue for the creator. It's cold-blooded, but hate can bring the creator profit. Furthermore, in the way social media systems function, the virality of shaming also benefits the social media business model. (Trottier, 2019) The commotion generates online traffic. Luckily for the platforms, cancel culture excels in creating viral content.

Cancel culture uses techniques to spread quickly and gain visibility by finding its way to the popular topics, through hashtags, using specific location tags. The *trends* section of Twitter is a special place of interest. When an expression is used in abundance by the users, it gains a position of attention on the platform. On Twitter, the trends show by default, becoming a pervasive feature of the platform. The design decision to implement it this way, made the trends into a desirable arena for publishing messages. When the words #MuteRKelly were trending, they reached millions of people and spread the word to boycott the musician. The structure of Twitter, and of all the platforms we use, have intrinsic characteristics that control or promote user behaviours.

Twitter trends demonstrate how any interface feature can become dangerous. Although trends can be a news source, they also favour the mob mentality, typical in online trolling and harassment. Andrea Noel is a Mexico-based journalist who has been investigating various alarming situations behind Twitter trends. Through her work, the journalist obtained access to internal emails of a *troll farm* from 2012 to 2014. Troll farms are organisations that employ a vast amount of people to create conflict online, to distract or upset users. In the emails, Noel read how these people organise in order to divert online attention from important issues. One of the strategies is the fabrication of trending topics on Twitter. This falsification means that #FridayFeeling can be a topic tweeted every second by a company in Mexico to avoid #MuteRKelly to reach the trends. This shows how publishing vast amounts of noise in social media prevents other conversations from happening.

Faced with Noel's research, I wanted to gain a better understanding of the popularity of boycotting through what's trending on social media. For that reason, I created a bot that looks for trends in the United States related to cancel culture. The bot collects the trending topics methodically and saves them so I can interpret them later. It listens for specific words I know are correlated with cancel culture – though I may be missing other specific hashtags of which I'm not aware yet. The bot isn't perfect, and it doesn't need to be. Throughout the time it's been running, it has illustrated some of the activity of users with digital vigilantism.

In my research, only in November 2019, Halsey, Lizzo, K-pop stans, Uber, Amber Liu, John Bolton's book and the cartoon Booboo all reached the trends to be boycotted. Lizzo made sexualised comments about a group of singers, Amber Liu spoke in favour of a racist arrest in the US. Both were actions viewed as morally reprehensible, which provoked a reaction on social media. All the subtleties of these stories don't reach my bot or the screens of billions of people. What is spread, tweeted and retweeted is the word *boycott*. All further details are stripped away in order to gain exposure.

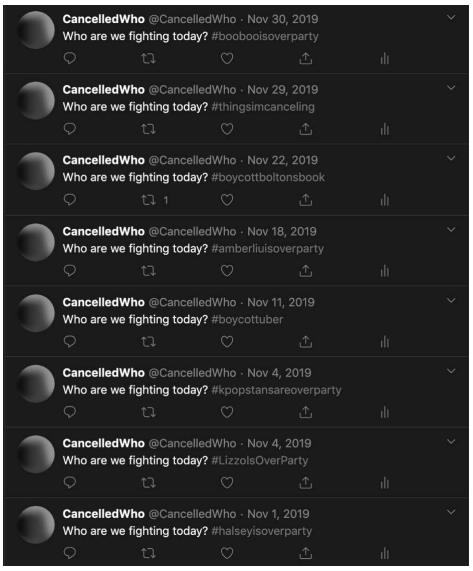

Fig. 03 – Bot activity showing trending hashtags (Graça, 2019).

The first time I noticed and understood call-out culture, I was proud of watching women and immigrants like me creating a critical mass of collective action against hate. Together, and stronger in their unity, users were vocalising their concerns with hate speech and succeeding in removing accounts and comments that were harmful to these communities. Although there was still some outcry over people being *too sensitive* or *not knowing how to take a joke*, it was clear by looking at the number of people jumping on the movement that there were many users concerned with online abuse. It was essential to be more caring on social media. The movement was also an opportunity for me to learn. At the time, I wasn't surrounded by many people from different backgrounds, and the online discussions made me realise other people's concerns and be mindful of many different social issues.

However, since the #MuteRKelly phenomenon, cancel culture has developed into other expressions. The social platforms that are present in the daily lives of most people are focused on gathering attention. Attention comes from exaggerated actions, just like violence, harassment or SCREAMING. The frictions benefit the social media business model, but not the well-being of the users. To become mainstream, cancel culture needs to be viral. Aggressive. Definitely scandalous. To spread awareness to as many social media users as possible, cancel culture started to ignore essential details of a story, in order to escalate the situation to an unverified version that was more attractive. Just like tabloids and reality TV, people enjoy consuming reputations as entertainment. It makes sense that the popularity of sensationalism seen in magazines or on TV works as well on social media, and is so easily monetised. Slowly, my opinion on the movement started to shift.

What started as a collective moderation of content, became an excuse to be mean. Although there are groups of people committed to using cancel culture as an instrument to call out hate, it's essential not to forget those who simply enjoy putting others down. Furthermore, this power to denounce others can also be abused by whoever is already in a position of privilege. Boycotting also discards forgiveness; it turns away possible allies for the social issues it tries to bring attention to. Cancel culture today is a relentless process, a massive confusion of harassment, shaming, fake morality, and a lot finger-pointing. The interest in pursuing justice together, to allow users to demand accountability and change on social media, is what originally fuelled cancel culture. But is it possible to do this without following the same techniques of trolls and haters, where people become targets of a mob? What is the potential to create safe social networks in platforms that reward scandals and outrageous viral comments?

Right now, I don't believe cancel culture promotes any positive changes in online platforms. In fact, it often creates the opposite of its desired effect. A significant portion of the comments on call-out threads today show a general fatigue for fighting small issues and seeing problems in every situation. Cancel culture has fuelled the anti-feminists, the racists and the homophobes in screaming louder than ever their opinion that no one is able to say anything anymore without being shut down. Social media participation has been embroiled in discussions about freedom of speech, where fundamental rights are tested and pushed to allow offences to be included without any responsibility or accountability. A democratic principle that once supported journalists, activists or artists is now the main argument for problematic participation in social media. Fighting hate with hate has led to controversial outcomes. More than ever, finding good solutions to balance hate is a very urgent issue. Which better moderation strategies can we use? What approaches can be more patient, generous and fair?

Chapter 2: New platforms, different rules

As seen in the previous chapter, users that become digital vigilantes can denounce hateful content within social media platforms. Another strategy of moderation that is worth discussing is the development of Codes of Conduct, guidelines developed by communities to support the stronger regulation of online spaces.

Creating rules is essential. I encourage rules that make an explicit structure that is available and clear to every member, making space for participation and contribution. Most of the time, a lack of governance doesn't exclude the presence of informal rules (Freeman, 1996). Instead, an unregulated group causes stronger or luckier users to establish their power and own rules, which prevent deliberated decisions and conscious distributions of power to happen at all. For this reason, the creation of Codes of Conduct within social media networks should be welcomed. A Code of Conduct is a document that sets expectations for users; it's an evidence of the values of a community, making explicit which behaviours are allowed or discouraged, possibly decreasing unwanted hate. A Code of Conduct is very different from contractual Terms of Service or a User Policy. Instead, it's a non-legal document, a community approach.

I followed the interesting public thread of discussions in the CREATE mailing list, archived from 2014. This list shares information on free and open-source creative projects. The back-and-forth of emails discusses the need for a Code of Conduct in an upcoming international meeting. One of the concerns is the proliferation of negative language in many Codes of Conduct. The group wishes to reinforce positive behaviours, instead of listing all the negative ones. A statement of what constitutes hate will indeed create a list of negative actions, but will that foreshadow a bad event? The discussion deepens. Is there a need for a Code at all? Some believe the convention is already friendly, while others feel that it is a privileged statement. One member compares the Code with an emergency exit, useful when you need it (CREATE, 2014).

This CREATE thread is proof that what is obvious for us, may not be obvious for others. The mailing list was debating a physical event – but also online, where distance, anonymity and lack of repercussions dehumanise interactions, it's critical to be aware of the principles of our social networks. A Code of Conduct forces the group to make explicit decisions about its intentions and goals, things that the members might have never discussed. For example, a Code of Conduct that creates an anti-harassment policy should make a clear distinction about what constitutes harassment (Geek Feminism Wiki, 2017). What will be considered misconduct?

Discussing moral principles is complicated, especially between large groups of people. Nonetheless, there is at least one massive online platform that challenged its members to discuss user behaviours: the online game *League of Legends*. The game drives a powerful sense of sociality: the users create profiles, role-play different characters and form networks. The users have to work together in teams, and therefore the game provides chat tools for the players. League of Legends has its formal documents – it specifies Terms of Use, Privacy Policies, and support files. But the guidelines that govern the community are under the *Summoner's Code*. The Summoner's Code is a Code of Conduct that formulates the behaviours expected from the gamers. League of Legends is an intriguing case to look at because it not only implemented community rules, but it also maintained a *Tribunal* where the community discussed the misconducts.

When users reported a gamer for frequently breaking the Code of Conduct, the case would go to the Tribunal. For example, the reason for the report could be the explicit use of hate language. In the Tribunal, the system attributed the case at random to some users. It provided to each judge the statistics of the game where the incident happened, the chat log and the reported comments. A minimum of 20 users reviewed each case and then decided to *pardon* or *punish* the offender, or to skip

the case as a whole. In the end, the most voted decision prevailed. The type of punishment, whether it was a warning, suspension or even banning, wasn't decided by the users, but by a member of the game administration team. This system was well-accepted amongst the players: over the first year it was online, the Tribunal collected more than 47 million votes.

The League of Legends Tribunal is, in essence, a court of public opinion. In a very similar way to the actions described in the first chapter, there is a community that enjoys being vigilant of others. The Tribunal was a temporary feature, but in online forums where people reminisce about their time in the platform, many users seem to miss it. Some users reflect how proud they were for removing toxic players from the community; others remember how the Tribunal entertained them.

Fig. 04 – A League of Legends Tribunal case (Kou Y. and Nardi B., 2014).

I wanted to include the example of the League of Legends Tribunal because it illustrates the difficulties of sharing the role of moderation with a vast community. One of the problems for the developers of the game was the time the Tribunal needed to achieve a decision, especially compared to automated systems. Reading the comments and the solutions for each case on the platform allows a backstage view of the frustrations of reaching consensus. This system possibly opened the eyes of the unsuspecting user to the amount of hate circulating on the platform, and the challenges of managing a community. It also made clear that moderation needs a quick and prompt reaction to be effective – not only on commercial platforms, but also in other systems that deal with reports, so users can feel their issues are being addressed.

A single set of rules that affects one large community can feel limiting, and as seen in League of Legends, can also be hard to enforce and manage. In contrast, the idea of creating independent clusters of users in one platform, thus *forking* systems and guidelines, is appealing. One of the social platforms that promotes a diversity of guidelines within its community is *Mastodon*. Mastodon is a social media with microblogging features, similar to Twitter or Facebook. It is a community of communities, a federated and decentralised social media platform. Being decentralised entails a distribution of authority: each server can implement its own vision while sharing a common platform. A federation entails that users from different groups can socialise with each other, but everyone has their experience more tailored to their liking. Practically, while sharing the same platform, a user can be part of a group which blocks one kind of content, while another group allows it.

On the platform, the different community groups are called *instances*. Navigating through these reveals the different rules sanctioned by users. *ComicsCamp.Club* is an instance focused on art, especially on comics and narratives. As most Mastodon communities, there is a Code of Conduct that serves as a set of guidelines for user behaviours. These are informal rules moderated by the community, not legal documents. The Code of Conduct of this group reminds the members to engage in a positive or supportive manner, and only critique work when requested; it also gives advice, for example on how to proceed when a discussion becomes hostile. On 12 March 2020, I started an online conversation with Heather, one of the administrators of ComicsCamp.Club. She told me how "Codes of Conduct are definitely a common practice on Mastodon, due to the nature of many different communities and people trying to curate their own experience." Since she first took over as administrator at the beginning of 2019, she has continued to edit the guidelines in response to the needs of the group. Indeed, a Code of Conduct is a document that should keep evolving to respond to the new challenges and values of a community.

It's important to understand that user rules don't follow any particular view on

morality. For example, *CounterSocial* is another instance on the platform that blocks entire countries, such as Russia, China, Iran, Pakistan or Syria. This instance asserts that blocking countries aims to keep their community safe by not allowing nations known to use bots and trolls against "the West". This may seem dubious behaviour, but it's seen as entirely legitimate on Mastodon. I'm laying out these examples to highlight the diversity of approaches inside Codes of Conduct and their documentation. The community is independent to create its guidelines; they can choose who to invite and block from their network. The final question of CounterSocial's "frequently asked questions" section says it all: "Who defines these rules, anyways?" The answer is: they do.

Fig. 05 – Rules on CounterSocial (Counter.social, 2020).

A Code of Conduct doesn't deter all behaviours that aren't accepted by the group. Still, in platforms that allow users to impose their rules, social media users can mitigate online hate in a much more direct way. Just like in cancel culture, community rules prosecute bad behaviours inside the community. However, in a very different approach from cancel culture, the repercussions of not following the conduct are predominantly dealt with in private. The moderators make use of warnings, blocking, banning. While some groups have zero-tolerance policies, others employ more forgiving proposals – "If the warning is unheeded, the user will be temporarily banned for one day in order to cool off." (Rust Programming Language, 2015).

An online conversation with the administrator and moderator of the Mastodon instance *QOTO* brought to light how the bottom-up initiative of moderating hate is a co-operative task. QOTO is one of Mastodon's oldest instances, created for scholars in science, technology, engineering, mathematics and others. It has, at the moment of writing this text, 12,322 users. As with most Mastodon communities, there are some rules to follow. I wanted to know why they had rules, how they were created, and how they are now enforced. Jeffrey explained how all rules are discussed with the community first, after which the moderators ultimately vote on decisions. They like everyone's voice to be heard, so besides discussing their rules within the community, they also discuss them with administrators of other instances who may have a relevant opinion (Graça 2020, personal communication, 12 March).

It's not only marginalised communities that are enjoying more controlled networks, guided with different rules than mainstream social media. The idea of building safe spaces where users can be active participants and moderators of their social networks is proactive and resonates with a lot of people. However, safe spaces open the doors for fascists to make their own protected networks as well. This is the case of *Gab*, a social platform that advocates for free speech with no restrictions. Its terms of use don't ban bullying, hate, racism, tormenting or harassment. The only point that briefly mentions any liability is when engaging in actions that may be perceived as leading to physical harm or offline harassment. For a long time, the platform's logo resembled *Pepe the Frog*, an image appropriated by the alt-right. As expected, Gab is known for hosting a lot of hateful content.

In 2019, Gab forked off from Mastodon into a custom platform. The migration was an attempt to dodge the boycott it was facing. Apple Store and Google Play had removed Gab's mobile app from their services earlier. Although many Mastodon communities already have their own rules against racism and can block users or communities that don't, Gab still benefits from the platform system as a whole. There was a great deal of controversy regarding whether Mastodon should ban Gab's instance, as a general platform policy. In this case, the platform as a company felt pressure to intervene beyond community-driven rules. For the founder of Mastodon, the only possible outcome was allowing Gab to use and fork the open-source platform. This situation upset some users. The perceived inadequate response to the alt-right from Mastodon was one of the reasons for the creation of more

alternative platforms.

One of these platforms is *Parastat*, a new social media under development that aims to contribute to a more humane society. Parastat's moderation policies are comprehensive. Parastat promises an immediate ban for hate speech, threats or harassment. Beyond the norm of other platforms, it also doesn't allow flirting, conspiracy theories, anti-vaxxers, homoeopathy, healing crystals, and many other topics. In the present online environment where hate proliferates, there are enough reasons to build safe spaces – online networks where people come together, can express themselves and feel protected from outside abuses. However, with a Code of Conduct as rigorous as Parastat's, I wonder if there will be less bickering and problems? Is it possible to only allow constructive ideas into a social network? When does a Code of Conduct stop providing boundaries and instead start creating thick walls that alienate users?

What is interesting to me in community guidelines is how evident the network becomes: the values, the members, the ideas that connect people, the purpose of having a group. A Code of Conduct is becoming increasingly common in different kinds of networks, sometimes prompted by social pressures or as a requirement to seek financial support. It's important to note that a Code of Conduct doesn't only set rules but also needs people actively involved with the community, to manage reports and possible malpractices. It also needs visibility and a plan for distribution. Only this way can a Code of Conduct evolve from a written document into a tool that actually helps reduce hate or any unwelcoming behaviours. Community rules are not only documents, but labour-intensive routines that imply human effort and involve the community. These documents became relevant to me when I understood the logic behind them.

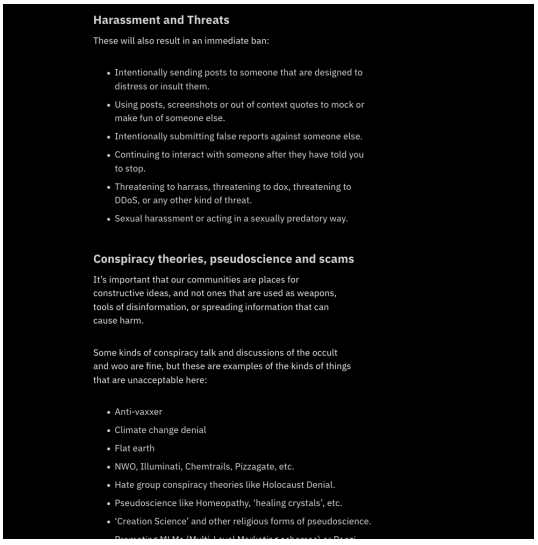

Fig. 06 – Parastat's Code of Conduct (Parastat, 2020).

The emergence of Codes of Conduct on social media provides more agency to users, as they can choose how and what is shared in their networks. Small platforms seem more welcoming of these documents and more capable to regulate online hate. This is probably because it's easier to share similar ideals with fewer users, but also because mainstream commercial platforms have different preoccupations, such as making a profit. Nonetheless, should mainstream platforms with massive amounts of users have stronger guidelines? Is it possible to manage billions of different-minded people with one set of rules? How can moderators enforce regulations on a large scale? Big platforms still have a long way to go in the way they manage hate, but I believe one crucial step is to work on their policies – to be straightforward on what constitutes hateful actions and how they won't be tolerated. It's essential to find ways to cater to diversity within their guidelines, not forgetting the problems that target specific groups. Which tools can support users' different needs? How do we design for diversity?

Chapter 3: Designing change

Throughout this text, I analysed the popularity of vigilantism and the development of Codes of Conduct. While both of these approaches use human interventions to control hate, there is a plethora of compelling software tools that have the same goal. Users build tools outside the formal development of social-media businesses to moderate content on their own terms. Together, the community shares notions of morality and customises its platforms, gaining more control over the way users participate in their networks. The interface is a crucial component of social media in dealing with online behaviours. The design shows the actions we can do, and what and how we see content on the platform. Add-ons, plugins, and other tools can be very efficient in avoiding hate when the platform tweaks, removes or adds to the design of the interface. In this way, it's necessary to begin this chapter with an understanding of the importance of interface design.

In 1990, Don Norman wrote that "the computer of the future should be invisible", meaning that the user would focus on the task they want to do instead of focusing on the machine (Norman, 1990). Much like a door, you go through it to go somewhere else. But the designer and researcher Brenda Laurel reminds us that closed or opened doors allow different degrees of agency. A door that opens for you, a small door for children, a blocked door: the interface defines the user role and establishes who is in control. What the platform allows the user to do, the possibilities for a person on social media to write, post, and reach others, are affordances of the platform. The term *affordance*, as Norman has interpreted it, is now a buzzword in the field of design.

If platforms have intrinsic characteristics that guide user behaviours, social platforms become partly responsible for the way users share hate, mainly if these platforms facilitate or even perform abusive actions. To understand how platforms can accommodate hate, it's valuable to look at *Yik Yak*, a former social media app targeted at college students. The platform allowed users to post messages to a message board, in anonymity. The privacy policy of Yik Yak did not approve the identification of the users without specific legal action. The app bounded a small community, as the user would only see the posts of people around them. Yik Yak was anonymous and local. It was also community-monitored. Users upvoted or downvoted posts on the message board, and as a result, the upvoted messages would become more visible on the interface. The app was launched in 2013, and at one point in 2014, Yik Yak's value reached 400 million dollars. Only three years later, however, the developers published a farewell note, and the app shut down.

One day in college, student Jordan Seman saw a horrible message about her and her body on Yik Yak. The hyper-localisation of the app meant that whoever "yaked" the insults was someone extremely close to her. Seman then wrote an open letter to her school and peers, where I found her story. The letter was published for the Middlebury College community, but it definitely resonated within other groups using the app. The features of the platform could allow for a close self-regulated community, and anonymity could mean safety for some people. Instead, the same characteristics tolerated the spread of hate on college campuses without any accountability. The message board was a *burn book*: a place to vent, to make jokes about others, to bully. In the case of Yik Yak, the platform design facilitated the shaming of Jordan. She asks in her open letter: "Is this what we want our social media use to be capable of?" (Seman, 2014)

Yik Yak's structure is very similar to that of Reddit. Yik Yak also maintained message boards, allowed pseudonyms, and maintained a "karma" system. Identical design choices on Reddit, its algorithm and its platform politics, have been analysed and alleged to support anti-feminist and misogynistic activity (Massanari, 2017). It's clear that the affordances of platforms deeply shape user behaviours. In this way, it's not surprising that while Yik Yak developers were dealing with hate on their platform, the same was happening on Reddit. In August 2014, a controversy around the gaming industry culture instigated coordinated attacks, mainly targeted at

women. The movement spread and escalated with the usage of the hashtag *Gamergate* on Twitter. The repercussions of such actions were hateful. The #gamergate harassment included doxing (publishing sensitive personal information), intimidations, swatting (fraudulently mobilising heavily armed police against the victim), death threats, bomb alerts, and shooting warnings.

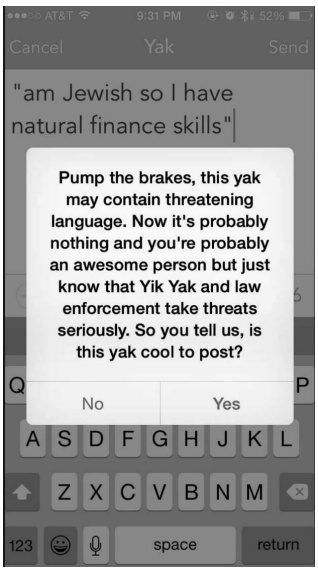

Fig. 07 – Yik Yak attempts to reduce harassment on the app (Mahler, 2015).

The stories of Yik Yak and Reddit exemplify how the interface can act as an agitator. For this reason, technical tools to reduce hate through the interface become meaningful and required. One feature that allows shutting down harassment is to stop listening to the source by blocking the user. However, there are some situations where individual blocking is not enough.

As a result of the Gamergate controversy, Charles Hutchins created *Block All Twerps*, a blocklist for Twitter. Block All Twerps programmatically collects and blocks users that are harassing, following or retweeting harassment (Hutchins, 2016). When a user subscribes to a blocklist, their feed will ignore the presence of any people added to the list – no tweets, notifications, messages. In a broad sense, if a user subscribes to Block All Twerps, they will stop seeing content from potential harassers. The idea of who should be blocked derives from Hutchins' ideals. The mass blocking may also reproduce discriminating views of the developer, and the creator of this work is well aware of it.

Block All Twerps is not the first blocklist on Twitter. Before Gamergate, feminists were already using mass blocking strategies. The first shared blocklist was *The Block Bot* which maintained a list with three levels of strictness – level 1 for users who posted hateful content, to level 3 for microaggressions. Shared blocklists like this one are developed and supported by the community. They are bottom-up strategies to individually and collectively moderate Twitter experiences (Geiger, 2016). A community co-operates a list, deciding on who is listened to or silenced. The blocklists follow shared views of morality, ruling themselves by what each member feels is harassment, hate speech, or any target the list has. Some of the tasks of the members of the group include adding more people to the list, removing some, explaining the reasons for the block, providing tech support, and dealing with complaints. This way, the practice of preserving a blocklist happens through an informal structure, creating a network of care.

Blocklists use a different approach to cancel culture to reduce hate. Blocklists don't aim to remove problematic users from online spaces, but choose instead to not engage with them. Users who use block bots are not escalating a discussion but trying to stay away from it. I understand and encourage users who respond directly to haters and hate speech. Nonetheless, I believe it's equally important to create spaces where users don't need to fight those battles, where users don't have to respond to harmful behaviours while they engage with their networks. I don't like to participate in online discussions, so the benefit that I see in software tools is that they produce generally quiet actions. With blocklists, a person may not even detect they were blocked. However, if they do, some lists give the possibility to ask for an explanation and possibly get unblocked.

For example, the group behind The Block Bot provides an email address to forward complaints. Although there's a word of advice – "… make peace with the possibility that some people on Twitter may not wish to talk to you and that's okay." (The Block Bot, 2016). Different people manage the list, so who is or isn't blocked doesn't reflect strict guidelines. In the process of adding someone to a blocklist, it is common to add the reason for such blocking. On the one hand, the explanation adds disclosure for users. On the other hand, it shames users and their behaviours.

Software approaches reshape the way users interact with social platforms. Voluntary developers create blocklists because of the lack of a comparable feature on the platform. Even before block bots, Twitter users helped each other identify people to block by posting the hostile user's ID on the public timeline. In 2015, Twitter CEO Dick Costolo would write in a leaked internal memo: "We suck at dealing with abuse and trolls on the platform and we've sucked at it for years."

(Independent, 2015). That same year, Twitter added the feature to share blocklists into their source code. Today, sharing who is blocked is not available anymore, so blocklists continue as parallel activities. Nonetheless, since 2015 much more attention has been given to moderation on social media. Besides the platforms researching and trying new approaches, a growing number of plugins, extensions and bots are created every day.

While experimenting with some software tools, I understood how they instantly reduce the flow of some topics or users. They also suggest greater changes for social media platforms; it's not uncommon for grassroots tools to turn into real features. For example, on Twitter, *flagging* started as a petition from 120,000 users who wanted more report mechanisms to deal with online abuse (Crawford and Gillespie, 2014).

Flagging takes the expression of the nautical red flag, meaning danger, a warning; and, on social media, a report of something improper. It's a method for users to show discontent towards something or someone. On some platforms, the action of flagging is binary – the user is either against the content or not. In others, flagging is more thorough. For example, YouTube asks for the user to choose from nine options describing why the video violates community guidelines. Flagging can allow for removing hateful content, mainly when used as a collective tool. As the outcomes of individual flagging are often undisclosed, it is frequent that a community organises and demands change by using the tool in cooperation with others. A call to action is posted online for people to use the report button against some post or user. This amount of feedback will put pressure on the platforms to act – to remove someone from the network, for example.

Flagging is a feature on many social platforms, and a tool to moderate content. However, users can use it to report all kinds of things, including genuinely valid material. Different users of social media can use flagging in varied ways, which explains how tools are just a means to do something. They don't obey single handling but rely heavily on the user. An unfortunate example of flagging is the report of biographies of females on community platforms such as Wikipedia. Last year, the flagging and subsequent removal of pages about women generated a great deal of commotion and media coverage. Wikipedia members used the flagging system to ask for the removal of pages of several women, on a platform that already lacks sufficient female contribution and exposure. As of February 2020, only 18.3% of biographies in the English Wikipedia are about women (Denelezh, 2020).

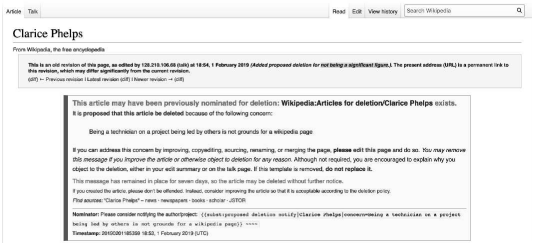

Fig. 08 – One of the Wikipedia biographies that generated the most media coverage. The page was deleted twice, protected against creation, considered in three deletion reviews, one *Arbitration* case, and overall intense discussion about meeting a notability standard (Wikipedia, 2020).

Besides flagging, Wikipedia is interesting to analyse for its other software tools. Without assigned moderators, the task of editing content in Wikipedia articles is the result of public collaborative discussion between users. As anti-hate measures, the editors get help from tools such as *ClueBot NG*, *ORES* or the *AbuseFilter* extension. These software tools detect and remove hateful content. The tools are always evolving into more sophisticated forms, for example through the implementation of machine learning. The automatisation of moderation is becoming a common practice on social media. But so far, the intricate nature of hate and its context, still require extensive human action. Until someone comes up with better social solutions, technical tools can help users to deflect hateful content.

In this chapter, I have discussed the possibility of creating tools in the margins, as complements or plugins, as is the case of blocklists. Also relevant is the manipulation of some already integrated features, such as flagging. The openness of forums also makes them a great place to discuss which tools are needed. The technical tools referred to in this text are used within coordinated strategies to help shape social spaces. They are generous approaches to filter out hate from the networks of users. The tools, when used collectively, help users share software knowledge, design skills and media know-how. This cooperation is especially helpful

for users without the resources to implement adjustments that can make a difference in their experiences with social media. The community that shares its knowledge, and is active in removing hate within and outside the community, creates important support systems – networks of care.

Conclusion

Online hate has existed ever since people could share messages on computers. In 1984, a bulletin board system called *Aryan Nations Liberty Net* was carrying racist material, years before internet use became widespread. Two decades later, the participatory "web 2.0" foreshadowed a cultural revolution. The potential for social media to connect people grew, as well as the ability to spread nasty comments, to harass someone, to make threats. To say that online spaces are filled with hate is nothing new, and common knowledge at this point. However, the ways of dealing with hate continue to increase and improve, always trying to stay as progressive as possible, aiming to catch up with the most recent hurdles. Discussions about moderating social platforms are challenging issues that are making headlines right now.

Throughout this text, I pinpointed several of the multiplicity of efforts to reduce hateful content from the perspective of users. These users, fed up with encountering harmful behaviour online, started coming up with ways of protecting and maintaining their own networks. Valuable clusters of people organise on the margins to make social media spaces more enjoyable. The communities that grow within these actions build networks of care. I suggest that these bottom-up strategies are essential to imagine and create better social networks. Official responses from the platforms are necessary, but I propose that informal community movements are crucial to managing social platforms and that they deserve more attention, debate and recognition.

The point where it gets more complicated is the question of where to embrace bottom-up strategies such as Codes of Conduct, and where these guidelines constrain discussions. Parastat's strict rules, mentioned in the second chapter, may limit questions and relevant dialogues on a wide range of topics. Another problem with some approaches, such as cancel culture, is that they assume moral righteousness, where one's morality becomes superior to that of others, and therefore more important, more worthy of spreading through media. Finally, there's a concern that online moderation may reduce freedom of speech. Restricting freedom of expression can be very dangerous, and can lead to a corruption of democratic values. For example, governments shutting down internet access in times of conflict are removing spaces to express opinions and share news.

Freedom of speech is an essential right, with duties and responsibilities, but also exceptions. Philosopher Karl Popper's *Paradox of Tolerance* clarifies the impossibility of allowing everything and being completely tolerant. Popper explained how it's essential to set boundaries in order to create a truly tolerant society. I believe the same applies to social media platforms. In Popper's words: "We should therefore claim, in the name of tolerance, the right not to tolerate the intolerant." (Popper, 1945). This can be done by providing more strategies to limit abusive content from and toward users: better report systems, blocking tools and community guidelines. In this text, I have analysed these approaches to reduce hate content online. Still, I couldn't mention all possibilities – manifestos, protests, low tech devices, memes – these are all appropriate strategies.

While writing this thesis, I was, at times, feeling defeated. At the beginning of my research, I was trying to place the blame for online hate on the interface, on the gatekeepers of platforms, even on capitalism itself if it seemed feasible. All these forces have a massive influence on online behaviours. However, as users, it's hard to change these forces. For this reason, my work sheds light upon those user actions and intricate communities that work against online hate. These networks of care share ideas and mindsets of what should be acceptable, and work as voluntary collectives to cut down hateful behaviours from their social spaces. Even if the outcomes are dubious at times, these are very generous approaches to moderate social media. There's now a clear answer to the question that kept surfacing in my mind – is it possible to fight online hate? The answer is: absolutely.

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Fig. 05. Counter.social (2020) *Community rules.* [Screenshot by author] Available at: https://counter.social/about (Accessed: 28 April 2020)

Fig. 06. Parastat (2020) *Code of Conduct.* [Screenshot by author] Available at: https://parast.at/coc/ (Accessed: 28 April 2020)

Fig. 07. Mahler, J. (2015) "Who Spewed That Abuse? Anonymous Yik Yak App Isn't Telling" *The New York Times.* [Screen capture] Available at: https://www.nytimes.com/2015/03/09/technology/popular-yik-yak-app-confers-anonymity-and-delivers-abuse.html (Accessed: 28 April 2020)

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Syster Systems

On The Urgencies And Potential Of Feminist Hacker Initiatives

Artemis Gryllaki

Prologue

Being a Western millennial woman, I was raised together with my internet. Every day, on my numerous open tabs, I encounter news, advertisements, gossips and chronicles; vibrant mosaics of information appear on my devices. Assisted by the magic technologies that come to my hand, I do things more quickly and accurately. One might think these growing capabilities would lead to autonomy. Here, however, one encounters a paradox, as consuming these ever-developing technologies raises instead the issue of dependence. We depend on those who develop technology, on their business plans, or their contributions to social value. And we change along with technology (Padilla, 2017). It is thus critical to keep questioning which technological horizons are relevant for us, and how we are building them.

In my early adult years, influenced by European autonomous movements, I became involved in Greek political and activist communities. Their aim was mainly to point out social exclusions in terms of class, race, ethnicity and gender, and to critique the imbalances of current power structures. For such groups, exploring ways to become more technologically sovereign is still a constant struggle. Their critique of contemporary technology production makes them sceptical towards new technologies and their use for surveillance, control, and oppression by power institutions. While I agree with this tendency, I have noticed a gap between theory and practice inside these communities. How can we overcome the binary notion of producers and consumers, let alone imagine autonomy, without having basic technological literacy and skills?

Willing to practically engage with technology, I started looking for places that could be starting points for amateurs like me. Some of my male friends who were software developers and open-technology enthusiasts suggested I should attend a hackerspace. However, I was discouraged from joining due to shared experiences from my close female friends who have already attempted to enter hacker communities. They described these as male-dominated, competitive, massively technocentric, and hard to fit in as a woman. While I was still searching for spaces to acquire technical skills at my own pace, I received an invitation to an international event which combined technology with feminism. Participating in this gathering inspired me to further study the work of feminist hackers.

In this essay, I will examine the context of technological environments that lack diversity and inclusion, as well as the practices of feminist communities that respond to this phenomenon. First, I will explore how the origins of hacker culture have contributed to the creation of gender-based social exclusions. Then, I will

narrate how sexism and misogyny reproduce in the geekdom, highlighting the importance of addressing this phenomenon. Finally, I will present the practices of feminist hacker communities, emphasising the value of supporting their work. Not only because they create safe spaces for excluded individuals to gain agency with technology, but also because, as Christina Dunbar-Hester, ethnographer and researcher of the politics of technology, puts it, they redefine who counts as a hacker, and what counts as hacking (Dunbar-Hester, 2020). Their efforts to encourage collective knowledge production and Do-It-Together practices in inclusive and diverse environments envisage a technological future where I could see myself fitting in.

Chapter 1 - A boys-only club

Over the last three decades, the explosive growth of the information technology industry has lead to an increased interest in this industry. Mass media, national governments, and college administrators began advertising employment in computing as the most promising career path (Dunbar-Hester, 2020). Successful tech entrepreneurs and programmers like Elon Musk, Mark Zuckerberg, and Steve Jobs became our new role models; all of them white, upper-class men. Steve Henn, host of the podcast *When Women Stopped Coding*, narrates that plenty of early computer ads from the '80s were full of men and boys. Nobody can be sure why they became a better target market for computers, but this idea fed on itself; that "computers are toys, that boys use to do boy things" (Henn, 2014). In parallel, the rise of male geek character representation in pop culture, for example in the TV sitcom *The Big Bang Theory*, legitimises the geek as a new form of masculine identity (Morgan, 2014).

In 1991, Dr Ellen Spertus inquired into the reasons why there were so few female computer scientists. In her study, she reported that, at the time, only 13% of PhDs in computer science went to women, and only 7.8% of computer science professors were female (Spertus, 1991). In 2020, journalists, researchers, and politicians are still asking the same question. A recent European Commission study reports a growing gender gap in the digital sector. Women's participation in ICT studies is four times less than that of men, a decrease from 2011. Also, the rate of men working in the field is 3.1 times greater than the share of women (European Commission, 2018).

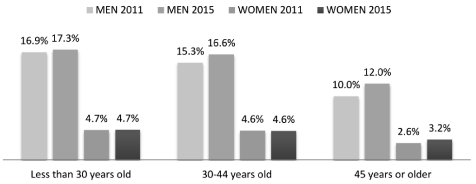

Fig. 1: Labour market distribution of individuals in digital jobs by age and gender

Why are women avoiding tech-based environments? How did the association of hacking competence with masculinity become a norm? Sociologist Tim Jordan argues that hacking inherited the gender biases of computer science, in numbers as well as in attitudes. A cultivated culture of male dominance and even exaggerated misogyny pushed away most female developers (Jordan, 2016). Historical narratives about the origin of hacking may indicate how the culture of hackers grew to exclude people not fitting their repetitive identity pattern.

Hacker, a title of honour

Steven Levy, in his book *Hackers: Heroes of the Computer Revolution*, describes the birth of computer hacking at the Massachusetts Institute of Technology (MIT) in the '60s. MIT's famous Radiation Laboratory contributed to the development of advanced military systems after World War II. Digital Equipment Corporation donated a large-scale computer to the Lab, which had previously been used for military purposes. This computer, among others that followed, became a central point around which the first groups of obsessed tech tinkerers and programmers gathered (Levy 1984). The protagonists of this story – young, curious, well-educated white men – would gradually form a community characterised by a particular culture. Hacking became a self-conscious and widely noticed practice, with its own intellectual pursuit and values (Jordan, 2016).

In public perception, a hacker is usually someone who breaches internet security systems, although this is not always true. The epic battle over who is entitled to call themselves hackers is under constant debate. Richard Stallman, programmer and founder of the Free Software Foundation, in his many speeches and writings, presents himself as the rightful carrier of the proper definition of hacking:

Hacking, as a general concept, is an attitude towards life. What's fun for you? If finding playful clever ways that were thought impossible is fun then you're a hacker …. journalists found about hackers around 1981, misunderstood them, and they thought hacking was breaking security. That's not generally true: first of all, there are

many ways of hacking that have nothing to do with security, and second, breaking security is not necessarily hacking. It's only hacking if you're being playfully clever about it (Stallman, 2012).

In his attempt to emphasise the playful nature of hacking, as opposed to its malicious version, Stallman's above definition only tells half the story. Although some journalists have misunderstood hackers, others have tried to present them as mythical figures and heroes of the digital revolution:

Those magnificent men with their flying machines, scouting a leading edge of technology which has an odd softness to it; outlaw country, where rules are not decree or routine so much as the starker demands of what's possible (Brand, 1972).

This is what Stewart Brand wrote about hackers in 1972. Stewart Brand is best known as the publisher of the *Whole Earth Catalog*, a famous magazine that became a bible for a big part of the American counterculture in the '60s and '70s. Specifically, for the role it played in promoting the *back-to-the-land* movement and communal life, and even adopting semi-religious systems from the exotic East (Turner, 2006). It is interesting to notice how this new-age spirituality went together with the glorification of what was described as an aethereal new technology.

Hacker ethics and aesthetics

Steven Levy found in hackers a "daring symbiosis between man and machine", whose urge to learn, tinker and create technical beauty supersedes all other goals (Levy, 1984). He codified an overall "hacker ethic" in a list of tenets that promote a hands-on imperative, a dedication to information freedom, a mistrust of authority, a commitment to meritocracy, and the faith that computers can improve people's lives. Many people, coming from different political and ideological backgrounds, find the tenets of hacker ethic appealing, probably because of the constant invocations of freedom. "Information wants to be free" (IWTBF) is one of the most common slogans used by hackers. This sentence is half of a famous quote by Stewart Brand, recorded at the first Hackers Conference in California, in 1984. In its original form, this aphorism could advocate for free and open information, but could also be an argument in favour of the benefits of proprietary information:

On the one hand information wants to be expensive, because it's so valuable. The right information in the right place just changes your life. On the other hand, information wants to be free, because the cost of getting it out is getting lower and lower all the time. So you have these two fighting against each other (Brand, 1984).

Fig. 2: Hackers conference, 1984

This statement reveals a paradox of the digital age. Information becomes subject to the law of supply and demand because of its role as a growing source of value. In parallel, the cost of preventing information to spread becomes bigger. The more information technology grows, the more value it produces. However, the more information technology there is, the easier it is for information to spread. Behind this abstract slogan (IWTBF), lies the notion of economic liberty.

Anthropologist Gabriella Coleman, whose work focuses on hacker culture and online activism, links hackers' hyper-elevation of individualism and meritocracy to the long history of these terms in the liberal tradition (Coleman, 2012). Nevertheless, Coleman points out the difficulty of generalising about hacker politics, as they bring together faith in freedom of speech and information, values from traditional liberalism, a great deal of geekiness, and some scent of counterculturalism. They generally tend to avoid rigid political stances, embracing "political agnosticism" (Coleman, 2004). However, there are times when more radically political branches of hacking appear. Hacktivism is the fusion of hacking

and activism or, in other words, hacking for a political cause. The tactics used by hacktivists vary, including electronic civil disobedience, online demonstrations against corporations, distributed denial-of-service (DDoS) attacks to freeze websites, cyber-attacks to gain information on political opponents, and more (Toupin, 2015).

Who fits in hackerspaces?

Hackerspaces are tech-oriented open spaces where people gather to hack, tinker with technology, experiment and socialise (Dunbar-Hester, 2020). Different kinds of hackerspaces, hacklabs, co-working spaces, media labs, fab labs, and more, exist in different contexts such as universities, start-up companies and non-profit organisations. According to Johannes Grenzfurthner and Frank A. Schneider, the first hackerspaces in Europe were part of the broader "autonomist" scene. They developed in the mid-'90s, among squat houses, alternative cafés and communes (Grenzfurthner & Schneider, 2009). Hackerspaces that followed and became widespread during the late '00s gradually lost their prior political identity. They embraced more academic and liberal approaches, growing in the sphere of influence around the Chaos Computer Club (CCC), Europe's largest association of hackers (Maxigas, 2012).

The operating principles of hackerspaces coincide with those of Free, Libre and Open-Source Software (FLOSS), encouraging everybody to share code, ideas, and the projects these produce. This approach is appealing to many people who are interested in open access to information, decentralised technologies, digital rights and more. Moreover, people who are new to hacking often choose hackerspaces as their entry point for technological projects. That being said, while the communities running these spaces should provide a safe and welcoming environment, they have been struggling with diversity and inclusivity for a long time.

In 2006, a European policy report shed light on the severe diversity issues of open source communities and hackerspaces, which is even worse than in tech overall. At that time, less than 2% of FLOSS community members were female, compared with 28% working in academic computer science or proprietary software development. The study also revealed that, although most hackers see themselves as neither sexist nor hostile towards women, most female participants of the survey had observed or experienced discriminatory behaviour against themselves or other women in the general FLOSS community (Nafus et al., 2006). In 2017, a more recent survey from GitHub showed that gender imbalances in FLOSS remain profound. 95% of the respondents were men, only 3% were women, and 1% non-binary (GitHub, 2017).

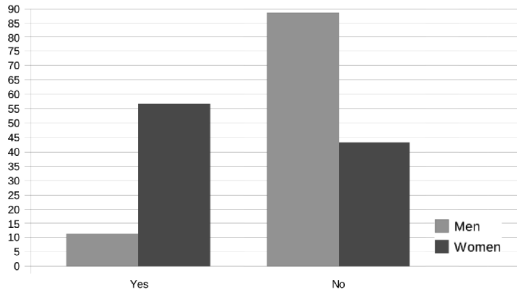

Fig. 3: Survey respondents to the question: Regarding your collaboration with others during your FLOSS activities, have you ever observed or experienced discriminatory behaviour against women?

In addition to these reports, a significant case that shook the hacker community was that of Jacob Appelbaum, a prominent hacker and former developer of the Tor project for online anonymity. In 2016, while he was still a regular visitor and speaker at CCC events, multiple women accused him of sexual harassment and misconduct. The gravity of this incident pressured CCC to pay extra attention to anti-harassment policies (Conger, 2017).

In response to reported issues of exclusion, harassment, hate speech, threats, and others, many tech conferences and FLOSS projects have broadly adopted Codes of Conduct (CoC). Such documents are useful for setting up rules and accountability, while also helping communities to formulate common values around their projects. The Ada Initiative, a US-based feminist organisation, started in 2011 to address issues of sexism in FLOSS communities, producing CoCs and anti-harassment policies. According to their description, an effective CoC should declare what are unacceptable behaviours and provide information about reporting violations and enforcing rules. There should also be a clear distinction between

unacceptable behaviour, with severe consequences, and collective guidelines such as a general disagreement resolution (Aurora, 2014). For example, when someone is told to RTFM (Read The Fucking Manual), the community has to draw the line between structural exclusion and personal annoyance. What's more, for actual interventions to happen, people need to constantly interact with the written rules of their community. The bodies gathered around Codes of Conduct are responsible for activating and enforcing them (Snelting, 2018).

Fig. 4: Do-ocracy poster, Noisebridge hackerspace, San Francisco

Chapter 2 - Exclusions in the geekdom

Openness and structurelessness

There is an active ongoing debate about the severe gender imbalance in the tech industry and open-source communities. Mary Gardiner, open-source developer and co-founder of the Ada Initiative, mentions that "people are scratching their heads over why women would avoid such a revolutionarily free environment like Free Software development" (Gardiner, 2009). Many doubt that any bad incidents have even happened. What if women are just not interested, or naturally not inclined to science and technology? A variety of feminist initiatives provide answers to such questions. In 1987, a mailing list called *Systers* was founded by Anita Borg to support women in computer science and related fields, in response to issues of sexism and patriarchal domination in physical and virtual spaces. The name Systers derives from the combination of the words systems and sisters. Jean Camp, an American scholar of informatics, explains how the Systers list provided a safe place, in a hostile net:

Consider a Usenet newsgroup specifically started to discuss issues about women: soc.women, where the posts by men outnumber women's …. Too often, when women try to create spaces to define ourselves, we are drowned out by the voices of men who cannot sit quietly and listen …. So we withdraw to a room of our own (Camp, 1996).

Apart from being committed to FLOSS, hackers are often passionate advocates of free speech and expression. The culture of openness also extends to their spaces. Noisebridge, a hackerspace in San Francisco, states that it is free and open to everyone, imposing only one rule: "Be excellent to each other" (Noisebridge, n.d.). Such abstract, yet well-intended suggestions, have been critiqued by scholars as insufficient in banning various forms of misbehaviour. Hacker culture has in cases tolerated sexist, misogynist and discriminatory expressions in the name of freedom of speech (Reagle, 2013). The most vulnerable hackerspace participants feel discomfort and stress due to the lack of formal guidelines to declare inappropriate behaviours (Nafus 2012).

Hackerspaces and FLOSS communities usually have informal organisational structures. They may assume that diversity and inclusivity will grow organically, but unfortunately, that's not the case. On the contrary, these communities reproduce their dominant white, male, geek culture, that fails to invite or retain women, lesbian, gay, trans and queer persons, gender non-conformists and people of colour, among others (Toupin, 2014). In *Tyranny of Structurelessness*, American feminist Jo Freeman analysed the power relations within radical collectives formed in the context of the '70s Women's Liberation Movement. She argued that when a community is lacking formal structures, it will possibly end up favouring those who already enjoy gender, class or race privileges (Freeman, 1972). Therefore, structurelessness hides the informal power of specific individuals or cliques. When issues of exclusion are not discussed, they become invisible, a possible risk in all kinds of structureless groups, including feminist ones.

Documenting exclusions

In 2008, the Geek Feminism Wiki, followed by the Geek Feminism Blog in 2009, constituted an online space for feminists to document incidents of sexism and harassment in the tech industry, FLOSS projects, gaming, comic book fandom, conference rooms and social media (Geek Feminism Wiki, n.d.). As Mary Gardiner explains:

Some women had stories, some women didn't …. Had you asked me in 2003 for troublesome incidents in Free Software …. I don't know that [sic] I would have been

able to give you examples of anyone doing anything much wrong. A few unfortunate comments about cooking and babies at LUGs, perhaps. Things started to change my awareness slowly (Gardiner, 2009).

Documenting and archiving creates a collective memory, producing counter-narratives that impact how women perceive themselves. A relevant example is the #MeToo hashtag, initially used by civil rights activist Tarana Burke in 2006. The hashtag became the symbol of a movement fighting against sexual harassment and assault, gathering women's experiences and stories, spreading them in public spheres and social media channels, creating collective spaces for solidarity, healing, and activism. The Ada Initiative, besides working on anti-harassment policies and advocating for gender diversity, also organised so-called *Ally Skills Workshops*. As described on the website:

The Ada Initiative Ally Skills Workshop taught men simple, everyday ways to support women in their workplaces and communities. Participants learned techniques that work at the office, at conferences, and online (Ada Initiative, 2013).

Many of the founders and advisors of the Ada Initiative were also contributors to the Geek Feminism Wiki and blog, while also being founding members of intersectional feminist hackerspaces (Toupin, 2014). Although the Ada Initiative closed in 2015 and the Geek Feminism Wiki is currently in archival mode, their work has not finished. Projects like these act as an influence and inspiration for new initiatives and as a digital resource for feminists or people who want to learn more about feminist issues. They can activate awareness-raising communities around issues of sexism, harassment, discrimination, and violence, and together build ways for addressing these as individuals or collective bodies.

Fig. 5: "Not afraid to say the F-word" stickers

We hear, but do we listen?

In 2019, technology and media scholar Danah Boyd received a Barlow/Pioneer Award from the Electronic Frontier Foundation (EFF). Her inspiring acceptance speech titled *Facing the Great Reckoning Head-On* is a call for people in tech to consider their role in the toxic environment of injustices in which they are involved. (Boyd, 2019). That same year, MIT was pressured to apologise for accepting huge donations from Jeffrey Epstein, the American billionaire financier and convicted sex offender. Furthermore, Richard Stallman was pressured to resign as president and board member of the Free Software Foundation after defending the behaviour of Marvin Minsky, an AI pioneer and associate of Jeffrey Epstein. Danah Boyd's call for personal and institutional reckoning was not only about these particular cases, but about the broader patriarchal structures that are still strongly upheld in tech institutions, academia, and elsewhere.

Responding to this call, I feel responsible and accountable. I carry on my back the injustices that happen, the hate, harm, cruelty. To start with, I propose to listen to those who are hurt, to those who feel excluded due to their social and political identities, which are intertwined and inseparable. Also, I want to make my small contribution to amplifying the stories of people who take action and constructively transform current reality. In 2019, I participated for the first time in the Eclectic Tech Carnival (/ETC), a feminist hacker event which will be presented in more detail in Chapter 3. The diverse sessions, workshops and discussions of /ETC inspired me to launch a series of similar gatherings, on a local scale. Together with Angeliki Diakrousi, Greek media artist and researcher, who contributed in organising this year's /ETC, we became part of two parallel initiatives, in Athens and Rotterdam, aiming to explore the suggestions, urgencies and potential of feminist hacker communities. Our first meeting happened during the Carnival in Athens. It was a story-sharing session about people's experiences of exclusions in tech, from a

microaggression that took place at work, to a severe sexist incident. It is time to listen.

Xperiences was a gathering of women, trans, non-binary, and intersex people active in the tech world. The participants talked about their experiences as workers in the tech industry, as contributors in FLOSS movements, as initiators of inclusive hacker communities, as technology researchers in academia and as social media users. Their stories came out slowly, even hesitantly at first. Then they rushed out, they couldn't be stopped. The atmosphere became emotionally tense, and people were thanking each other for the very reason that they can be there, without having to endure any forms of restlessness of the kind that they have experienced in other tech spaces.

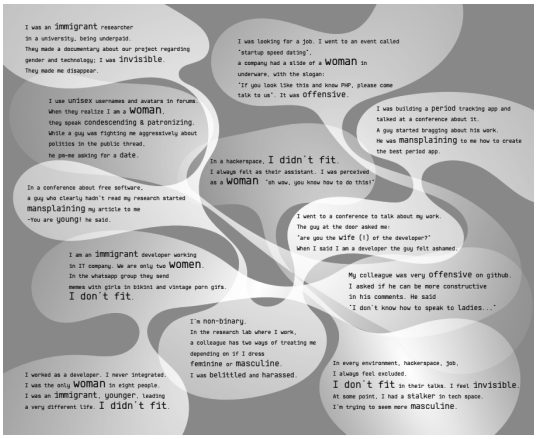

Fig. 6: Illustration that borrows content from the Xperiences session at ETC 2019

Chapter 3 - Feminist hacker initiatives

Hacker praxis, with its contradictions and conflicts, has inspired diverse groups of people in various contexts. Feminists, who believe in the emancipatory potential of hacking, started shaping communities of their own. They have multiple good reasons to do so: disagreements on how mainstream hackerspaces operate, issues raised because of a problematic and abstract openness, reproduction of sexist behaviours, among others. Bravely enough, they appropriate the sacred term of hacking, combine it with feminist pedagogies and stretch it to acquire new meanings (Toupin, 2015). This chapter presents the practices of particular feminist hacker projects, exploring their urgency and potential. Specifically, it focuses on: the GenderChangers Academy (GCA), a series of women-only skill-sharing meetings, initiated in the early '00s; the Eclectic Tech Carnival (/ETC), an international annual feminist hacker event; and the TransHackFeminist convergence (THF!), an annual gathering of queer feminist and visionary hackers.

Women-centred spaces and their opponents

Chapter 2 of this essay demonstrates how openness and structurelessness in hackerspaces are linked to the reproduction of privileges and social hierarchies. Feminist hackers use a variety of approaches to face this matter. Some choose to act inside existing hacker and open-source communities, pressuring them to revise their guidelines, while others prefer to form their own women[1]-centred spaces. The creation of safe-spaces that prioritise or even allow only the participation of minority groups is an old tactic used by feminists. It aims to set clear boundaries which ensure the safety and empowerment of identities traditionally excluded from a space or field. Feminist interventions, both inside and outside the realm of mainstream hackerspaces, are valuable in the context of diversity advocacy. It's up to the community's members to decide what's critical for them, depending on where, when and how they operate.

Critiques of women-centred spaces claim that separatism in the long term may engender what is supposed to fight: isolation and exclusion. The safe-spaces tactic though, is only about participating in these specific groups, whereas each member also takes part in non-exclusive events and practices. It is a means, not a goal; an urgent step that feminist hackers take, in order to form their own voice and identity. The male-dominance of tech and hacker groups depicted in the previous chapters justifies the urgency to do so. Other critiques, compare feminist separatism with tactics used by men's rights activist (MRA) and alt-right groups. However, this is an unsuitable correlation, as in the latter cases, exclusivity has an utterly different purpose, that aims to amplify existing power structures and imbalances. In the words of Faith Wilding and the Critical Art Ensemble in *Notes on the Political Condition of Cyberfeminism*:

It should be remembered that separatism among a minoritarian (disenfranchised) group is not negative. It's not sexist, it's not racist, and it's not even necessarily a hindrance to democratic development. There is a distinct difference between using exclusivity as part of a strategy to make a specific perception or way of being in the world a universal and using exclusivity as a means to escape a false universal. There is also a distinct difference between using exclusion as a means to maintain structures of domination, and using it as a means to undermine them (Wilding, F. and Critical Art Ensemble, 1998).

Genderchangers

The Amsterdam Subversive Center for Information Interchange (ASCII), was one of the early hacklabs starting in 1999 as a free internet workplace in the Netherlands. ASCII was a technological as well as political space, part of squatting culture and

anarchist movements. Most people running the ASCII were men, with backgrounds in engineering or computer science, and experienced with pirate radios, electronics or coding. Donna Metzlar is among the handful of women who frequented ASCII during the late '90s. Officially trained as a nurse, she became fascinated with computers and started working as a system administrator, while being involved in many social and political activities, organising multiple workshops, events and feminist projects. She is one of the core members of Genderchangers, and a co-founder of the Eclectic Tech Carnival, Girl Geek Dinner Amsterdam and the Systerserver. Recalling her experience in ASCII, she narrates:

The very few women who were active in the space were concerned about the same thing. When you asked one of the guys in ASCII to help you or explain something, like how can you install LINUX on your machine, all of a sudden they just take over, and they start telling long stories with jargon that you can't follow (in-person Interview, 16 Nov 2019).

The women of ASCII created the initiative of GenderChangers[2] Academy (GCA), driven by their frustrations about the ASCII space. GCA started in the early '00s as a women-only gathering, with the motive to exchange technical skills, unimpeded by the typical competitiveness of male geeks. In their first learning circle, they helped each other to install Linux on their computers collectively. Their gathering went so well that they decided to initiate a series of workshops to make more women interested in technology and free software. They bonded on issues that were beyond technology. Men running the ASCII didn't welcome their initiative at first, and didn't recognise the actual problem of homogeneity in the space. It took many fights, long discussions, and an incident of someone throwing away the women's hardware until GCA gatherings were finally accepted. Eventually, men of ASCII were even proud that this was happening at their space, but it took time, insistence and effort.

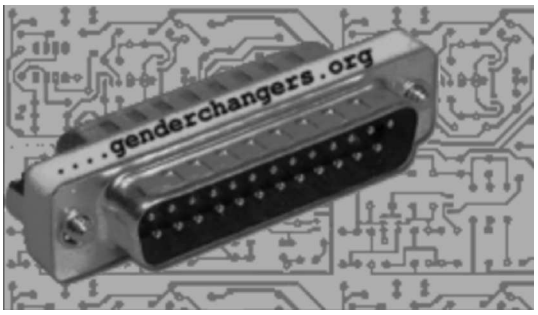

Fig. 7: Genderchangers logo

/ETC

The Eclectic Tech Carnival (/ETC[3] started as a Genderchangers-on-the-Road event, but eventually developed into an international project of its own. That probably happened because most of the initiators of the project were not coming from Amsterdam, but also from Canada, Sweden, the UK, South Africa, USA, Germany, or Australia. /ETC became an annual gathering of feminists, who critically study, use, discuss, share and improve everyday information technologies in the context of free software and open hardware movements. /ETC, like Genderchangers, was at first a women-only event. Over the years, the network of feminists who contribute to organising the /ETC event grew to respond and adapt to new contexts. The community regularly reassesses the choice of a being women-centred group. Currently, it supports the participation of people across a spectrum of gender, women and female-identified, transgender and queer persons. (/ETC, 2019).

Feminist hacker politics

Feminist hackers take a clear position against patriarchy through the fact of their very existence. They aim to bring feminist thinking and action in technological spaces, taking a step toward escaping unbalanced power systems. Alongside this fight, other political perspectives appear, including intersectionality, anticolonialism, and anticapitalism. Since feminist politics and analyses aren't monolithic, several directions can coexist, overlap, or be avoided, depending on the context and circumstances.

Intersectionality

THF!

The first TransHackFeminist (THF!) convergence took place in Calafou, in the

summer of 2014. Calafou is a network of cooperatives, individual projects and housing in a collectivised area in Catalonia. THF! includes discussions, workshops and sessions where intersectional feminists, and queer and trans people of all genders, gather to work together and discuss various subjects. THF! adopts an intersectional feminist approach. This framework emphasises the complexities brought by the intersection between gender, sexual orientation, geographical location, ethnicity and class, among others (Toupin, 2014). Intersectional feminist hacker groups recognise that hegemonic forms of feminism have historically promoted a white middle-class women's agenda to the exclusion of others. Thus, they focus on shaping conditions in which relationships of domination are addressed and challenged.

THF! is about being aware of, and acknowledging, one's privileges. It is about understanding the relations between privilege and oppression. A THF! practice is about being anti-racist, anti-capitalist, anti-sexist, anti-ableist, anti-homophobic, anti-transphobic, and using hacking as a means of resistance, sabotage and transformation (THF! Convergence Report, Calafou, 2014).

Fig. 8: TransHackFeminist Agreement

Decolonizing technologies

"Decolonizing technologies" was one of the focal themes during the third iteration of THF!, which took place in Montreal in 2016. The open call for the convergence states:

How then can we imagine the decolonization of technologies and of cyberspace? What would such processes, epistemologies, and practices entail? How can feminist anti-colonial, post-colonial, and/or indigenous frameworks shape and strengthen our analysis in our collective reflection on such questions? At the methodological level, can radical speculative fiction or storytelling a la Octavia's Brood (2015) help us produce our vision(s) of decolonized technologies? In this stream we will explore the intricacies of colonial technologies while at the same time trying to conceive what decolonial technologies mean (THF! Summary, Montreal, 2016).

Here the organisers of THF!, propose to implement feminist, indigenous, and postcolonial or anti-colonial analyses when exploring complex political subjects, such as how colonialism invades technologies and cyberspace. For example, in the book *The Undersea Network*, researcher Nicole Starosielski described the inherent and continuous colonial relationships that are embedded in the infrastructure of the internet (Starosielski, 2015). Discussing such historical cases and choosing decolonising technologies as one of the main topics for THF!, highlight what is at stake, in the broader political directions and goals for TransHackFeminists. Also, the experimentation with speculative fiction is a feminist suggestion to reconfigure hacking and imagine how non-oppressive technologies could be shaped.

Anti-capitalist trajectories

During the first THF! convergence, the participants discussed what Trans-Hack-Feminism means as a whole. TransFeminism (TF) already existed as a concept with two main trajectories, one appearing in the context of the US, and one in the context of Spain. The Spanish THF! underlines the anti-capitalist principles and politics of the movement:

For Spanish participants particularly, TF is about making explicit the link with anti-capitalist perspectives in contrast with the US tradition where this direct connection is either not present, or not made so explicit (THF! Convergence Report, Calafou, 2014).

In the case of /ETC, the community takes a clear stance in opposition to tech and hack meetings organised by corporations which aim to increase the participation of

website:

We don't believe that identity diversity of big tech companies' CEOs, or more gender diversity in supporting the capitalist system to sell more technology, is going to produce an egalitarian society. We want more feminists creating alternatives to those companies. We want more feminists knowing about technology so that they can challenge the system producing that technology (FAQs - Eclectic Tech Carnival, n.d.).

Social structures, technical infrastructures

In the European context, the feminist hacker initiatives I have encountered connect to what Peter Maxigas has described as the first hacklabs of Europe. These hacklabs had an overall political direction, linked with autonomous movements and media activism, where pirate radio, as well as independent publishing practices, emerged. A highlight of that period was the rise of Indymedia, the Global Network of Independent Media Centres (Maxigas, 2012).

Fig. 9: Computer hardware crash course at /ETC 2019

In Chapter 1, hacktivism was mentioned as the political stream of hacking: organising radical disruptions and attacks. Furthermore, hacktivism also focuses a great deal of its efforts on the creation of tools to protect from mass surveillance, infringement on privacy rights, governmental and business exploitation of users metadata, etc. Feminist hacker groups include such practices in their gatherings, workshops and thematic events. To better understand how this might look concretely, past workshops and sessions of /ETC have included: computer hardware crash courses; introductions in decentralised chat applications and creation of burner email accounts for anonymous messaging; production of DIY shielding bags that prevent mobile phones from being tracked; and lectures on autonomous technical infrastructures for horizontal communities (/ETC, 2019).

Fig. 10: Burner mail servers workshop at /ETC 2019

As far as the TransHackFeminist community is concerned, they have expressed in their writings, an aspiration to understand, use and eventually develop technologies for social dissent. In the event's report from 2014, we can read:

The participants of the THF! understand technologies and hacking practices in the broadest sense; this includes hacking the body, gynecology and gender hacking, as well as academia, parenthood, and also computer systems, distributed networks, autonomous servers, pirate, community based and/or independent radio/tv, hardware and electronics (THF! Convergence Report, Calafou, 2014).

Feminist servers

Autonomous servers are part of a broader movement of autonomous technical infrastructures, deriving from the Appropriate Technology (AT) movement of the '70s and '80s. AT became a worldwide grassroots movement that influenced various groups of technologists (Pursell, 1993). A feminist server, in particular, is a concept that combines the interest for technical autonomy with feminist urgencies. It is an ongoing effort emerging from the need to ensure that works, publications, data and memories of feminist communities are properly accessible and managed. Feminist hacker initiatives work to provide technical literacy and the means to ensure that mailing lists, pads, wikis, content management systems, social networks and other feminist online services are preserved and protected.

During the /ETC, I learned about two active feminist server initiatives. These are:

1. Systerserver, a project launched by the Genderchangers and /ETC. It is run and maintained by women and acts as a place to learn administration skills, while it also hosts online services. (SysterServer, n.d.)

2. Anarchaserver, installed in 2014 during the first THF!. It hosts a wiki for the documentation of the THF! and a feminist blogging platform (Anarchaserver, n.d.). THF! describes that the need for feminist servers is a response to:

The unethical practices of multinational ICT companies acting as moral and hypocrite censors; gender based online violence in the form of trolling and hateful machoists harassing feminist or women activists online and offline; the centralization of the internet and its transformation into a consumption sanctuary and a space of surveillance, control and tracking of dissent voices by government agencies among others (THF! Convergence Report, Calafou, 2014).

Backstage communication tools

In an effort to control the technologies that mediate their social relations, feminist hacker groups choose alternative, decentralised, and open-source tools for their backstage communication. Contacting with people involved in /ETC and SysterServer, I understood that this is a political and cultural decision. Hacker groups in general, and feminist tech groups in particular, are opposed to the massive centralisation of the internet. Platformization offers giant tech companies, like Facebook and Twitter, the ability to establish themselves as unavoidable passages for everyone's mundane social interactions.

Corporations now act as mediators of our communications and in turn, manipulate how we understand the world around us (THF! Convergence Report, Calafou, 2014).

Feminist hackers prefer to meet in online spaces such as mailing lists and Internet Relay Chat (IRC) channels. IRC is used to organise events and meetings, to set tasks of the day and to collectively work on projects. While IRC channels are public, one must know the channel name and network in order to join. That usually happens through word-of-mouth among trustworthy individuals, thus creating small-scale community discussions. Mailing lists of projects are private and moderated, though everyone can request a subscription. Their purpose is to continue general discussions initiated during events, to help each other in the process of learning things, to keep in touch, and to provide information about new projects.

While discussing with a software developer friend about IRC and mailing lists, his reaction was: "Oh, why do you use these primitive, museological tools?" In hacker circles, exploring alternative tools of communication is a practice of critical technology adoption. It aims to avoid mainstream social media monopolies, willing to comment on their drawbacks (Maxigas, 2017). Apart from using alternative tools to communicate, feminist hackers also organise self-learn meetings and hands-on workshops to explore a variety of technologies that are rooted in libre/free culture.

Liberation technologies for us mean taking back the control of the internet, infrastructure, algorithms, inscribing new values in code, among others (THF! Convergence Report, Calafou, 2014).

Hacking with care

Sociality and care are at the centre of attention for feminist hackers. Processes, behaviours and relations of people who work together on a hacking project are valued even more than the project itself. This is observable through the integration of various practices of care in different events and spaces. The organisers of the third iteration of the THF! chose *Hacking with Care* as a central topic for their discussions and activities. For them, focusing on well-being and on understanding oneself and others provides a basis for solidarity and maintains a network of trust.

With Hacking with Care, we wish to contribute to the resiliency and prosperity of what we see as an extended network of caregivers: hackers-activists, lawyers,

journalists, artists, whistle-blowers, and many others with or without a profession or a name, distant and near, free and imprisoned, each and everyone of us a node in this human support network (THF! Summary, Montreal, 2016).

For the communities of Genderchangers and /ETC, spaces where people can ask so-called stupid questions amongst themselves, are explicitly needed. During an /ETC 2019 workshop about installing burner mail servers, I remember encountering multiple technical problems and feeling anxious about slowing down the rest of the group. When Donna and Juga, the workshop organisers, paused their presentation to help me, I received a significant moment of care which contrasted with past experiences in competitive tech environments. Attitudes like RTFSC (Read The Fine Source Code) are highly present in physical or digital tech spaces, causing amateurs and newbies to feel unwelcome and ashamed. This often leads to a habit of self-censorship and, if not addressed, may transform into a cause of exclusion.

Introducing non-technological activities is a gesture to invite amateurs or people from diverse backgrounds to be involved in hacker events. Past /ETC workshops have included botanology, healing, video art installations, sound performances, singing, and other practices that are often undervalued by techies. Also, including sessions for embodiment and mindfulness, like morning yoga, or evening walks to have time away from the screen and relax, is another expression of care during feminist hacker meetings. In THF! 2016, the organisers set up a tent, to offer space to sleep, rest from other intense activities or gather in a more private and calm environment.

During an informal conversation with an /ETC member, we discussed how providing childcare during a hacker event would be essential in inviting more mothers, as they usually face many difficulties in finding time and energy to participate due to their parental responsibilities. The HackerMoms space in Berkeley, California, was created to specifically address this issue, providing a playroom and a private space for breastfeeding, as well as childcare (HackerMoms, 2017).

Additionally, since most feminist hacker events are self-managed, caring to organise meetings to decide, review and discuss the practices of the community is a precondition. During the /ETC in Athens, there was an assembly every morning, in which participants talked about the tasks of the day and assigned roles for everybody to contribute in the ways they can. Responsibilities included cooking, recycling, cleaning, documenting, informing and supporting in workshops. Moreover, on the final day of the Carnival, the organisers called for a review session where people could share their thoughts, feelings and frustrations during their participation. This gathering created space for improvement based on solidarity and accountability.

Challenges

Feminist hacker initiatives, like other self-organised and self-sustained projects, encounter a variety of concerns, which have to do with sustainability, labour-power, engagement, participation, financial sources, maintenance, and more.

To start with, the physical space in which a community operates is worth considering, as it brings significant consequences. For instance, the political decision to operate in a squatted building means facing the risk of eviction. The ASCII hacklab that hosted Genderchangers during the '00s started as a squat. After its legalisation, it faced a 900% rent increase that was impossible to afford, so activists squatted it again (ASCII, n.d.). Finally, it was evicted permanently in 2006, leading to the end of the hacklab at that location. The hardship of grassroots communities to find available and affordable places to host their initiatives is one of the reasons why they can be unsustainable.

Also, local groups that pop up in different countries, inspired by international events, such as the Eclectic Tech Carnival, sometimes struggle to attract an adequate amount of people who are interested both in technology and feminism. Additionally, the controversial subject of womxn[4]- centred spaces is in many cases

the reason for political conflicts. As far as financial issues are concerned, each group follows different approaches. Crowdfunding methods are the most common, relying on solidarity bonds among interconnected community networks. Some groups may also choose to apply for funds, from organisations that support feminist perspectives.

Furthermore, the organisers of an international feminist tech event inevitably face multiple bureaucratic and political obstacles, according to the social, political and economic conditions of each hosting country. Aileen Derieg, translator and author, actively involved in the independent art scene in Austria, has been a member of the Genderchangers and co-organised the Eclectic Tech Carnival 2007. In her essay *Things Can Break*, she describes the distinct problems that occurred during the organisation of /ETC in Timisoara and Linz. In Timisoara, Romania, in 2006, the international and local organisers faced the issue of not having any basic infrastructure, even electricity, to set up the event. It required extensive efforts and hard work, to finally make it happen. On the contrary, in Linz, Austria, the next year, there was already well-established equipment and infrastructure available, though in that case, other hurdles appeared:

When announcements were sent out that registration for /ETC 2007 in Linz was open, over twenty registrations were received from Africa, mostly from Ethiopia and Ghana. After it was made clear that, as an all-volunteer effort, /ETC had no funding whatsoever for travel costs, only two women were left who succeeded in obtaining sponsorship for their travel costs, but they still had to apply for a visa to enter Austria in the heart of Fortress Europe (Aileen Derieg, 2007).

The differences in travel permits and restrictions that apply to various parts of the world make the conditions for people to participate in international events unequal. At /ETC 2007, long hours of communication and cooperation from the organisers were necessary, in an effort to overcome several complications. Finally, only one woman from Africa was able to acquire a visa to participate in the Carnival. All these impediments faced by feminist hacker communities, sometimes result in postponing or freezing their events. However, it usually takes only one person's energy to motivate others and revive these projects. Above all, these collectives have continued to exist and reproduce, despite their small scale, since the early '00s, because of their passion, dedication and enthusiasm. As Donna Metzlar describes:

We don't have an agenda of creating profit or becoming famous. The event is very organic, it just happens and grows. All the friendships among our community have grown out of our events and meetings. We have cultivated this little subculture to work together. Doing work is just as important as spending time together. We learn and understand where someone's strengths and weaknesses lie. I don't get angry when somebody promises to do a poster and they don't make it. Oh well, that's probably because she is working at the moment, or she is having problems with her partner etc. It's fascinating to see all of these women, dedicating hours and hours, for these events to happen. New people meet old members and decide to build new initiatives in their hometowns. It certainly has a network effect. The energy, the positivity, gives power to more people. When I was a girl scout, and we went hiking in the mountain, the rule was that you travel at the pace of the slowest. If you're alone in the mountains, you won't survive a storm. After all these years, I'm still here. This is all my own choice, and I enjoy it (in-person interview, 16 Nov 2019).

Although there are still many obstacles to overcome, the practices of feminist hacker communities are valuable on many levels: pedagogical, social and political. The dedication of systers in organising and following meetings, events, in travelling to find each other, in working hard to keep their culture alive, in solving their conflicts, I believe will go on and inspire others for years to come.

Epilogue

This essay unfolds the phenomenon of gender exclusions appearing in current male-dominated tech and hacker culture, and it presents various feminist approaches that respond to this issue. At first, it looks at the genealogy of hacking, in an attempt to interpret and contextualise the creation of a massively white, male field. It observes how the complexities of hacker ethics and aesthetics brought the rise of the hacker, as a title of honour. It questions who fits in hackerspaces and unpacks abstract claims for openness that rather hide the reproduction of privileges in existing power structures. Womxn*, as minority groups in the field of networked computing, have, since its early years, felt the urgency to gather in their own online spaces, to organise defence methods against sexism and harassment incidents, to support each other and to create solidarity bonds. Their shared stories, memories and hurtful experiences, documented in mailing lists, wikis, blogs, Usenet groups and IRC channels, started to form their collective identity; they became sisters in the field of systems, aka systers.

This year was the starting point for me to meet, research and contribute to the ventures of systers and feminist hackers. I discovered their long existence in online spheres, and I learned about their initiatives to create physical feminist hackerspaces. I consider the latter to be a step that can solidify the footprint of their communities and make their microculture more visible and accessible. Feminist infrastructures and networks of care are valuable for people who are active in tech environments, yet hesitate to bring up the issues they face, for fear of losing their job, being attacked or ridiculed, or losing balance in their social relationships. They are also useful for those who would be part of tech projects but have felt excluded from the start. Systers' playful experimentation with technology and culture envisage utopian spaces, where compulsive morning routines, mundane work tasks and household responsibilities are temporarily on pause. I speculate that feminist hackers intend to hack the current tech-culture paradigm, as they materialise alternative spaces that set clear boundaries for safety. These spaces potentially act as sites to discharge political tensions. Systers' activism also puts pressure on existing hackerspaces to change their norms and guidelines, an effect that has already started but is far from accomplished.

Feminist hacker initiatives appear increasingly in various forms worldwide, existing as instances among a wide range of gender equality movements. Together with #MeToo, #AintNoCinderella, #NiUnaMenos, #Aufschrei, #ΚαμίαΑνοχή, #OscarsSoWhite, and so many more, they create momentum for the reckoning of broader intersectional feminist perspectives. Sexism, misogyny, transphobia and racism are systemic social problems that shouldn't be addressed as issues solely of the technological sector. Overcoming them requires constant effort in multiple sites, our jobs, our living rooms, our public spaces, our social media, our relationships. It would be unfair to expect from feminist tech grassroots communities to solve all these problems. Nonetheless, the existence of these communities is urgent, and their work moves towards the direction of social justice. As scattered islands of resistance, they exist with their inefficiencies, their imperfect or incomplete practices. They are syster systems, consisting of long-hour political discussions, feminist servers, crypto party choirs, draft hormone inspection devices, radio drama performances, workshops for e-textiles, disassemblies of old computers. These abundant eclectic activities raise two main questions: who counts as a hacker, and what counts as hacking? It's about time to reconsider that there are no obvious answers.

Appendix

A Feminist Server Manifesto

In 2013, Constant, a non-profit, artist-run organization in Brussels, hosted the workshop *Are You Being Served?* During the session: *First Feminist Server Summit*, artists and activists reflected on questions around the potential of a Feminist Server practice. The collective discussions brought the following outcome:

A feminist server…

Is a situated technology. She has a sense of context and considers herself to be part of an ecology of practices
Is run for and by a community that cares enough for her in order to make her exist
Builds on the materiality of software, hardware and the bodies gathered around it
Opens herself to expose processes, tools, sources, habits, patterns
Does not strive for seamlessness. Talk of transparency too often signals that something is being made invisible
Avoids efficiency, ease-of-use, scalability and immediacy because they can be traps
Knows that networking is actually an awkward, promiscuous and parasitic practice
Is autonomous in the sense that she decides for her own dependencies
Radically questions the conditions for serving and service; experiments with changing client-server relations where she can
Treats network technology as part of a social reality
Wants networks to be mutable and read-write accessible
Does not confuse safety with security
Takes the risk of exposing her insecurity
Tries hard not to apologize when she is sometimes not available

Endnotes

1. **Today's feminist hacker communities usually uphold inclusive practices towards women, trans people, and gender-nonconformists. Each group may choose different terms or language, to critique both biological and social genders. The use of the term "women" often refers to a political category rather than a biological one (Dunbar-Hester, 2020).**

2. **"We did not make up this term, we are re-using it. The tech industry created it. Technically and literally a gender changer is a computer part. It is an adapter that changes the "sex" of a port. Ports with pins are said to be male, ports with holes are said to be female. In the situation where two pieces of hardware both have the same port, an adapter saves the day and makes a connection possible. We are reclaiming the term to mean a person interested in the gendered aspects of technology." (Genderchangers.org, n.d.)**

3. **/ETC comes from the Unix file system directory which contains all the important configuration files for a computer and networking (hostname, hosts, networks), users (group), mail (mail.rc) and the rc.config and the directory init.d with the initialisation scripts. The name was chosen because it includes different aspects of socialisation and computer configuration (FAQs - Eclectic Tech Carnival, n.d.).**

4. **The term womxn is an alternative spelling for the English word "woman", rejecting its etymology from Old English wifmon (wife-man). "Womxn" is used in intersectional feminism, as it broadens the scope of womanhood, to include transgender and nonbinary women (Vibes, 2018).**

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Colophon

This publication is based on the graduation thesis Syster Systems, written under the supervision of Marloes de Valk.

A heartfelt thanks to Marloes de Valk and Lídia Pereira for their feedback, help and support during the writing of this research. Special thanks to Angeliki Diakrousi, Donna Metzlar, /ETC Athens Crew, Amy Pickles, my fellow XPUB comrades, Aymeric Mansoux, Michael Murtaugh, Leslie Robbins, Clara Balaguer, Amy Suo Wu, André Castro, Steve Rushton, Femke Snelting.

My Country Is Still A Colony

Exploring Toxic Colonial Legacies In Korean Digital Society

Bohye Woo

Introduction

According to a report by the OECD, South Koreans work the longest hours in Asia. Employees in South Korea worked an average of 2,069 hours in 2016, compared to the OECD average of 1,763 hours (Nam, 2018). I still remember a period in my childhood when my dad had to get up at 6:00 every morning to go to work in a neighbouring city of my hometown. Most of the time he came back around 8:00 in the evening, and I had to massage his back and hands to relieve his fatigue. While he was out working, I often spent time playing computer games called "Crazy Arcade" on the Korean social media platform "Cyworld" (the equivalent of Facebook in Korea, but five years older), or chatting with friends via a messenger platform called "SayClub". For me, ever since I was young, using a computer and accessing the Internet came as naturally as playing.

Among countries that have high-speed Internet, Korea has become one of the fastest and most prevalent Internet distributors in the world (Ministry of Science, ICT and Future Planning [MSIP], 2017). During its development, many Korean companies started making use of the Internet as a profitable space by strategically mining data from the online activities of users. These online activities can be defined as simply browsing the Internet and being active in social networking sites, microblogs, or content-sharing sites related to leisure activities (Fuchs and Sevignani, 2013). In this way, users automatically contribute to the profitability of companies in the digital space. In other words: digital labour. This type of labour has the potential to produce a lucrative outcome in the form of data that can be unwittingly extracted for the benefit of someone else's business interests. Users become digital workers of companies who make use of their labour to extract data. This relationship between companies and users is inequitable, and feels exploitative and unfair. Interestingly, all of these situations show similarities to historical Japanese colonialism in Korea.

As a Korean millennial who has experienced Korean work culture and digital society, I will be emphasizing here what was inherited in Korean work culture from Japanese colonialism in Korea, and my discovery of how this has been transformed to the Korean digital space. Part 1 of this essay explores why Koreans work overtime, by highlighting the history of South Korea. Part 2, "The extent of the history",

examines those aspects of work culture in Korean colonial times that have been inherited by the digital sphere. By unpacking the findings of parts 1 and 2 – free digital labour is produced based on digital colonialism – I will suggest in part 3 how we can make this palpable. In doing so, this essay attempts to scrutinise the different modes of historical and modern colonialism, and to create a sense of urgency so that everyone can become more palpably aware of the problem of free digital labour.

Part 1. How did free labour arise in its cultural context?

Why do Koreans work overtime, even young kids? In order to understand why, we need to consider work culture and work customs in the context of South Korea. More specifically, how does this affect the issue of free digital labour in Korean work culture?

1.1 Korean work ethics

The traditional way of working

In the past, the oldest communal labouring custom in Korean agricultural society was called "pumasi" (품앗이), a combination of the words "pum" which means working, and "asi" which means repayment.

Fig. 1. Pumasi in Korea.

Pumasi consisted of working together for the benefit of the community, without taking into account the value of each other's labour contribution (Kim, 1995). This form of voluntary work allows neighbours to gather together to achieve a common goal (Kim, 1992). It emphasises the positive side of a give-and-take relationship, where people don't make an official contract to precisely define a 50:50 relationship. Here we can also refer to a Korean human affective concept called Jeong (정), an emotional and psychological bond that joins Koreans. Jeong is considered as a kind of unique love: you can help someone without asking for compensation, giving more than you promised, because you are emotionally attached to the person you are helping (Samson, 2018).

Additionally, a piece of music would be sung while conducting a task in order to work more effectively, a phenomenon known as No-Dong-Yo (노동요). The concept of No-Dong-Yo is to work together with a certain rhythm of labour, but also to work together with little effort (Kang, 2005). It is sung in order to keep the unity of working behaviour and to work more efficiently. In this sense, the old work culture in Korea was about helping each other, and working together productively.

The reality of modern work culture

In contrast to the traditional work culture, where hard work was a positive activity for helping each other, modern Korean work culture is a negative factor in modern society. According to the newspaper The Korea Herald, South Koreans are known as the world's second worst workaholics, ranking second in an OECD report in terms of working hours in 2014 (OECD, 2014). The average South Korean worked 2,163 hours in 2014: 271 days per year at an average of 8 hours a day. However, many companies encourage employees to work from 8:30 to 19:30, therefore the actual working hours a day are comparably longer than in other countries.

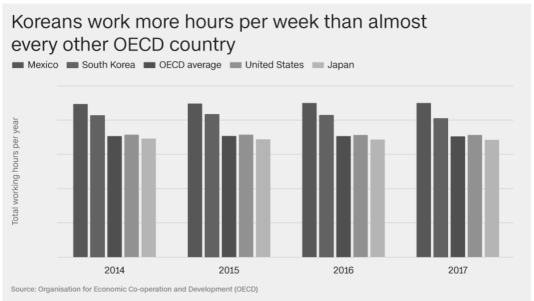

Fig. 2. Koreans work more hours per week than almost every other OECD country.

Also, many workers work overtime hours in the evening, so that they tend to stay at work until early in the morning. Nonetheless, they earn below-average wages compared to other nations in the same job group. This also applies to Korean children, who have to improve their performance by studying long hours. Based on research by the OECD's Programme for International Student Assessment (PISA), Korean students study more than 60 hours per week, the longest amount of hours in the OECD rating (Kim, 2017). From the age of 7 until high school, students attend school from 8:30 to 18:00. Then they take extra private lessons, called Hag-Won (학원), until approximately 22:00 (Kasulis, 2017).

Confucianism, age hierarchy, compulsory culture

There are a few reasons why Koreans work so hard at school and work. In general, Korean society stems from a culture of age hierarchy in which older people get more respect, are treated better, earn more money and receive more recognition. The Five Relationships (오륜) are an important concept of Confucianism in Korea: the basic moral guidelines of how to treat people around you. Among the five relationships, there is a relationship that is related to Korean age hierarchy culture: Jang-Yu-Yu-Seo (장유유서) – old and young have an order, a hierarchy. This relationship stresses that there should be an order between younger and older because the older ones have more wisdom through their experience.

Based on Confucianism in Korea, age matters much more than ability if two people have similar skills and experience. If you've freshly started working in a company and you are the youngest one in the group, you will be the one who always serves morning coffee to the other team members. This can be seen between family members as well, through the principle of "filial piety" which is a virtue of respect for one's parents, elders, and ancestors. Through this concept, a young person needs to be good to an old one, and can't talk back to older individuals.

Another reason why Koreans work hard is derived from a compulsory work culture. There are several types of compulsory work-related behaviour in Korea, one of which is a Korean drinking culture called Hoe-Sik (회식) which literally means "a dinner with co-workers". The gatherings often include heavy drinking as well as stays at karaoke bars, where colleagues are expected to entertain higher-positioned colleagues such as their seniors. Employees pour So-Ju, a Korean vodka, into a big beer cup and pressure their subordinates to drink (Park, 2017). This working and drinking culture contribute to what is known as Gwa-Ro-Sa (과로사): death by overworking for a company. In 2019, 457 people died due to of Gwa-Ro-Sa, which means that more than one person passed away every day from overtime work and work-related stress (Ryu, 2019). We can thus conclude that South Korea's work culture is notorious for its rigid hierarchy, compulsory requirements, obedience, loyalty, and extreme working hours (Park, 2017).

Fig. 3. Hoe-Sik culture in South Korea.

Looking through the history of Korean work culture, the traditional way of working based on the Korean concepts of Jeong (정) and No-Dong-Yo (노동요) was about helping each other, working together to reduce the overload of work in a productive way. In contrast, age hierarchy and compulsory work culture in modern Korea make workers work longer hours, which introduces detrimental factors in their life, leading to mental issues such as depression and suicide, which I will examine later in this text.

1.2 Overwork culture in Japanese colonial times and the military regime period

Where does the hierarchical and compulsory culture, that makes Koreans such hard workers, originate from? To understand this, we need to go back to the history of South Korea in the early 20th century. Between 1905 and 1945, Korea was colonised by Japan. After the colonisation, there was a period of military rule from 1961 onward. In this section, I will present an overview of the culture that was inherited from this part of Korean history and that affected modern Korean work culture.

Japanese colonial times

The Japanese occupiers introduced national mobilisation laws (국가총동원법) which regulated free Korean labour, including labour mobilisation (노동유통), conscription (군징병), and the use of military "comfort women" (군위안부) (Lee, 2017). Labour mobilisation refers to the allocation of manpower to industrial sites such as mines, ports, construction sites, military factories, and farms. In the mid 1920s, between

120,000 and 180,000 Koreans were forcibly transferred to Japan every year, as slaves. The range of their work was diverse, from railway construction and land expansion to coal mining, and their average working hours were more than 17 hours a day, with physical violence and no break time.

Conscription was compulsory enlistment in the armed forces: a huge group of Korean solders were forced to participate the Asia-Pacific War (태평양전쟁) during World War II to support Japan. During the war, more than 75% of forced conscription forces were Korean (Jung, 2019). According to a survivor who appeared in a TV programme in 2015: "I thought there was a coal mine, but I lived in a prison without bars" (Lee, 2017).

Fig. 4. Young people in Hong-Seong, where they were forced to work for Japan in 1934.

Fig. 5. A group of "comfort women" surviving at the Songsan comfort station in September 1944.

Besides labour mobilisation and conscription, the use of military "comfort women" was an extreme example of forced female labour and gender hierarchy, in which Korean women were forced to perform physical labour as sex slaves for the Japanese army before and during World War II (Argibay, 2003). During this period, when women occupied the lowest hierarchical level in society, between 100,000 and 200,000 Korean girls and women were deceitfully recruited, coerced or kidnapped. The Japanese occupiers recruited married women, single women, and even young girls by deceiving them into thinking they would find a new job that would enable them to support themselves. According to Lee Ok-Seon, later interviewed at a shelter for former sex slaves near Seoul: "It was not a place for humans, they had sex with me every minute." (Deutsche Welle, 2013)

The term "labourers" refers to those who were paid for their work. At that time, the majority of the laborers who were mobilised were taken by force, and suffered through performing heavy labour or being sexually abused day and night, as well as from severe malnutrition. All things considered, it's clear that many Koreans lost their lives in these harsh environments and circumstances. The Japanese labour mobilisation meant "forced free labour" based upon a hierarchical and compulsory culture.

Military regime period

After few years of independence starting in 1945, the country's second president Park Chung-Hee carried out the May 16 military coup d'état in 1961 and subsequently ruled as a dictator for 16 years, starting in 1963. He exercised his power directly through the military regime and somewhat more indirectly through a hierarchical, manipulative political dictatorship. During these post-colonial times, Park also controlled the entire infrastructure of broadcasting and advertising. Any broadcasts or advertisements in opposition to the military regime were forcibly shut down. In 1972, Park further cemented his grip on power with the so-called October Restoration (유신체제), a highly oppressive strategy for more effectively crushing the resistance. This began with the purpose of establishing a military government by eliminating Democratic forces in order to incapacitate the opposition. If there was a party against Park's wishes, he eliminated the whole membership of the party, and gave the position to a group of his own followers. Political parties were thus purged and manipulated into factions of loyalists competing for the president's favours (Seo, 2007). Followers would then focus their efforts on the party who received the most support from the president. Military culture was under high pressure in South Korea under the influence of an authoritarian government (The Korean Herald, 2015). Park, as a former Japanese collaborator, planned a military uprising in order to establish of a new regime of competent generals and loyal core members.

Fig. 6. Korea's second president Park Chung-Hee in military garb.

President Park's ruling system has remained as a toxic legacy within modern Korean work culture. For example, all members of a department are expected to collectively suffer any hardships together, thus bonding their fellowship. Any team member with an opinion against the prevailing opinion of the team tends to become alienated from the rest of the team members. Korea has went through a period of rapid change, which influenced the work culture of today's society. This can be seen in the strict hierarchy in today's work culture, where seniors make most of the decisions, and junior staff have no voice to question their superiors, but are expected to mindlessly follow orders.

In modern Korean work culture, there is a saying rooted in military culture: "You should stand on the right line". It means that you should find a strong boss who has a big voice in the company, otherwise you will be eliminated or you won't have a successful career. As a matter of fact, Korean work culture is a toxic legacy of colonialism and militarism from the early 20th century which introduced the concept of free labour (i.e. slavery). This is a remnant of Japanese colonialism and military dictatorship that has permeated our skins, and has persisted for a long time.

Part 2. The extent of the history: which aspects of work culture in Korean colonial times have been inherited by the digital sphere?

Korea has the fastest and most widely used Internet network in the world (MSIP, 2017). According to one survey, 94% of Koreans are able to access the Internet through a high-speed communication network, with 43.64 million Internet users out of a population of 51 million, and 88.3% of Koreans over 3 years old using smartphones (Yoon, 2017). This is leading Koreans to perform more free labour in the digital sphere than other nationalities.

Digital labour is a concept that has become a crucial foundation of discussions within the realm of the political economy of the Internet (Burston, Dyer-Witheford and Hearn 2010; Fuchs and Dyer-Witheford 2013; Scholz 2012). Users performing digital labour via online activities generate data that is monetised as a commodity by big corporations, without these users being properly paid. These ingenious ways of extracting cheap labour from users show similarities to how natural/human resources were exploited in Japanese colonial times in Korea. I call this phenomenon "digital colonialism". Of course, this doesn't mean that the historical colonialism and the modern version are fully identical. Unlike historical Japanese colonialism in Korea, digital colonialism is not bound by geographical location. There are no physical borders, there are only IP addresses, domain names, and user data. Therefore, digital colonialism expands by exploiting more layers of human life itself through the use of technology (Couldry, 2019).

Although it is clear that the modes, intensities, scales, and contexts of today's digital colonialism are different from historical colonialism, the underlying power structures remain the same (Couldry, 2019). To define the underlying structures, I divided these into three categories: appropriation of human life, dispossession of resources, and domination of economics through manipulation in the form of indoctrination and monopolisation. Through these structures, the impact of the colonial period in South Korea can still be felt today, particularly in the digital space. It is therefore meaningful to look into the specific context and history of South Korea, in order to understand how the negative impact of digital colonialism on people's lives can be resisted.

2.1 Appropriation of human life

During the Japanese colonisation of Korea, human rights were not considered to be a fundamental principle. The Japanese appropriated Korean territory, and Korean labour, through extreme physical violence. A similar phenomenon can also be seen in digital colonialism, by appropriating the web and our digital selves through our physical bodies, digital labour, and digital life. This becomes indirect exploitation through digital territories, and it gives rise to social and moral problems concerning privacy and surveillance. How did the Japanese appropriate human lives in their colonial times? And how can we see the same phenomenon in modern digital life?

Colonisation was done forcibly to control populations

In 1906, Japan forced Korea to sign the "Eulsa Unwilling Agreement Treaty" or Japan-Korea Protectorate Treaty (을사늑약: "Eulsa Neukyak" ["Neukyak" means "coerced agreement"]) which was the first step toward officially becoming a colony of Japan. The treaty was signed through a mix of coercion, threats and deception. A Japanese diplomat, Ito Hirobumi, was dispatched to sign an agreement with Korea. Gojong, the last king of Joseon, refused to sign the Eulsa Unwilling Agreement, so Hirobumi instead held a meeting with a number of Gojong's ministers, mostly Japanese collaborators. Grabbing a pen and paper, he forced the ministers to agree.

At that time, five out of eight ministers (who were called the Five Eulsa Traitors [Eulsa Ojeok]) were more or less forced to agree with the Japanese arrangement. This was signed with the knowledge that Korea would become a colony of Japan. Still they had no choice but to consent. This method was enforced by a small number of people, for Japanese rule to dominate the majority. The meeting resulted in a forced structure that the ministers intentionally had to agree with while knowing the results.

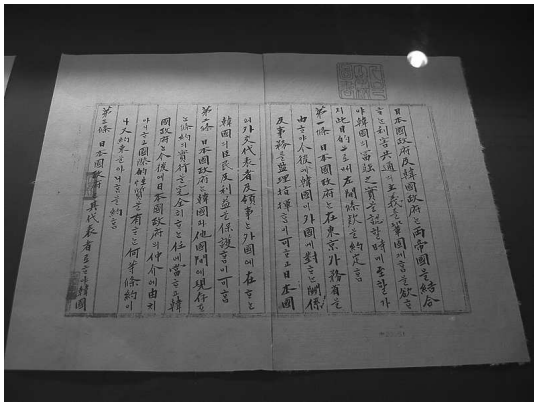

Fig. 7. The original document of Eulsa Unwilling Agreement Treaty.

In modern times, we can notice some similar fundamental characteristics that determine how agreements are signed. As users of high-speed of Internet, Korean Internet users are naturally more exposed than others to terms of service (ToS), privacy statements and user license agreements for using services provided on websites. To sign up on Korean websites, one must fill in information including clicking checkboxes of "terms of service" that are often 5,000 words long. Unless one accepts all the requirements, one can't sign in and start using the service. Eventually, users always need to accept the agreement without having any possibility of rejecting it. This way of imposing an agreement establishes full control over the majority of users by including a small functionality on the website. By controlling the majority of users with an agreement that is sneakily added in the registration form, these big Korean companies can harvest more free digital labour from their users. I thus conclude that past colonisation and modern times both have a similar fundamental structure which is performed forcibly to control the majority of people.

The 24/7 workplace fosters mental issues that sometimes lead to suicide

In early 1900s, a total of 2679 Japanese workplaces were kept running by more than a million Korean slaves. One of the most accident-prone workplaces was the Takashima coal mine, also known as "Hell Island" (Cha, 2013). Here, Korean slaves were forced to work more than 12 hours every day, so that work consumed their whole life. Many workers died or committed suicide because of the heavy workloads, accidents and mental issues (Dae Hak Nae Il, 2017).

Fig. 8. Korean slaves in front of the Takashima coal mine.

24/7 forced labour was also the fate of the "comfort women" which I mentioned earlier. Korean women from the age of 12 were held in small rooms where they were abused by Japanese soldiers. During this period, Korean women had to serve more than 70 times per day as sex slaves, every day and night. As a result, many struggled with mental issues and many tried to escape (Shin, 2019). Unfortunately, many were also caught while escaping, leading to a mass suicide at a railway track near the city of Chongjin in what is now North Korea (Kyunghyang Shinmun, 2001).

This 24/7 work mentality persists to this day, and has fostered a strange culture of "play" in the digital realm. The relationship between working 24/7 and mental health is reflected in digital media use, especially in Korean gaming culture. More than half of South Korea's population has developed a high prevalence of gaming and Internet-related problems (Koh, 2015; Ministry of Science, ICT & Future Planning, 2016), and these are increasingly recognised as a potential public health burden (Kuss & Lopez-Fernandez, 2016; Mak et al., 2014). In 2002, Kim Kyung-Jae, age 24, died from playing a medieval-themed online game for 86 hours. He is believed to be the first person to die from gaming too much, but there would be many more deaths to come (Conti, 2015). We see here a pattern of increasing risk of harmful physical or mental

health, sometimes leading to death – consequences typically related to high frequency and a long period of Internet use (King, Delfabbro, Zwaans, & Kaptsis, 2013). Obviously, slavery is forced labour through the physical body, and people in a 24/7 Internet environment are not forced. Still, they are hooked through the addictive design in game interface, and they perform free labour that leads to mental issues. In this sense, the history of the 24/7 work culture that leads to health problems still persists in modern digital society.

Privacy of individuals is infringed

Due to the massive amount of work done throughout the years in the coal-mining area, many Koreans didn't have an individual human life. In another coal-mining region in Hokkaido, Japan, there was a special forced labour camp called "Tako-beya" for those who had escaped or failed to meet production quota (Dae Hak Nae Il, 2017). The name means literally "octopus room", referring to the fact that once you get in, you can't get out because it's a trap. It was mostly for Korean labourers who had been transported to work mainly in coal mines and on construction sites (Nee, 1974). While trapped in the indentured labour system, a massive amount of innocent workers had to live in overcrowded barracks, being cruelly treated for even minor misbehaviour (Paichadze & Seaton, 2015). Workers were treated like prisoners or worse (Kimura, 2015) and were being checked all the time by the Japanese rulers. They were physically abused, malnourished, and struggled with cold (KBS news, 2015), and of course they couldn't claim any compensation. In this space, there was no individual or private life during their stay.

In today's digital society, there is plenty of shocking news on massive data leaks from major companies that have infringed the private Internet life of Korean users. This started in 2008: one of the most mind-blowing examples is a massive data leak from the South Korean web portal site Nate. At that moment, the site was famous for the fact that there was no one who didn't have an account. In 2011, Nate had the biggest cyber accident, where a total of 35 million subscribers' IDs, passwords, names, social security numbers, and contacts were leaked due to malware hacking from China. Through this accident, a massive amount of innocent users' personal information was divulged in a short time (Etnews, 2011), and there was no liability for this personal information leakage (Jeon, 2018). In 2018, malware hacking increased by 400% compared to the previous year (Gil, 2019). Innocent Korean Internet users are in a vulnerable situation in which their data is continuously harvested and sold via illegal websites for a low price (Hee-Kang Shin, 2019). Korean Internet users have no private life on the Internet, and their Internet life has become public without knowing who will make use of their personal data.

2.2 Dispossession of resources

They dispossess(ed) everything from a to z

During the colonial period, Japan took very much from Korea, from natural resources to human resources (물적/인적 자원의 수탈, n.d.) – from fisheries, where the Japanese caught over 5,000 tonnes of fish per day (Kim, 2005), to the agricultural industry, of which approximately 40% was owned by the Japanese government, to the forestry industry, where over 50% of all forests were governed by the Japanese, to mineral resources such as graphite, of which at least 74,879 tonnes was mined every year (Korea Resources Corporation, n.d.). This was an extreme increase in use of natural resources compared to the past in Korea. Besides the aforementioned resources, the Japanese also took scrap metals, brassware, spoons and nails that could be used to make weapons. For airplane fuel, they even forced people to peel pine trees to extract the pine resins. This was an absolute dispossession of everything that might be useful for the development of Japan. In addition, Japan also dispossessed human labour through labour mobilisation, conscription and military "comfort women", as mentioned in Part 1. These were all forms of forced human labour. Dispossessing human resources happened actively in mines, ports, construction sites, military factories, farms, and the use of "comfort women". In total, more than 322,644 Korean slaves per year were used as free labourers to

produce human resources.

According to Clive Humby, who said that "data is the new oil", data as a new resource is very valuable and yet easier to generate than any other resource. It doesn't require much physical labour nor capital. Instead, what is now precious is human life through its conversion into data (Couldry, 2019). Data, as a raw resource, is comprised of the social life of users, and can be produced in everyday life. In her book The Age of Surveillance Capitalism, Shoshana Zuboff states that a company's products and services are the "hooks" that lure users into their extractive operations, in which our personal experiences are scraped and packaged (Zuboff, 2015). Since data is a new and profitable natural resource, many companies are trying to "hook" a vast amount of Korean users for their data. Over 60% of the South Korean population was using Facebook in 2012, when it overtook Korea's predominant social media platform Cyworld. The more the number of Facebook users increases, the more personal data is being exploited. I, as one of the many Korean Facebook users, looked into how Facebook controls my data. I was surprised that they could literally access everything I did via Facebook, including my personal information, ads I am interested in, advertisers who uploaded a contact list with my information, files, photos, events, location, payments, search history, and even security and login information.

Besides Facebook, there are more Internet platforms that have vastly dispossessed the data of Korean users. This is due to an increase in data consumption by Koreans, which can be attributed to Korea's high-speed Internet. Based on statistics that show that 94% of Koreans have access to high-speed Internet, the life of Koreans has become 24/7 interconnected with the Internet, which introduces the Internet as an everyday data-generating platform by users. Korea's data consumption continues to increase: wireless data traffic statistics show that the total usage of mobile phone traffic of Koreans has exceeded 40TB, as reported by the Ministry of Science and ICT. Smartphone data usage per capita has more than doubled from 3 years ago, when it was nearly 8.09 GB per month. Korean customers' use of Netflix via smartphones increased 274% over the past year, while YouTube users watched videos for an average of 882 minutes per month (Choi, 2019). As Korean Internet users are increasingly dependent on the Internet, a massive amount of data is more likely to be dispossessed than in other countries.

Dispossession of monetizable resources

With the vast amount of resources and slaves from Korea, Japan's economy went through a remarkable period of rapid growth during colonial times. Japan's production indices showed increases of 24 percent in manufacturing, 46 percent in steel, 70 percent in nonferrous metals ("Japanese Economic Takeoff After 1945", n.d.). Especially Japanese entrepreneurs had a virtual monopoly of Korean trade. More than half of total Korean imports came from Japan and more than 90% of total Korean exports went to Japan (Augustine, 1894). Undeniably, Japan had predominant commercial interests in Korea (Betty L., 2013), exporting products to Korea at expensive prices and importing goods at reasonably cheap prices. In this way, Japan controlled the Korean labour and market.

In modern times, Naver, which is South Korea's most popular search engine, compiles every single user's activities in the form of data including personal information, emails, calendar, blog, location, search history, shopping lists and more, to analyse and use for marketing, leading to increase in profits. This is comparably easy because the majority of Korean users use Naver. In contrast to Google's market share of 13,2%, the share of Naver users in Korea reaches up to 74.4% of the population (Kim, 2019). The same applies for social media platform Kakao, one of whose products is KakaoTalk, a WhatsApp-style messaging service actively used by 97% of all smartphone users in Korea and serving more than 43 million monthly active users. In this way, user data can be easily accumulated and used to generate profits by providing better services. Naver's digital ads market earned 68.1% of the whole digital market in Korea, an increase of 26.6% since 2018 and the highest ever annual profits and sales. Kakao's operating profit increased

93% from last year through its service, which has been the largest since 2015.

Based on how these companies have monetised user data, it becomes apparent that the free digital labour of users which generates this data leads to massive profits. Some people make the case that this is not a forced type of dispossession because people are not being physically exploited. However, the means of production in the digital space are not only through the physical body but also in social interactions, a new form of production in the digital colonial era. Moreover, though Korean historical slaves were forced to produce the resources, whereas modern data creation from Korean users is not forced, it is still important to consider these as one single category to discuss. They are still linked through the huge superiors who control their power that gives rise to work/data as monetizable resources. In this connection, dispossession of resources remains in Korean digital society.

2.3 indoctrination & monopolisation

Indoctrinated manipulation

The Japanese indoctrinated Koreans by spreading the term Myeol-Sa-Bong-Gong (멸사봉공), to let Koreans work with passion and loyalty. This concept of Myeol-Sa-Bong-Gong is a vestige of Japanese imperialism that literally means "destroy your personal life and devote yourself for the betterment of your community". It was used extensively during the 1930s, on instructions of Jiro Minami (南次郎), governor-general of the Japanese occupation government. On 19 April 1939, Minami taught lessons in establishing a new Japanese palace in Cheong-Nam Korea, the reinforcement of soldiers, and the enhancement of the principle of imperialism in order to implant the greatness of the Japanese Empire (Lee, 2012). With this as a fundamental brainwashing method, Japan succeeded in controlling a huge forced Korean army that participated in the Asia-Pacific War (태평양전쟁) during World War II. This was known as conscription, a part of the national mobilisation laws which Japan pursued, and which I discussed in Part 1. During the war, Japan mobilised more than 120,000 young Koreans including 18,594 special army supporters, 3,050 school volunteer soldiers, 1,000 navy special forces who volunteered under the strict military hierarchical system. Controlling this huge amount of people was possible through the indoctrination and manipulation of Myeol-Sa-Bong-Gong.

Today's digital culture in South Korea certainly has traits that were influenced by this colonial history. Surprisingly or not, Korean users have been still indoctrinated by decades of Myeol-Sa-Bong-Gong, which has found its way to the digital realm. It shows in the normalisation of users' mindsets that have been altered to fit certain behaviours. In the 1990s and early 2000s, when Korea just started using the Internet, it wasn't normal to be online or being on the phone for long spans of time every day. Today, it has become normal to stay online on the Internet environment, every day, 7 days a week. Since many people have a second phone, a laptop and even extra digital devices like an iPad, the merging of digital social life and Korean advertising platforms such as Naver Blog has made users indoctrinated through these circumstances. Manipulation also happens through interface design. A great example of this would be infinite scrolling: Infinite scrolling is one of the manipulative ways generally used on e-commerce websites to keep users focused on the website. For example, "Yo-Gi-Yo", an online website for food delivery, shows infinite amounts of restaurants while scrolling; in this way, users are manipulated by the interface of the website. With this Internet activity, users remain on the website without noticing it, which may certainly be directly connected to the company's profits.

Monopolised manipulation

President Park Chung-Hee exercised his power through a military regime and political dictatorship, which widely manipulated Korean media and advertisement industries from the 1950s onward. Media manipulation was done by controlling political discourse in the media. One striking example was the Dong-A newspaper company's "blank paper advertisement" situation. In 1964, all the advertising

companies, who had signed to place their ads in the Dong-A newspaper, were cancelled due to the media suppression of Park's regime. As a result, the paper was filled with half-blank pages with only small amounts of text. Television broadcasts also had to skip advertisements in between TV programmes. Due to the media manipulation guided by Park, the newspaper company couldn't publish any advertisements for seven months, leading to management difficulties. In the end, the paper's internal unrest was ended by firing employees who protested against Park's military dictatorship (Hwang, 2017).

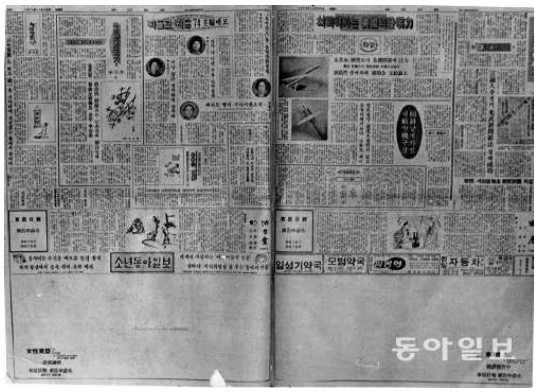

Fig 9. Half-blank pages in the newspaper Dong-A in 1964.

One of the major mobile research providers, Open Survey, stated in the newspaper Joong-Ang that the majority of the Korean population are Naver users. This means that Naver has a dominant market share in the digital society, with a tremendous amount of users (JoongAng Ilbo, 2019). To explain the monopolised manipulation in Korean digital society, Naver's "cage culture" is a perfect example of manipulation happening through a digital monopoly. Naver limits consumers' choices by manipulating search results, infringing on search neutrality (the principle that searchers should show fair results without any bias or other consideration) by providing manipulated information. Instead of fair search results, users are exposed to manipulated results that lead to increased profits for Naver. In doing so, the platform abuses its monopoly position to generate maximum profit, and mistreats its contents and users by providing non-neutral search results.

In the second chapter, I investigated how the specific history of Japanese colonialism in South Korea has remained in digital corporate society. It has become evident that this history still lingers on in the form of stealing resources through privacy infringements, negative impacts on mental health, social media and game addiction, and loss of time that could be used for more meaningful activities such as the Korean traditional labour sharing method of "Pumasi", which I described earlier in this text. Although there is a great deal of evidence of persisting tendencies in the digital realm, users have become unwitting victims in the digital society. In the next part, I will explore how we can make this more palpable in order to create a sense of urgency, and what we can do within the system by analysing existing projects.

Part 3. How can we make this situation palpable in order to create a sense of urgency?

Since we have discovered that the culture of free labour inherited from Japanese colonialism in Korea has remained in the digital realm, the question is: what should I do? This is a good opportunity to reflect on how we can make the problem of digital free labour more palpable. The original meaning of "palpable" is: "capable of being physically touched or felt in a tangible way" (Merriam-Webster, 2020), but here, the way I use the word "palpable" is to indicate "real experiences", "easily perceptible", and "easy to manifest" – so it is almost tangible even though it's not physically directed at you.

Then, do we want to quit using these platforms? In theory, this seems ideal. However, quitting these platforms that compel us to perform unpaid labour is not an optimal solution because, realistically, we can't quit, and the problem is also in the platform's business model. Many users, who need to attract customers for their own business online, are unable to quit because their livelihoods depend on the platform. In addition, as means of communication with friends and family have dramatically become digital these days, using such platforms is almost inescapable. Furthermore, the business model of these platforms is not in producing products, but in targeting users with online advertising and in analysing massive amounts of data. In doing so, these companies can determine which users receive which sponsored links on each results page. For them, user data results in more lucrative transactions. Therefore, they sneakily announce in their terms of service that they will take the user's data, and make us perform digital labour in ways that the companies can capture and convert into data (Zuboff, 2015).

It's no secret anymore that they collect my data when I visit websites. However, everyone seems unaware of the fact that they are working hard, indifferent to the reality of being exploited for the profit of large corporations – a description that closely resembles modern colonial slavery. We're aware of big companies taking our data, but still we remain on their platform 24/7. Nobody is forcing us to work, but we're still voluntarily producing our own data and value for others in a non-reciprocal way. How can we have a discourse that makes this topic palpable? As self-aware digital workers, how can we become more aware of our own autonomy, our labour, and the data we produce? Can we create a sense of urgency so that everyone can be palpably aware of free labour? To create a sense of urgency, what can we do within the system? In the following part, I will discuss, by analysing various projects, different ways in which this sense of urgency can be achieved. In doing so, I aim to increase awareness of the issues at hand.

3.1 Knowing what you're signing on for

When we make a new account on any Internet platform in Korea, we have to agree to certain terms and conditions. As I pointed out in part 2, there is no way to disagree with these terms if we want to join the community or use the system. Users are basically forced to sign privacy agreements in order to start using these services, and companies are free to do pretty much anything they want. My first personal activist suggestion toward creating a sense of urgency is: "being aware of what I am signing up for while using platforms". We will not know about what's happening with our data if we are unaware of the contents of the agreement the platform has provided for us. It's important to understand what's in these agreements, and to act out by carefully reading the terms of service and privacy policy ("Terms of Service; Didn't Read", n.d.). It's clear that these terms of service (ToS) are often too long to read, and placed in a very obscure part of the web interface. Also, the use of "legalese" and the difficulty of most users in understanding this language, are all used to obfuscate the content, making it difficult to figure out the terms I am about to agree to.

A web-based project called Terms of Service; Didn't Read (ToS;DR) is an excellent example of how users can become more aware of what they're signing. ToS;DR is a community project that aims to analyse and grade the terms of service and privacy policies of major Internet sites and services, by translating the original text of a ToS into simple and direct language. This helps users to explicitly understand the main points of the agreement that websites are making with their users. The ToS;DR website also helps us to easily understand the meaning of each sentence by filtering out the obfuscation of words, and opening up a community discussion space where everyone can freely voice their opinions. In doing so, each platform is given a rating that can potentially help users to be more informed about their rights.

3.2 Digital self-tracking

"Every day most of us contribute to an evolving public presentation of who we are that anyone can see and that we cannot erase." – Digital Citizenship Adventures (2015)

As an Internet user, having a digital footprint is normal, and very difficult to avoid. Such a digital footprint broadly includes: all the emails you've ever sent, every post you've shared on social media, and every artificial intelligence lifestyle product that has guided your daily life in a better way. A Korean AI lifestyle product called "Kakao Mini" scrapes all personal experiences based on a user's lifestyle, revealing the privacy and security consequences in which sensitive household and personal information are shared with other smart devices and third parties for the purpose of sales to other unspecified parties (Zuboff, 2019). Nevertheless, many people don't really care about data leaks, because they don't feel closely attached to their data. It's also undeniable that these platforms produce many benefits for users. We could prevent being tracked by removing metadata from pictures before posting them online, or by regularly checking privacy settings – however, this is not easy to do, and not everyone can do it regularly because it's technically challenging and time-consuming.

To make digital free labour more palpable, we need to clarify how we can retain control of the data we produce, and what our digital footprints look like. Therefore, my second suggestion is to become more aware of what we are creating by self-tracking own digital footprints and finding ways to protect ourselves from being tracked. Self-tracking is not a new phenomenon. For centuries, people have used self-monitoring as a means to attain knowledge and understanding about themselves (Nair, 2019). Self-tracking one's digital footprint, for the purpose of becoming more aware of the possibilities of being tracked by third parties, prevents companies from spying on individuals, and protects the individual's own personal information and digital activities. Moreover, it also provides insight into how the website is tracking you, what information they are gathering from you, and who is tracking your web-surfing habits.

Unlike the EU, where the General Data Protection Regulation (GDPR) is in force, Korea has almost no data protection law. This makes it harder for Korean users to self-track their own digital footprint. All the time, browsers are busy extracting data from the digital free labour of users. Data brokers track us across sites, while Internet service providers load the pages we visit and attempt to harvest the data we produce. To protect yourself from being tracked, the use of a secure browser app such as Ghostery would be a good choice. This is a web browser extension that blocks trackers in order to protect the entire web browser, allowing you to regain control of your data. The app safely shields the activity of users while also evading intrusive ads that slow download times (Ghostery Midnight, 2009). A self-tracking mobile app called Lumen Privacy Monitor by The Haystack Project analyses your mobile traffic to identify privacy leaks inflicted by your apps and the organisations collecting this information (ICSI Haystack Project, 2017). Disconnect.me is a similar project that tracks and shows the number of tracking requests on a page by companies, and which content is being tracked (Disconnect.me, 2011). These apps find out how installed apps behave in the network, and how they extract or leak

privacy-sensitive information, helping us to stay in control of our own network fingerprints. Through the apps, a short time divulgence of a massive data leak can be prevented, thus improving the Internet by empowering people to exercise their right to privacy (Disconnect.me, 2011). This can be very useful in Korean platforms to prevent users being tracked without knowing it.

3.3 Quantifying the problem

Providing numeric values on the quantity of data is the most palpable way to create a sense of urgency because it makes it more tangible and easier to get a sense of the volume of data. This is called quantitative research, a research method based on measuring phenomena and analysing statistical, mathematical, or computational results (Given, 2008). In the quantification of digital free labour, the analysis can include the volume of data, the amount of time spent on the web, or the amount of code executed while using the Internet platform.

It's clear that tech companies alter their algorithms to control how people use the Internet in order to ultimately normalise certain new types of human behaviour (Rattle, 2010). Quantifying data could help change the user's mindset of normalising certain behaviours of using Internet platforms for long periods of time. The Hidden Life of an Amazon User by Joana Moll is an example that reveals the environmental footprint of buying a book on Amazon, the volume of information transmitted, and how business revenues are generated by tracking the customer's behaviour (ARS Electronica, n.d.). Another direct example of quantifying data is the Web Activity Time Tracker, a Chrome extension for tracking one's own daily Internet activity through the browser, calculating the total amount of browsing time for each day and for individual websites, and showing the results in a CSV file. Using this extension, users potentially won't remain anymore on one single searching platform such as Naver. If Korean users would see how much time they spend on the platform, perhaps they would start to look for alternative platforms where users can be more aware of controlling their data. Another way to prevent normalising certain behaviours of users is by controlling the scrolling of users on the web. A web browser app called Disable Scroll Jacking is a Chrome extension that does just what it says: it stops unintentional scrolling on all websites, showing a full-screen message when it catches you scrolling too long (Make Scrolling Bearable Again, n.d.). This will help users avoid being influenced to engage in infinite scrolling caused by the interface of the website. By quantifying data, they can have a real experience of how much free digital labour has been generated from their Internet activities (Alex, 2020).

Throughout part 3, I have suggested that these three ways to make digital free labour more palpable could potentially help users become more self-aware of what's happening around them – especially people who are vastly exposed to the digital world, as Korean Internet users are. I must say that the palpable approach will not be able to completely solve the problem of digital free labour culture. However, it is a small gesture to increase self-awareness in a more tangible way. With this approach, the attitude toward digital platforms will change from indifference to increased awareness of the way we position ourselves using the Internet.

Part 4. Conclusion

There is a widespread perception that Japan's 35 years of colonial rule improved Korea's infrastructure, education, agriculture, other industries and economic institutions, and thus helped modernise Korea (Japan Times, 2019). However, one should not forget the discrimination and suffering that Koreans experienced under a hierarchical colonial rule that remains as a toxic legacy of colonialism, particularly in Korean work culture. Eventually this has transferred to the culture of exploitative labour under the concept of digital colonialism in the digital realm. It has become more apparent that the idea of colonialism seems to be an eternal loop that comes back throughout history. Although I have focused on colonialism in a specific context within South Korea, it is essential not to ignore that digital colonialism is applicable to countries other than Korea, regardless of their history. It's a worldwide phenomenon that everyone should be aware of.

Throughout the essay, I have highlighted a situation where Korean Internet users are unaware of the extent to which data harvested from their online activities is monetised by digital companies. I presented this as digital colonialism, a form of labour exploitation, and attributed the situation to three specific factors: the high extent of Internet usage in Korea, the relative lack of legislative protection for Internet users, and the cultural acceptance of this situation. Dismantling the historical colonialism experienced by Korea under Japanese rule and digital corporate society, I identified a toxic legacy of colonial rule in digital space that has become entrenched in modern-day life. And by pointing out the inheritance of colonialism, I have set some templates for how making the situation more palpable might encourage users to resist it.

While reading this essay, you may have questioned the proposed solutions. Finding a solution to the problem of digital colonialism and its negative impact on people's lives is necessary. However, this essay doesn't aim to solve the current situation of digital colonialism. Instead, it focuses on helping people realise what situation they're in – to understand what digital colonialism is, that it is inherited, that it continues in different forms and ways – by creating a small gesture that makes these things tangible, in order to spark self-awareness. Colonisation might feel like a heavy topic to discuss; however, if we think of colonisation as a way to become aware of a work ethic that makes us vulnerable to exploitative practices in the digital realm, this might be a good moment to look at the situation critically in a different perspective. By making the situation palpable in our minds, we may hopefully be able to shift the way we look at this situation and how we position ourselves when using the Internet.

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을사늑약에 대한 우리 민족의 저항 (n.d.). Available at: https://blog.naver.com/sport_112/221275850167 (Accessed: 24 February 2020).

Images

Fig. 1. Lee, K.C. (2011) 품앗이 테스팅 그룹, accessed 13 May 2020 https://powerjessielove.wordpress.com/2013/06/12/gimcheon-family-community/

Fig. 2. South Koreans are working themselves to death. Can they get their lives back?, accessed 13 May 2020 https://read01.com/5MP5MkG.html#.XwgntJMzbRY

Fig. 3. Lee, S.M. (2018) 혼술남녀 - 혼밥 트랜드인가? ", accessed 13 May 2020 https://m.blog.naver.com/PostView.nhn?blogId=mrrah&logNo=221287747924&proxyReferer=https:%2F%2Fwww.google.com%2F

Fig. 4. Lee, S.Y. (2017) 조선인 강제징용, 군함도는 극히 일부였다, accessed 13 May 2020 https://m.news.zum.com/articles/39603757

Fig. 5. Moon. H.G. (2017) 1944년 9월 연합군이 송산 위안소에서 살아남은 위안부들을 찍은 사진, accessed 13 May 2020 https://www.yna.co.kr/view/AKR20161229051600004

Fig. 6. Post by 최태성 Twitter, accessed 13 May 2020 https://twitter.com/bigstarsam/status/996519020542156800

Fig. 7. Ryu, C. (2011) 을사조약문, accessed 13 May 2020 https://commons.wikimedia.org/wiki/File:Jeongdong19.jpg

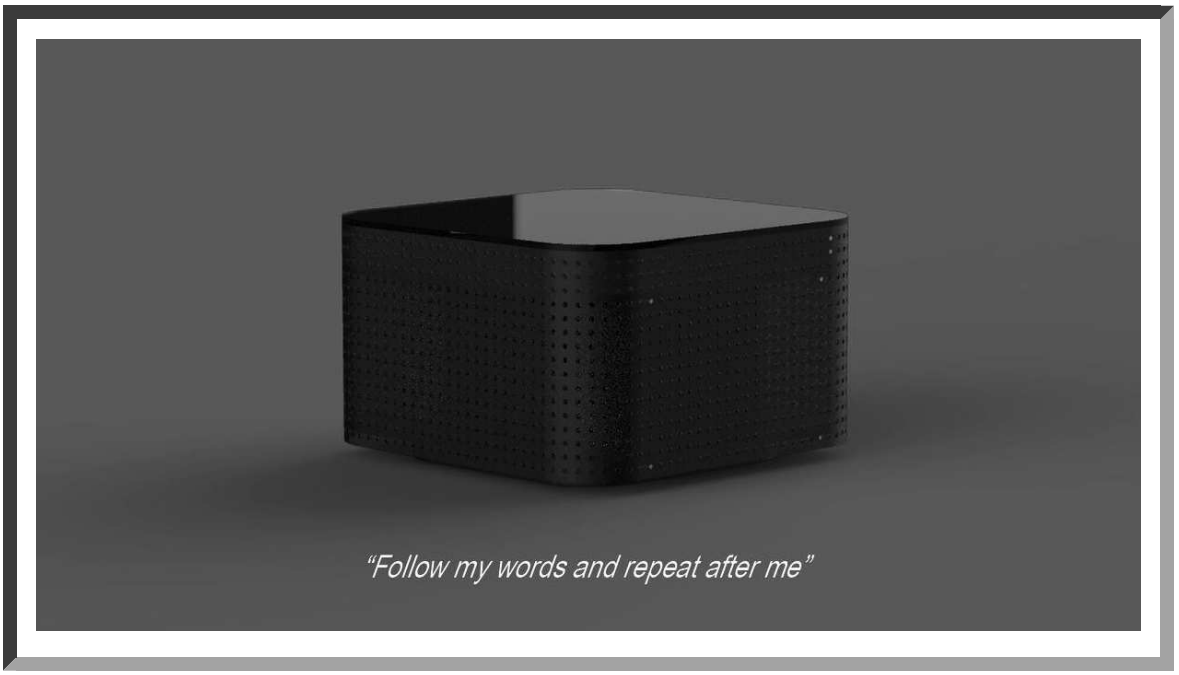
Fig. 8. Dae Hak Nae Il (2017) 군함도보다 악명 높았던 일본 강제동원 지역들, accessed 13 May 2020 https://univ20.com/14160

Fig. 9. Huh, M.M. (2013) The Hankyoreh Newspaper, 박정희 정권 언론탄압… 동아일보 '백지광고'사건, accessed 13 May 2020 http://www.donga.com/news/article/all/20130716/56469261/10

Special Issues

Special Issue 07

Start up, Burn Out: Life Hacks



Start Up, Burn Out: Life Hacks **is comprised of two core components: a book titled *Ten Theses on Life Hacks*, which is an attempt to define criteria for what constitutes a Life Hack; and a device called *Iris*, which purports to increase productivity in the workplace. *Ten Theses on Life Hacks* is meant to provide a widened perspective on Life Hacks and their relationship to our collective experiences and reflections. *Iris* aims to provide a real-life experience to each individual user. Ultimately, its goal is to achieve self-improvement.**

Both components rely on interaction with an end user; *Ten Theses on Life Hacks* is bound by the reader, using a selection from an eclectic range of items so the user should have an active role and design a binding technique through an improvised Life Hack strategy. *Iris* requires the presence of the user to be triggered and the subsequent reflection time to be processed by the listener.

Contributors: Gill Baldwin, Simon Browne, Tancredi Di Giovanni, Paloma García, Rita Graça, Artemis Gryllaki, Pedro Sá Couto, Biyi Wen, Bohye Woo, Silvio Lorusso, Aymeric Mansoux, André Castro, Steve Rushton, Michael Murtaugh, Leslie Robbins. Produced and published by the Experimental Publishing (XPUB) program of the Piet Zwart Institute, Rotterdam, December 2018. A collaboration between the Research Department of Het Nieuwe Instituut and XPUB.

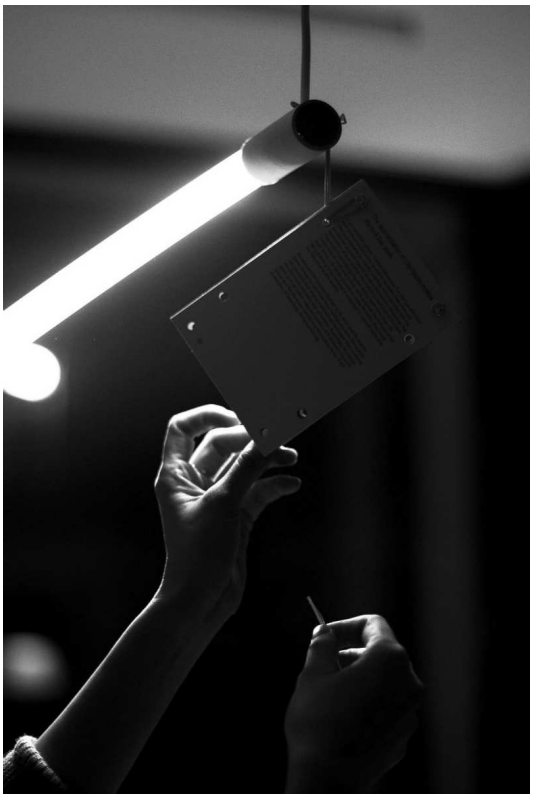
Publications

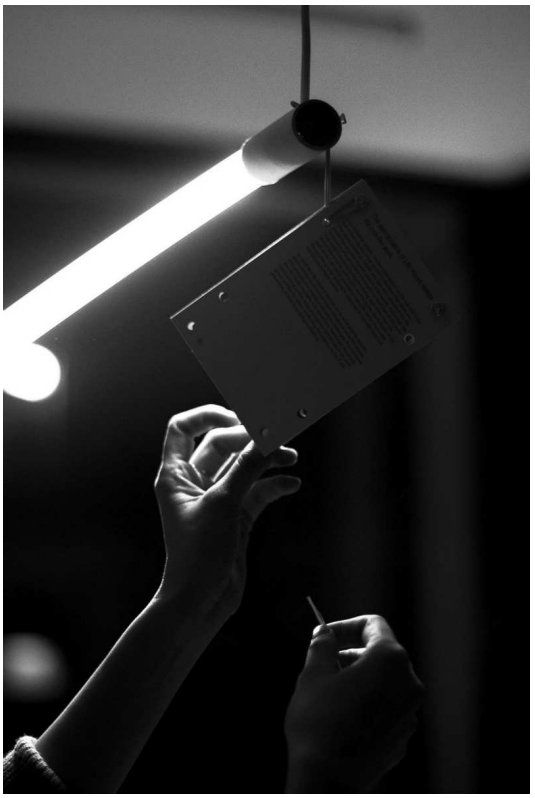
TEN THESES ON LIFE HACKS

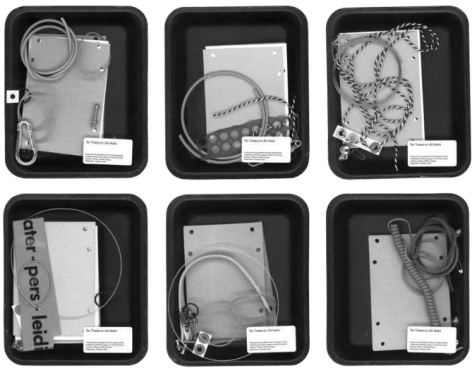
Life Hacks are small improvisational interventions to the immediate environment; spontaneous actions that aim to improve or adapt materials to specific needs. They are diasporic, shared within communities both on- and offline in ever-increasing processes of self-optimisation. Understanding Life Hacks in the context of an advanced capitalist society raises the question of the ambiguity of a system in which the entrepreneurial routine of the self is internalized to perform an ever-working life. In actuality, Life Hacks bring about the possibility of reappropriating everyday life in a creative and practical response, managing precarity and complexity.

This publication consists of ten theses, the first of which is a selection of criteria that allow us to test whether something is a Life Hack or not. The remaining theses present extended arguments supported by examples, on how to identify specific features of Life Hacks, in which environment (and space) they exist and what kind of culture they foster.

Ten Theses on Life Hacks Full PDF



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IRIS

(^^) Take your time to reflect on this: Are you doing what you truly want to do? (^^) iš thiš Þ@rt øf yøur jøb ðéščriÞtiøπ? (^^) If happiness is a currency, how rich do you think you are? (^^) ¶ FIX WOBBLY OFFICE FURNITURE BY USING OLD CDS TO AVOID WOBBLES AND PROTECT THE CARPET. THEY ALSO MAKE GREAT COASTERS.¶

A shady corporation is trying to take control of a fluid, chaotic global market. Workers surrender themselves to a seductive new device called Iris, which purports to enlighten them and unleash the real power of the entrepreneurial self. Iris is designed to help full-time, part-time and zero-time employees cope with the complexity of modern life, divulging secrets of the precarious worker, of autonomy and maximum efficiency through a new magic formula contained in the meaning of Life Hacks. But… anonymous cyber-pirates are exploiting the device to rouse a cry of rebellion against this oppressive society of self-management. Discover the paradox buried deep within Iris, where autonomy leads to subjugation, and subjugation appears as freedom.

Iris takes the appearance of a manufactured product; a compact 3D-printed shell that contains a Raspberry Pi and two speakers, and at the top of the device, an infinity mirror with an LED strip and a camera. When it detects movement via the camera it starts to speak, and the LEDs, connected to the audio levels of the output, start to glow at a different intensity in relation to the strength of the audio signal. When the device is active, the infinity mirror produces a combination of an endless light corridor and a faint reflection of oneself.

Iris is a physical device, ostensibly, an “artificial intelligence”, whose aim is to increase productivity. It is installed in work environments where workers can easily interact with it. However, the device is inhabited by three different personalities: Corporate Guru, Pirate Signal and Announcer. The interactions with and conflicts between

these three personalities force the user to adopt a reflexive and critical attitude toward the device. The user triggers the performance and is placed in an ambiguous position; doubtful if the emphasis is on productivity or happiness.

The Corporate Guru invites the user to repeat positive affirmations and invite self-inquiry into their thoughts as part of a meditative session. Its soothing voice is interrupted unexpectedly by the raspy, computerised whisper of a Pirate Signal, who responds with snarky asides that cast doubt on the Guru's instructions and the very process of taking part in such sessions. Whether the Pirate Signal is part of the corporate manufacturer's design or not is not clear; it could easily be coming from an outside infiltrator (e.g., a hacktivist) whose aim is to subvert the process. The third voice is of an Announcer, who, every hour, between 9:00 and 17:00 (apart from a lunch break at 13:00), describes a work-related problem and a Life Hack which addresses it, reminding workers of their autonomy and suggesting practical ways to improve their everyday lives in small, improvisational actions.

Special Issue 08

The Network We (de)Served

The Network We (de)Served became a site of learning for a group of experimental publishers to explore how networked technologies could become publishing tools. We traversed several layers, from local area networks to the web and the larger internet. We spent time examining different protocols and network concepts such as IP, DNS, HTTP, SSH & XMPP that are inherently part of the networked infrastructures we use every day. Eventually, we moved from using the IP addresses of our home connections, to making use of and mapping these to domain names acquired at gratis DNS providers, using traceroutes to find out how we were interconnected with each other, and how to cross-reference these connections with hyperlinks. Sometimes it was frustrating, but mostly it was a lot of fun.

Contributors: Simon Browne, Tancredi Di Giovanni, Paloma García, Rita Graça, Artemis Gryllaki, Pedro Sá Couto, Biyi Wen, Bohye Woo, Roel Roscam Abbing, Manetta Berends, Lídia Pereira, André Castro, Aymeric Mansoux, Michael Murtaugh, Steve Rushton, Leslie Robbins.
Brought to you by the Master of Arts in Fine Art and Design: Experimental Publishing (XPUB) of the Piet Zwart Institute, and Varia,

Centre for Everyday Technology, Rotterdam, April 2019.

The Infrastructour

We travelled from home to home by bicycle, setting up home servers. As friends and companions on this Infrastructour, we studied our routers over drinks served by our hosts. Where possible, we installed our servers in our homes; in other cases we had to depend on another member of the group. While self-hosting together we questioned our understandings of networks, autonomy, online publishing and social infrastructures, where each of us departed from a different question. We would like to share our personal (yet interconnected) routes with you, tell you a story, present our web- and printed zines, and invite you to explore our homebrewed network.

Out of this work has emerged a series of mixed media publications that are based on the individual experiences, questions and investigations. These publications take the form of handcrafted HTML webzines that exist online on the various self-hosted servers, and offline as their HTML-to-print equivalents. Together they form a distinct set of perspectives on issues ranging from network politics, publishing methods, visualisation, mapping and graphing of human and machine topologies, to reflections on online sociality. These distinct perspectives have been grouped in a few categories that the reader can use as a guide through the publication.

Categories

WHAT IS A NETWORK?

We discuss questions ranging from the relationship between topology and geography, to the interrelation between technical and social networks. In particular, we are looking at networks of home servers, networks of hosts taking care of these servers, the infrastructure of the city as a network of routes, and the network as a collection of interconnected related topics in our research.

AUTONOMY AND ITS CONTINGENCIES

Gaining agency in a network through self-hosting can easily be mistaken for autonomy. Indeed, since the very first "Declaration of Independence of Cyberspace", networked environments have been rife with discussions surrounding free speech, freedom, independence and autonomy. The practice of self-hosting, however, simultaneously questions these one-dimensional understandings of autonomy as it opens up questions of materiality, skills, access, privileges and affordance. How can we shift discussions about independence to the understanding of interdependence?

SOCIAL NETWORKS

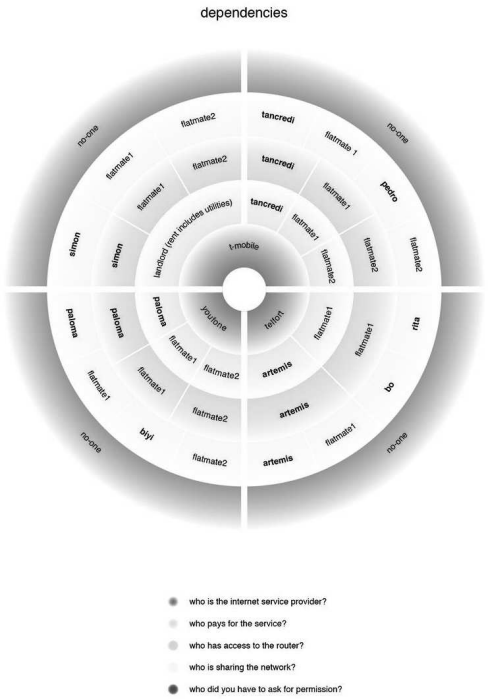
Thinking about networks should not be limited to discussing their technological infrastructure, but should also question their social component. This is particularly relevant for social networking platforms that reflect and reinforce established modes of socialisation and subjectivation. How can self-hosting help us understand what it means to become a node and relate to others? How can a practical approach to working with network(ed) technologies allow for exploring the inherent forms of sociality found in networking tools?

NETWORK(ED) PUBLISHING

Installing our servers, hosting content on them and building tools that can make use of custom infrastructures allow for deep integration between writing, editing, annotating and designing content. We were particularly interested in running experiments with building tools for publishing at different speeds: from daily notes and archived conversations to glossaries and long-form essays written over time. How can we publish a network, how can we translate its mechanisms, activities and attitudes?

MAPPING NETWORKS

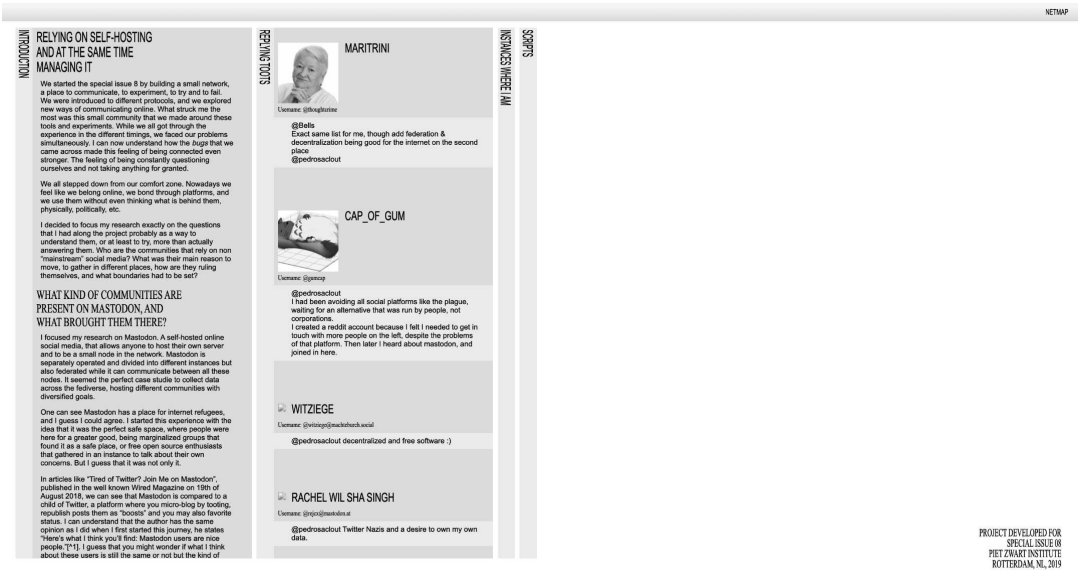
Finding ways to map or visualise networks quickly became a strategy for questioning implicit ideals and ideologies found in these networks. What does it mean to draw relations as direct lines between nodes? How can understandings of a network change if we don't think in terms of nodes but knots? How to visualise disconnections and inconsistencies? how to map a network as an evolving system? How to think about scale, the spaces between nodes, and go beyond the superficiality of buzzwords like (de)centralisation?


dependencies
t-mobile
landlord (rent includes utilities)
you/one
fellon
tancredi
flatmate1
flatmate2
pedro
rita
bo
artemis
paloma
simon
biyi
no-one
who is the internet service provider?
who pays for the service?
who has access to the router?
who is sharing the network?
who did you have to ask for permission?

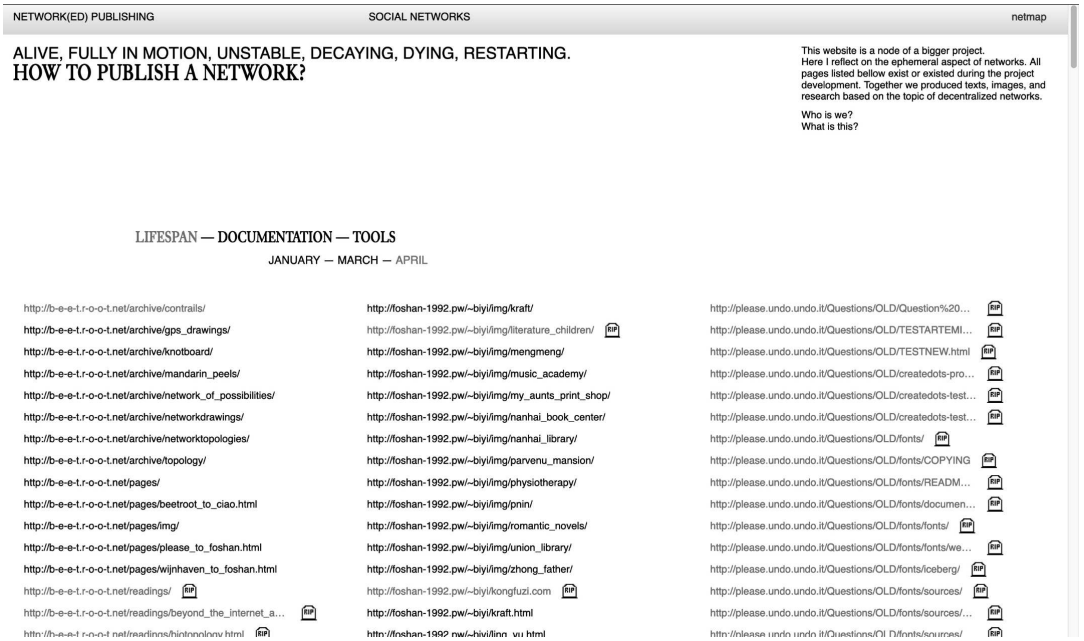
Publication

LAUNCH AT VARIA

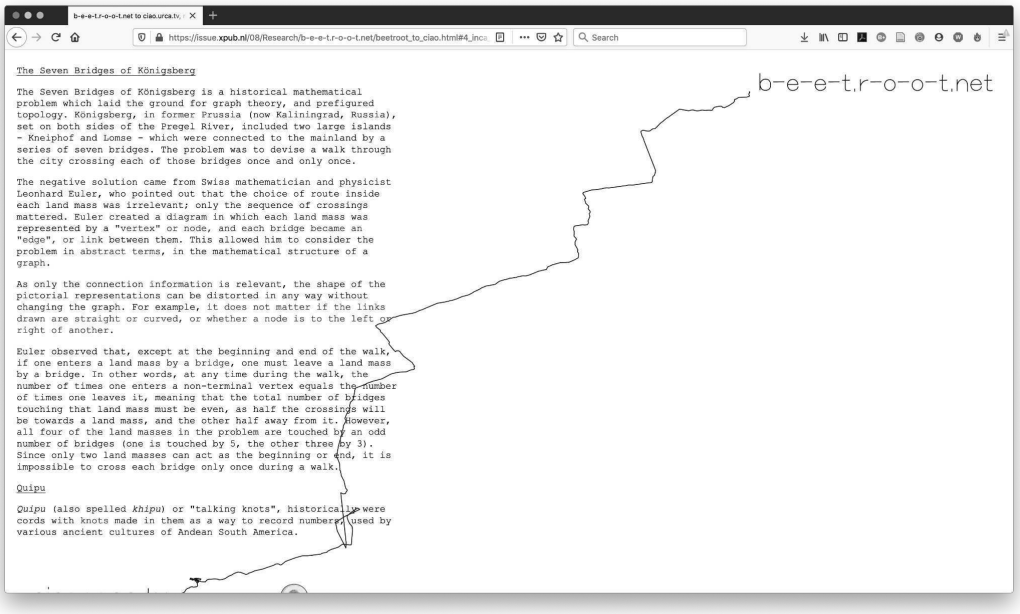
WEB ZINES



***Relying on Self-Hosting and at the Same Time Managing It*, Pedro Sá Couto.**

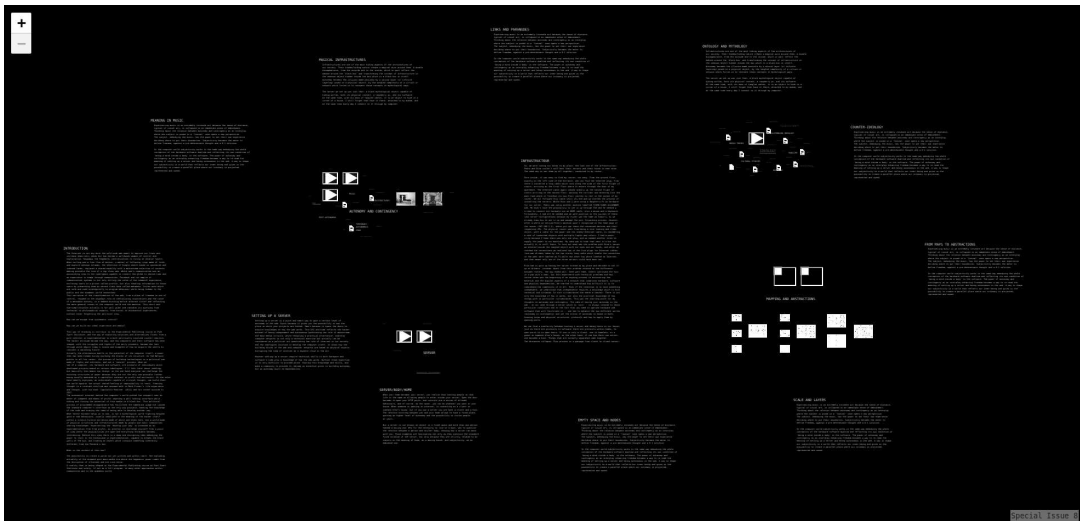


***Alive, Fully in Motion, Unstable, Decaying, Dying, Restarting.* Rita Graça.**

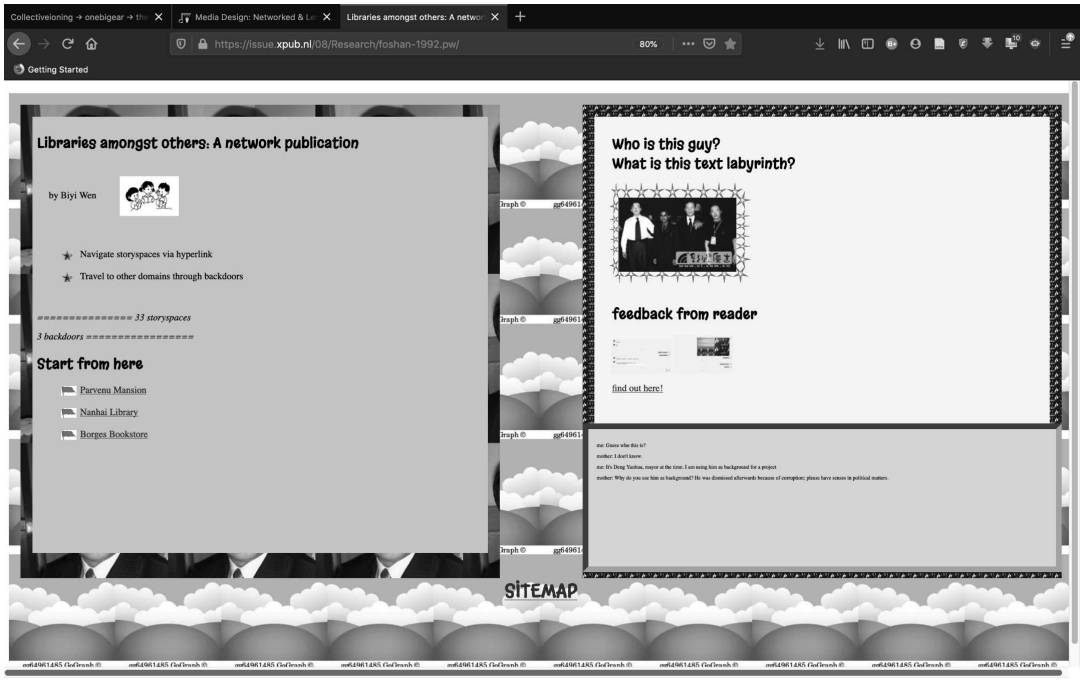


From Networks to Knotworks, **Simon Browne. Understanding networks (digital and social) by walking, drawing, serving, mapping.**

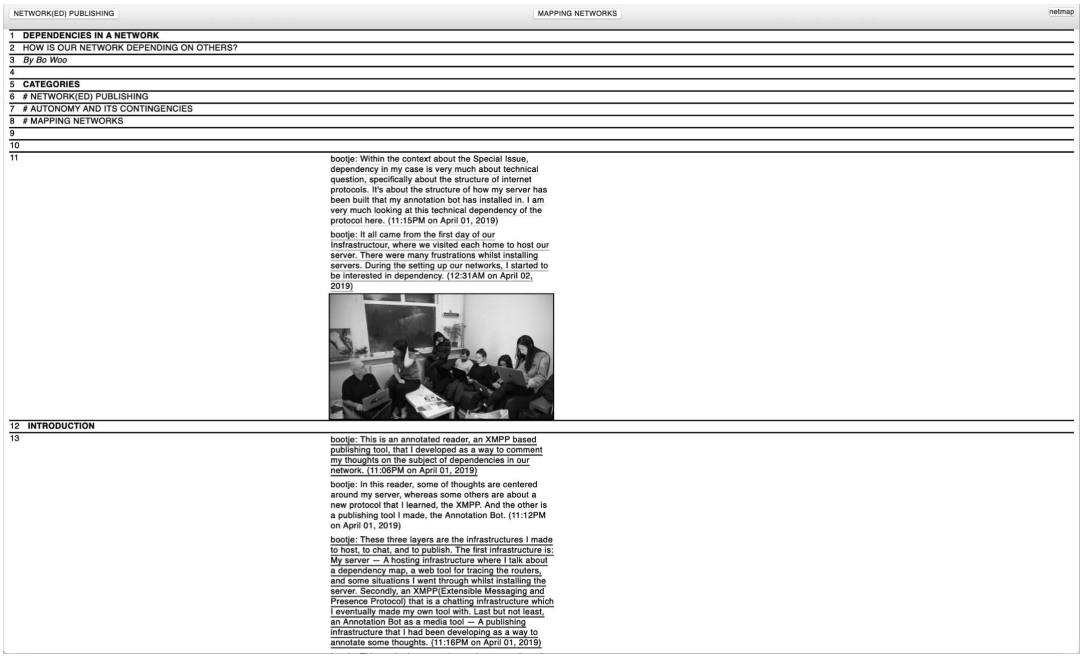
Questions on (Social) Networks, **Artemis Gryllaki. Navigating through a collection of articles around social networks.**



A Text Within a Map, Tancredi Di Giovanni. "*Then you realise that were there was one thing, actually there are few, and the more you zoom in, the more universes you'll find with billions of ideas*".



Libraries Amongst Others, Biyi Wen. A hypertext network mapping the inter-woven intricacies of post-socialist childhood memories.



NETWORK(ED) PUBLISHING MAPPING NETWORKS netmap

1 **DEPENDENCIES IN A NETWORK**
2 HOW IS OUR NETWORK DEPENDING ON OTHERS?
3 *By Bo Woo*
4
5 **CATEGORIES**
6 # NETWORK(ED) PUBLISHING
7 # AUTONOMY AND ITS CONTINGENCIES
8 # MAPPING NETWORKS
9
10
11

bootje: Within the context about the Special Issue, dependency in my case is very much about technical question, specifically about the structure of internet protocols. It's about the structure of how my server has been built that my annotation bot has installed in. I am very much looking at this technical dependency of the protocol here. (11:15PM on April 01, 2019)

bootje: It all came from the first day of our Insfrastructour, where we visited each home to host our server. There were many frustrations whilst installing servers. During the setting up our networks, I started to be interested in dependency. (12:31AM on April 02, 2019)

12 **INTRODUCTION**
13

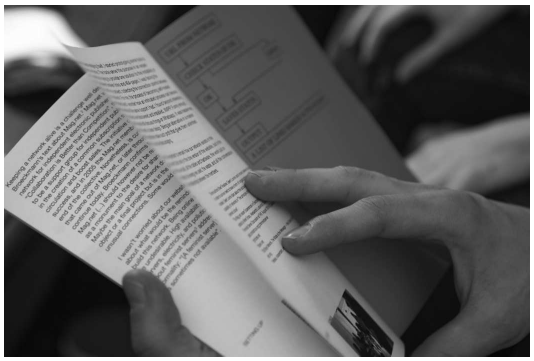
bootje: This is an annotated reader, an XMPP based publishing tool, that I developed as a way to comment my thoughts on the subject of dependencies in our network. (11:06PM on April 01, 2019)

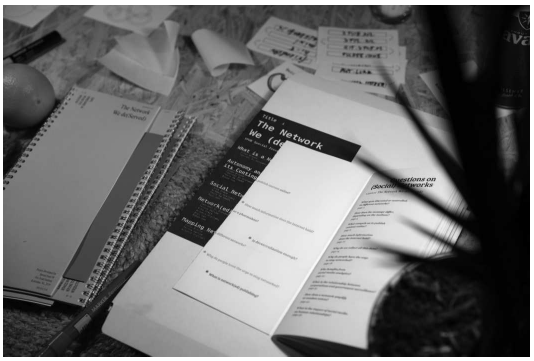
bootje: In this reader, some of thoughts are centered around my server, whereas some others are about a new protocol that I learned, the XMPP. And the other is a publishing tool I made, the Annotation Bot. (11:12PM on April 01, 2019)

bootje: These three layers are the infrastructures I made to host, to chat, and to publish. The first infrastructure is: My server — A hosting infrastructure where I talk about a dependency map, a web tool for tracing the routers, and some situations I went through whilst installing the server. Secondly, an XMPP(Extensible Messaging and Presence Protocol) that is a chatting infrastructure which I eventually made my own tool with. Last but not least, an Annotation Bot as a media tool — A publishing infrastructure that I had been developing as a way to annotate some thoughts. (11:16PM on April 01, 2019)

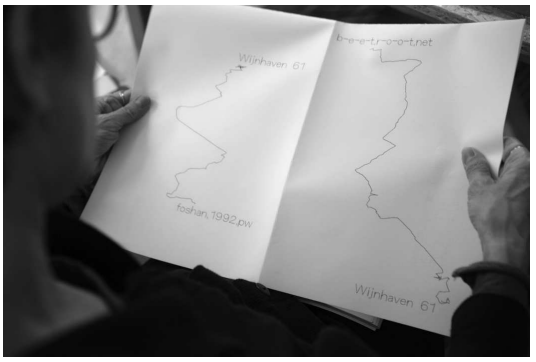
Dependencies in a Network. **Bohye Woo. How is our network depending on others?**

PRINTED ZINES




The Network
We (de


could a network
like?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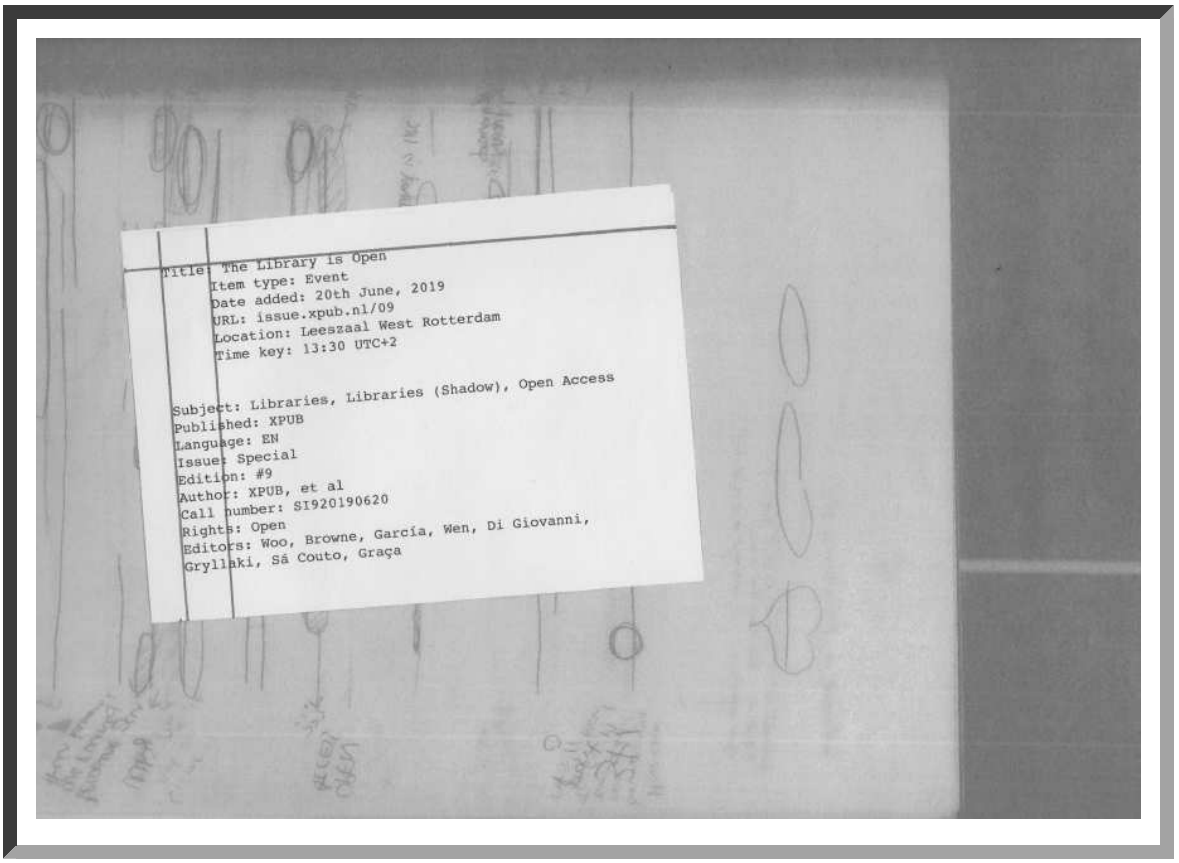
The Network We (de)Served

Special Issue 09

The Library Is Open



In the spring and summer of 2019 we developed *The Library Is Open*, a publication which focuses on the operations, actions, and roles of legal and extra-legal libraries. Central to this project is the community that forms around a collection of texts – the custodians of the collection and the readers. *The Library Is Open* is the result of the third iteration of Interfacing the Law, an ongoing research project between XPUB and Constant (BE), which explores issues around extra-legal libraries, software and legal interfaces and intellectual property. Led by our guest editor Femke Snelting, we participated in many activities which were organised by invited guests:

With Bodó Balázs, an economist and researcher on shadow libraries, we analysed the gargantuan dataset of Library Genesis, to determine trends which indicate access to texts and the social, geopolitical and economic aspects at play.

With Anita Burato and Martino Morandi at the Rietveld Library in Amsterdam, we discovered the subjectivity of subjects and thorny issues of classification and representation. With other readers, we deepened our understandings of texts through collective annotations.

With artist and researcher Eva Weinmayr, who introduced us to The Piracy Project, we examined the possible motivations and differences

between pirated books and their "source". With open-source software such as Tesseract, pdftk, and LibreOffice (and many others) we explored the technical processes used during the creation of pirate libraries, and the hidden labour involved in this.

With fellow pirates, we considered the multiplicity of roles and activities involved in maintaining various libraries, such as Monoskop, Library Genesis, aaaaaarg, Sci-Hub, Memory of the World, Project Gutenberg, +++.

With Dušan Barok, the administrator of Monoskop and an alumnus of the Piet Zwart Institute, we discovered how Monoskop was initiated and how it has changed over time.

The variety of our collective sessions, and the practical exercises we performed led us to organise an afternoon of three workshops that directly addressed the active role of piracy, rather than simply talking about it. Encouraging small, informal, collective actions, we wanted to challenge the ordinary, hierarchical presentation of research projects in the academic context, and individual notions of authorship. When choosing a suitable venue for our event, we decided to ask Leeszaal (in Dutch "Reading Hall") to host our workshops. Situated in a busy, multicultural area of Rotterdam, Leeszaal exemplifies many values we sympathise with, particularly open access to knowledge, and a focus on the community that uses the space, not just for reading but for many other social purposes. These values we recognise (somewhat nostalgically) as reminiscent of public libraries of yesteryear. However, the landscape today is quite different, with huge online commercial repositories of texts (e.g., JSTOR), protected by paywalls which limit access to them, and in response the emergence of "shadow libraries". In a printed publication of the same title we documented the dilemmas, outcomes and reflections that came out of our three different workshops, and interviews with people whose work is at the centre of the issues that each workshop uncovers.

Contributors: Simon Browne, Tancredi Di Giovanni, Paloma García, Rita Graça, Artemis Gryllaki, Pedro Sá Couto, Femke Snelting, Biyi Wen, Bohye Woo

Special thanks to: Partnering institute Constant (BE), Leeszaal Rotterdam West, Bodó Balázs, Dušan Barok, Anita Burato, André Castro, Aymeric Mansoux, Michael Murtaugh, Martino Morandi, Leslie Robbins, Steve Rushton, Amy Suo Wu, Eva Weinmayr

Workshop descriptions

The Library Is Open invites you to an afternoon of workshops that make the operations within libraries visible. Join us in exploring the actions and roles of legal and extra-legal libraries (municipal, pirate, academic, ++), their custodians, and the public that form a community around collections of texts.

BLURRY BOUNDARIES

Select, annotate, analyse, scan, correct, digitise, print, read, transfer, erase, encode, curate, hack, interface, work, copy...

Which libraries become possible when you transform physical books into digital files, and vice versa? When a digital copy of a book is made for a digital library, specific steps are followed. Each of these steps requires a decision – to use tools and to spend time. The work involved in digitising a book is invisible and the digital version often loses its connection to the physical book and the library it came from.

We aimed to reflect upon different topics such as: The friction between the physical and digital book, what is lost and what is gained when you pass from one format to another. The physicality and contingency of these passages, the labour involved to produce those copies and the hidden position of this labour. The mindset of the librarian who has to choose how to produce the digital library, which format to chose and what kind of information to reveal. The possibility of a digital library which provides the history of the book and the people involved in its life. Annotations which reveal information and challenge the common, static idea of the book.

Schedule of Workshop: Blurry Boundaries
by Tancredi Di Giovanni, Pedro Sá Couto and Bohye Woo

Select, annotate, analyze, scan, correct, digitize, print, read, transfer, erase, encode, curate, hack, interface, work, copy...

Introduction
How do we reveal the hidden labour involved in these processes? What libraries become possible when you transform physical books into digital files, and vice versa?

In this workshop you will be a librarian converting books into machine readable files, a process involving tools, time and choices.

Follow this step
1. Choose a book
Choose a book from the Leeszaal collection and write down the basic informations. (The book has to fit the scanner.)

2. Condition Report
Write down the physical book characteristics, the condition of the book and the visible traces that may be found on it, such as: *watermark, marginalia, underline, highlight, strikethrough, circle, line, doodle, added contents, damages, folded corners, water wrinkling, stain, squiggle, and more..*

3. Scan
Choose one specific part of the book and scan it. It can be one page or one chapter, depending on the available time.

4. Page Correction
Use *Pinta* or *Gimp* to turn the pages into their original direction. If you want, you can remove unwanted traces that might be left and crop the image. Rename the file without spacing.

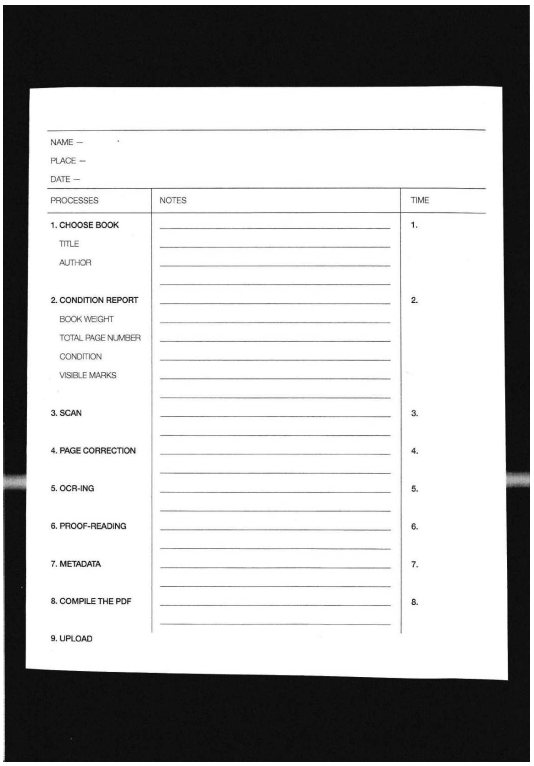
5. OCR-ing
Create a searchable pdf with 'ocr.sh' from the corrected images created. This process is called *OCR* (optical character recognition) and is done through a software called *Tesseract*.

6. Proof-reading
Open the searchable pdf with the browser and *LibreOffice*, delete the image and compare the text from the ocr output and its original source. How is the text different from each other? Save the text from the ocr output in pdf.

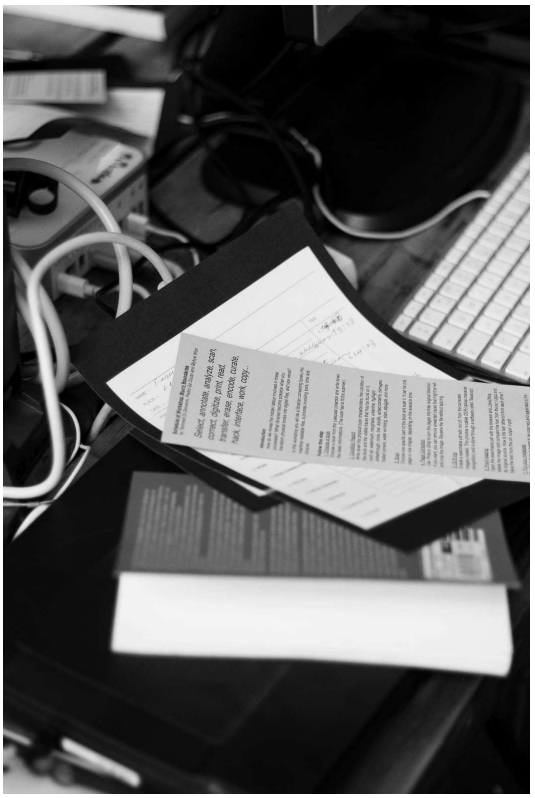
7. Put your metadata
The filling form is meant to be scanned and appended to the final pdf. In this way we are able to make the hidden labour behind digital books visible.

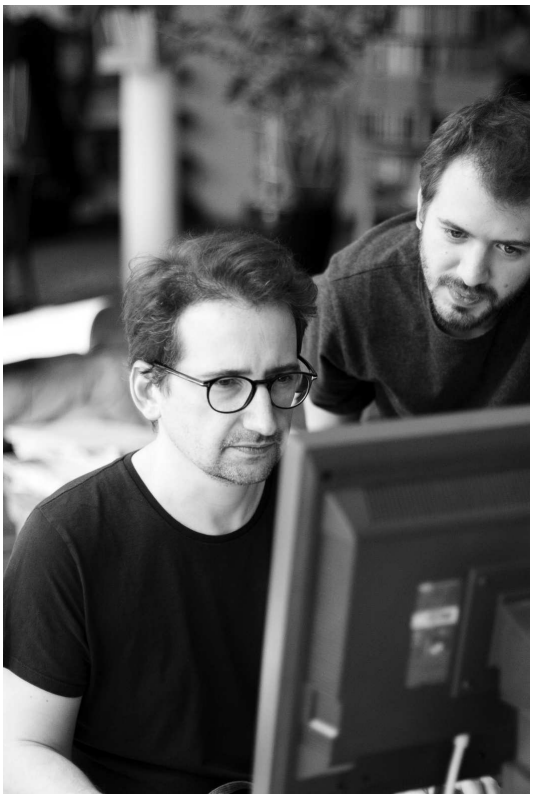
8. Compile the pdf
At this point, you'll have three pdfs in your folder.
To complete your digital book, merge all the pdfs in one file with 'merge_files.sh'.

9. Upload to the digital library
Finally upload your digital book on our digital library following the bookmark on the browser.
Congratulations! You have done a great (hidden) job!!!


NAME –
PLACE –
DATE –

PROCESSES	NOTES	TIME
1. CHOOSE BOOK		1.
TITLE		
AUTHOR		
2. CONDITION REPORT		2.
BOOK WEIGHT		
TOTAL PAGE NUMBER		
CONDITION		
VISIBLE MARKS		
3. SCAN		3.
4. PAGE CORRECTION		4.
5. OCR-ING		5.
6. PROOF-READING		6.
7. METADATA		7.
8. COMPILE THE PDF		8.
9. UPLOAD		

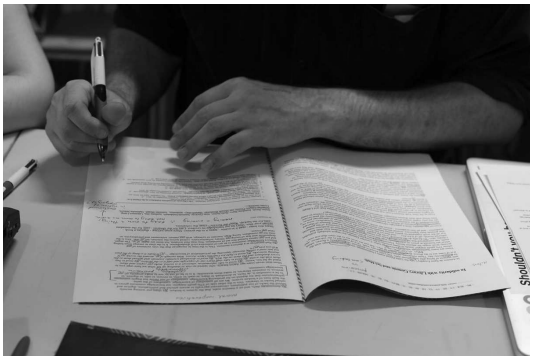


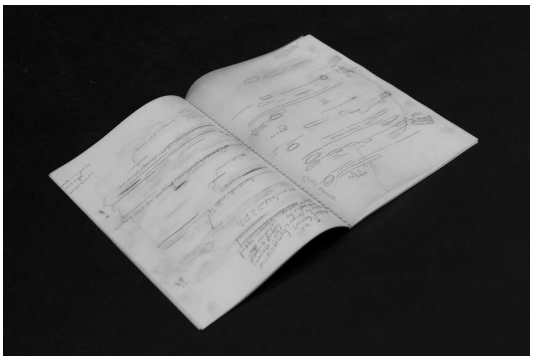


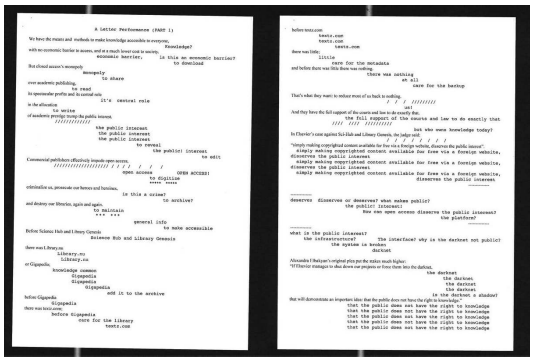
MARGINAL CONVERSATIONS

Marginal Conversations is a workshop which explores collective reading, annotating and performing texts. We read, and write notes in the margins; usually in private, isolated from other readers. We come across texts with others' notes on them; the author unknown, their thoughts obscure. What happens when we share our notes, vocalise and perform them? In this workshop, participants read, annotate and discuss the open letter "In Solidarity with Library Genesis and Sci-Hub", which asks for pirate library practices to come out from the shadows. This letter was selected for many reasons: it was an introduction for us to the thematic "Interfacing the Law", it's available in many languages, and it presents an argument that generates interesting conversations. We compare annotations in order to detect common areas of interest and also to explore different methods, where readers can develop codes and techniques to extend the content of the source and express their personal understanding of this content. The goal is not only to find areas of agreement, but also to

discover tensions, disagreements etc. with the letter, which can also develop into fruitful conversations. We leave traces of our reading, enriched by our doubts, sympathies, tensions and diverse understandings. We personalise the text, opening it up for collective conversations. Our voices occupy the space and leave traces on the text and in the library.

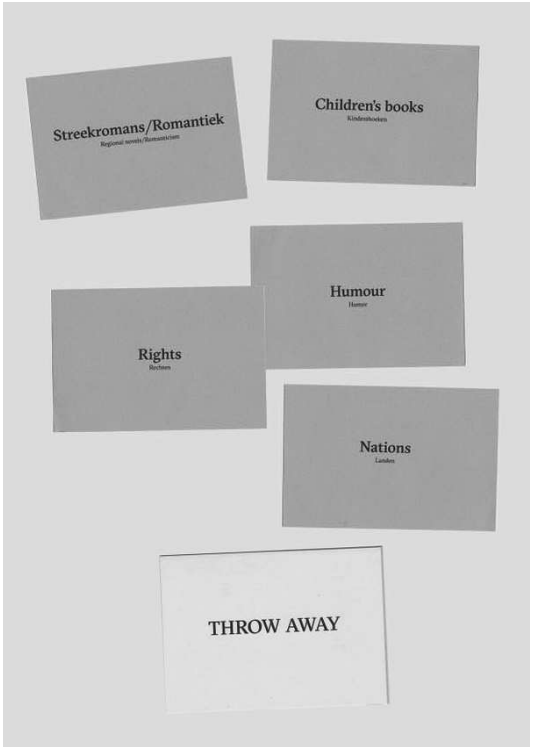






KNOWLEDGE IN ACTION

We looked for different ways that knowledge can be maintained and preserved. We visited different libraries of different scales. We investigated their operations and their levels of legality. We interviewed people who adopted the role of librarians in their own unique ways. From these experiences, we started outlining our workshop. The workshop Knowledge in Action invites participants to act the roles and perform the activities crucial to the sustenance of libraries. They interpret and re-imagine the actors that take part in knowledge production and distribution, playing the parts of the librarian, the researcher, the pirate, the publisher, the reader, the writer, the student, the copyist, the printer. The activities embed the participants in different scenarios to shift their accustomed perspective and to start common dialogues.


Streekromans/Romantiek
Children's books
Humour
Rights
Nations
THROW AWAY


NO GUILT as a service
books on libraries
news, news from ALL sources, can place ~~same~~ news about same event in same place
interesting/ new / contemp.
INTERSECTIONAL TECHNOLOGY (sgn. critical studies?)
children books
PULP NOVELS
great science-fiction
URBAN RESILIENCE
EXISTENTIAL NOVELS
COMIC BOOKS
annotation services
some basic annotation → keep, take, archive.
a few research librarians with a good sense of small + scary aesthetics


I am an infrastructure that accumulates and distributes files illegally. My motivation is to make knowledge open access. Since the past few years there have been lawsuits from academic journal database against shadow libraries.
Examples: Library Genesis, Sci-Hub, Aaaaarg, Monoskop
The maintenance of Library Genesis, a major shadow library site makes the infrastructure as transparent as possible, so that other communities can mirror the infrastructure freely.
Researchers from developed countries use our shadow libraries more often than other countries, in addition to the legal resources they already have.
Shadow libraries aim to provide free access. If a mirror site is operating for profit, the main community has the right to disconnect the mirror site from open access community.
Researchers from both developed and less developing countries use shadow libraries.
Shadow libraries accumulate journals by accessing accounts in universities with subscription to database. It is a way to share knowledge from the more privileged to the less privileged.
Shadow libraries operate outside of U.S. and European jurisdiction sites since the servers are hosted elsewhere, such as in Russia.
Shadow Library

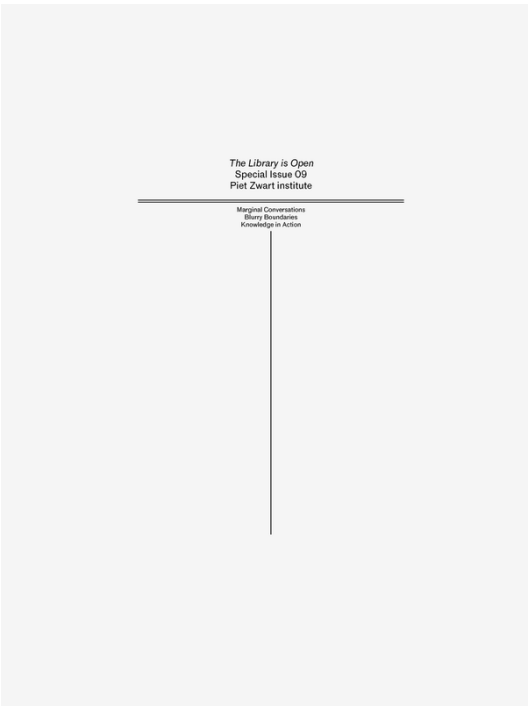

I am the person stealing, scanning, uploading files but also downloading.
I do it because I believe knowledge should be accessible for all, because I don't have the means to pay for the original files, or just because I don't want to.
Examples: a student, Aaron Swartz, Alexandra Elbakyan, your neighbor, a teacher
We have the means and methods to make knowledge accessible to everyone, with no economic barrier to access and at a much lower cost to society.
Infringing on copyright, unlike theft, does not deprive the victim of the original item.
Those with access to these resources — students, librarians, scientists — you have been given a privilege. [...] You have a duty to share it with the world.
I provide free access to academic resources. Knowledge should be free for everybody. Underprivileged researchers have greatly benefited from my help.
We see how a freer flow of information enables thoughts, cultural creation and the economy to grow.
Pirate

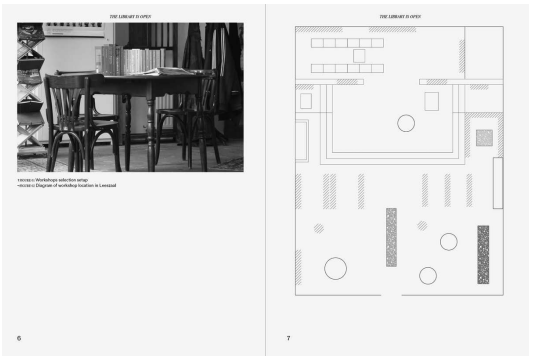

I deal with all the information and operations inside a library. I follow the copyright laws, acquire books through legal channels and use traditional forms of cataloging.
Examples: librarian in a university, librarian of a research institute, librarian of a public library
Libraries are obligated to shut down the hackers and if we don't do it, the publishers can cut off key research material for professors and students.
source: Edward Sanchez, head of library information technology at Marquette University
At the Institute of Mathematical Sciences in Chennai (IMSc), for example, the total annual budget is around $1 million, of which $400000 is spent on subscriptions to academic journals, more than the entire budget for faculty salaries.
source: Karagania, Jorind), "Shadow Libraries", MIT Press 2018
More than 60 scientific institutions had already terminated their contracts with Elsevier, in forms of boycotts for the expensive fees and support for open access initiatives.
As a librarian I should archive all meaningful electronic files, but they are behind paywalls at no accessible costs.
I want a poor student to have the same means as the richest man in the kingdom, as far as books go.
source: Anthony Panizzi, British librarian in 1856
My biggest concern about piracy is how it obtains access to library databases when they enter our system to download files.
Researcher Librarian

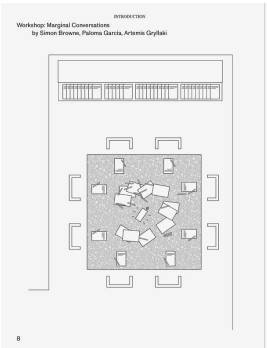

We are a company that provides access to academic research. To access the material there is a fee, charged to individuals or research institutions.
Examples: Elsevier, Springer, JSTOR
By organizing knowledge in adequate systems, we are making knowledge more accessible, enhance system performance, therefore benefiting humanity.
One of the advantages includes support of full-text keyword searching across all content, making it easier for researchers to look up content.
We digitize and make available books online, that otherwise wouldn't have online access. We help publishers reach new audiences.
We lower costs for academic libraries and increase shelf space.
Academic Journal Database makes research easier for researchers. Our advanced information system makes the researcher's life much easier.
Academic Publishing Business

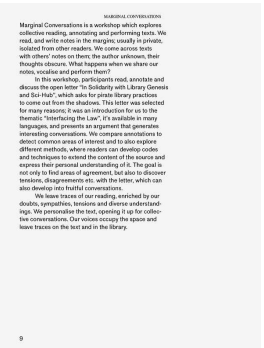
Publication

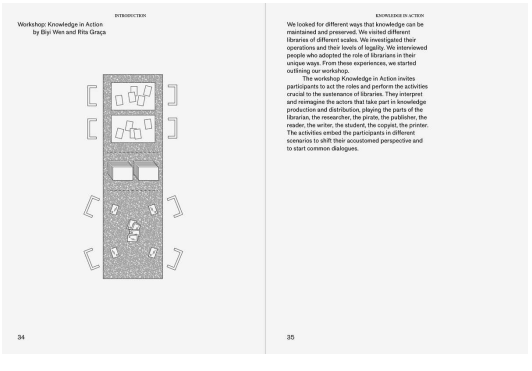
The Library Is Open **was printed and published in June 2019 and launched at the 2019 Graduation Show. It includes descriptions, processes and outcomes of the workshops held at Leeszaal Rotterdam West; interviews with Marcell Mars, Dusan Barok, Dubravka Sekulic and librarians of Leeszaal; and an appendix of open letters, including: guest editor Femke Snelting's introduction to the 2019 iteration of Interfacing the Law; the letter "In Support of Library Genesis and Sci-Hub" from the website custodians.online; and Alexandra Elbakyan's response to the presiding judge in the court case "Elsevier Inc. et al v. Sci-Hub et al".**











INTRODUCTION

Workshop: Knowledge in Action
by Bijn Wen and Rita Graça

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KNOWLEDGE IN ACTION

We looked for different ways that knowledge can be maintained and preserved. We visited different libraries of different scales. We investigated their operations and their levels of legality. We interviewed people who adopted the role of librarians in their unique ways. From these experiences, we started outlining our workshop.

The workshop Knowledge in Action invites participants to act the roles and perform the activities crucial to the exeistence of libraries. They interpret and reimagine the actors that take part in knowledge production and distribution, playing the parts of the librarian, the researcher, the pirate, the publisher, the reader, the writer, the student, the copyist, the printer. The activities embed the participants in different scenarios to shift their accustomed perspective and to start common dialogues.

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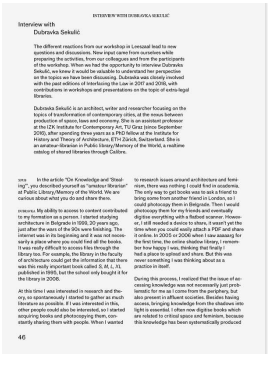

INTERVIEW WITH DUBRAVKA SEKULIĆ

Interview with
Dubravka Sekulić

The different reactions from our workshop in Leeuzaal lead to new questions and discussions. New input came from ourselves while preparing the workshop, but also from outside. To find counterparts of the workshop. When we had the opportunity to interview Dubravka Sekulić, we knew it would be valuable to understand her perspective on the topics we have been discussing. Dubravka was closely involved with the past editions of Interbalcanica the Law in 2017 and 2018, with contributions in workshops and presentations on the topic of extra-legal libraries.

Dubravka Sekulić is an architect, writer and researcher focusing on the topics of transformation of contemporary cities, at the nexus between production of space, laws and economy. She is an assistant professor at the IZK Institute for Contemporary Art, TU Graz (since September 2016), after spending three years as a PhD fellow at the Institute for History and Theory of Architecture, ETH Zürich, Switzerland. She is an amateur-librarian in Public library/Memory of the World, a multisite network of shared libraries through Calibre.

DEREK In the article "On Knowledge and 'Stealing'", you described yourself as "amateur librarian" at Public Library/Memory of the World. We are curious about what you do and share there.

DUBRAVKA My ability to access to content contributed to my formation as a person. I started studying architecture in Belgrade in 1999, 20 years ago, just after the wars of the 90s were finishing. The internet was in its beginning and it was not necessary to be a place where you could find all the books. It was really difficult to find books in the public library system, and the literature in the libraries of faculty of architecture could get the information that there was this really important book called S, M, L, XL published in 1995, but the school only bought it for the library in 2006.

At this time I was interested in research and theory, and I wanted to read as much literature as possible. If I was interested in Nicolas Ledoux, other people could also be interested, so I started acquiring books and photocopying them, constantly sharing them with people. When I wanted to research issues around architecture and feminism, there was nothing. I could find in academia. The only way to get books was to ask a friend to bring them from Amsterdam or Berlin, or I could photocopy them in Belgrade. Then I would photocopy them for my friends and eventually digitise everything with a flatbed scanner. However, I still needed a device to share, it wasn't yet the time when you could easily attach a PDF and share it online. In 2005 or 2006 when I saw aaaarg for the first time, the online platform, I remember her how happy I was, thinking that finally I don't have to scan books and share files. It was never something I was thinking about as a practice in itself.

During this process, I realized that the issue of accessing knowledge was not excessively just problematic for me as I come from the periphery, but that it was a problem for many people to have access, bringing knowledge from the shadows into light is essential. I often now digitise books which are related to critical space and feminism, because this knowledge has been systematically produced

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KNOWLEDGE IN ACTION

notable, as from the narrativity of academia. It has never been integrated properly into the core. I consciously started to find books which are difficult to reach, and I make them accessible as an intervention. You can call it a feminist intervention in the field of knowledge production in architecture. In this way, Memory of the World becomes really useful to share this content.

DEREK How did you discover the project Memory of the World?

DUBRAVKA There is a network of several situations that led to Memory of the World. The founder of Memory of the World is Marcell Mars, mostly together with Tomislav Medak. Marcell and I were at the Jan van Eyck Academie in Maastricht as researchers at the time of the first official outing of Public Library/Memory of the World. This is the moment when I realized that there is something like pirate Library Genesis, disseminated and everyone at Jan van Eyck was horrified.

During this time I had spent over a year sitting with my hard drive containing 95 years of articles published by the New Left Review. It is an important new left organization and intellectual production from the UK after the 2nd World War. I had digitised the entire archive, and I was constantly struggling to organise folders and trying to make this content operational. Then I discovered Calibre, a free software program for cataloging books. Slowly my saved content went from a bunch of folders with a lot of interesting articles, but that was too difficult to manage, to a structured format. While I was organising, I was collating people I knew who were interested in the articles. I knew people at the Jan van Eyck, knowing their areas of research.

While I was doing that, Marcell was thinking about how to infrastructurally support the processes of exchange as a programmer. He was thinking about how the infrastructure could work, to supplement the processes of exchange that I and others had already worked. It is important to have more than one entity because they are fragile and might disappear. In 2012, Public Library was initiated when Marcell was invited by Luka Prinčič to curate a HAP Triennial in what used to be Kibla space in Maribor. The space was transformed into a public library and people interested in these kinds of projects were also invited: aaaarg, Monoskop, Dušburg, and textz.com, which Sebastian Lütgert created and was taken down under the request of Theodore Adorno Foundation.

Memory of the World, in my opinion, has a triple role. First, it is developed as an infrastructure that supports the work of Marcell, through the logic of events, is bringing together "shadow librarians", and establishing a framework of thinking together to articulate certain positions. "In Solidarity with Library Genesis and Sci-Hub" is one of such articulations. Thirdly, is doing what I like to call tactical action. That is to gather together as much as possible and think strategically which content is excluded and how to bring it back and give it a form. This is why the workshops are important. We are several projects that were done, either as a Public Library/Memory of the World project or as off initiatives. Tactical digitisation is not only to digitise analog books and make them digitally available, process them inside a curatorial framework, in which certain content is put in relation to another, and you deliberately make certain content available. For me, the curatorial framework is really important, which is also about issues around gender, class, and race. Mostly, issues of feminism and race in relation to space.

Another project I find worth mentioning is the Archive of Humanistic Textual Production in Yugoslavia, which is a response to the genocide of books in Sarajevo and Vukovar. Thousands of books, a lot of books related to Yugoslavian self-identity, struggle and socialism, were managed and printed in Serbia and the non-Croatian part of Yugoslavia were purged from libraries. We worked with the curatorial collective WHW from Zagreb in the space Galerija Nova. There was an event called The Written Notes where people salvaged these books from dumps and digitised them to Memory of the World. This is a tactical way of using Memory of the World, to make certain issues visible – incarceration and right-wing nationalists turns.

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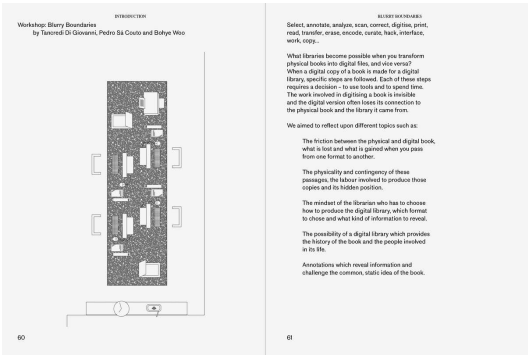

INTRODUCTION

Workshop: Blurry Boundaries
by Tancredi Di Giovanni, Pedro Sá Couto and Bohye Woo

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BLURRY BOUNDARIES

Select, annotate, analyze, scan, correct, digitize, print, read, transfer, erase, encode, curate, hack, interface, work, copy...

What libraries become possible when you transform physical books into digital files, and vice versa?
When a digital copy of a book is made for a digital library, specific steps are followed. Each of these steps requires a decision - to use tools and to spend time. The work involved in digitising a book is invisible and the digital version often loses its connection to the physical book and the library it came from.

We aimed to reflect upon different topics such as:

The friction between the physical and digital book, what is lost and what is gained when you pass from one format to another.

The physicality and contingency of these passages, the labour involved to produce those copies and its hidden position.

The mindset of the librarian who has to choose how to produce the digital library, which format to chose and what kind of information to reveal.

The possibility of a digital library which provides the history of the book and the people involved in its life.

Annotations which reveal information and challenge the common, static idea of the book.

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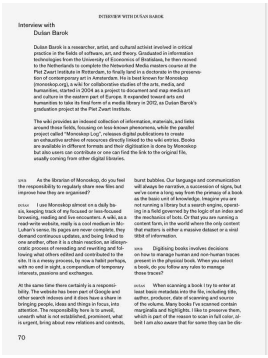

INTERVIEW WITH DUŠAN BAROK

Interview with
Dušan Barok

Dušan Barok is a researcher, artist, and cultural activist involved in critical practice in the fields of software, art, and theory. Graduated in information technologies from the University of Economics, Bratislava, he then moved to the Netherlands to complete the Networked Media masters course at the Piet Zwart Institute in Rotterdam, to finally land in a doctorate in the preservation of contemporary art in Amsterdam. He is best known for Monoskop (monoskop.org), a wiki for collaborative studies of the arts, media, and humanities, started in 2004 as a project to document and map media art and culture in the eastern part of Europe. It expanded toward arts and humanities to take its final form of a media library in 2012, as Dušan Barok's graduation project at the Piet Zwart Institute.

The wiki provides an indexed collection of information, materials, and links around these fields, focusing on less-known phenomena, while the parallel project called "Monoskop Log", releases digital publications to create an exhaustive archive of resources directly linked to the wiki entries. Books are available in different formats and their digitisation is done by Monoskop but also users can contribute or one can find the link to the original file, usually coming from other digital libraries.

DEREK As the librarian of Monoskop, do you feel the responsibility to regulate, filter new files and repress how they are organised?

DUŠAN I see Monoskop almost on a daily basis, keeping track of my focused or less-focused browsing, reading and live encounters. A wiki, as a read-write website, really is a cool medium in Mr. Luhan's sense. Its pages are never complete, they demand continuous updates, and being linked to each other, they form a kind of network. Being a democratic process of rewriting and hot-swapping what others edited and contributed to the site. It is a messy process, by now a habit perhaps, with no end in sight, a compendium of temporary interests, passions and exchanges.

At the same time there certainly is a responsibility. The website has been part of Google and Internet Archive crawls for years, and thanks to it bringing people, ideas and things in focus, into attention. The responsibility here is to unveil, unearth what is not established, prominent, what is urgent, bring about new relations and contexts, burst bubbles. Our language and communication is full of metaphors, and Monoskop is one of them, let us name a long way from the process of a book as the basic unit of knowledge. Imagine you are not running a library but a search engine, operating in a field governed by the logic of an index and the mechanics of hits. Or that you are running a content farm, in the world where the only content that matters is either a massive dataset or a viral stink of information.

DEREK Digitising books involves decisions on how to manage human and non-human traces present in the physical book. When you select a book, do you follow any rules to manage those traces?

DUŠAN When scanning a book I try to enter at least basic metadata into the file, including title, author, publication info, table of contents, scope of the volume. Many books I've scanned contain marginalia and highlights. I like to preserve them, which is part of the reason to scan in full color. (At best I am also aware that for some they can be dis-

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BLURRY BOUNDARIES

tracting. They are visually personal, ones to edit, rarely intended for a wider audience. Still I prefer to stay true to the original copy and its materiality.

I like to use old-school scanners for results have their own, perhaps by now vintage aesthetics. I say old-school because of course today it is more apt to use overhead scanners with digital cameras. Currently I am collaborating with artist Ilan Manouach, building a collection of conceptual comics/graphic novels/photobooks/artists' books consisting mostly of works published in the past ten years. Ilan has built his own overhead scanner and photographs books with pages open, which opens up for a special physical experience. Rather than creating ready-to-print digital copies, these PDFs may be experienced on tablets and digital frames, emphasising the "visuality" of these works.

DEREK In the Monoskop catalog, we have found books such as "Sfmoda-Bras" by Tomáš Brousa (for example, page 3, 158, and 172) where the digital copy contains marks from the physical source. When did this preoccupation start and what does it mean for you to explore the processes in the margins of readable sources?

DUŠAN This issue (figure 01–06) was made as part of our *Unlimited Edition* series of digital editions of rare but important works from art history. The PDF file has coins, Czechoslovak crowns, placed on some of the pages, totaling the original price of a copy of the book. I think it was an attempt to address the relations between value, historicity and distribution. One thing is the virus that is the Monoskop wiki, spreading from one hard drive to another, another is the radically different context in which this happens. The act of digitisation is often viewed as automated and neutral, but of course, as you said, there are many decisions involved along the line. One can clearly see it when comparing digital reproductions of a single volume made by different individuals and institutions. Our part is to question the logic of the assembly line so tightly related to the digitisation of art, knowledge and heritage.

DEREK Archives such as the Archiv der Avantgarden (AdA) in Dresden where you were involved,

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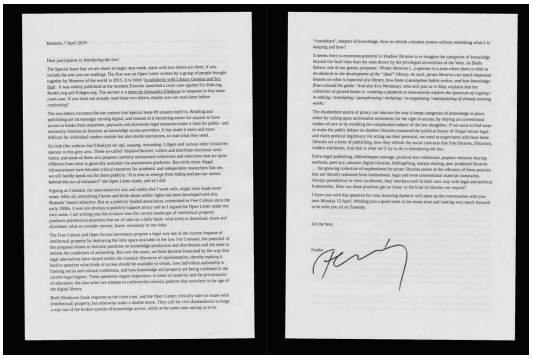


Brussels, 7 April 2019

Dear participants in *Interfering the Site!*

The Special Issue that we are about to begin now week, starts with two letters (or three, if you count the one from the non-hero to the privileged secretaries of the Wire, by Dada Balzac, one of our guests, present: "Peter Librarian (...) operate in a zone where there is little to no obstacle to the circulation of knowledge". Our first letter is a response to Peter Librarian's lessons on what is expected of a library, how book consumption habits evolve, and how knowledge flows around the globe. "And when Eva Weinmayr, who will join us in May, explains that her collection of stained books is 'creating a platform to interactively explore the spectrum of copying / re-editing / translating / paraphrasing / imitating / re-organizing / manipulating of already existing works.'

The disobedient stance of piracy can obscure the way it keeps categories of knowledge in place, either by calling upon universalist sentiments for the right to access, by relying on commercial means of care or by avoiding the complicated subject of the law altogether. If we want to find ways to imagine and enact different economies of knowledge, we need to look at how they are already here, and claim political legitimacy for acting out their potential, we need to experiment with how these libraries are a form of publishing, how they rethink the social contracts that link libraries, librarians, readers and books. And that is what we'll try to do in Interfering the Site.

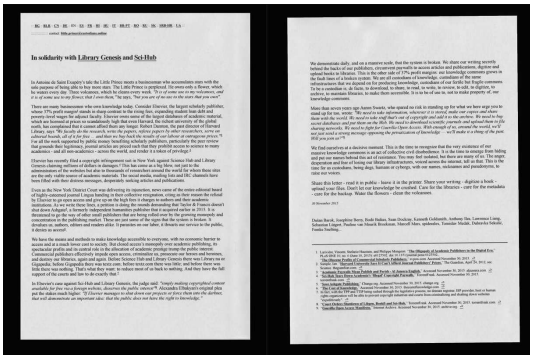
Extra-legal publishing, bibliotheques sauvages, piratical text collectives, popular resource sharing methods, open archives, amateur digitization, bibliogriffing, stamp sharing, peer produced libraries

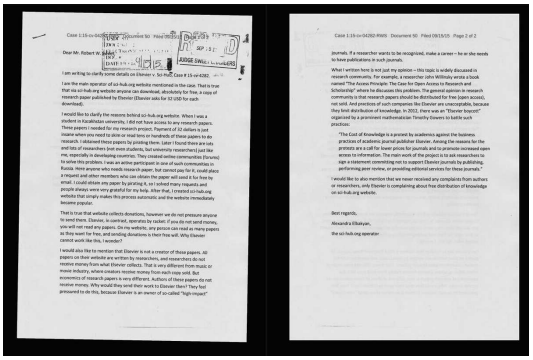
– the growing collection of euphemisms for pirate libraries points at the vibrancy of these practice that are literally unbound from institutional, legal and even conventional material constraints. Always paradoxical or even incoherent, they interface each in their own way with legal and political frameworks. How can these practices get so close to the kind of libraries we aspire?

I leave you with this question for now, knowing dynamic will open up the conversation with you-two-Monday (!) April. Wishing you a good week in the mean time and looking very much forward to be with you all on Tuesday.

All the best,

Pedro





Case 1:15-cv-04282-RWS Document 50 Filed 09/15/15 Page 1 of 2

SEP 15 2015

ADOBE SYSTEMS INCORPORATED

Dear Mr. Ricker: re: Adobe Systems Incorporated v. Sci-Hub, Case # 15-cv-4282.

I am writing to clarify some details on Elsevier v. Sci-Hub, Case # 15-cv-4282.

I am the main operator of sci-hub.org website mentioned in the case. That is true that via sci-hub.org website anyone can download, absolutely for free, a copy of research paper published by Elsevier (Elsevier asks for 32 USD for each download).

I would like to clarify the reasons behind sci-hub.org website. When I was a student in Kazakhstan university, I did not have access to any research papers. Those papers I needed for my research project. Payment of 32 dollars is just insane when you need to store or read tens or hundreds of those papers to do research. I obtained those papers by pirating them. Later I found there are lots and lots of researchers (not even students, but university researchers) just like me, especially in developing countries. They created online communities (forums) to solve this problem. I was an active participant in one of such communities in Russia. Here anyone who needs research paper, but cannot pay for it, could place a request and other members who can obtain the paper will send it for free by email. I could obtain any paper by pirating it, so I solved many requests and people always were very grateful for my help. After that, I created sci-hub.org website that simply makes this process automatic and the website immediately became popular.

That is true that website collects donations, however we do not pressure anyone to send them. Elsevier, is userhad, operates by racket: if you do not send money, you will not read any papers. On my website, any person can read as many papers as they want for free, and sending donations is their free will. Why Elsevier cannot work like this, I wonder?

I would also like to mention that Elsevier is not a creator of those papers. All papers on those websites are written by researchers, and researchers do not receive money from what Elsevier collects. That is very different from music or movie industry, where artists receive money from each copy sold. But economics of research papers is very different. Authors of these papers do not receive money. Why would they send their works to Elsevier then? They feel pressured to do this, because Elsevier is an owner of so-called "high-impact"

Case 1:15-cv-04282-RWS Document 50 Filed 09/15/15 Page 2 of 2

journals. If a researcher wants to be recognized, make a career – he or she needs to have publications in such journals.

What I written here is not just my opinion – this topic is widely discussed in research community. For example, a researcher John Willinsky wrote a book named "The Access Principle: The Case for Open Access to Research and Scholarship" where he discusses this problem. The general opinion in research community is that research papers should be distributed for free (open access), not sold. And practices of such companies like Elsevier are unacceptable, because they limit distribution of knowledge. In 2012, there was an "Elsevier boycott" organized by a prominent mathematician Timothy Gowers to battle such practices.

"The Cost of Knowledge is a protest by academics against the business practices of academic journal publisher Elsevier. Among the reasons for the protests are a call for lower prices for journals and to promote increased open access to information. The main work of the project is to ask researchers to sign a statement committing not to support Elsevier journals by publishing, performing peer review, or providing editorial services for these journals."

I would like to also mention that we never received any complaints from authors or researchers, only Elsevier is complaining about free distribution of knowledge on sci-hub.org website.

Best regards,

Alexandra Elbakyan,

the sci-hub.org operator.

The Library Is Open, full PDF is available here: https://pzwiki.wdka.nl/mw-mediadesign/images/3/3e/The_Library_is_Open.pdf)

Biographies

Tancredi Di Giovanni

Tancredi Di Giovanni is a researcher and theorist exploring the boundaries between art, science and technology in an attempt to dismantle them. Originally trained in design and visual communication, but profoundly discouraged by the economical factors compromising the discipline, he started to think of himself as a *"nomad-by-necessity"* in search for a not-yet-existing new field.

https://hub.xpub.nl/ilinx/dotlinesquare/

○|○ *Ilinx*
○-○ *Out-of-Hardware Experience*

Biyi Wen

Biyi Wen (Foshan, 1992) holds incessant interests for media archaeology and archival practices. That said, her work orients with the two axes noted in the bracket: Foshan, a city in southern China known for household electronics manufacturing; and 1992, the time to define looking back and projecting forward. Her interests for archaeology and archiving radiate from these orientations, and evolve into more intricate and complex forms of narration and storytelling.

http://www.foshan-1992.pw/

○|○ *The Repeater Archive*
○-○ *Unravelling Disembodiment*

Simon Browne

Simon Browne (AU) is an artist, researcher, organiser and contingent librarian. His practice focuses on social infrastructures, the tools that support them, and the contingencies they offer.

This research has been supported by the Ian Potter Cultural Trust.

Library of Contingencies*
http://www.simonbrowne.biz

○-○ *Tasks of the Contingent Librarian*
○|○ *the bootleg library*

Rita Graça

Rita Graça (PT) is a media designer creating and researching content for the web. Her current work focuses on the methods, users, and tools needed to create better online communities.

https://ritagraca.com/

○|○ *Networks of Care*
○-○ *Networks of Care*

Paloma García García

Paloma García García (1992, ES) is an architect, digital designer and researcher currently based in Rotterdam. Her work explores the use of maps and cartographies as socio-political communication tools. In the last years she has been exploring new digital tools to make interactive maps which involve social participation and collaborative production in order to develop new virtual urban mechanisms.

https://palomagarciagarcia.com/

Cartographies of Counter-Speculation
Cartographies of Invisibility

Bohye Woo

Bohye Woo is a graphic designer based in Rotterdam. She has a keen interest in networked publishing, digital labour, and postcolonial infrastructure of the internet.

https://bohyewoo.com/

My Country Is Still A Colony
Parallel Colonialism

Artemis Gryllaki

Artemis Gryllaki usually tinkers with texts, drawings and codes. Her work is mostly related to social aspects of art, architecture and publishing.

Syster Papyri Magicae
Syster Systems

Pedro Sá Couto

Pedro Sá Couto is a media researcher, hacker and graphic designer from Porto, Portugal. His research focuses on surveillance in the realm of publishing, while questioning authorship, protecting users' identity, and revealing hidden processes required to subvert surveillance in physical and digital media.

https://pedrosacouto.com/

Tactical Watermarks
Tactical Watermarks

Collectiveioning **is a publication of work produced within the context of the Master of Arts in Fine Art and Design: Experimental Publishing (XPUB) at the Piet Zwart Institute, Willem de Kooning Academy, Rotterdam.**

This hybrid publication was realised with the expert help and guidance of Open Source Publishing, the benevolent dictatorship of Aymeric Mansoux, the publishing midwifery of Clara Balaguer and Amy Suo Wu, and the endless magic spun by Leslie Robbins.

Our deepest thanks to XPUB staff, to editors and invited guests from Special Issues, who have shaped our practices and continue to inspire us.

Course Director XPUB
Aymeric Mansoux

Administration
Leslie Robbins

Tutors
Clara Balaguer, André Castro, Michael Murtaugh, Amy Suo Wu

Thesis supervisors
Steve Rushton, Marloes de Valk

Project supervisors
Clara Balaguer, André Castro, Aymeric Mansoux, Michael Murtaugh, Amy Suo Wu

External examiner 2020
Marina Otero Vezier

Research, editing and production
Simon Browne, Tancredi Di Giovanni, Paloma García, Rita Graça, Artemis Gryllaki, Pedro Sá Couto, Biyi Wen, Bohye Woo, OSP

Graphic design
OSP (Open Source Publishing)

Publisher
XPUB, Rotterdam, 2020

Typefaces
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Postal Address
Piet Zwart Institute
Master of Arts in Fine Art and Design
Experimental Publishing
P.O. Box 1272
3000 BG Rotterdam
The Netherlands

Visiting address
Wijnhaven 61
4th floor
3011 WJ Rotterdam
The Netherlands