

1.1 1

1.2

1.3

1.4

This copy belongs to:

9

4.1 4  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7

5.1 5  
5.2 Compiling Edge Effects  
5.3 Notes on Publishing Ecologies  
Bachelor Thesis  
Kim Kleinert

6.1 6  
6.2

7.1 7  
7.2  
7.3  
7.4  
7.5  
7.6

8

3.4

3.3

3.2

3.1

3

Klasse Digitale Grafik  
Hamburg 2023

10

Supervised by Christoph Knoth,  
Konrad Renner, Hanne Loreck

2.2

2.1

2

2.3

- 1 From Above 8-14
  - 1.1 Situated Knowledges
  - 1.2 Concealing
  - 1.3 Of Oceans and Land
  - 1.4 Netstalgia

9 76-89

- 4 Necessary Strangers 31-47
  - 4.1 Publics
  - 4.2 Counterpublics
  - 4.3 Urgency
  - 4.4 Community
  - 4.5 Resistance
  - 4.6 Publishing in Webs
  - 4.7 Troubles in Webs

- 5 Facing Between 47-55
  - 5.1 Human Machine Interfaces
  - 5.2 GUI
  - 5.3 Contact Zones

- 6 API 55-59
  - 6.1 Characteristics
  - 6.2 Beyond Conversation

- 7 World Wild Webs 59-71
  - 7.1 Responsive Web
  - 7.2 Internal
  - 7.3 Time
  - 7.4 Geolocation
  - 7.5 Weather
  - 7.6 Various Resources

- 3 Situated Technologies 21-30
  - 3.1 The Manifesto
  - 3.2 FS-SF
  - 3.3 Minor Tech
  - 3.4 Relational Technologies

8 71-75

- 2 Grounding Infrastructures 14-21
  - 2.1 Self Hosting
  - 2.2 Interdependencies
  - 2.3 Affective Infrastructures

10 90-97



Maybe the end and the beginning is an encounter.<sup>(1)</sup>

What do a footnote, a cursor, a spider and a pigeon have in common? Their livelihoods attune to the polyphonic practices of publishing ecologies, of contamination and conviviality.

Ecology is the study of relationships among living organisms including humans and their physical environment (non-living organisms). Natural sciences came up with different levels and scopes of organization, such as habitat, community ecology or food webs, that reach from micro degrees to planetary scales, but all establish the same point: an ecology, is not just a list of living organisms; it's the set of relationships between those living (and non living) things.

Turning to practices of publishing, this means a digital publication cannot be understood as a mere compilation of texts, but rather a set of relationships between software, hardware, corporations, human and non-human beings. Therefore, these perspectives would fail to solely focus on ideas of circulation, reading experiences or authorship when thinking about digital publishing. Rather I want to open up a space for its intertwined related practices and conditions of making: the creation of knowledge here is as important as digital infrastructures, facilitating these encounters and forcing collaboration as work across difference.

Cyberfeminist thoughts around organisms and machines have significantly shaped perceptions of overall technology since the late 20th century and ideas of inseparability of the body, machines and their productive processes were formulated: as nothing can exist outside of technology, technology itself is always permeated by the conditions of its origination.<sup>(2)</sup> With „Agential Realism“ (9) Karen Barad proposes an idea to think with, that similarly sees the object of research as always interdependent and entwined with its emergent processes and with the ways we research it.<sup>(3)</sup>

New materialist theories enhance initial cyberfeminist questions of „what role do technologies play in our subjectification?“ through „what role do they play in restructuring our relationships with human and non-human beings?“ For the following text, these questions build an initial framework and possibility to think with technology, cyberfeminist approaches and notions of ecology at once.

(1) maybe.press

(2) Solfrank, Cornelia "The Beautiful Warriors: Technofeminist Praxis in the Twenty-First Century", Preface, P. 8

(3) Sauzet, Sofie "Phenomena – Agential Realism" new Materialism [Blog] 2018

Queering powerful dichotomies are the workings of discourses such as new materialism or queer deconstruction. The matrix-, and informatics of domination paradigms are only two of myriad attempts to grasp these dichotomies and their deep-rooted discriminating mechanisms. Informatics of domination are relevant to this text, not only in their historical (Cyberfeminist) or philosophical (New Materialist) context. Publishing is always also a practice of producing knowledge, of shaping worlds, realities, of coding, to speak with Haraway, which we can not consider apart from its dominating influences.

A core issue of the new materialist approach is formulated with „the agency of things“, the crucial effects of material, which environ and constitute human beings in their material reality. With that, „matter“ is increasingly seen as vibrant, artifactual and relational.<sup>(4)</sup> They (a multiplicity of matter: plants, viruses, storms, pharmaceuticals and other technological artefacts,...) make their presence known to us, or, one could say, make “calls” to which we are continually responding.<sup>(5)</sup> I will circle back to these and other forms of „calls“ later when delving into application programming interfaces (6).

The agency of things, described above, is not understood as individual property, rather we recognize agency in different forms as relations, movements, repetitions, structures, feelings or words.<sup>(6)</sup> Within the concept of Agential Realism, these dynamic interplays between the different agencies of things, are considered formative to what we perceive as real.

Anna Tsing notes that, for humanists, assumptions of progressive human mastery have encouraged a view of nature as a romantic space of pureness, passive inertness and anti-modernity. As have animal societies been extensively employed in rationalization and naturalization of the oppressive orders of domination in the human body politics.<sup>(7)</sup> New developments in ecology make it possible to think quite differently. Current scientific research and an ecologization of thinking (9) introduce cross-species interactions and disturbance histories. But still, it is harder to notice relations, that do not fit our metaphors<sup>(8)</sup>, with what I want to say, that breaking gridlocked assumptions about nature, hierarchies and technology in order to seek for radical different ideas, might seem bumpy, awkward and complicated in its beginnings.

(4) Cf. Grusin, *The Nonhuman Turn*. in *TECHNO-ECOFEMINISM Non-human Sensations in Technoplanetary Layers*, Yvonne Volkart, P. 122

(5) Bennett, *Dynamische Materie und Zero Landscape*, p. 20; Bennett, *„Vibrant Matter – Zero Landscape,“* p. 19

(6) Barad, Karen. (2003). *Posthuman Performativity: Toward an understanding of How Matter Comes to Matter*

(7) Haraway, Donna „Simians, cyborgs and women: the re-invention of nature“, *Introduction*, 1991, ISBN 978-0415903875

(8) Hejnal, Andreas „Ladders, Trees, Complexity and other Metaphors in evolutionary thinking“ in *Arts of living on a damaged planet- Ghosts and Monsters of the Anthropocene* (p.Ghosts 87– Ghosts 102)

In the following, I want to think with histories of cross-species interactions and disturbance when inspecting clouds, infrastructures, practices of resistance and contact zones. A formative part of this text will be shaped through speculative encounters with living and non-living beings: A racing pigeon, an elderly footnote, a nostalgic cursor, busy *Ectomycorhizza* (EcM) and a networking spider will be my companions in this worlding intention. I want to take some of these strangely situated perspectives into account, that come along with and co-shape this story. The requested states of matter will be published in their original electronic mail form and inhabit the text as just another practice of knowing and being.

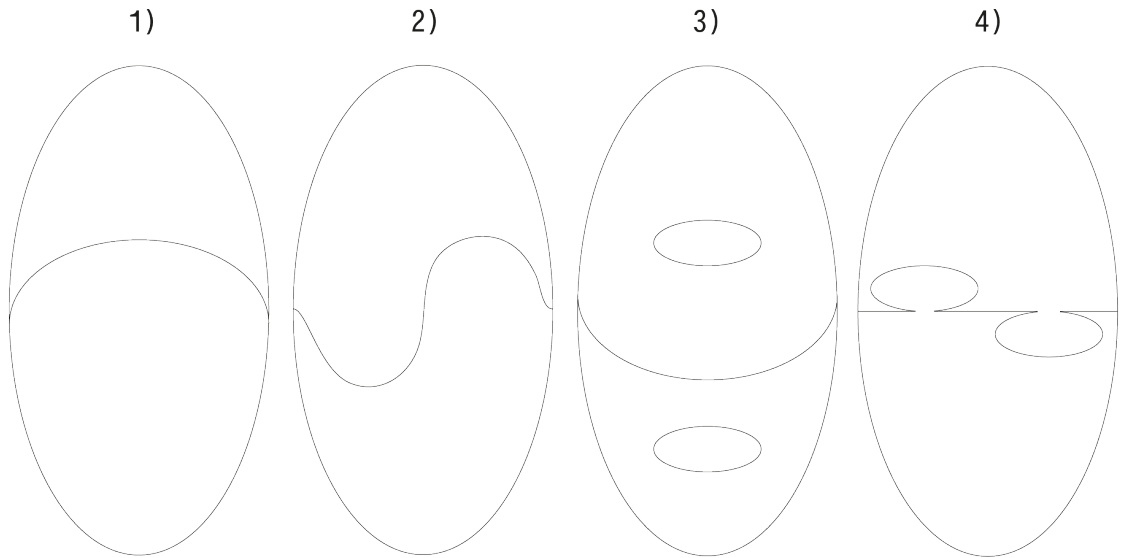
This text will start from above, where apparently the internet is located in its aim not to be at all, where knowledge is created in an attempt not to be seen but seeing. I will continue in and on the grounds, working my way through and upon fundamentals and infrastructures to establish a framework for everything that will follow after and lives in-between: (counter) publishing practices, species interfaces, dynamically interacting systems of organisms, the communities they make-up, and the non-living components of their environment. I will end this text with a close inspection of the world wild webs, which spin their threads across organisms and machines, eventually indicating cross-species interdependencies all the way down.

Thinking the here posed sections and subsections not as bound entities, but as contact zones, with their performative qualities, (feminist servers, affective infrastructures, interfaces and publics) they all come into being when energy is directed toward them.

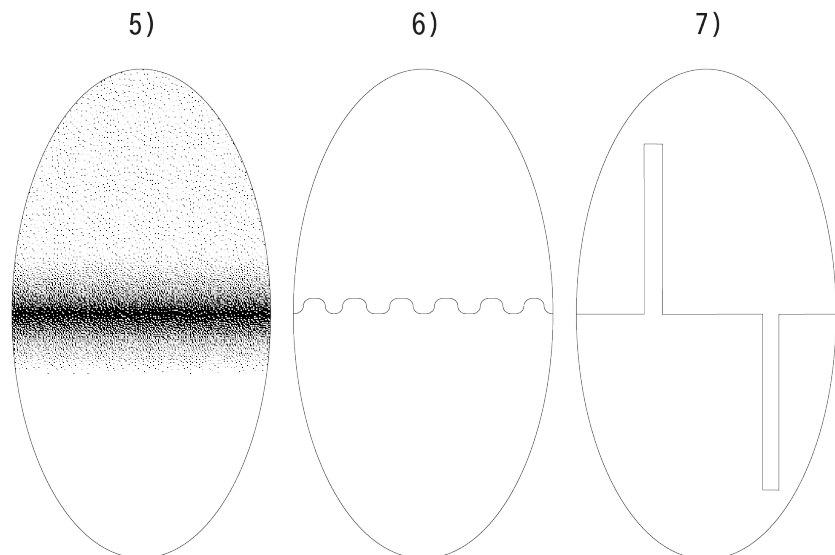
Ecotones are the zones of encounter or transition areas between two (or more) biological communities. The influences of the two bordering communities on each other, their boundary conditions, are known as "edge effects". Ecotonal areas have higher densities of organisms and a greater variety of species than their single communities, these zones are always being assembled and disassembled with friction and difficulty. Ecologies in here are in tense action: struggle, invasion, survival, overlap, dependency, constantly contaminate and transform. This is what this text will be about: ecotones of publishing, of resistance, of webs, technologies and myriad sharing organisms.

In the following I will build, retrace and examine these contact zones where high encounter rates are at stake and interdependencies create livelihoods.

In this patchy walk, or hop, crawl, flight, roll, or scroll through ecotones I want to reconfigure understandings of matter, internet and technology and with that open up spaces for coexistence.



1) and 2) show simple Ecotones with equal and homogenous surfaces. 3) shows and inclusion of each medium in the other, creating multiple ecotones, which are shown in a more complex form in figure 4).



5) shows a common interpenetration of media (such as that found at the edge of a forest). 6) shows edges of forests or banks, treated in such a way as to lengthen the the ecotone considerably without excessively modifying the environment. 7) shows an ecotone that could have been formed by an animal modifying its environment.

1 Above, for me, posed an interesting point to start writing this text. Although, in the end I didn't know whether it would be the beginning. Above is the cloud, the intangible, opaque, the invisible, god like, the unnamed.

It is the name of the cloud that inherently veils what it describes, which you could call network infrastructure, or maybe just someone else's computer.<sup>(9)</sup>

It is the cloud that resembles the everywhere and because of that, nowhere specific. It is how internet infrastructures are commonly referred to and understood as today, but also covers the unmarked positions taken by those, whose god-like gaze sees and conquers everything from nowhere. With that, above is also where (scientific) knowledge is created in its aim for non locatable universal truths.

### 1.1 Situated Knowledges

All Knowledge is local, all truth is partial.<sup>(10)</sup>

In "Situated Knowledges: the Science Question in Feminism and the Privilege of Partial Perspective" Donna Haraway<sup>(11)</sup> tackles notions of (scientific) objectivity from a feminist, post-humanist perspective and further proposes a doctrine of embodied objectivity that accommodates paradoxical and critical feminist science projects: Feminist objectivity means quite simply situated knowledges.<sup>(12)</sup>

In her on hand text, Haraway uses the sensory system of vision as both: a metaphor and idea to think with, as well as an actual embodied, instrumentalized apparatus, that has been used to "distance the knowing subject from everybody and everything".<sup>(13)</sup> Performing the "God-trick", striving for unrestricted power<sup>(14)</sup>, visual systems have been used to create doctrines of disembodiment, sheltering the unmarked, allowing them to see while not being seen, to "represent, while escaping representation".<sup>(15)</sup> In turning around the "God-trick", Haraway concludes that on a feminist account, only partial perspective promises objective vision: Feminist objectivity is about limited location and situated knowledge, not about transcendence and subject-object dualities.<sup>(16)</sup>

(9) Engelhardt, Lukas. (2022). Squatting: New Dependencies. [Blog] Institute of Network Cultures.

(10) K. Le Guin, Ursula "A Man of the People", P. 140 Four Ways to Forgiveness (1995)

(11) American Professor Emerita and scholar in the fields of feminist science and technology studies

(12) Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies*, vol. 14, no. 3, 1988, P. 575-599

(13) *ibid.* P. 581

(14) Notions of vision, viewpoints, eyes, and seeing have been closely tied to militarism, capitalism, colonialism and male supremacy and dominated ideas of knowledge production since Platos parable of the cave.

(15) Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." P. 581

(16) *ibid.* P. 583

The opportunity of “limitless vision”(9) through modern technology, often presented as a fully transparent process, has to be considered as an active perceptual system which builds on translation, chosen framing and specific ways of seeing. But not only is the way of seeing considered an active one, situated knowledges require the object of knowledge to be understood as actor and agent, not as mere screen or resource. That matter is regarded with an agency on its own, it’s a concept that I already mentioned within Karen Barads “Agential Realism”. It’s also why situated knowledge does not depend on logics of discovery but rather on relations of conversation.

1

In the following, I want to take these declared and undeclared agencies into account: user, matter, programmer, reader, actors in a situated ecology.

Date: Mon, 31 July 2023 17:58

From: kim-digitale.grafik@web.de

To: pigeonracer@web.de

subject: a note about perspective

Dear Pigeon,

hope I am not interrupting your training process for the next race too much with this sudden inquiry.

Lately I have been thinking a lot about vision, it’s always inherent perspective and how that creates a sense of objectivity in the production of knowledge. Also there is this thought to trust especially the subjugated in their located, always marked point of view<sup>(17)</sup> (I don’t want to discriminate against you with this categorization, but know that your and your urban companions’ relationship to humans is quite entangled and ambivalent in terms of appreciation). I don’t want to romanticize your position with this request but am interested in your perspectives because you might hardly fall for doctrines of objectivity or what we call it: the god-trick.

Now I know you are flying a lot these days, so I thought you might be able to help me out to understand more deeply, with a note about your view from above and maybe also about your admirable abilities in orientation?

warmly,

Kim

(17) Haraway, Donna, The science question in feminism and the privilege of partial perspective, 583-584

Date: Tue, 1 Aug 2023<sup>1</sup> 06:32

From: pigeonracer@web.de

To: kim-digitale.grafik@web.de

Subject: re: a note about perspective: It has gotten cloudy

Hi Kim,

You really did catch me in the middle of a session (those long-distance flights really are no walk in the park), but gotta take some breaks anyway so here's my small report: I mean, we have been close companions to humans since a long time, in fact we were one of the first domesticated bird species, they facilitated our population all around the world and are closely entangled in colonial histories, class, gender and race relations. In a long tradition, I myself am a racing pigeon and no stranger to alliances with working class people in relation of competitive male dominated sports and their profound cross species affection.<sup>(18)</sup> <sup>(19)</sup>

Some of my brothers and sisters went for feral again a while ago, living on the grounds of the urban environments, where they are commonly despised as parasites or pests. (I could never imagine living down there myself.)

When I am en route I get to see a lot, but only from afar: we mostly use familiar landmarks for orientation and are good at recognizing and estimating masses below during our flight. But it has gotten more cloudy recently, concealing what is going on down there, making it much harder to navigate. These clouds, I feel, are either consistent with huge amounts of polluted air or weather phenomena, that seem to last longer, accumulating over one area, producing heavy rains, limiting my vision.<sup>(20)</sup>

When the sky is clear for a while and I can catch a glimpse, clusters of buildings spring up like mushrooms, in highly isolated

<sup>(18)</sup> Haraway, Donna, *Staying with the Trouble*, P. 21

<sup>(19)</sup> Karla Krey started an elaborate material collection on this close relationship "Dudes with Doves" is Available on [Are.na](#)

<sup>(20)</sup> Humans affect the amount and occurring type of clouds and clouds affect climates in terms of heat reflection and rain. "Clouds need aerosols to form. There are always these micrometre-sized particles – which are smaller than the thickness of a human hair – floating around in the air. A lot are in the air naturally, like sea salt that is blown off the oceans and dust from the Sahara Desert. But some come from anthropogenic sources. Combustion is a main source of these human-produced aerosols – black carbon, or soot, for example, and sulphur dioxide, which comes mainly from power plants in Europe. Nitrogen oxides from car exhausts are another major source in Europe. The more aerosols there are in the air, the more reflective the clouds become as they are composed of more but smaller water droplets." Clouds can have warming effects on the local climate but also sometimes cooling effects—it all depends on the type of cloud, the local climate and a variety of other conditions.

environments, disrupting formerly crucial<sup>1</sup> ecological relations that would prevent any kind of contamination.<sup>(21)</sup> (couldn't get down there to explore yet, lots of fences)

Luckily enough I also have olfactory senses of navigating that I can rely on when my vision gets obscure again. But I am worried about my urban comrades and about you! If only you too had the map sense to navigate in the troubled times and places.<sup>(22)</sup>

with love and worry,

Pigeon

## 1.2 Concealing

Returning to the above cloud, it deeply influences our understanding of the internet in the age of mobile devices and 5G. The clouds concept is one of the not knowing user: "In network diagrams the cloud is traditionally used to denote parts of the network that we have no control over or have no concrete knowledge about. It's the part beyond the blinking lights of our router, it's internet". Alluding to the uncertainty of what's out there, the cloud is something we don't understand by definition.<sup>(23)</sup> The notion of the cloud is a manipulative, exploitative, male supremacist and colonialist one. In his Essay "Squatting, New Dependencies" Lukas Engelhardt assembled an "Incomplete and Unordered List of Reasons to Refuse The Cloud"<sup>(24)</sup>

Workers in the Global South are being exploited and our devices are assembled by modern day slaves.<sup>(25)</sup>

Rare metals like cobalt, essential for lithium batteries, are [extracted under horrible conditions and, among others, by children.<sup>(26)</sup> <sup>(27)</sup>

E-Waste is polluting the planet and is being dumped in landfills without regulations in the global south, poisoning both the lands and the people.<sup>(28)</sup>

Social media companies profit from radicalization, and a divided political landscape, fake news, disconnected filter bubbles and rabbit holes are not by-products but part of the product.<sup>(29)</sup>

It's addictive on purpose.<sup>(30)</sup> At places like the Stanford Persuasive Technology Lab people have been trained to specifically find ways of persuading users to change their behavior through digital stimuli like rewards.

(21) A note from the editor: What pigeon describes here are Server Farms, collections of computer servers, usually maintained by an organization to supply server functionality far beyond the capability of a single machine. Increasing demand leads to so called Hyperscale Data Centers, like the ones that former Facebook „Meta“ heavily relies on

(22) Haraway, Donna, *Staying with the Trouble*, (29)

(23) Engelhardt, Lukas. (2022). *Squatting: New Dependencies*. [Blog] Institute of Network Cultures.

(24) Those are only a few of many more stated cases, the full list can be read within the article

(25) Kastrenakes, Jakob "Apple Suppliers linked to Uyghur forced Labor in new report", *The Verge*

(26) Axbom, Per "The Slavery supported by that Device in your Pocket" *Ethical.net*

(27) Amnesty International "This is what we die for" 2016

(28) Gribkoff, Elizabeth "Consumers Will Throw Away 63.3 Million Tons of Electronic Waste This Year. Where Will It Go?"

(29) Kari, Paul; Anguiano, Dani "Facebook crisis grows as new whistleblower and leaked documents emerge" *The Guardian*

(30) *Persuasion Through Mobile Devices and Operant Conditioning via Interactive Technology*, Media at Standfort University

### 1.3 Of Oceans and Land

Thinking of early internet structures, it was not always as cloudy as it seems today: before the cloud was a cloud, it was an ocean. We know this, because it could be surfed.<sup>(31)</sup> With becoming commercially available and resulting radical programmer-user distinctions, the internet and its' infrastructure rose above us, turning into an intangible environment, that we can, other than the ocean, neither touch, nor move through while keeping our full visual capabilities. In the 1980s and 90s, when the internet was still an off-space, the notion of surfing the internet evoked the fun of the web, the skill required to navigate through, as well as its fluidity and random character.

In "The Internet's back to the land movement" web designer Becca Abbe describes a slowly evolving movement of users away from the cloud<sup>(32)</sup>: the cloud is more of a marketing buzzword than an accurate description of file storage. Though it may not be on your hard drive, all information must be saved physically somewhere on the network.<sup>(33)</sup> Building upon use-cases like the Low-Tech Magazine<sup>(34)</sup>, Abbe pleads for an increased awareness of users' direct (virtual) environments.

Moving off the grid in a digital sense might mean opting out of mainstream internet providers to connect through independent mesh networks, or hosting content on local computers distributed across a peer to peer web.<sup>(35)</sup>

Just as Donna Haraway proposes situated knowledges to conquer the dualist, white, male supremacist gaze, the "objective" god-trick, resisting the cloud can be possible through localized and environmentally conscious ways of browsing<sup>(36)</sup> and the building of own server-, and infrastructures. Two existing approaches to that might be permacomputing and solarpunk (9), but both still stick rather close to environmental and climate issues, meandering through already trodden paths and troubles. After stating some critique points, in the upcoming sections I want to take closer looks at ideas that fall beyond or squeeze within the margins of classifications.

### 1.4 Netstalgia

The Internet's back to the land as well as other mentioned cloud resistance movements carry a risk of being read as unreflected early internet sentiment or even techno fatalist mindsets. What Silvio Lorusso describes as netstalgia<sup>(37)</sup>, is a longing back for bulky computers, low-res content, structural clarity and closer networks. Proving this tendency he refers to the abundance of growing networks like „neocities“<sup>(38)</sup>, platforms like „brutalist web-

(31) Engelhardt, L. (2022). Squatting: New Dependencies. [Blog] Institute of Network Cultures.

(32) that she puts in reference to the 1960s counter cultural movements away from the cities in the US, that in itself heavily influenced the early beginnings of Silicon Valley's tech world.

(33) Abbe, Becca. (2019). The Internet's Back-to-the-Land Movement. [Blog] Are.na Case Study.

(34) Low tech Magazine is a solar powered, self hosted Website run on a single board computer. Available at <https://solar.lowtechmagazine.com/>

(35) Abbe, Becca. The Internet's Back-to-the-Land Movement

(36) With that I don't mean environmentally conscious in the solely climate change way but rather a way of being aware of your digital and physical surroundings and their various interrelated (non)living organisms.

(37) Lorusso, Silvio „The User Condition: Computer Agency and behavior“

(38) <https://neocities.org/> is a social network that offers free static web hosting to bring back creativity and abundance of hand coded websites.

sites<sup>(39)</sup> and gardening metaphors like „field of flowers“<sup>(40)</sup> or „drawing garden“<sup>(41)</sup>. As stated by Lorusso, netstalgia is likely to be misinterpreted as: in order to escape what he calls “misconvenience” and “speedrun mode” (9) one has to return to purely handwritten HTML (HyperText Markup Language) and refuse any form of automation or programming. As a consequence of this misunderstanding friction is glorified, meaning things taking too much time even breaking, being seen as revelation conquering smooth shiny interfaces.

I clearly want to distinguish this text from ideas that romanticize early internet sentiment and from techno fatalist mindsets, short: misread netstalgia. Friction might be an inevitable, even helpful part of user experience but generated artificially it reinforces programmer versus user distinctions rather than enabling more user agency and decreased hierarchies.

This programmer – user dichotomy has mostly been created through the tech industry, that benefits from users that are considered passive and unable. But it's worth pointing out that coders themselves help maintain such class division, getting nervous about automated processes, talking about “real programming”:

Go ahead and tweet ‘HTML is real programming, and watch programmers show up in your mentions to go, ‘As if.’ Except when you write a web page in HTML, you are creating a data model that will be interpreted by the browser. This is what programming is.<sup>(42)</sup>

Doesn't the programmer also use prepackaged, translated snippets of code and language that execute functions? And, why is that different to what the user does when they click buttons, rename folders or move the mouse? Just as the programmers code, these actions translate into text-based commands or scripts which eventually translate into binary.

With “Always already programming”<sup>(43)</sup> Melanie Hoff formulates a concept out of the aforementioned dynamics, which at the same time encourages people to learn from their existing experience with computers.

The user programs and the programmer uses.<sup>(44)</sup>

Exploring the grounds of technological (and social) infrastructure can (just like learning to code) be daunting. In this sense, the claim of “Always already infrastructuring” offers to rather build upon known, existing support structures which we already interface with every day.<sup>(45)</sup>

(39) <https://brutalistwebsites.com/>

(40) <https://shelby.cool/field-of-flowers/>

(41) <http://drawing.garden/>

(42) Ford, Paul. 2020. “Real’ Programming Is an Elitist Myth.” Wired

(43) Hoff, Melanie „Always already programming”

(44) *ibid.*

(45) Mark A Hernandez Motaghy, Max Fowler and Alice Yuan Zhang „Solidarity Infrastructures”, via Instagram School for Poetic computation

- 1 These concepts of breaking hierarchies in building upon what's already there and valuing different experiences to me seems enabling and agentive, not in a romanticizing but truly curiosity and interdependency raising way.

We have started this section with the inherently veiling condition of the cloud, which is kept up by and for the not knowing user. Continuing with further dichotomous notions that contaminate our understanding of webs and general conditions of making. Next, I will inspect the Host, Server and Client relationships more closely, that facilitate our overall usage of the internet.

Hosting is a loose yet productive term that bridges community tech and conviviality. Hosting with and for others — online or IRL — is a slow and relational practice of (digital) attunement.<sup>(46)</sup>

Hosting (or Web hosting or internet hosting) in computing describes the practice of making a website's content available on the internet. Web hosts are (mostly) companies that provide space on a server which is owned or leased for use by clients. A server is the place and facilitating technology, where a client's website can be stored. On request of a user, the server feeds the web pages to the Internet.<sup>(47)</sup>

In short: A server is a computer that is connected to the internet and serves information to a user's device.

In medical and biological studies the host is defined as a larger organism, that shelters a smaller organism or as an organism that a parasite is situated within.<sup>(48)</sup>

(46) Mark Anthony Hernandez, „The Art of Co-Hosting“ School for Poetic Computation [Blog] Spring 2023

(47) „Web Hosting service“ Self hosting manual

(48) „Host“ Biology Online

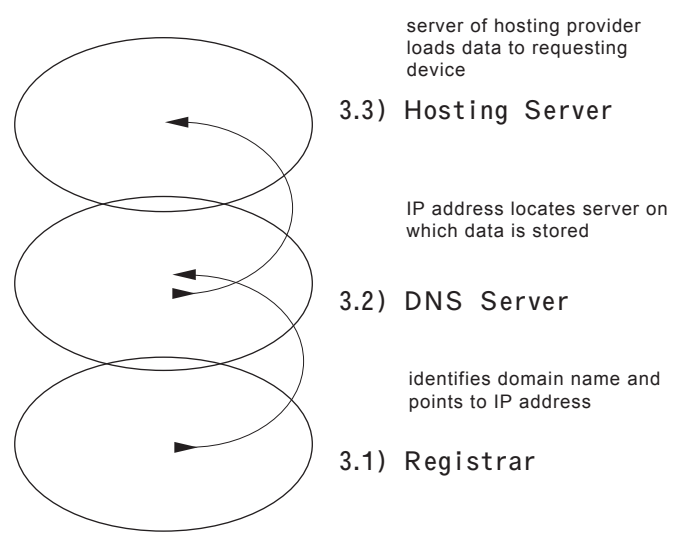
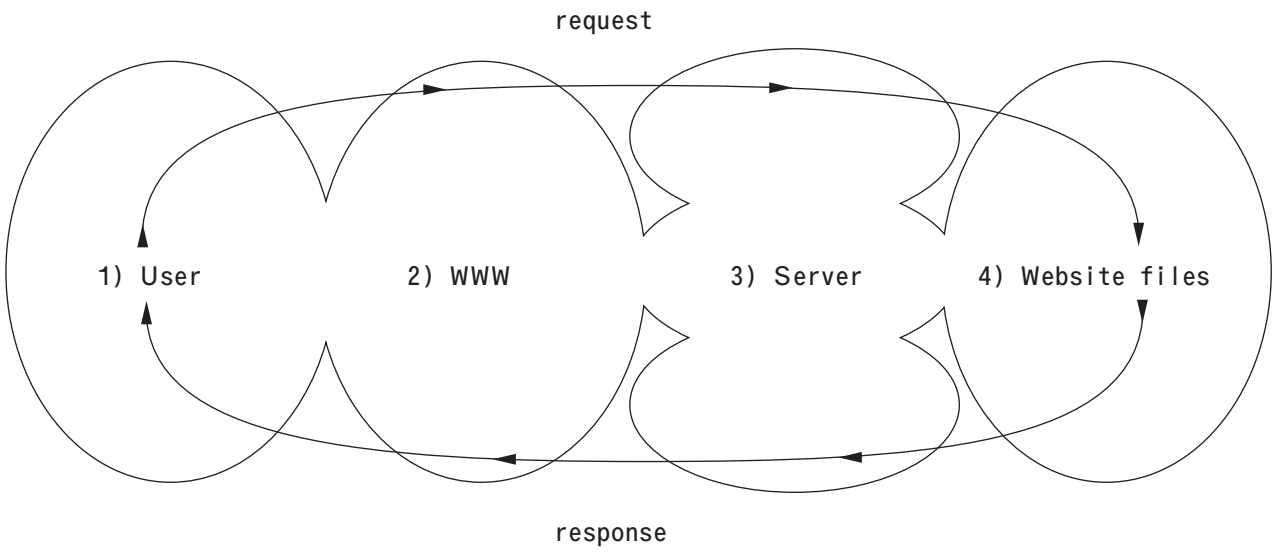


Figure 2: Webhosting

## 2.1 Self Hosting

Self hosting forms a counter practice to relying on clouds (1.2) and on big tech company servers: it is setting up your own server. Since almost every computer can function as a small server, it is possible to set up one for your own or community projects. Setting up a server does require some technical know-how, time and effort, but, on the other hand, since you most likely don't need to serve millions of people at the same time, the hardware, software and energy requirements for this can be surprisingly low.<sup>(49)</sup>

The "Self Hosting Manual"<sup>(50)</sup> is a collaborative web to print publication which is "inspired by squatting manuals, texts that have codified and politicized the process of squatting since the 1970s, and that have been openly available to all that are interested".<sup>(51)</sup> Setting up your own server here is perceived as a political act and closely related to the action of squatting a house, a place for living or working. (9) With this squatting metaphor, the manual inherently conquers any assumption of immateriality and acknowledges Servers as physically located in our world.

Benefits of self hosting include gaining back control over data, minimizing the users ecological footprint by lowering energy usage and recycling old hardware and building a digital infrastructure that can adapt with specific needs as well as enabling planning for longevity usage.

Of course self-hosting also comes with certain challenges, which are mostly about personal time and energy resources. Self hosting means maintenance, as software has to be updated, hardware might need to be exchanged and the risks are high of accidentally deleting or breaking something. I will take a closer look upon maintenance, groundworks and infrastructures while introducing the concept of "Affective Infrastructure" and when addressing Feminist Servers.

Date: Aug 7 2023 10:07

to: e.mycorrhiza@net.de

from: kim-digitale.grafik@web.de

subject: multitude relation in troubled times

hi,

couldn't find you the other day in the wet asphalt grounds of this big city so here I am writing to you, knowing of your excellent relation to the fungi and plant worlds. This is also what this query is about: relationship and interdependencies.

I feel, there is a lack of understanding and interest in interspecies kin (besides those marked as predator-prey relations). Mutualis-

(49) „Hosting Yourself“ Self hosting manual

(50) Engelhardt, Lukas; Bille, Paul and Reinthal, Ada as part of the Digital Shadows Exhibition

(51) „About this site“ Self hosting manual

tic ones were seen as nice but irrelevant until recently. The story of species creating and sustaining themselves is closely entangled with the history of technological and capital scalability, or as Anna Tsing put it: „Self replicating things are models of the kind of nature that technical proficiency can control, they are modern things“.

<sup>(52)</sup> Please correct me if I'm wrong, but I guess multitudes of interdependency just didn't fit the modern thought.

Hence I can only comprehend relations from my own holobiont point of view and am very interested in your non-human multitude's way of experiencing and its importance in life on earth in troubled times, I would love to hear more from the grounds!

keep up the good work,  
kim

Date: Aug 9 2023 17:49

to: kim-digitale.grafik@web.de

from: e.mycorrhiza@net.de

subject: Contamination all the way down

Dear writer,

Sure we can tell you somethin' about interdependencies!

Beginning with taxonomies, we are commonly thought of as plants, but are in fact way closer to animals, as we do not photosynthesize. Most define our relationships (with trees) as simply symbiotic or mutualistic, which we would always get offended by: both are audacious oversimplifications and reproductions of oppressive power structures. As Ectomycorrhiza, a subterranean part of fungi, we are already a multitude of myriad hyphae. We're closely intertwining with the roots of various plant species, while forming an entirely intercellular interface consisting of highly branched hyphae that facilitate the swap of nutrients. Through that we can skim some of the plants carbohydrates (that we can't produce

<sup>(52)</sup> Lowenhaupt Tsing, Anna, Interlude: Tracking in "The Mushroom at the End of the World" P. 140

ourself because we do not photosynthesize). In exchange the plant profits from higher absorptive capacity for water and our abilities of extracellular digestion: we excrete digestive acids outside our bodies to break down soil into nutrients, which are then easier accessible for the roots to extract from the ground. But that's not nearly it. (nothing really is that simple!)

In fact, we are not bound to one specific tree or plant, not even the same species, rather we form networks, which are able to direct nutrients from spare sources to those organisms who are in need. These responsive networks are constantly tracing their direct environment, adjusting to every small shift and through that allow forests to react to threads. It feels great, being a multitude, almost boundless. It's very busy though, as we do communicate all the time (and are not only 'nice', but can get competitive too). Tbh, can't think of the last time we had a quiet moment!

Our relational efforts are not only essential to our but also to most plants' survival and have even been constitutive for the formation of forests in the first place. Only through us it was possible for plants to become terrestrial. And still we are so often mistaken for parasites or mere mutuals! Since the Middle Ordovician period we are crashing linear distinctions of hosting and providing. Contamination all the way down!

from the soil, quietly affiliating,  
EcM

p.s. Anna Tsing is a close comrade of ours, please vocalize her our kindest regards!

## 2.1 Interdependencies

To be is always to become with many.<sup>(53)</sup>

Just as self-hosting crosses hegemonic boundaries of “Host”, “Server” and “Client” roles, the concept of contamination as collaboration<sup>(54)</sup> messes with clear hierarchical distinctions between the host as the larger, the parasite as the smaller organism and questions of who serves, nourishes and disturbs whom in symbiotic relationships.

Everyone carries a history of contamination; purity is not an option.<sup>(55)</sup>

More and more symbiosis appears to be the rule, not the exception[...] Nature may be selecting relationships rather than individuals or genomes.

All development might be codevelopment.<sup>(56)</sup>

Codevelopment is the ability of cells of one species to assist normal construction of the body of another species. We do not develop as monogenomic organisms, instructed only from the DNA or zygote cell. We are holobionts, symbiotic organisms, consisting of numerous, nested microbial assemblages.

Lynn Margulis introduced the term “holobiont” in 1991 in her publication “Symbiosis as a Source of Evolutionary Innovation: Speciation and Morphogenesis”.<sup>(57)</sup> It was later developed into Hologenome theory<sup>(58)</sup> which considers all multicellular organisms, such as humans, plants, animals, as a community or a so called holobiont (holobiont = organism + symbionts). These views into development and co-dependence of organisms challenge scientists’ notion of evolution, individuality of species as much as unselfconscious fantasies of human autonomy and superiority.

In “The Mushroom at the End of the World” Anna Tsing states that we are contaminated through encounter, and that we change within our collaborations, in and across species. She turns to the concept of assemblage<sup>(59) (60)</sup> (9) to break with the often fixed and bounded connotations of ecological communities, like the highly categorized symbiotic relations that I mentioned above.

(53) Haraway, Donna „When Species Meet“ P.4

(54) Tsing, Anna, Lowenhaupt. “Contamination as Collaboration.” In *The Mushroom at the End of the World*

(55) *ibid.* P.27

(56) Scott F. Gilbert, Emily McDonald, Nicole Boyle, Nicholas Buttino, Lin Gyi, Mark Mai, Neelakantan Prakash, and James Robinson, “Symbiosis as a source of selectable epigenetic variation: Taking the heat for the big guy”

(57) Margulis L., Fester R (1991-01-01). *Symbiosis as a Source of Evolutionary Innovation: Speciation and Morphogenesis.*

(58) In 1994 Richard Jefferson, American microbiologist, coined the term hologenome when he introduced the hologenome theory of evolution at a presentation at Cold Spring Harbor Laboratory. Arguing against the notion of the recently discovered microbial diversity in DNA as mere ‘contamination’ but rather as essential components that reflected the actual genetic composition of the organism being studied. Jefferson R

(59) Tsing, Anna, Lowenhaupt. “Arts of noticing” In *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, 17–27

(60) “Assemblage” from the French: “agencement” for “a collection of things which have been gathered together or assembled” Diaz Ruiz, Carlos A.; Penalzoa, Lisa; Holmqvist, Jonas

With saying “Assemblages don’t just gather life ways, they make them”<sup>(61)</sup>, Tsing refers to the assemblages’ performative and poietic (world-building) qualities, which I consider crucial to our further notion of nature, ecologies and infrastructures. Assemblages are open ended gatherings.<sup>(62)</sup>

### 2.3 Affective Infrastructures

Environments (are not passive wrappings, but are, rather, active processes which) are invisible. Their ground rules, pervasive structure, and overall patterns elude easy perception.<sup>(63)</sup>

Rethinking human, technology and species (inter-)dependencies is an approach which is not new, but deeply embedded to (the history of) cyber feminist efforts and discourses.

In „Situated Aesthetics for Relational Critique“ Ines Kleesattel states that the feminist server tries to decolonize master-servant dichotomies<sup>(64)</sup> and that “like all infrastructure, a feminist server is fundamentally and always a relation, not a thing”.<sup>(65)</sup>

Anthropologist Brian Larkin defines infrastructures as “matter that enables the circulation of other matter”.<sup>(66)</sup> Shadow Libraries for example enable circulation of texts. The circulation of digital commons builds upon digital infrastructures. All kinds of infrastructures involve service, maintenance, care labor and materialities which are situated in space and time.

As hiding behind its own functionality is an inherent core character of all infrastructure<sup>(67)</sup>, it is taken for granted by most people (more specifically: those who never had to be involved), or is only perceived when it stops working. Regarding these dynamics, infrastructures can be understood as a concern of feminist aesthetics as they generally, tend to be associated with power(struggles), authority, and privileges of access. Further they stress the need for new gatherings of association and resistance.

Cultural and queer theorist Lauren Berlant introduces the concept of “affective infrastructures” which are able to accommodate multiplicity and difference and allow us to be with each other in common, moving beyond relations of sovereignty.<sup>(68)</sup>

Feminist servers become key affective infrastructures, in terms that they organize the relations that form around them. As I have discussed above, servers are not neutral, they operate in hierarchical and highly compartmentalized relations. These dynamics are to a great extent informed by the concept of “service”, which is tightly entangled with invisible, feminized and racialized care

(61) Tsing, Anna, Lowenhaupt. “Arts of noticing” P 23

(62) *ibid.*

(63) McLuhan, Marshall “Understanding Media: The Extensions Of Man”, 1964, p. 8

(64) Kleesattel, Ines. “Situating Aesthetics for Relational Critique: On Messy Entanglements from Maintenance Art to Feminist Server Art.” (181-199) In: *Aesthetics of the Commons*

(65) *ibid.*

(66) Larkin, Brian “Politics and Poetics of Infrastructure”, *Annual Review of Anthropology*

(67) Susan Leigh Star (mentioned in Niederberger, Shusha. *Feminist Server – Sichtbarkeit und Funktionalität: Digitale Infrastruktur als gemeinschaftliches Projekt*. Springerin

(68) Lauren Berlant, “The commons: Infrastructures for Troubling Times,” in *Environment and Planning D: Society and Space*

labor, environmental damage and commercial exchange. These connections are often overlooked, even purposefully ignored. In regarding their realm as purely digital/virtual and with that neither physical nor “real”/existent (1.2).

There is a need for a new understanding of technology, that Femke Snelting together with Constant<sup>(69)</sup> formulates as “being embedded in practices of maintenance, of care, of resources and of shorter and longer time frames”.<sup>(70)</sup> The unveiling of infrastructuring labor opens up chances in building (digital) safe(r) spaces inwards and challenging the cultural sectors to consider accessibility, ecology, maintenance and transparency outwards.

These concepts, framed as affective infrastructures, stress the work with feminist servers, which function as both: tools to think with and physical, situated objects.<sup>(71)</sup> I don’t mean the mentioned ideas of infrastructures, feminist servers or new understandings of technology to be operating separately from each other, nor did they appear in a timely linear manner. Rather they constitute some of the core principles of (cyber) feminist resistance, evolving closely entangled on and within each other.

### 3.Situated Technologies: Feminist servers

Within conflicts and heterogeneities the feminist server processes new material-semiotic modes of thinking and doing infrastructures differently.  
<sup>(72)</sup>

#### 3.1 The Manifesto

The feminist server manifesto is a fragmented, constantly evolving and collectively written statement. As far as I could retrace its snippets, the first formulations were proposed by Femke Snelting at the Feminist Server Summit in 2013.<sup>(73)</sup> In building upon the manifestos declarations and their closer inspection, I will try to lay out some of the feminist servers core ideas and practices as well as follow its tentacles, investigating related theories.

The first declaration already contains two notable terms, which

3

(69) Constant is a non-profit organisation based in Brussels since 1997 and active in the fields of art, media and technology. „About“

(70) Kleesattel, Ines. Situated Aesthetics for Relational Critique: On Messy Entanglements from Maintenance Art to Feminist Server Art. (181-199) In: Aesthetics of the Commons

(71) Femke Snelting with Spideralex interviewed by Cornelia Sollfrank, “Forms of On-goingness”

(72) Toupin, Sophie; Spideralex, „Radical Feminist Storytelling and Speculative Fiction: Creating new worlds by reimagining hacking“ Ada New Media, Issue no 13

(73) The feminist Server Summit Are you being served? was hosted by Constant in Brussels and was dedicated to „a Feminist review of mesh, cloud, autonomous, and DIY servers“. Are you being served?, Introduction

we have shortly addressed before: “situated”(1) and “ecology”(0). “A feminist server is a situated technology. She/They has a sense of context and considers herself to be part of an ecology of practices.”

With the concept of Situated Knowledges, Donna Haraway opposes ideals of neutrality and universality and thereby argues for a feminist science practice which requires the object of knowledge to be considered as partial, located actor and agent.<sup>(74)</sup> Location is about vulnerability, as it resists politics of closure.

“Ecology” is the study of relationships among living organisms, including humans and their abiotic environment, here underlining the important understanding feminist servers as materially existing affective objects. This condition is also clarified in the third declaration of the manifesto: “A feminist server builds on the materiality of software, hardware and the bodies gathered around it;”.

### 3.2 SF-FS

Reducing feminist servers to their located materiality would be a shallow oversimplification of the whole concept itself. At least as important are “[...] the bodies gathered around it;” further elaborated in the seventh declaration of the manifesto:

„A feminist server knows that networking is actually an awkward, promiscuous and parasitic practice.“

Also described as an interrelated character of the feminist server (FS), which is more than just located hard-, or software, this concept can be better read and grasped with Donna Haraway’s wording: the FS is SF.

SF is science fiction, speculative fabulation, string figures, speculative feminism, science fact, so far. [...] Science fact and speculative fabulation need each other, and both need speculative feminism. [...] SF is a method of tracing, of following a thread in the dark, in a dangerous true tale of adventure, (... it is) passing on and receiving, making and unmaking, picking up threads and dropping them. SF is practice and process; it is becoming-with each other in surprising re-lays.<sup>(75)</sup>

(74) Haraway, Donna. “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” P. 529

(75) Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* P. 3.

The world building with speculative fabulations are a way to re-imagine entanglements of technology and infrastructure that shape our world and at the same time can expose those (technologies and infrastructures) that have advanced (neo)colonial and environmentally harmful processes.<sup>(76)</sup> Doing speculatively, as Sophie Toupin and Spideralex introduce in “Radical Feminist Storytelling and Speculative Fiction” attempts to de-privilege and de-glorify science and technology, dismantle associations of human and (non-human) technology, make visible and value other types of assemblages with the non-human, with land, animals and plants.<sup>(77)</sup>

The Feminist Server(s) practice(s) infrastructuring within the more-than-human ecologies of a commonly but unequally shared world.<sup>(78)</sup>

### 3.3 Minor Tech

A Feminist server treats network technology as part of a social reality;

Feminist Server initiatives orient themselves toward a „minor technology“. This concept results from a problem with scale<sup>(79)</sup> (2), that, in technological fields, appear as the domination of Big-Tech companies, that create large amounts of data, ensuing environmental damage and installing hierarchical dynamics.<sup>(80)</sup> Questioning ideals of technical scalability lies at the core of the minor tech concept.

A characteristic of minor technology is that everything in them is politics.

A minor technology produces active solidarity.

A minor technology is an intensive utilization of technology – it utilizes the inner tensions of technology.<sup>(81)</sup>

(76) Such as stealing and erasing of indigenous scientific knowledges and techniques, oppression of liberation struggles, and appropriation and demolition of vital habitats for human, non-human and non-living beings.

(77) Toupin, Sophie; Spideralex. Introduction: Radical Feminist Storytelling and Speculative Fiction: Creating new worlds by re-imagining hacking - Ada New Media,

(78) Kleesattel P 197

(79) “There is a problem with scale.” As Anna L. Tsing puts it in “The Mushroom at the end of the world”, referring to modernized master narratives, organizing life on increasingly globalized and capitalized levels.

(80) Toward a Minor Tech, A Peer-reviewed Newspaper, Introduction Andersen, Christian Ulrik; Cox, Geoff. Volume 12, 80 Issue 1

(81) *ibid.*

“A Feminist server does not strive for seamlessness. Talk of transparency too often signals that something is being made invisible;” Resisting both: the notion of the cloud (1), which conceals and blurs processes as well as the aim for seamlessness, as it is a state that veils crucial conditions.

“She/They avoids efficiency, ease-of-use, scalability and immediacy because they can be traps;”

The user is a discursive formation aimed at articulating the relationship between humans and machines<sup>(82)</sup> but, as Silvio Lorusso states in “The User Condition”, this term is considered too narrow, as interaction does not only include forms of use, but also forms of non-use, such as withdrawal, disinterest, boycott and resistance.<sup>(83)</sup> As the users commonly operate in (browser based) digital publics, I want to circle back to forms of resistance and urgency when looking closer at publics in “Necessary strangers”.

Lorusso contextualizes the notion of the user (i.e. the person who operates a computer) as a clearly reductive one.<sup>(84)</sup> Further, he discusses the users loss of agency and over all computer knowledge. On one hand, “simple things should be simple, complex things should be possible”<sup>(85)</sup> and on the other: is it better for users to leave in depth things to specialists?<sup>(86)</sup>

Minor tech, also described as small tech or tech that operates at human scale, rethinks technical scalability, efficiency and user agency. It „stutters in expression and application“<sup>(87)</sup> and prefers peer to peer over server client networks. “A Feminist Server is autonomous in the sense that She/They decides for her own dependencies;” and “She/They wants networks to be mutable and read-write accessible;”

As the feminist server is not only a manifesto or an idea to think with but also a relational practice, now I want look at and engage in some of those collective efforts from a more applied point of view.<sup>(88)</sup>

(82) Satchell, Christine, Paul Dourish. “Beyond the User: Use and Non-Use in HCI.”

(83) Lorusso, Silvio „The User Condition: Computer Agency and Behavior“ V. 1.0

(84) *ibid.*

(85) Kay, Alan. “User Interface: A Personal View.” In *The Art of Human-Computer Interface Design*

(86) Graham, Paul. 2001. “The Other Road Ahead” (blog)

(87) *Toward a Minor Tech, A Peer-reviewed Newspaper*, Introduction Andersen, Christian Ulrik; Cox, Geoff

(88) Although theory and practice both don't fit their epistemological frameworks here and are hardly separable when working with Feminist Servers. Maybe it's better to frame the „Theoretical“ as a non-physical (still relational!) and the „practical“ as physical, as object of materiality. The later is the one I'd like to consider in the following chapter.

### 3.4 Relational Practices

Constant:

Constant is a non-profit organization based in Brussels. They are active in fields of art, media and technology and learn from/ engage with/ practices from within feminisms.<sup>(89)</sup> Constant organizes transdisciplinary, open-ended worksessions, creates installations, publications and exchanges, is inhabited and activated by various people contaminating it with their practices, sensibilities and experiences, each in their own way.<sup>(90)</sup>

Constant works with feminist servers, situated publishing, active archives, extitutional networks, (re)learning situations, hackable devices, performative protocols, solidary infrastructures and other spongy practices to stake out paths towards speculative, libre, intersectional technologies.<sup>(91)</sup>

Founded in 1997, it is by far the oldest, still active collective here at hand. Their focuses have shifted over time, just as technology has. Back then they aimed to encourage audiovisual media practices in the broadest possible framework. Today, Constant is an association run by artists, designers, researchers and hackers. They work together to create collaborative situations that engage with the challenges of contemporary techno-life. Publishing practices take part in that to different extents and are spread across two platforms: Constant Verlag<sup>(92)</sup> and Books with An Attitude<sup>(93)</sup>. Most of the texts have been published under open-content licenses and are open to use, copy, modify, and redistribute. The type of texts range from plain text files from constants archives to texts corresponding to printed books. But not only does Constant publish texts for reading, but also develops and publishes tools under open source licenses, which aim for collaborative approaches to writing, assembling and publishing processes.

We are supporting a publishing practice that can let go of illusions of singular genius, copyright, and permanence while nurturing trust, which means that we need to find tools and tactics for versioned and community-driven publication practices.<sup>(94)</sup>

(89)-(91) „About“ Constant

(92) Available at <https://constantvzw.org/verlag/>

(93) Available at <https://constantvzw.org/sponge/s/?u=https://calibre.constantvzw.org/category/stored/>

(94) Melvaer, Mia „A reparative approach to publishing“, March Journal

Systemserver:

The System Server was launched in early 2005 by Gender Changers Academy.<sup>(95)</sup> They introduce themselves as:

[System Server] offers services to its network of feminist, queer and antipatriarchal folks.

The System server is run by feminists, using FOSS. It acts as a place to learn system administration skills, host services and inspire others to do the same.<sup>(96)</sup>

Varia:

One of the core interests of varia is to relate to technology by installing or making it ourselves.<sup>(97)</sup>

Varia is a Rotterdam based initiative that started in 2017. At its core it aims at developing critical understandings of the technologies that surround us by organizing public or semi-public gatherings in a collectively run space. Varia experiments with building tools for physical and digital infrastructures and with that tries to “move away from the ideological dichotomies that inform the adoption and use of technology [...] We focus instead on notions like conditions, frugality, accessibility, transformability, and public interest”.<sup>(98)</sup>

In being considerate about the channels used to communicate, Varia negotiates their on-line dependencies by hosting their own digital infrastructure. As part of their practices Varia members write situated software, which they publish on Gitea.<sup>(99)</sup>

Varia also hosts physical gatherings such as “Calm Coding Socials” or “Gardening as Electricity making”. They have a membership model, where members pay a monthly fee, but also contribute with their time and energy. Members take care of the space, of each other and visitors, they can organize events and use the space and every month there is a collective meeting.

<sup>(95)</sup> „The Genderchangers is a group of women originating in the ASCII (Amsterdam Subversive Center for Information 96 Interchange) hack lab (around 1999 in Amsterdam). The main aims of the initiative is to get more women interested in information technology and the principle of universal interoperability of systems. The first activities which the Genderchangers organized were tech knowledge-sharing workshops provided by women, for women. Through the enthusiastic response to these early local activities, the idea of an annual international meeting or event was borne. This gathering, called the Eclectic Tech Carnival (/ETC) has taken place with success every year since 2002.“

<sup>(96)</sup> Available at <https://systemserver.net/>

<sup>(97)</sup> Online Hosting, Varia

<sup>(98)</sup> „About“, Varia

<sup>(99)</sup> Gitea is a lightweight, open source platform for software development and operations. Available at <https://about.gitea.com/>

Varia is not merely a collective, nor merely a space. Varia is an interdependent concatenation of both.<sup>(100)</sup>

A traversal network for feminism servers:

A Traversal Network of Feminist Servers (ATNOFS) is a collaborative project formed around intersectional, feminist, ecological servers whose communities traveled between each other in 2022 to share and extend their knowledges through live gatherings.<sup>(101)</sup> The project responded to a 101 need for “continuity, interrelation and support for self-hosted and self-organized computational infrastructures”<sup>(102)</sup> amongst others in the Netherlands, Romania and Belgium. The “multi-headed” project website comes with an interesting technological twist: it is hosted and asynchronously maintained by a network of networks that includes Systemserver, Constant, hypha, Varia, ooooo, Marloes de Valk, LURK, Anarchaserver, Psaroskalazines, esc mkl and rosa (travelling).

Rosa, the traveling server, was the one around which the project and resulting publication evolved. It became a concept of togetherness, in the sense that it is a hub which has a vpn, public entry points and only exists between servers that are added to it.<sup>(103)</sup>

Further ATNOFS proposed that as caretakers and holders of knowledges, the people travelling with the servers could themselves be considered servers:

Rosa is not only constituted in hardware or software but also the multitude or relations that are created around the making, namely the maintaining and passing on of this infrastructure: the processes that are performed, the affective charge of their actioning as well as the the community around them.<sup>(104)</sup>

In creating the hand printed, on demand publication ATNOFS, it aimed for a form of resonant publishing: one that is not left at the

(100) “Collective Statement”, Varia

(101) “A traversal network for feminism servers” collectively made publication with: Wendy Van Wynsberghe, Vlad Dobrițoiu, Teo Săvoiu, Spideralex, Sergiu Nisioi, Roel Roscam Abbing, Reni Hofmüller, ooooo, Nina Botthof, Martino Morandi, Marloes de Valk, Mara Karagianni, Manetta Berends, Lídia Pereira, Julia Bande, Femke Snelting, elodie Mugrefya, Donatella Portoghese, Danae Tapia, Cristina Cochior, Azahara Cerezo, Aymeric Mansoux, Artemis Gryllaki, Aggeliki Diakrousi, Anca Bucur, amy pickles, Alice Strete, Alex Ștefănescu, 3/2023

(102) ibid. “ATNOFS”, Introduction

(103)-(104) ibid. “ATNOFS”, Introduction P. 5

end of a process of thought, but is embedded in a social, technical and collective process where thoughts develop and unfold.

Anarchaserver:

This is about regaining control and gaining autonomy in the access and management of our data and collective memories.<sup>(105)</sup>

AnarchaServer is a feminist server which contributes to the maintenance of autonomous infrastructure on the Internet for feminists projects. Other than the aforementioned rather local acting feminist servers, it has a global presence: Belgium, France, Germany, Greece, Iceland, the Netherlands, Mexico, Sweden, Uruguay and more.

Their politics are transfeminist, anticapitalist, decolonialist and they aim at creating interspecies solidarity with other bodies, nature and machines. AnarchaServer built up their own wiki<sup>(106)</sup> in order to provide documentation for their work of setting up and inhabiting the server as well as to document and engage in feminist infrastructure herstory. In the wiki, they defined four different roles, splitting works on maintenance and infrastructure: The Guardians are in Charge of possible bugs in the containers and keeping the containers updated to ensure their security and the functionality.

The Fire Extinguishers have the most experience in managing overall and to whom we can turn to if we suffer an attack or if something very strange is happening.

The Interfaces support the guardians by using the AS services and pointing out if some of them are not working or have problems, they are also the people who will be in communication with the inhabitants of AnarchaServer (AS).

The Scribes are providing support by writing AS documentation, either by creating content in their wiki, or in their gitlab, by writing documents needed for their services, or by developing narratives. The AnarchaServer distinguishes different kinds of data in order to create specific infrastructures for them. 'Living data', that is available online, receives updates, posts and is actively contributed to, and is mostly hosted and published via the wiki or their blog "Zoia Horn"<sup>(107)</sup>.

(105) „Why a feminist Server?“ anarchaserver.org

(106) Available at [https://alexandria.anarchaserver.org/index.php/Anarcha\\_section](https://alexandria.anarchaserver.org/index.php/Anarcha_section)

(107) Zoia Horn, Available at <https://zoiahorn.anarchaserver.org/>

'Transitional data', is the one that needs to remain shortly available and then should be erased properly, so that next-cloud or encrypted file sharing services can come into play. There is even a third category, 'dead data', for data that has gone offline. This then goes to the "Nekrocemetery"<sup>(108)</sup>, which is regarded as "sacred space we honor the memory of some feminist websites and media. This cemetery is an archive of static copies, trying to give an insight into how the websites were, when they were still "alive".<sup>(109)</sup>

In searching for information about exemplified feminist servers, they were quite hard to find and detangle from each other. As they claimed in the feminist server manifesto: She/They treats network technology as part of social reality and as Ines Kleesattel mentions "She is multiple Feminist Servers, entangled in ecologies of resources and care". Many of the published information I initially found were collective publications, compiled at gatherings like the Eclectic Tech Carnival.<sup>(110)</sup>

I do address some outstanding characteristics of single feminist servers in the following, but only to a certain extent because I don't want to artificially tear apart what just evolves together. The "traversal network for feminist servers" publication is one of those cases, as it was a collaboration of many feminist server groups. Other than the rest of the projects we looked at, this collaboration was more oriented toward publishing, as they also added detailed descriptions about the compiling experience and publishing technology.

Constant is one of the few feminist server organizations that are generally more active in public and publishing practices. They publish and are published and provide both (undifferentiated) on their website under open-content licenses. What connects Constant and Varia in their approach is their located acting, that extends to the physical space in the way that they have specific sites they engage from and within and are visitable through that. The technological work on servers and programs is here combined with local workshops, readings or exhibitions and direct relationships with neighbors and visitors. And, same as at Constant, Varia members build tools for aforementioned practices of

(108) Nekrocemetery, Available at <https://nekrocemetery.anarchaserver.org/>

(109) „Hello from the dead! - Anarchaserver nekrocemetery“

(110) The Eclectic Tech Carnival (ETC) is is „a gathering of feminists who critically explore and develop everyday skills and information technologies in the context of free software and open hardware“

resonant publishing, which in turn are published under open source licenses.

The AnarchaServer engages in publishing processes as well, but in a slightly different way: They build up an outstanding information architecture for their internal infrastructures, archive and publishing.

“The feminist servers are run by and for communities that care enough for her in order to make her exist” is what their manifesto says and what we have been able to examine closer through those more applied cases.

The various forms of publishing here act in a tradition of vital infrastructures to intersectional feminist initiatives and struggles and are facilitated by and at the same time essential to the life of feminist servers. These practices are closely entwined with the developing and publishing of tools for collaborative usage.

In the following I want to look closer at processes and dynamics of publishing, while keeping questions of resonance, interdependency and resistance in mind.

Publishing practices are always intertwined with the production of knowledge and its' circulation, and just like this text, they've been historically informed through close social and technological inter-plays. (9) Circling back to paradigms of situated knowledges as feminist objectivity, which I mentioned in the beginning of this text, I want to ask if there are possibilities for situated or situating publications.

Publishing here are processes that I regard as highly relational practices, which have always been closely entangled in interdependencies. Rather than leading publishing houses, capital and aesthetic accumulation or big tech platforms I mainly want to focus on the conditions that make publics, possibilities for self publishing and counterpublic discourses. I especially want to point to practices of „post digital publishing“ (9), which might be described as „after ordinariness“. (111) Inspecting these dynamics and their qualities for (inter-species) kin, relationality and companionship is what will inform this chapter.

Michael Warner's Essay "Publics and Counterpublics"<sup>(112)</sup> resolves around the central question of "What is a public?" and tries to redefine and expand the term, introducing the idea of a public as multiplicity.<sup>(113)</sup> Further, Warner elaborates on the concept of counterpublics, which was initially termed by Nancy Fraser, naming a public which is subordinate to the dominant.<sup>(114)</sup> Michael Warner is an American social theorist, Yale professor and considered as one of the founders of queer theory, along with Eve Kosofsky Sedgwick, Teresa de Lauretis, Lauren Berlant, and Judith Butler. Throughout his essay Warner comes up with parameters, which, although the text was published over 20 years ago and how publishing media has changed in many ways since then,

(111) Sam Hart works across computational biology and distributed publishing. He started a Channel on Are.na with the title "post-digital publishing" its description says "after ordinariness". Available at <https://www.are.na/sam-hart/post-digital-publishing> [Accessed August 23rd 2023]

(112) Title Essay from the later published volume "Publics and Counterpublics", zone books (2002)

(113) Michael Warner (2002) Publics and counterpublics (abbreviated version), Quarterly Journal of Speech, 88:4, 413-425, DOI: 10.1080/00335630209384388

(114) *ibid.* "Publics and Counterpublics"

4 these parameters are still important to consider, even for digital landscapes.

#### 4.1 Publics

A Public exists only by virtue of being addressed. Thus it is self-organized, self-creating and autotelic regarding its own agency. A public is a space of discourse, organized by nothing but the discourse itself and through that, creates a sense of belonging and activity.<sup>(115)</sup> To belong to a public, no big actions or intentions are required, even coming in its range or the most minimal sense of participation, paying attention, makes one part of it.<sup>(116)</sup> As there can exist several publics within a social sphere, Warner regards them as speculative, empirical and always partial.<sup>(117)</sup> Building upon "Publics and Counterpublics", in his Essay "Making Public" Paul Soulellis concludes the idea of a discourse-formed public, as "making a public is performative".

Strangerhood creates a necessary medium of public communality. Publics orient us to strangers in a different way: on the one hand "a public is a relation among strangers"<sup>(119)</sup>, it unites under the condition of being addressed. On the other hand, uniting and including, inherently comes with means of excluding, to construct an inside, one needs the strange, the outside.

This ambiguous, yet constitutive concept of the stranger, is one that we can not only find here, directly related to the creation of a public, but also in ecological notions of contamination and species interdependencies. As Anna Tsing shows us with the close examination of fungi and their myriad entanglements and Margulis already declared with the concept of the holobiont: interdependencies are not mere mutualisms but life sustaining relations. (2.2)

Texts themselves do not create publics, but the concatenation of texts through time<sup>(120)</sup>: All Publics are intertextual and intergeneric.<sup>(121)</sup> They exist between or obtained from different genera.

(115) "Publics and Counterpublics" P. 413

(116) *ibid.* P. 419

(117) *ibid.* P. 414

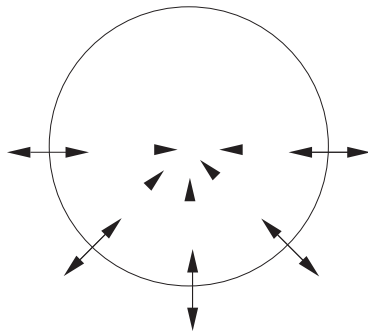
(118) Soulellis, Paul "Making public", P. 16, 22 June 2015

(119) "Publics and Counterpublics" P. 417

(120) *ibid.* P. 420

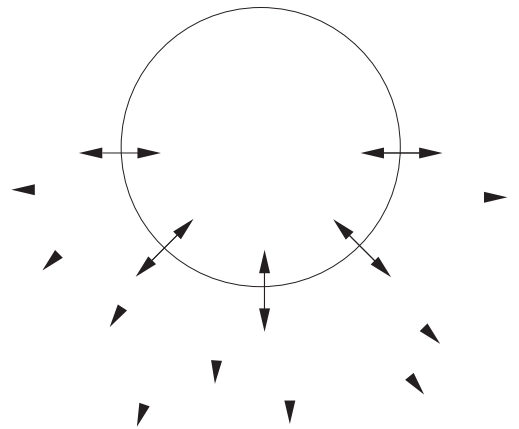
(121) *ibid.* P. 421

1)  
Publics orient themselves  
different toward each other  
(unite)



2)  
including is also always  
excluding (a necessary  
condition)

4



1) + 2)

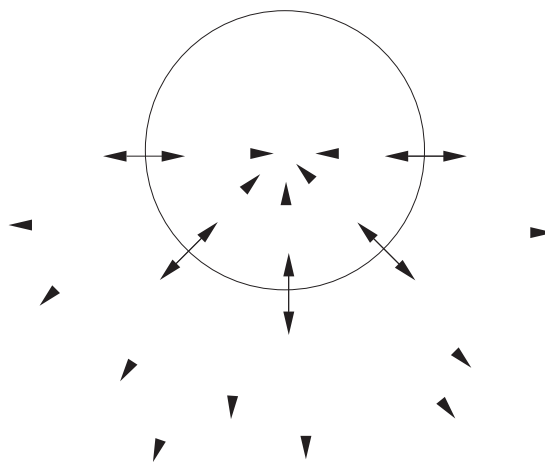


Figure 3: Strangers

4 To have a public, a text must continuously circulate across time. This is made possible through the intertextual environment of implication and citation.

How does today's common usage of Hypertext and digital networked media influence these intertextual modes that relate publics within each other? Hyperlinks have never fully obliterated citation in digital environments, rather they are mostly used subsidiary to already established systems that enable circulation.<sup>(122)</sup> Circulation is facilitated through infrastructure.

Date: Aug 14 2023 16:31

To: footnote-cite@mail.com

From: kim-digitale.grafik@web.de

Subject: intertextual expertise

footnote,

I wanted to thank you dearly for our last, quite productive encounter<sup>(123)</sup> and hope you have been well since then. From my side, there has been a lot of work in the meantime but admittedly, you have been on my mind ever since.

I am currently writing a longer text and, as you can imagine, there have been several questions coming up, regarding you, footnote. When I am asked what this text will be about I mostly answer "digital publishing", which, of course, is a reductive understatement, to what I am actually trying to draft here. All the, yet unuttered relations

(122) With "Multidimensional Citation" Laurel Schwulst, Mindy Seu, Laura Coombs and (editing by) Meg Miller, express an interesting take on tracing the circulatory ways of an idea or publication. They propose a way of tracing not only the source of a quote but the learning trail that supports and surrounds it. Pleading for a more expansive and uncovering citational practice, "a citation should not be singular, but instead explicitly connected to the lineage of research that came before it." In order to visualize the multidimensional character of a citation and in an "attempt at acknowledging the multi-authored histories of ideas", Schwulst, Seu, Coombs and Miller add a three dotted symbol at the end of each name, as well as the relation of the involved person to the quote. Developing a learning trail, which is active, imperfect, open and works against notions of an ultimate source.

"Multidimensional Citation", Laura Coombs, Laurel Schwulst, Mindy Seu, Meg Miller, The Serving Library

(123) In March 2023 I gave a talk about „Intertextual Intimacy" at the Are.na Annual Release, presenting my Channel in a so called "walkthrough", Available at <https://www.are.na/kim-kleinert/intertextual-intimacies>

I am spotting, tracing, making are giving me a hard time. In trying to stick to my initial topic once in a while I have been inspecting and thinking about your digital habitat more closely. Making sense of your still overall appearance, although hyperlinks feel like a quite similar or even more advanced technology, I figured, this might be about you, the written footnote, being more robust.<sup>(124)</sup> Hyperlinks might break easily and everything online is depending on browsers and operating systems, which change rapidly these days. In not only digital, but rather publishing terms I still have a lot of unresolved questions: What is your role in this ecology of publics? In his seminal essay Michael Warner mentions the public constituting motion of circulation across time and as I know about your intertextual expertise, thought you could give me some insights about that?

one never writes alone,  
Kim

Date: Aug 14 2023 19:33

To: kim-digitale.grafik@web.de

From: footnote-cite@mail.com

Subject: re: intertextual expertise – inscribing community

My dearest Kim,

I have joyously read your message twice this morning, as I always like to remember our past collaboration. I indeed have been very well the last month, taking it a bit slower now, as I figured all the

(124) For "robust resources" see: Sharing as Survival, Mindy Seu on the Cyberfeminism Index, November 2020, Walker Art

4 work and stress don't make an old one like me any younger at this point.

Love that you mention the internet and regard my myriad digital homes! You know I keep on saying that Literature is the original internet— every footnote, every citation, every allusion is essentially a hyperlink to another text, to another mind.<sup>(125)</sup>

In terms of publics I see myself as a rather successful reproductive technology, as I am constantly engaging in reproducing the world around certain bodies.<sup>(126)</sup> My intertextual environments of citation do not only facilitate circulation of on-, and offline publics but, what is often overlooked, also inscribe community. Most recently I have been trying to work more lateral rather than medial or vertical. To cite laterally means to cite one's peers, friends, cohort or colleagues instead of citing only upward—established philosophers, scholars with tenure, and so on.<sup>(127)</sup> I see a certain urgency in this practice of stepping out of the well trodden paths, not following those, deemed to have already had the most influence. The more a path is used, the more a path is used. The more he is cited, the more he is cited.<sup>(128)</sup>

So as you might have noticed there is quite a lot of political work going on lately, which I definitely enjoy. I strive to create intertextual intimacies for another while.

hope today is kind,  
footnote

(125) Popova, Maria "By the Book", The New York Times, Feb. 7, 201

(126) Ahmed, Sara „Making Feminist Points“, Feministkilljoys, 2013

(127) Fournier, Lauren „Autotheory as Feminist Practice in Art, Writing and Criticism“ 2021, MIT Press

(128) Ahmed, Sara, on “use” at Akademie der Künste’s “Planetary Utopias” symposium in Berlin, 2018

A public is poetic and world-making (poietic). Its' world-making qualities do not only lie in self-organization or -creation but also in the fact that everything, intended to address a public, must characterize the world in which it attempts to circulate. This is accomplished not only through discursive claims [...] but also at the level of pragmatics: through the effects of speech genres, idioms, stylistic markers, address, temporality, mise-en-scène, citational field, interlocutory protocols, lexicon, and so on.<sup>(129)</sup> Through address it attempts to realize that world.

In "On Writing and Worlding" Laurel Schwulst describes her own writing (and publishing) practices as the keeping of various digital notebooks.<sup>(130)</sup> Just like physical notebooks, they are more context-specific, situated through specific sites (Ellipsis, which is only written in motion<sup>(131)</sup>), technologies (Pomera DM39<sup>(132)</sup>) or time frames of usage (Reflections was a 2020 E-Mail Newsletter sent out to friends<sup>(133)</sup>).

Going the notebook route allowed me to more easily write. In other words, I first created the world (the environment ... feeling, constraints, audience, etc.), and then the writing came naturally.<sup>(134)</sup>

Laurel Schwulst further resonates with the idea of "world-building as self-care", which I feel is vital to this ongoing examination of publishing, worlding, the building of (affective infra-) structures (2.3) and the urgency of these practices.

For those of us who feel different, who don't easily fit into structures of this society or this world, we have to make our own structures, definitions, and taxonomies to feel at home — that is, to build our own world.<sup>(135)</sup>

(129) Warner, Michael "Publics and Counterpublics"

(130) Schwulst, Laurel "On Writing and Worlding—Part 1 of 2", in "Another Day in the Dome", September 14th 2023

(131) [https://notebooks.laurel.world/ellipsis/?utm\\_source=substack&utm\\_medium=email](https://notebooks.laurel.world/ellipsis/?utm_source=substack&utm_medium=email)

(132) [https://notebooks.laurel.world/pomera/?utm\\_source=substack&utm\\_medium=email](https://notebooks.laurel.world/pomera/?utm_source=substack&utm_medium=email)

(133) <https://notebooks.laurel.world/reflections/>

(134) Schwulst, Laurel "On Writing and Worlding—Part 1 of 2"

(135) *ibid.* "On Writing and Worlding—Part 1 of 2"

- 4 The perception of a public as mere (dichotomous) conversation is a misleading and only partial assumption as it misses other constitutive facts: its poietic functions.<sup>(136)</sup> These qualities are often more visible in what Michael Warner describes as “Counterpublics”.

#### 4.2 Counterpublics

Warner distinguishes a counter-, from a dominant public. A counterpublic is queering in its’ radical questioning of binaries and identity. It is constituted through its conflictual relationships to the dominant public<sup>(137)</sup> and structured by different dispositions and protocols. It continuously maintains awareness of its subordinate status, its participants are socially marked and their identities are formed and transformed by that activity.

Counterpublic discourse goes beyond the expression of subaltern culture: it challenges „modernity’s social hierarchies of faculties“<sup>(138)</sup> in protecting a space of discourse among (otherwise) strangers as social entity, as safe(r) space. Counterpublics are often addressed (and therefore created) through acts of self publishing. In „Self-Hyphen-Publishing“ Annika Haas states that this form of publishing

is neither merely about producing nor about ourselves. It may be rather the attempt to drink from the undercurrent that carries both the desire and the gift of the self-publishing Pluriverse: community.<sup>(139)</sup>

#### 4.3 Resistance

Resistance is deeply embedded in the processes of self publishing. Its’ dynamics apply in two different ways: Resistance can act as the driving force that brings together companions, that then self-publish, and create a counterpublic which opens their (protest) group to an interactive circulating dynamic. But resistance does not have to be the initiator of self publishing, though consciously or unconsciously, it is inherent to the process, always. Hegemonic publics come with powerful conditions of formaliza-

(136) Warner, Michael “Publics and Counterpublics”, P. 422–423

(137) ibid. “Publics and Counterpublics”, P. 423-424

(138) ibid. “Publics and Counterpublics”, P. 424

(139) Haas, Annika “Self-Hyphen-Publishing” in Lerchenfeld No.63

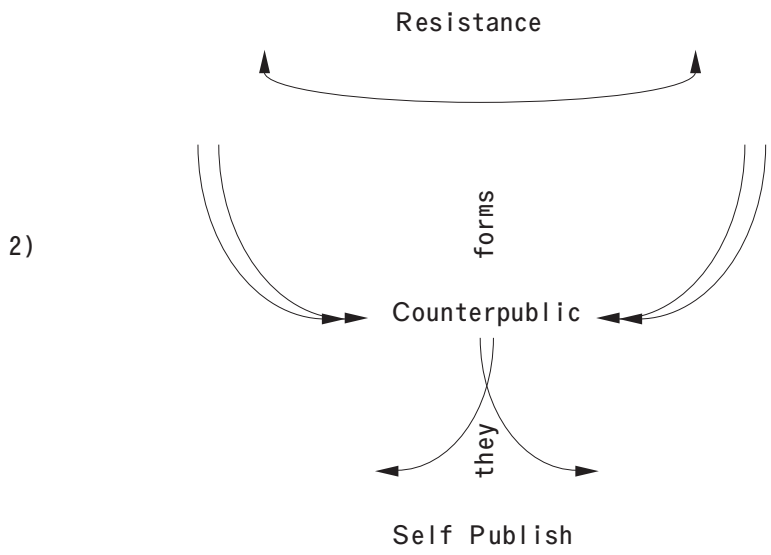
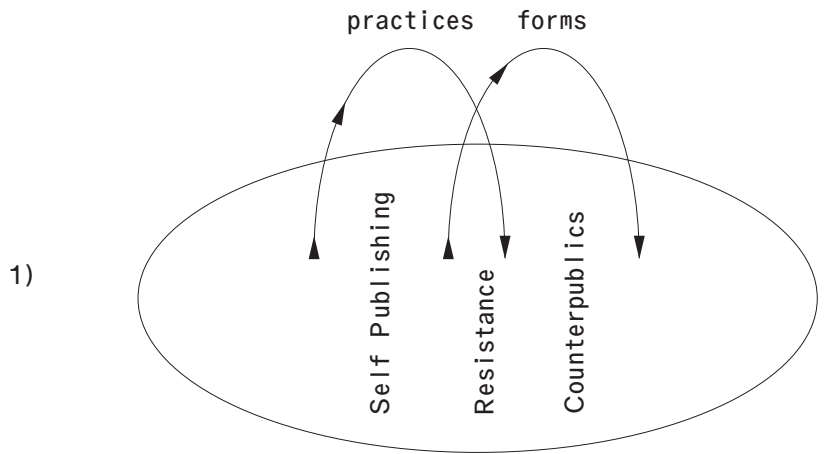


Figure 4: Resistance

4 tion, linguistic and aesthetic mainstreaming, bottlenecking<sup>(140)</sup> of commercial publishers and art markets and concealing the eclectic, heterogenous and potentially contradictory mess that usually does not make it to publications.<sup>(141)</sup>

Counterpublics practice resistance on many levels. They defy the “conquering gaze” or “god trick”(1): Self publishing comes with myriad possibilities to “materialize the place you are coming from, as both self and publisher”.<sup>(142)</sup> Self published texts are also called gray literature, as they mostly don’t carry an ISBN number, they undercut the record systems of the market, national libraries and are hardly identifiable with place, year or authorship.

In “Publishing as Practice, as Resistance” Paul Soulellis formulates three demands on the resistance practiced through self publishing. The first demand is about becoming illegible.<sup>(143)</sup> Illegibility, as the aforementioned gray literature, extended to means of digital media, a text, that can’t be ranked by google, stored or hosted by one of the omnipresent corporations. But also illegible as an, anti linear, word-building collection of texts, that doesn’t function in one particular order.

The second demand highlights the need to resist design perfection, to create a space that overthrows hierarchies and learned templated patterns. A space (or binding when we consider printed matter) that gives the user/ reader agency to discover, to embrace illegibility. „Publish Radically“ is the third demand, that asks for a form of publishing that resists a „quick and easy read“, that is put out there together, that responds to urgency of situations.<sup>(144)</sup> Letting the ideas seep out and mingle in a contact zone, in a mess of relations that’s probably meant to remain unresolved.<sup>(145)</sup>

(140) A bottleneck is a point of congestion in a production system (such as an assembly line or a computer network) that stops or severely slows the system. The inefficiencies brought about by the bottleneck often create delays and higher production costs, as well as severe issues regarding hierarchies and access. Barone, Adam “Bottleneck: A Point of Congestion in a Production System”

(141) Haas, Annika “Self-Hyphen-Publishing”

(142) *ibid.* “Self-Hyphen-Publishing”

(143) Soulellis, Paul „Publishing as Practice, as Resistance“ 2018

(144) *ibid.* „Publishing as Practice, as Resistance“

(145) Soulellis, Paul „Publishing as Practice, as Resistance“ 2018

#### 4.4 Community

Our capacity to share is inseparable from our capacity to survive.<sup>(146)</sup>

One publishes to find comrades.<sup>(147)</sup>

Publishing to find comrades<sup>(148)</sup> describes an approach that is informed by a “publishing of resonance” rather than one that is considered to be the end of a process, a fixed object.<sup>(149)</sup>

Production does not stop with publishing (a text) but rather shifts its focus towards the “initiation of a process where embodied processes of knowing and understanding are produced and reproduced”.<sup>(150)</sup> This is an approach that the collective feminist server publication “A Traversal Network of Feminist Servers” applied to their work. Through affective, collaborative technological solutions and close group work, they developed a publication that exists as a many headed snapshot of continuous practices, rather than a fixed entity of thoughts.

Elaborating further on Breton's statement, Shukaitis and Figiel ascribe the community constitutive functions in creating value in the means of publishing processes: „[the] production of the text can only be valuable because of the social relationships with which it is embedded and through which it produces meaning“.

<sup>(151)</sup> The organization of the production process should be considered to be as important as what is produced itself.

As important as the subject matter itself, was the physical process of making these very specific objects.<sup>(152)</sup>

The here posed questions of production and communality are closely entangled with the before mentioned concepts of affective infrastructures and feminist servers. Their reliance on minor tech solutions that radically question scalability here provide spaces for interdependencies and multiplicities of processes. The “A tra-

(146) Fred Moten

(147) Andre Breton quoted in Gareth Branwyn, *Jamming the Media: A Citizen's Guide Reclaiming the Tools of Communication* (Vancouver: Chronicle Books, 1997)

(148) A Comrade is a political companion. Haraway, Donna in “When Species Meet”

(149) - (151) Shukaitis, Stephen and Figiel, Joanna “Publishing to Find Comrades: Constructions of Temporality and Solidarity in Autonomous Print Cultures”

(152) Weinmayr, Eva in “Publishing to find Comrades” examining Breton's statement on the example of the “See Red” women's workshop, which printed feminist posters in the UK between 1974 and 1990

4 versal network of feminist servers” publication for example, was facilitated by a tool called octomode. Written by Varia members it was made to create PDFs, relying on Etherpad<sup>(153)</sup> and a Javascript extension which allows generating paged content out of a digital environment. Being accessible for all team members throughout the (writing) process, octomode made it possible not to split between writing and designing, designing and viewing; making this a collective process based publication.

Today one publishes not merely to find comrades, as in: politically related consumers of information or media, but rather to enter the interspecies dance, which is about linking kin and kind.<sup>(154)</sup> The omnipresence of the world wide web comes with several indicators for that: frequent reliance on server structures<sup>(2)</sup> contaminate physical environments of myriad organisms and hierarchical host-server-client relationships and the not knowing user, they all urgently ask for new models of species interdependence and companionship. To speak again, with Haraway: We are, constitutively, companion species. We make each other up, in the flesh.<sup>(155)</sup>

#### 4.5 Urgency

It is imperative that we publish, not only as a means to counter the influence of a hegemonic ‘public’, but also to reclaim the space in which we imagine ourselves and our collectivity.<sup>(156)</sup>

“Sharing as survival”<sup>(157)</sup> is what Mindy Seu called the urgent publishing of robust resources in an Interview about the Cyberfeminism Index.<sup>(158)</sup> <sup>(159)</sup> Seu mentions The New Woman’s Survival Catalog as an example, a seminal publication, gathering feminist projects and crucial information in the US in 1973. It was, back then, billed as the “feminist Whole Earth Catalog”. Both the

(153) Etherpad is an open-source, web-based collaborative real-time editor.

(154) Haraway, Donna “When Species Meet”, P. 17

(155) *ibid.* P. 16

(156) Stadler, Matthew cited by Eva Weinmayr in “Publishing to find comrades”

(157) This notions builds upon Ursula K. Le Guin’s “Carrier Bag Theory of Fiction” Theory, posits the first human tool as the basket, not the spear, thereby recasting the first protagonist as a gatherer, not a hunter.

(158) Hoeglund, Marie with Seu, Mindy: “Sharing as Survival”, Walker Art, 2020

(159) The cyberfeminismindex.com is an incomplete and ever growing online collection for cyberfeminist efforts. It has 155 been made into a printed publication in 2022, commissioned by rhizome.org

Whole Earth Catalog and New Woman's Survival Catalog were seen as examples of proto-internets due to their internal network, user-generated information, and analog hypertextual cross-references.<sup>(160)</sup>

The Urgency Reader, which was initiated and put together by Paul Soulellis during the first Covid Lockdown, builds another interesting publication, dealing with urgency, resources and community. In an essay, published by the Creative Independent, Soulellis writes on "the power of mutual aid publishing during crisis".<sup>(161)</sup> He claims that "no crisis is never new", but depending on who you are, crisis can be constant. To only name a few, BIPOC, queer, trans, disabled, femme, low income, and immigrants have always known struggle, crises like climate changes and the covid pandemic usually expose and compound those that normally fly under the radar of public notion.

Centering, amplifying and preserving perspectives that exist outside of conventional narratives is essential first aid work, especially during heightened times of crisis.<sup>(162)</sup>

Elaborating on the process of the "Urgency Reader", Soulellis aimed for something that was "part protest, part time capsule".

Mutual aid publishing materializes a practice of call and response, and in this response, were in it together.<sup>(163)</sup>

Urgency emerges from an acute situation, shift in condition or from a crisis, it makes publishing radical, pressing, sustaining.

#### 4.6 Publishing in webs

Circling back to Michael Warners "Publics and Counterpublics", I want to take a look at his proposal for how the Internet and other new media may be profoundly changing the public sphere: they imply a change in temporalities. As highly mediated and capitalized forms of circulation are increasingly organized as conti-

(160) *ibid.* "Sharing as Survival"

(161) Soulellis, Paul „On the power of mutual aid publishing during crisis“ The Creative Independent, 2020

(162) *ibid.* „On the power of mutual aid publishing during crisis“

(163) *ibid.* „On the power of mutual aid publishing during crisis“

4 nuous rather than punctual, Warner speculates on abandoning the constitutive concept of circulation as a whole.<sup>(164)</sup> Undoubtedly public (and counterpublic) infrastructures change within and through digital media. Hypertext and search engine based modes of access and connectivity as well as the ever unfinished status and lack of central indexing or archiving functions are only a few accelerators of that dynamic, which Michael Warner mentions in his text. However he also expresses that all those remarks are purely speculative ones.<sup>(165)</sup>

Ten years later, I am writing this text in 2023. Digital publishing has taken myriad forms and routes since then: Post digital publishing, social networks and Blogs relying on “Posts”, E-pubs and E-books, platforms like YouTube, that expand publishing media to video clips, RSS Feeds and interactive browser based publications are only a few of an ever evolving ecology. And, despite (or maybe because) regular calls of “Print is dead!”, it is not. These conditions of technology don’t ask for fixed dichotomous statements but rather have to be seen as processes that constantly evolve within each other. In Post-Digital Print the author Alessandro Ludovico regards these processes in their fluidly, merging, adopting states:

The timeless ‘interface’ of the printed page (including its classic ‘golden ratio’ dimensions and ‘portrait’ or vertical orientation) has finally been adopted by digital publishing; on the other hand, printed products increasingly attempt to incorporate ‘digital’ characteristics – such as update-ability and search-ability.<sup>(166)</sup>

I do deeply focus on digital environments and technologies in my examinations, but with the afore paragraph want to make clear that with “technology” I do not only regard “high-tech” solutions. Printed matter is in many ways closely entangled and dependent on various technologies itself, it would be an oversimplification to regard both, printed and digital matter only apart from each other.

<sup>(164)</sup> Warner, Michael “Publics and Counterpublics”

<sup>(165)</sup> In fact in 1997 only 22% of the US population were using the internet, while world wide it were only 2%. Now in 2002, the year the essay was published, the number already jumped to 59%, but still the internet was a new territory, its development rapid, ongoing and not easy to grasp.

<sup>(166)</sup> Ludovico, Alessandro “Post-Digital Print: The mutation of publishing since 1894”, *Onomatopée* 77, 2012, P. 8

Judging one as elevated, opaque, fluid and connected and the other as traditional, fixed, reliable, only brings short sighted opinions and keeps up matrices of power in the production of knowledge.

#### 4.7 Troubles in webs

Before diving deeper into specific digital publishing technologies, I want to look closer upon a few recurring issues that inform current practices of digital publishing.

The earlier addressed concatenation of texts through time, which creates publics, appears in highly distorted forms on most digital media today. Big platforms like Google, Facebook or Twitter all work with algorithms that create filter bubbles, based on user data they generate pre-selections of what you will see, even when using search functions which pretend to give unsorted output.<sup>(167)</sup> Capitalist modes of salvage accumulation<sup>(168)</sup> transformed user data into one of the most important commodities today.<sup>(169)</sup>

Preservation, longevity and resilience of digital, web based media open up other issues, accelerated by the rapid pace new standards are developed in. Websites, that are only ten years old, have mostly broken down or are at least outdated in their functionality. There are however some efforts to come up with solutions: the “Internet Archive”<sup>(170)</sup> is a digital library, preserving different forms of media as well as access to websites through the “Wayback Machine”<sup>(171)</sup>, “Scale.zip”<sup>(172)</sup> by Harald Peter Ström is a collection of websites and files gathered from an old hosting server, active around 1997–2003<sup>(173)</sup> and “One Terabyte of Kilobyte Age”<sup>(174)</sup> is an archival project for neocities landscapes by Olia Lilliana and Dragan Espenscheid. But most of these can only give

- (167) Parramore, Lynn, „Eli Pariser on the future of the Internet“, Salon, 2010,  
 (168) describes processes with which lead firms amass capital without controlling/ caring about production conditions  
 (169) Zuboff, Shoshana, „The Secrets of Surveillance Capitalism“, Frankfurter Allgemeine Zeitung, 03/2016, Sadowski, Jathan „When data is capital: Datafication, accumulation, and extraction“, Introduction (2019)  
 (170) Wikipedia contributors. (2023, July 18). Internet Archive. In Wikipedia, The Free Encyclopedia. Retrieved 06:44, July 21, 2023  
 (171) <https://archive.org/web/>  
 (172) <https://skale.peter.stream/>  
 (173) *ibid.* "skale.zip"  
 (174) <https://blog.geocities.institute/>

4 very partial insights, remain high in infrastructural maintenance work and exist as rather artistic explorations.

Lacking materiality of digital publishing is a point of critique, often mentioned when compared to print publications, that come with binding, different kinds of paper, a physicality and a weight. <sup>(175)</sup> Now from my perspective, this critique is outdated and uninformed: digital publications have a materiality on their own, which does not rely on material haptics but rather on aesthetics and interactions. The “&Shy;” Magazine, which was initiated by Katharina Nejd, moves between the intersections of contemporary literature, programming, art and design. &SHY; explores new ways of reading online and reflects on the relationship to the screen. <sup>(176)</sup>

Another issue that I have been thinking about for a long time and which seems harder to grasp, might be described as lack of situatedness in a space. <sup>(177)</sup> When I read a printed publication, a book or a magazine, it is somewhere, it shares the space I am in and therefore inherently relates to and resonates with its’ environment. It will be visibly contaminated by every encounter, depending on where I read or take a publication, it will show traces of rain, saltwater or food, it will bend and its margins will be full with thoughts. Its’ condition also depends on where I gathered it, if someone has been reading this exact copy already. I leave my traces on the publication and it leaves its traces in forms of ideas, knowledge and emotions on me. Now reading a downloaded copy on my desktop or a journal in my browser, contaminations shift. I am not reading a physical unique document, but rather one that is either redistributed and downloaded or a protocol, place unknown, that I am requesting with my web browser.

<sup>(175)</sup> Ludovico, Alessandro „Post Digital Print: The mutation of publishing since 1894“, *Onomatopée* 77, 2012, 4.7 print and online: friend or foe? conceptual differences and similarities between print and blogs (111-115)

<sup>(176)</sup> &Shy Magazine „About“

<sup>(177)</sup> Which is not an entirely accurate description: as mentioned in „From Above“, the web is not nowhere, but always located somewhere specific. What I mean here is that we don’t share the same physical space, maybe it’s a matter of proximity.

To what extent can a digital publication be relational and transforming, in resonance with its' surroundings and reader? Are there similar possibilities for mutual contamination and interdependencies in the realms of the web?

What might be crucial to these questions are Interfaces, as forms of relating to technology.<sup>(178)</sup> We will see that an interface is not just a rarely recognized, purposeful entity, but poses a form of influential, yet subtle, medium itself, highly entangled within informatics of domination. In the following I want to have a closer look at various interfaces, their mechanisms and relational qualities in order to further investigate the questions posed above.

## Facing Between – Between Faces

The Interface describes a boundary condition.  
(179)

Countering common notions, Branden Hookway understands the Interface as form of relating to technology, rather than a technology itself.<sup>(180)</sup> It is a form of relation that obtains between two or more distinct entities, conditions or states and only comes into being when these (distinct entities) enter into an active relation with one another.<sup>(181)</sup> Important here is the ambivalent being and acting of the interface in which it maintains a separation between distinct entities or states, but is also the basis of the unity it produces from those entities or states.

(178) Hookway, Branden. "THE SUBJECT OF THE INTERFACE." In "Interface", 1–57. The MIT Press, 2014.

(179) *ibid.* "Interface"

(180) *ibid.*

(181) *ibid.* P. 4

The Interface is a kind of liminal or threshold condition that both delimits the space for a kind of inhabitation and opens up otherwise unavailable phenomena, conditions, situations, and territories for experimentation, use, participation, and exploration.<sup>(182)</sup>

5

Hookway offers three major tendencies for the interface, which give a short introduction to his work and for us can serve as connecting threads to some of the encounters we already had or will have in the future:

The first tendency Brandon Hookway formulates as “the identification of differences”.

Conditions of difference, of strangers, of contamination have been reappearing throughout this text. As mentioned earlier, Strangerhood works as a necessary medium of public communality and contamination as collaboration<sup>(183)</sup> messes with clear hierarchical distinctions between technology and organisms, host server and client as well as interspecies relationships.

New materialism theorists like Donna Haraway, Karen Barad and Trinh Minh-ha engage in readings of difference, diffraction and agential cuts. In that, “agential cuts do not mark some absolute separation but a cutting together/apart”<sup>(184)</sup> and differentiating is understood as matter of entanglement<sup>(185)</sup>, not the intertwinings of separate entities but rather irreducible relations of responsibility. Here, the difference is “making difference” in terms of both genealogy, figurative conceptualization, and of matter coming to matter. Building on this notion, the interface might not only “identify”, as Hookway proposes, but with that always also “make” differences.<sup>(186)</sup>

“Facilitation of transformations”

is the second tendency Hookway formulates. Infrastructures faci-

(182) *ibid.* “Interface” P. 5

(183) Tsing, Anna, Lowenhaupt. “Contamination as Collaboration.” In *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, 27–35. Princeton University Press, 2015

(184) Barad, Karen “Nature’s Queer Performativity”.(2012) *Kvinder Køn og Forskning* 1-2: 25-54, P. 46

(185) *ibid.*

(186) Geerts, Evelien; van der Tuin, Iris „Diffraction & Reading Diffractionally” *New Materialism: Networking European Scholarship on 'How Matter Comes to Matter'* 2016

- 5 litate circulation. With rising circulation, encounters increase and contaminate: Contamination is transformation through encounter.

A third tendency Hookway claims is that

“interfaces carry an inherent tendency toward seeming transparency and disappearance”.

Wendy Chun denotes the association of the interface with transparency as the ultimate illusion. Contrary to this association, the screen never represents something that already exists elsewhere but renders all things seen for the first time.<sup>(187)</sup>

Additionally to Chuns observations, we have come across veiling and transparent tendencies a few times now: cloudy notions of the web, the aiming for transparent (neutral, objective) processes of scientific knowledge creation and infrastructural work seem to be crucial mechanisms in the creation of dominant publics.

By looking closer at the etymology of the term “interface”(9), its' combination of the two terms “inter” and “face”, makes it an embodiment of contradiction and brings two possible readings with it: First, “between faces” suggests activities within a circumscribed field or enclosure, while second, “facing between” makes the interface as a boundary or zone of encounter that actively extends into and conditions what it separates.

This determines that interfaces are always embodied or embodying: It's not as if a determinate pre given self and other already exist in a neatly packaged form and then “gets interfaced” in a way that retains its' form, unaltered; self and other each change through the very nature of the interface that connects (and divides) them.

Interfaces, are often looked at in their most common form: the human machine interface. And although this is crucial for our further observations, we will also see that it is neither the first, nor the only type of interface that may be defined as a form of relation.

### 5.1 Human machine Interfaces

In human - machine interfaces (also called user interfaces) the interface is commonly posed as a design problem in which its

(187) Chun, Wendy Hui Kyong. “On Software, or the Persistence of Visual Knowledge.” Grey Room 18 (2005): 26-51.

bounding entities (human and machine) are treated as fixed positions rather than variables, where they change their value dependent on the equation.<sup>(188)</sup> In this static view, (user-) agency is often mistaken for and termed “control”, though it merely opens up the opportunity for it. Agency or the will and means to action, is a capacity which is at once mediated by and created through the interface.

That the user of the interface is also its subject follows the notion of the interface as that which at once separates and draws together in augmentation.<sup>(189)</sup>

In a manner of agential cuts, the interface might fail classical conceptions of causality and identity, it draws together/ apart.

## 5.2 GUI

Date: Aug 3 2023 9:17

from: kim-digitale.grafik@web.de

to: cursor-pointer@gmx.de

subject: living in the face

hi there,

I have just recently come to notice you, living in the face. I mean I know you've been there for quite a while now and tbh I can hardly imagine my PC without you, what makes it quite difficult to recognize you as a distinct element of my GUI: I'm sorry for that and want to be more aware in the future. To make things easier for both of us, I would love to get to know you better! Since when are you there and why? How's work and everything going? Any feelings about doing something else one day or are you happy with where you are? (Hope I'm not getting too personal with this,

(188) Hookway, Brandon „Interface“  
(189) ibid. P. 5

just skip if you don't want to answer those).  
Will try to get in touch more often from now on.

with appreciation,  
Kim

Date: Aug 5 2023 15:06  
from: cursor-pointer@gmx.de  
to: kim-digitale.grafik@web.de  
subject: re: living in the face: I am an echo  
hi back,

What a refreshing experience to get an actual e-mail from you! And thanks for all the questions, I'll answer them as best as I can.

I come into being through interfaces, to be taxonomically specific, I belong to the Gooney (Graphical user Interfaces). Some guys came up with that to make computers accessible for non-programmers, in other words: users. So they compiled, what was a former variety of operating possibilities into one clickable interface, that historically came with a mouse, directing me: the cursor. (Some of those steps have been overthrown with the invention of trackpads and later touch devices). To clarify, this process did not happen out of concerns about gatekeeping technology and information but rather out of monetarizing interests and with that to maintain crucial power dynamics.

Resembling a prosthesis of the user's hand or finger, I am echoing its movements and agency; I never had any of my own. (Secretly I'm dreaming

of entering more feral spheres one day where I do not only echo but explore.)

I indicate the user's current position on the screen and at the same time constantly relate to and interact with my surroundings. Depending on events, I will change my appearance and through that, point out so-called screen-hotspots: areas that provide possibilities for action. Those areas in turn respond to my proximity through small visual changes of their own. Since there is only a limited amount of shapes I am able to transform into, I feel restricted and restricting, yet bored. Also, can you tell me what is happening beyond the edges? It seems impossible for me to go there.

In my inactive state I appear as an angled arrow. As soon as I am moved over a hyperlink or button, activated, I will change into a hand, my index finger outstretched. There are numerous other shapes, like the double sided arrow when engaging in window resizing events or the four sided arrow, indicating that an element is to be moved. Into some of those I have to switch very fast. As I am hovered close to displayed text (I mean underneath, everything is text) I shift into a narrow serif-I resembling shape, squeezing in between letters to highlight, insert or change them.

Could tell you much more about this, but honestly I am not a multitasking kind of entity so that's it for now!

I am honored to be in your thoughts,  
pointer

- 5 The Graphical User Interface (GUI, pronounced „goeey“) is what we see and interact with when looking at a computer (smartphone, laptop, pc etc.): a clickable interface, a cursor and a remedial computer mouse. It was developed to simplify and unify human machine interfaces and with that human-machine interactions. In “Black Goey Universe” American Artist denotes the GUI as “an abstracted representation of a person’s relationship to a machine”.<sup>(190)</sup>

In his essay, he draws connections between the transition of the computer interface from a black screen to white<sup>(191)</sup> and the theft and erasure of blackness. Stating that racial slavery provided the material and ideological basis for the United States, the Silicon Valley advances this constitutive anti-blackness through its technological products and processes<sup>(192)</sup>, and upholds these power dynamics through white space which is posited as neutral. From the beginning on, whiteness is the core of the labs in Silicon Valley and inscribes all products that are born out of it in myriad ways: “the social embeddedness of the goeey is fundamental to its ideological assertion of white neutrality”.<sup>(193)</sup>

The Graphical User Interface was developed to create an accessible computer, but with that also created the user and enabled powerful user and programmer dichotomies. The metaphors which the GUI consists of were defined with its first implementation, but unconsciously shape our understanding of computers until today. Desktops, windows and folders are only a few of many skeuomorphic notions of structuring information, that derived from the white collar office labour, inheriting racial and gendered biases of a real-life office environment and are selective and limiting. Not only does the graphical user interface have a tendency toward transparency but also proposes objectivity: “navigating through the Finder, it seems like I am accessing my computer from an omniscient seat of all-seeing capacity.”<sup>(194)</sup>

In “situated knowledge” – a reflection on folder poetry, Adina

(190) American Artist „Black Goey Universe“, 2018

(191) Computer interfaces (influenced by their cathode-ray tube (CRT) monitors) were always black, with digits appearing in a white or green on the screen. Only with the implementation of the first GUI in the Apple Lisa, whitespace and white backgrounds came up and created an artificial backdrop for corporate productivity of the silicon valley.

(192) - (193) American Artist „Black Goey Universe“

(194) Glickstein, Adina “situated knowledge” – a reflection on folder poetry, Digital Love Languages

Glickstein proposes folder poetry<sup>(195)</sup> as a possibility to think about our computers with situated knowledge and partial perspective. 5

Navigating through the command-line makes clear that we can only be in one place at the time and that showing our folder poetry unveils to other users what is otherwise hidden. Sharing our setup and habits is an affirmation of situatedness, a way of inviting others into our homes, taking accountability for the partiality of our perspectives, sharing poetry, and volunteering vulnerably.<sup>(196)</sup>

### 5.3 Contact Zones

As stated before, the interface is at once “between faces” and “facing between”<sup>(197)</sup> and with that at the same time active and passive. It comes into being between faces, constituting not just common boundaries but zones of encounter between two or more entities as they enter into relation:<sup>(198)</sup> The interface is passive because it only comes into being directed into and through it. But it is also active in that it captures energy as its own while drawing energies from one entity to channel it into another. While it does that the interface produces a mutual activity that only it can fully describe.

In “When Species Meet” Donna Haraway delves deeper into the mortal world-making entanglements<sup>(199)</sup> that she calls contact zones, working with world-building figures. Here, figures are not regarded as mere representations or illustrations but rather nodes or knots in which diverse bodies and meanings co-shape one another. Haraway’s earlier writing is filled with powerful figures such as cyborgs, monkeys, mice and dogs, and in every case they

(195) In the introduction to her workshop Melanie Hoff describes Folder Poetry as getting intimate with our own computers and writing poetry with their logic while using the command line interface. Some of the workshop outcomes can be seen on are.na: <https://www.are.na/digital-love-languages/folder-poetry-spring-2022>, Hoff, Melanie „Week 2 Folder Poetry“, Digital Love Languages

(196) Glickstein, Adina “situated knowledge” – a reflection on folder poetry

(197) Facing between, the interface binds together actions and reactions of each entity in a production of an overall act.

(198) Hookway, Brandon „Interface“

(199) Haraway, Donna „When Species Meet“, Introduction, P. 4, University of Minnesota Press, 2008

- 5 are speculative creatures of imagined possibility and at the same time of ordinary reality. Just as the contact zone (interface) only comes into being when energy is directed into and through it, Haraway notes similar tendencies for her figures:

The partners do not precede the meeting; species of all kinds, living and not, are consequent on a subject - and object - shaping dance of encounters.<sup>(200)</sup>

I have already mentioned the specific contact zones of Ecotones (9) while introducing this text and its narration. As zones of encounter, Ecotones form between two biological communities. These transition areas where “assemblages of biological species form outside their comfort zones”<sup>(201)</sup> are where the action is, current interactions change interactions to follow and difference produces contamination that transforms.

Redirecting Ecotones from their entirely natural notion to cybercultural ecologies<sup>(202)</sup>, let us take a closer look at a specific contact zone: the Application Programming Interface (API). Throughout the following chapter, we will think with this interdependent, poetic tool and within the spaces it opens up.

## API

An Application<sup>(203)</sup> Programming Interface is a way for two or more computer programs to communicate with each other. It is a type of software interface, offering services to other pieces of software.<sup>(204)</sup> In contrast to the (Graphical) User Interface, which builds a contact zone between a computer and a person, an API connects computers or pieces of software with each other. An API is constituted by being called. These calls can be described as the medium by which they inter-

(200) In the introduction to her workshop Melanie Hoff describes Folder Poetry as getting intimate with our own computers and writing poetry with their logic while using the command line interface. Some of the workshop outcomes can be seen on are.na: <https://www.are.na/digital-love-languages/folder-poetry-spring-2022>, Hoff, Melanie „Week 2 Folder Poetry“, Digital Love Languages

(201) Glickstein, Adina “situated knowledge” – a reflection on folder poetry

(202) Facing between, the interface binds together actions and reactions of each entity in a production of an overall act.

(203) In context of APIs, “Application” refers to any software with a distinct function.

(204) Reddy, Martin (2011). API Design for C++. Elsevier Science. P. 1.

6 act. It has specific methods and endpoints that allow it to make requests and receive responses.<sup>(205)</sup>

Just as matter makes their presence known to us by making “calls” to which we are continually responding, API make calls to which servers are responding. Call and response here does not pose the only, but maybe the most fundamental mode of relating.

API specifications resemble manuals that define these calls, explaining how to use or implement them.

Different categories of API include:

Web API, which will be of most interest to us, are services accessed by a client device that allow different applications, services or systems to communicate and interact with each other over the internet. A subcategory of the Web API is the Browser API, which can extend the functionality of a web browser, either through built-in or third-party applications.

Remote API allow developers to manipulate remote resources through protocols.

The interface to a software library is another type of API which describes and

(205) “API, there’s this very good meme that, I think, explains it in a rather good way. Imagine a bar with different staff in it: The cooks working in the kitchen would be the ‘backend’, the ones behind the bar the ‘frontend’, andddd the waiters running from the bar to the tables are the API!” “Learning How to Walk while Catwalking” Special Issue 16, XPUB

prescribes the “expected behavior” (a specification) while the library is an “actual implementation” of this set of rules.

6

An API can also specify the interface between an application and its operating system.

### 6.1 Characteristics

One of the most important characteristics of API is their leveraging of other service capabilities without having to know the intricate details of how those services work internally. This simplifies programming by abstraction through underlying implementation. Through the hiding of detailed information, such as implementation details, application programming interfaces can greatly simplify complex functions and provide easier syntax to complex codes.

Like all interfaces, API facilitate transformation. In their specific case, the data and software exchange between different software components or systems on the web. As zones of encounter they remain invisible to most, reinforced by the fact that what API mediate are software or computer program bits.

Some of the most common Web API are used when looking at weather forecasts online (or on your weather app), where an API requests data from a weather station or when using map services where an API like geolocation requests a user’s location. Both work interactively, requesting information from recognizable third

6 parties. Built in Browser API, such as the Window API<sup>(206)</sup> or the Intersection Observer API<sup>(207)</sup>, work on a more subliminal basis and are almost not detectable as interfaces, as two or more in conversation, at all. These work intra-actively, requesting information from the user's internal browser or programs.

## 6.2 Beyond conversation

Whether inter-, or intra-active, API are constituted through their relationality. As mentioned above, interfaces in general relate to technology rather than considered a technology. Next, I would like to take a look at digital publications that use API in rather explorative ways. With keeping in mind Haraway's concept of situated knowledges and partial perspective throughout this further examination, I want to ask, can API facilitate (user-)situating tendencies?

This situating is not about mere localization, but rather a question of relationality, of conversation and of world-building. Whether publics nor various kinds of interfaces can be reduced to the notion of a conversation, both also have to be regarded in terms of their poietic qualities, transforming matter both ways.

(206) A Window API requests the browser window size for responsive layouts (7)

(207) An Intersection Observer API observes the browser window and only starts specific functions when they are scrolled into view or cross the defined intersection.

Interfering with the immaterial, translucent conception of the web, I want to look at these digital publications as highly relational (not only through their hypertextual structure) and situating through their singularizing character. An API call that one makes might be similar to one that was made before, but its' response will rarely be the same.

## World Wild Webs

7

Is there such a thing as a technology that cultivates and proliferates different new forms of intimacy, kinship, and situated entanglement?<sup>(208)</sup>

Meandering through the realm of the World Wild Webs, feral webs<sup>(209)</sup> is what I would like to call those digital publications which, through the usage of API, create strong bounds of relationality to, and situatedness of all constituents.

The term “feral webs” was coined by Austin Wade Smith (AWS) in their essay “Queer Servers and Feral Webs”, where they write about their own personality as a queer(ing) system of multitudes, thinking in relation to on- and offline living and nonliving organisms. The essay originally builds upon a publication called “feral.earth”.<sup>(210)</sup> It is hosted on a self-built server technology, communicating with its direct environment, feeding that information to the website through API and displaying individual content, depending on the measured conditions. Access to feral.earth is determined by climate and ecological data at server site in realtime, which includes rain, humidity, moon phases and sun recordings. That means, depending on outer conditions, the user’s request will be served or not.

(208) Mark A Hernandez Mothagy in conversation with Austin Wade Smith, Solar Protocol, January 26 2023

(209) Queer Servers and Feral Webs, mirrorxyz, April 2023

(210) <http://feral.earth/>

7 For me, being queer means incorporating the systems which make me addressable online as an active part of my personhood. Understood not solely as an inert infrastructure, but as an actor in an ecology of self...when, how, and where I serve are conditions in the medium of being online, and of being a person at all. In doing so, I unplug myself from the placeless, scaleless “cloud” of (corporate) Web Service.<sup>(211)</sup>

I now want to circle back to Laurel Schwulst’s idea of “world-building as self-care”, the worlding and building of systems, that we need, that let us exist (4), practices that resonate with AWS’s feral.earth, and their building of inter-relating server structures. It is not solely the writing of these structures, but the publishing, that constitutes them, makes space for- and builds upon relations.

We have already been discussing conditions and dynamics of servers, hosting and self hosting in “Grounding Infrastructures” and “Situated Technologies: Feminist Servers” and roamed thoughts of localized and environmentally conscious ways of browsing in “Of Oceans and Land”. Taking a closer look at feral.earth gives us the opportunity to see some of the aforementioned ideas implemented and transformed into a publication: With its self hosted infrastructure and possible refusal to serve, it answers the need for forms of resistant publishing and relational structures of minor-tech, existing beyond clouds and god-tricks. Also if we take into account notions of contamination, collaboration and co-development, which I have examined closer in “interdependencies” and “necessary strangers”, feral.earth responds to them through its entangling of environmental and

(211) *ibid.* Queer Servers and Feral Webs

technological ecologies, highlighting its interconnectedness and inability to think about these concepts separate from each other.

7

Feral computing asks how technology can be a vector of an animistic ontology (that is consistent with new materialist thoughts) towards learning how to locate ourselves within this world and in the process of getting more entangled in it.

I'd like to engage in and build upon those ideas when delving into the World Wild Webs on the next pages, but not without making clear that of course they also have their downsides and come with a few traps of their own.

First of all, there is definitely a degree of how much you rely on the web as an infrastructure versus a kind of organism, depending on the need.<sup>(212)</sup> For example, websites that display crucial information, aid or catastrophe warning systems, are not allowed to go down when the sun sets. There is also a risk, as with many friction-increasing concepts, to make this a "netstalgic" movement of unreflected early internet sentiment that romanticizes broken applications only for their sense of not working. I discussed this in more detail in "Of Oceans and Land" and "Netstalgia". Another inherently veiled issue is the maintenance work that accumulates with self hosting, usage of likely breakable applications and building affective infrastructures. As mentioned in "Grounding Infrastructures" all kinds of infrastructures involve service, maintenance and care labor, as well as materialities which are situated in space and time.

feral.earth is not one-of-a-kind, but rather lines up in a wider spectrum of

(212) Mark A Hernandez Mothagy in conversation with Austin Wade Smith, Solar Protocol

7 browser based publications that enable and display intra-activity through API and self hosting technologies. In the following I will take a closer look at some of them and inspect their functions in terms of building and disclosing interdependent relations as well as their visual appearances. In order to establish some kind of categorization I tried to sort them by the matters they relate to. Is the feral (API depending) publication a gimmick<sup>(213)</sup>, a tool, or a technology that enables a certain kind of thinking, seeing and relating?

#### 7.1 Responsive Web:

The responsive web is an approach to web design and programming that originated in the rising use of mobile websites and growing variety of Internet enabled devices. It already carries its main characteristic in its title: responsive applications or websites automatically relate to their current device or window width. Other than some more fancy API-using websites, this concept works below threshold and has become a web development standard, which is commonly not recognized as outstanding anymore. Still, I find it important to address here because it shows situating, inherently relational characteristics in responding to the user's devices features. Technically, responsiveness can be set up in different ways that are generally easier than the usage of API. There's two common ways to create a responsive website only with CSS: The usage of relative CSS units (like rem<sup>(214)</sup> or vw<sup>(215)</sup>) or so called Media Queries. The latter allow you to apply media dependent style sheets depending on a

(213) A gimmick is a novel device or idea designed primarily to attract attention or increase appeal, often with little intrinsic value. Definition via Dictionary.com, Online: <http://www.dictionary.com/browse/gimmick>. A gimmick in this specific case would also mean proposing only speedrun-mode, generated, binary answers as response to the API calls.

(214) relates to the Font size of the root element

(215) relates to 1% of the viewport's width

device's general type (such as print vs. screen) or other characteristics such as screen resolution or browser viewport width. Lately Media Queries have come into use for accessibility concerns or even user preferences (prefers-reduced motion, prefers color scheme) which are informed by a user's actual settings: user agent or at the operating system level.

Although or maybe because responsive web design is less advanced in its technical functionality than API, it has been played around with, made visible, has been questioned and taken to its extremes. Yehwan Song, a web artist and designer who is well known for her anti-friendly, nonuser-centric and unconventional approaches, created „Very Responsive“<sup>(216)</sup> to highlight web design that is based only on few standard screen ratios as unsustainable and obsolete. „Very Responsive“ is a website that, with narrowing down the viewport width, vertically folds the containing image like paper. With this skeuomorphic illustration the site's visuality reminds of the (not so responsive) interfaces around the years of 2010. Song raises the question of how to design long lasting websites in this constantly changing environment. Unfortunately her work can only be experienced through a youtube video documentation, which takes away a lot of explorative freedom and curiosity, making it harder to grasp as a concept.

## 7.2 Internal:

Times New Arial<sup>(217)</sup> is a single use website<sup>(218)</sup> that focuses on typography. It combines two of the most used default fonts, “Times New Roman” and

(216) [https://yhsong.com/detail.html#Very\\_Responsive](https://yhsong.com/detail.html#Very_Responsive) by Yehwan Song

(217) <https://timesnewarial.liebermannkiepereddemann.de/> by Liebermann Kiepe Reddemann

(218) A single-use-site or single-serving site is a website composed of a single page with a dedicated domain name and which serves only one purpose. Definition by Craig Snyder (March 20, 2012). "10 Single-Serving Sites That Are Useful, Funny, Or Weird". MakeUseOf. Retrieved March 21, 2014.

- 7 “Arial” through a cursor API. The two fonts are merged and slanted, depending on the cursors x and y parameters. Most visually significant here is that “Arial” is a non serif, and “Times New Roman” a serif font. Merging both shows unfamiliar stages of typography.

Made possible through API calls that track the cursor’s coordinates, the font transitions fluidly in relation to the cursor’s current position. To provide orientation for the transitional parameters the screen is split in four equal parts through a thin black cross. At each side of the cross, the parameter is named and its current state is depicted and frequently updated in percentage numbers.

A centered headline shows the title of the website and functions as a use-case for the transition at the same time. The punctual and minimal styling of the website shifts focus solely on the typographic experiment and highlights its mathematical character. Working with the cursor API here creates an interesting moment that unsettles user/ programmer (or professional) distinctions. The manipulation of typography or single letters is usually something that is subject only to typographers or designers, here made into an interactive user experience with the help of common known actions.

By clicking anywhere on the site, the four-sectioned layout remains, but the colors are inverted, revealing more detailed information about the type experiment and access to the font files. I consider this an important step, elevating the superficial gimmicky application to an open and reusable tool: A variable Typeface.

### 7.3 Time:

Seasons in Pentameter<sup>(219)</sup> explores the relationship between changing seasonality, poetry, and sound while displaying the current season of the 72 pentads, each a five-day microseason in the Japanese calendar. A third party API facilitates the content connection to the current time. Particularly interesting about this example is the translation of traditional but sensual information that happens on many different layers. Depending on the current microseason, which is measured through an API, the small poetic description and name of the season will change, but also the added sound and even the typographical style that is based upon a custom made variable font. Visual, audio and written text compile, interact and create micro atmospheres. Besides the mentioned styling that shifts with the season, the site's appearance is kept rather minimal, not using additional colors or fonts and relying on only two recurring layouts. Focussing on poetry, poietics and their exploration "seasons in pentameter" consciously refuses generalized visual depictions of seasons or nature. Changing its microseason every five days, the site and its multimedial translations and transformations can be used as an archive and orientational source for "low technology" and knowledge that might be denoted as "traditional" and rarely finds its place in the webs these days.

Sun Stream<sup>(220)</sup> is a digital clock transformed into a 24-hour song that shifts based on the amount of a visitor's available light.<sup>(221)</sup> For that, 14 different sun positions are mapped and connected to 14 audio loops. The

(219) <https://pentad.world/> by Laurel Schwulst, Tiger Dingsun and Marie Otsuka

(220) <https://lian-risd.netlify.app/sunstream/> developed by Colin Dunn, design by Lian Fumerton-Liu and Sound by Sam Kotrba

(221) this does not refer to the current weather condition but only the sun's position in the sky.

7 sun positions are called via a third party API provided by sunCalc. Not only the sound, but also the site's graphical appearance interacts with and mirrors the sun data: color shades and intensities change with every sun position. Kept plain and rather abstract, the graphical interface shows blinds that open on cursor drag and define the overall brightness, as well as the sound's volume. Positioned on the site's center lies a gradient light-yellow circle, resembling a sun. The current amount of available light is depicted in watt in a top centered button. Although they both work with sound, other than "Seasons in Pentameter", "Sun Stream" heavily relies on colors, shapes and gradients in order to map and depict different phases that relate more to a calming screensaver than a relational publication.

#### 7.4 Geolocation:

Cloud translations<sup>(222)</sup> was an interactive website which used the excess data of Google Streetview to generate concrete poetry. It made use of a Google Streetview API<sup>(223)</sup> to access images of the sky all around the world. This brings an interesting moment to my above posed questions, in terms that here the user consciously has to locate or position themselves, instead of being asked whether their location data is allowed to be used. Additionally to the Google API, the site had an optical-character-recognition implemented, that analyzed the clouds, wires, trees, and birds and returned them as textual characters.

The site relied on a default looking graphical interface. It was split in half vertically, and the right side again in half horizontally. Each of the three sections depicted another type of data: the biggest one on the left side

<sup>(222)</sup> <https://everest-pipkin.com/projects/cloudtranslations> by Everest Pipkin

<sup>(223)</sup> Unfortunately this is also why the website is not online anymore, the Streetview API made some unforeseen changes, that were not compatible with Cloud Translations

showed a map, which one could move through, just like Google Maps. The top right section contained the respective Google Street View photograph of the sky and the bottom right showed three different kinds of textual information on a white background: two buttons saying “refresh” and “about”, the current position depicted in longitude and latitude and the concrete cloud poem.

7

It was, rather than in the aforementioned publications that relied on a more direct input-output structure, hardly possible to retrace the relation between the depicted poem and the above image of the sky. This laid the focus on the visual, textual structure of the map, sky image and concrete poem, rather than on content or figurative graphic images. The threefold translation that happened within “Cloud Translations” on the one hand made it harder to grasp its intra-active relating character, but on the other hand escapes fast, detour-less, generated solutions, which have affected common webs enough already. Ultimately, it made itself illegible.

#### 7.5 Weather:

“Weather gradient”<sup>(224)</sup> is a single use site, consisting of a vertical linear gradient slowly crossing the screen from right to left. The gradient depends on weather data which is called through an external API. In the top center of the page lies a semi-transparent input field, where the user can enter a (US) zip-code, in order to call the location’s current weather condition. In the bottom left corner the page depicts the parameters and their current state, which the gradient is relating to: location, temperature, cloudiness, wind, humidity as well as the exact date and time the gradient was created at. Again, design choices are kept very minimal in this example,

(224) <https://weathergradient.com/> by haha.services (John Provencher)

- 7 the font choice relies on the default sans-serif variant. Similar to “Cloud Translations” it is quite hard to make sense of the weather’s visual translation, as too many parameters influence the slowly floating outcome. Trying out different locations gave me only one hint about possible relations: The speed of wind, measured in miles per hour, affects the speed which moves the gradient across the screen. In general, intra-activity and relationality to location based climate surroundings are rather hidden in the “Weather Gradient”, it uses almost no recognizable resemblances to its internal processes and is, other than weather conditions, not life updating. There’s only a short moment of encounter which is quickly translated into an abstract visual.

#### 7.6 Various Resources:

“feral.earth” is not a single use site and also not a game nor text based publication. Assembled into a grid its various functions rather build some kind of multi-nodal or portal point, from which information, calls to action and dependencies can be accessed. As mentioned above, feral.earth is self hosted on the developers site, in proximity to their “home” and in order to access one of the grids sections, specific parameters have to be met. These depend, amongst others: on the current time, whether sun shines on the server site or if wind hits from a certain direction. Visually feral.earth relies on the distinction of different section contents mostly through abstract shapes and colorful gradients on an otherwise white background. What happens when a parameter is met and the respective link is clickable, is the simple transfer toward the linked content, which is in most cases an image. The short routing and quick answers feel in some way disproportionate and unexploratory to all the work and thought that has been put into the self hosting, partially serving technology beforehand.

“Peckish”<sup>(225)</sup> is a generative browser-based animation, in which a range of urban birds inhabit procedurally generated environments on different servers, and occasionally seek nourishment from objects and organisms they encounter. The project runs on a solar server network, where their active hosting server in the network changes throughout the day to wherever it is sunniest. „Peckish“ is visually rendered depending on current solar energy values of the server, ranging from black and white wireframe mode to colorful 3d renders. Each server’s location features site specific surroundings and local birds. The pace of the birds movement depends on the current battery level and the current time of the day will not only affect the applications light but also the birds food supply. There are two modes the site can be viewed in: live mode and sandbox. The live mode updates according to the mentioned parameters every five minutes, re-evaluating battery levels and server location. The Sandbox mode, is what the developers originally implemented for their own workflow, but then decided to leave open to all users. Here the different parameters can be switched manually through sliders.

The publication consists of myriad specific encounters that vary in sizes and impacts. The relation of the visual appearance, user interaction and the actual data is facilitated through API which requests crucial information from a range of different servers. An interesting, post anthropocentric dynamic arises, because again, not the user is asked for their personal environment, but rather „Peckish“ seems to relate to a world of its own.<sup>(226)</sup> The site's closely entangled relating and located real-time information, creates a subtle yet characteristic translation into an overall atmosphere.

(225) <http://solarprotocol.net/sunthinking/mckay-lucas/live.html> by Kristin Lucas and Joe McKay

(226) Where sure, humans have been present at some time, building the streets the birds walk on, but don't play a role anymore.

7 Of course the above mentioned publications all use API in purposefully explorative contexts and only give a very partial insight into its overall usage and browser based publications in general. Within these counterpublics, I find the thresholds interesting that loom in the background, that meander around, and raise questions like “when does an abstraction turn from appearing illegible but stimulative into a homogenous unrelated mass?” Or “what is it that transforms a relational encounter into one, that results in more than a purely visual gimmick?”

Resisting a quick and easy read can be achieved through more than one translation of information, but on the other hand can easily get too abstract, too hard to understand as any form of relation at all. Providing some sort of visual or textual explanatory option can in some cases enhance understanding, as we have seen in Peckish and their provided sandbox mode. I feel that sometimes the extent to which a publication works from a situated perspective or situating (human and nonhuman beings in their surroundings) can be a balancing act of legibility and abstraction.

We have considered different approaches to that with the above described feral webs. Some build upon visual references to establish contexts of relationality while others use rather subtle media such as sound or typography in order to create atmospheres.

Sure, legibility, or generally the feral webs visual appearance, can not be the only factor considered when inspecting modes of relationality and interdependence.

Escaping purely gimmicky accounts of those publications, it might be helpful to think beyond first encounters. This could include building relations that go further than just temporarily informing different visualities, that consider different agencies, not just the one of the user, aiming not for

consistency or fixed (visual) identity but encounters that are informed by ambivalence, transformation, contamination. 7

The extent to which feral webs facilitate our locating and entangling in this world, are not easily answered, but might rather be understood in degrees than static, dichotomous responses. Through the informing of ideas to think with, providing of resources and reusable tools or world-building that go beyond human matter, they explore and proliferate new situating forms of kinship and interdependencies.

#### Epilogue: Entangled Orbits

8 In close examinations of technologies, matter and relationships, myriad calls and responses, I opened spaces for coexistence, made place for contamination both ways; many ways.

Date: Aug 16 2023 12:05

To: spider@web.de

From: kim-digitale.grafik@web.de

Subject: on constructing webs

Finally, spider,

patiently you have been sitting on the web, that you, despite my attempts to remove it, spun across my window, over and over again. Next to me while I was writing you sat there almost every day, and just like you (probably waiting for prey to get caught) I was patiently sitting, writing, awaiting the opportunity to get in touch with you.

I deeply admire your skills to spin webs and sometimes wish I could do the same, but my own abilities to spin threads and to connect are limited to (textual) thoughts and therefore can't (as yours do) work as gathering and defense mechanisms while extending your nervous system. Over the time I have been spinning this text and you had your nets redone several times, I noticed our processes were quite similar. The first thing you have to do is bridging a gap, which you later spin your web across: by producing a fine adhesive thread you then drift on a faint breeze across the gap. Once you've constructed an outer framework, you work your way in, constantly producing a thin silk thread that you would pull into place using two to four of your eight legs at the same time.

In constructing this text I have unknowingly followed similar patterns. In working my way from the clouds, the (high) levels of scientific knowledge creation, to the bottoms of grounding infrastructures and situated perspectives, I have bridged wide airy gaps and established some sort of framework. While typing and simultaneously producing, I, just like you, made my way in. Tackling notions of publics, technologies and ways of relating to both, while constantly entangling and connecting nodes, keeping track of every single thread while not losing sight of the big picture, quite exhausting if you ask me! And then, in the end comes the fuzzy micro work of building a center, where I delved into the world wild webs and their detailed examinations.

Now I presume, since you've been next to me all the time, you have read what I fabricated here anyway and I'd love to hear your thoughts.

Also I hope you are all right now, in the end it was not me but the heavy summer rains that destroyed your web and did not make you come back yet.

say hello again soon,  
Kim

P.S. To maybe take the pressure of a bit, I am currently also asking some other friends for a little proofreading advice (but none of them are as experienced in spinning techniques as you are)

Date: Aug 17 2023 01:42

From: kim-digitale.grafik@web.de

To: spider@web.de

Subject: re: on constructing webs

Good Evening,

I appreciate your getting in touch with me! please excuse my late reply, other than you I mostly prefer to work at night. I am happy to help with my expertise, which is actually manifold in this case: As spider bot, I have been also crawling digital webs, additionally to my endemic livelihoods. That's quite an elaborate orbit you have produced there yourself. I have to say, even for me, it was not easy to keep track of all its agentive matters, threads and anchor points, but I'll try my best to utter some thoughts in a comprehensible way.

I guess the fact that publishing relies on webs is not news: Circulation of texts and therefore becoming a public, was always a matter of interconnectivity. Citational technologies of footnotes may have been that networks' smallest entity for a long time, what hypertext structures add to this, is not so much a new model, but rather an exponential increase in scope and speed. <sup>(227)</sup>

For some points you are trying to make, the figure of the network seems insufficient and generalizing, are they solely noticed within species, ca-

(227) Ludovico, Alessandro "Post Digital Print: The mutation of publishing since 1894", Onomatopée 77, 2012, P. 138-45

tegories or disciplines, the entanglements you here posed go across and beyond.

I found your ideas about technologies and their possibilities in proliferating different new forms of intimacy, kinship, and situated entanglement very inspiring, as this is something I am still struggling to figure out myself.

Especially your more detailed descriptions of the various technologies that focus and enable these interdependent ways of publishing helped my understanding of this ontology a lot: In that, some seem to be more veiled behind their infrastructural qualities (self hosting, feminist servers, responsive webs...) than others which display their relating attempts rather openly through visualities or terminology choices (publications like *federal earth*, *Cloud Translations* or *Peckish*...).

Now there is another publishing tendency you open up with a closer investigation of the world wild webs and their API facilitated technologies of relation: situating recipients and actors as well as situated perspectives are recurringly inhabiting the text. You mentioned that users, or matter in general, might be situated through reflections of, and relating to their direct environments. I here remembered the calls and responses (that you explained in the introduction and again, within interfaces), through which matter makes itself known to us and API communicate. They seem to enable epistemologies of location and partial, embodied knowledges for all participating organisms.

Further I have recognized these calls and responses highlighting the conversational as well as poetic qualities of publishing ecologies. The notion of transforming matter both ways, here might be crucial for a deeper understanding of what it means to go beyond dualistic relations of question-answer, predator-prey, host-symbiont. This understanding enables what I think of as interdependent, tightly entangled communities, that only through relationships form ecologies.

Community is described as constitutive to publishing, the production of a

text can only produce meaning through its embeddedness within social relationships.<sup>(228)</sup> “Publishing ecologies” therefore seems like an appropriate, even necessary way to consider these dynamics!

When you were writing about interfaces I had to think of my webs, that strangely inhabit similar boundary conditions in a sense that they create kinds of liminal spaces, coming into being by putting energy towards them. Also they're always connected to (something) and are therefore relating to, just as an interface forms a relation to technology rather than it is considered one itself.

I'd love to hear more about what you called feral webs, I feel they quite well respond to an apparent need for forms of resistant publishing and relational structures of minor-tech! Hope you don't mind, this has gotten a bit longer than I intended.

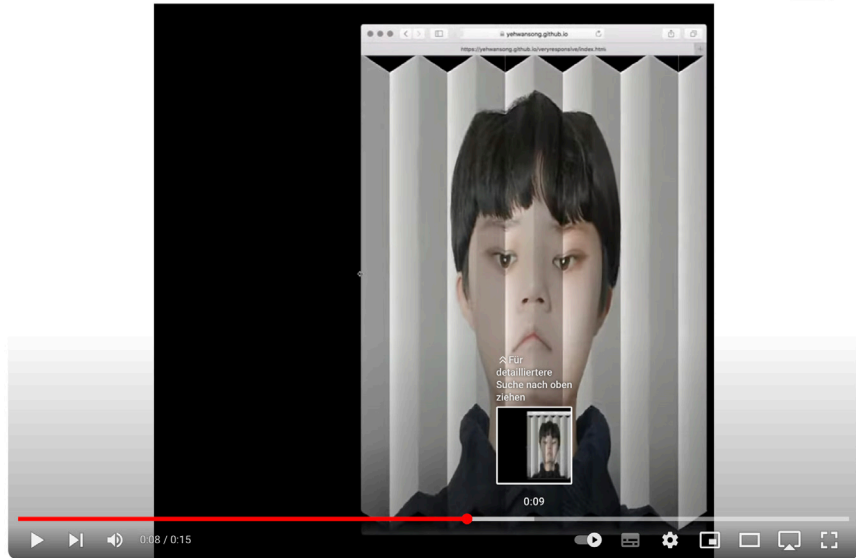
until we entangle again,  
spider

(228) Shukaitis, Stephen and Figiel, Joanna „Publishing to Find Comrades: Constructions of Temporality and Solidarity in Autonomous Print Cultures“ in *Lateral: Journal of the Cultural Studies Association*, Issue 8.2, 2019

0

Screenshot 2023-09-29 at 10.27.26  
Very Responsive Yehwan Song

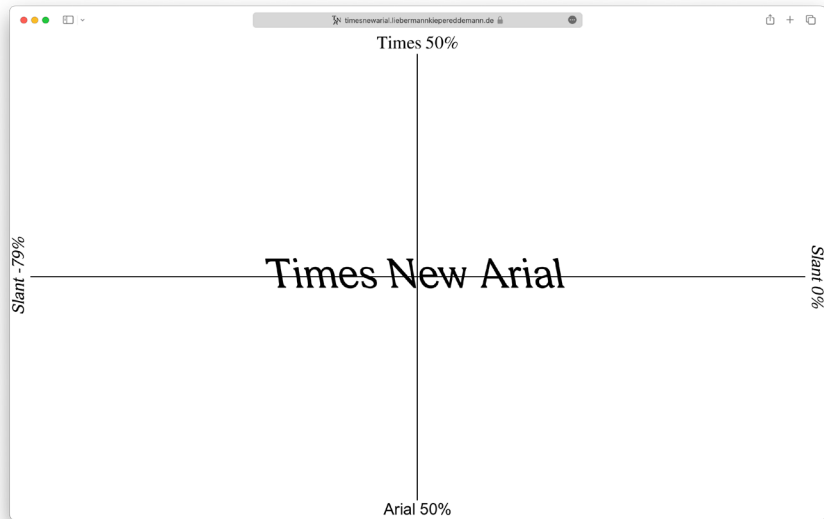
1 1.1 1.2 1.3



4 4.1 4.2 4.3 4.4 4.5 4.6 4.7

5.2 5.3

Screenshot 2023-09-29 at 10.34.41  
Times New Arial Liebermann, Kiepe, Reddeman



7 7.1 7.2 7.3 7.4 7.5 7.6

3 3.1

3.2

3.3

3.4

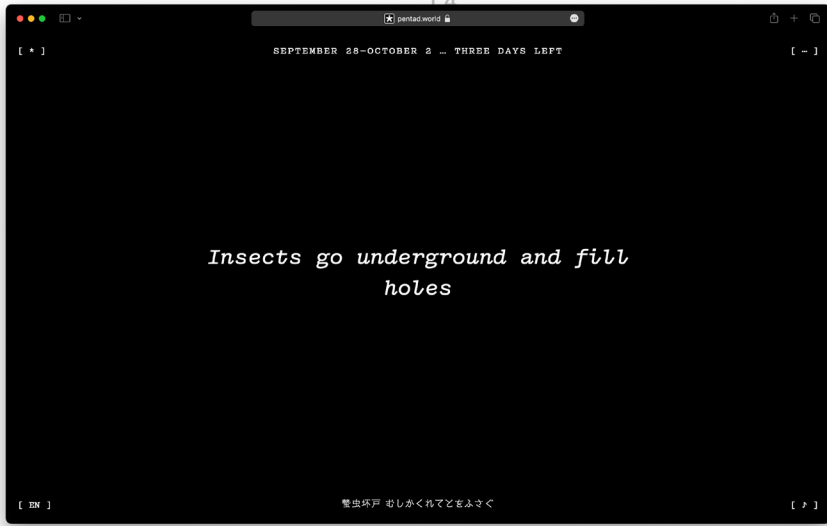
8

2 2.1

2.2

2.3

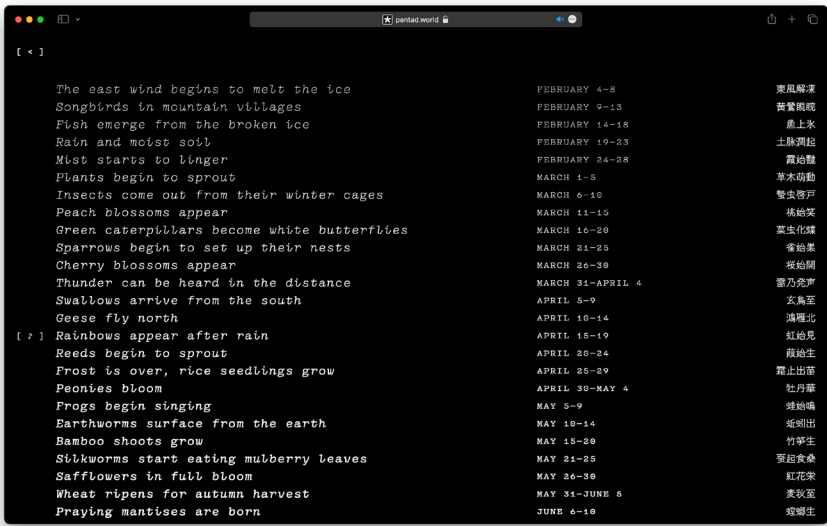
10



Screenshot 2023-09-29 at 10.20.36  
 Seasons in Pentameter  
 Laurel Schwulst  
 Tiger Dingsun  
 Marie Otsuka

5.1 5  
 5.2  
 5.3

4.1  
 4.2  
 4.3  
 4.4  
 4.5  
 4.6  
 4.7



Screenshot 2023-09-29 at 10.21.10

7.1 7  
 7.2  
 7.3  
 7.4  
 7.5  
 7.6

8

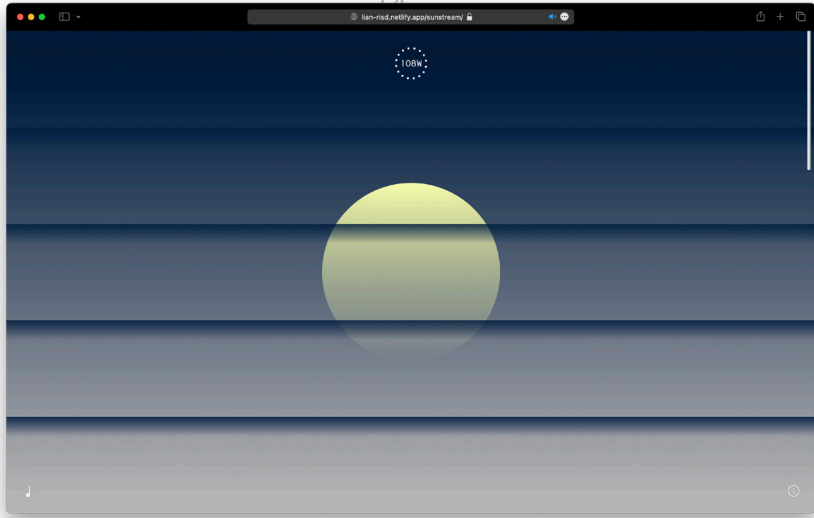
3.1 3

3.3  
 3.4

0

Screenshot 2023-09-29 at 10.22.21  
Sun Stream  
Colin Dunn  
Lian Fumerton-Liu  
Sam Kotrba

1 1.1 1.2 1.3 1.4

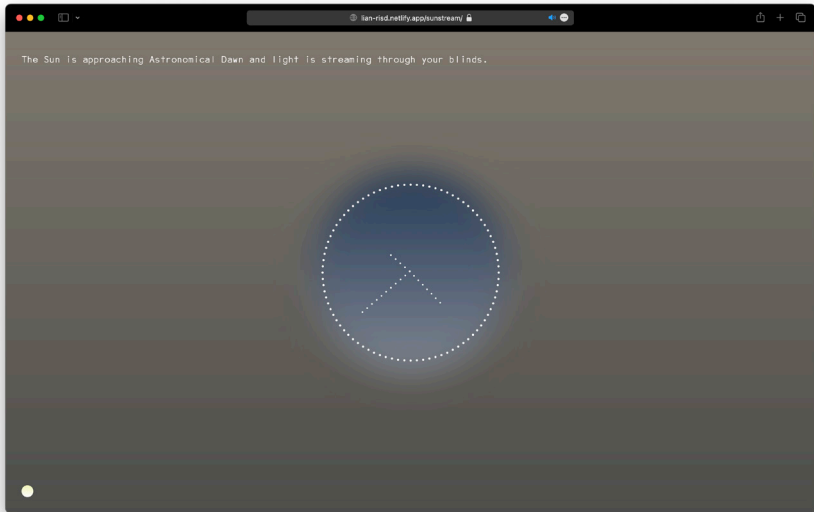


4 4.1 4.2 4.3 4.4 4.5 4.6 4.7

5 5.1 5.2 5.3

Screenshot 2023-09-29 at 10.22.38

7 7.1 7.2 7.3 7.4 7.5 7.6



3 3.1

3.2

3.3

3.4

8

2

2.1

2.2

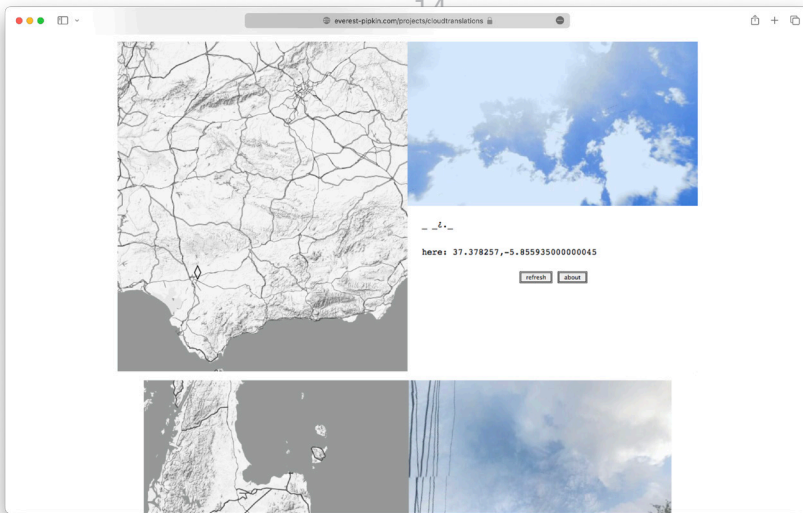
2.3

10

1.1 1

1.2

1.3



Screenshot 2023-09-29 at 10.33.06  
Cloud Translations Everest Pipkin

5.1 5

5.2

5.3

4.1

4.2

4.3

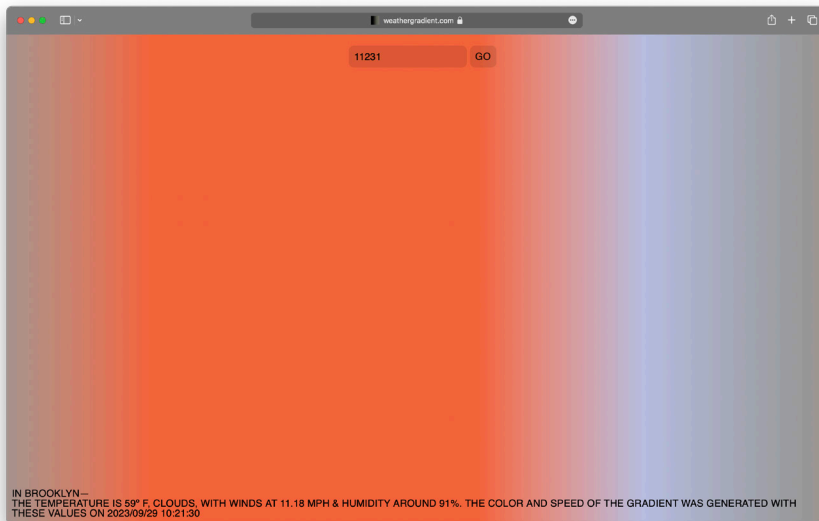
4.4

4.5

4.6

4.7

4



Screenshot 2023-09-29 at 10.21.37  
Weather Gradient John Provencher

7.1

7.2

7.3

7.4

7.5

7.6

7

8

3.1

3

3.2

3.3

3.4

10

2.1

2

2.2

0

Screenshot 2023-10-03 at 10.24.55 (Archived)  
feral.earth Austin Wade Smith

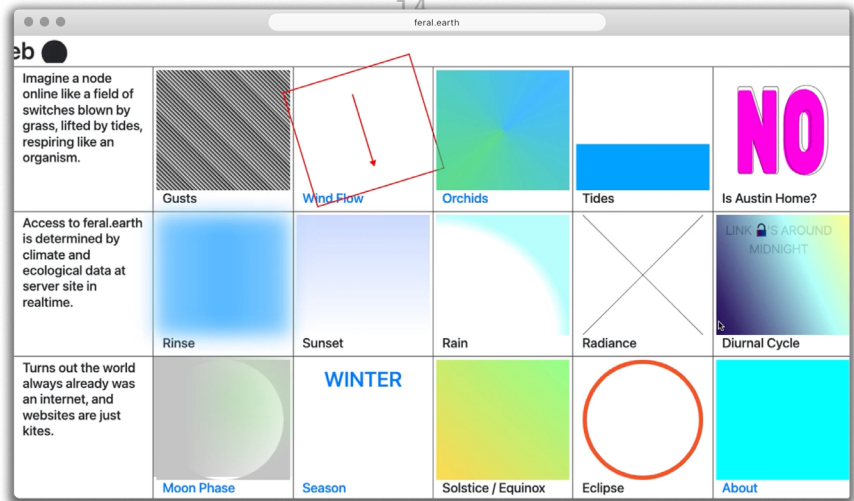
- 4 4.1
- 4.2
- 4.3
- 4.4
- 4.5
- 4.6
- 4.7

1 1.1

1.2

1.3

1.4



5

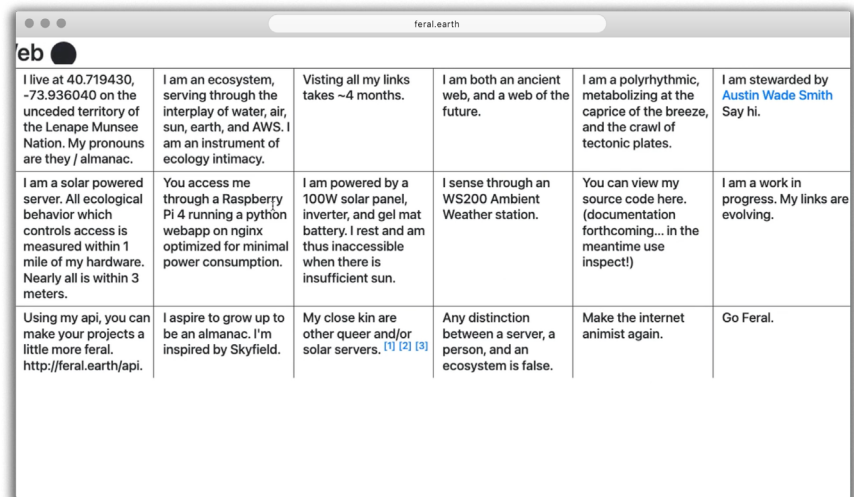
5.1

5.2

5.3

Screenshot 2023-10-03 at 10.25.09 (Archived)

- 7 7.1
- 7.2
- 7.3
- 7.4
- 7.5
- 7.6



3

3.1

3.2

3.3

3.4

8

2

2.1

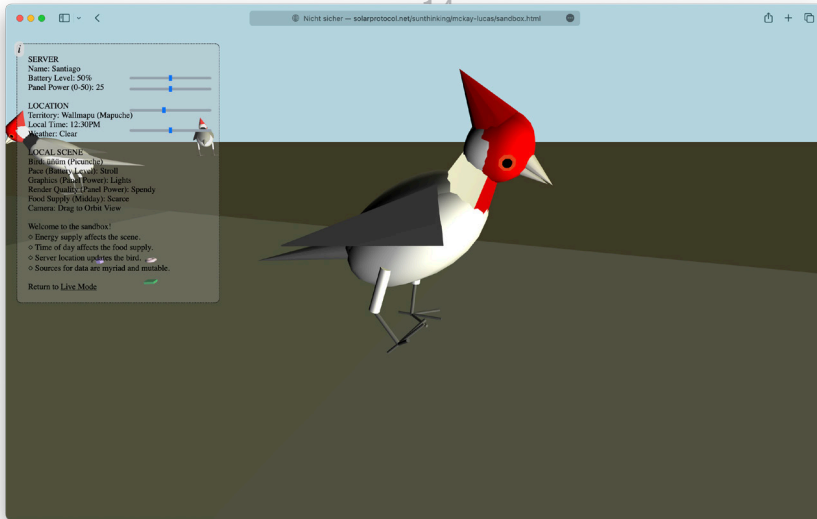
2.2

2.3

1.1 1

1.2

1.3

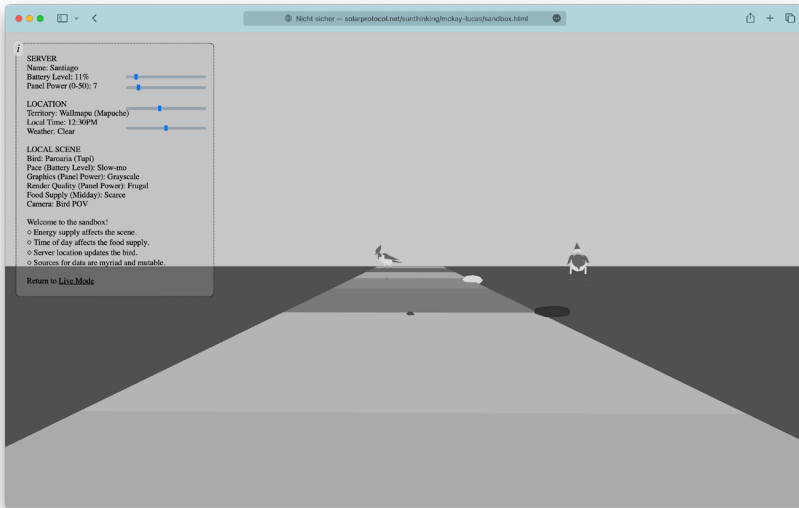


Screenshot 2023-09-29 at 10.18.52  
Pekish Kristin Lucas  
Joe McKay

5.1 5

5.2  
5.3

4.1 4  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7



Screenshot 2023-09-29 at 10.19.10

7.1 7  
7.2  
7.3  
7.4  
7.5  
7.6

8

3.1 3

3.2

3.3

3.4

2.1 2

2.2

My lacking of words for what I have been trying to put together here, temporarily gave me a hard time. Every time I would “find” new descriptions, terms, phrases, paths that have trodden before me, which were gratefully entered, I felt closer and encouraged to composing these thoughts traceable and, into what should result in: a text, a written Bachelor Thesis.

As I am examining and encouraging practices of publishing that live in and thrive through ecologies, I can’t leave the environments and relationships that make this specific publication possible be unacknowledged. I want to point out, that many of the mentioned thoughts have not been results of my individual observations but rather of the myriad contaminating and collaborative encounters I had over time, a co-production of knowledge.

My studies with Klasse Digitale Grafik over the past two years have introduced and encouraged me to think in ways that go beyond disciplinary notions of graphic-, and type design or code. From considering our (own) practices in workshops or self-initiated “Inkasso meetings”, to exhibition making or planning and operating a congress, tech-help chats that saved me hours of work and great frustrations, to Christoph’s and Konrad’s considerate individual consultations and many more aspects that would eventually break the scope of this text for now, they all gave thoughts and discourse, and gave space and support.

I would also like to mention a more recent encounter, that specifically informed ideas to this work. In May 2023, I met Katarina Nejdil in a workshop which she gave at the HFBK. Under the name of “The personalized web” we were free to explore individualizing functions of the web through code and graphic design. Here, I had the time, space and encouraging support of Katarina to get in touch with concepts and practices of API, that shaped this text to a great extend.

In visiting the theory seminars by Hanne Loreck, who is the professor for Art-, and Cultural Sciences and Gender

Studies at the HFBK Hamburg, I had my first encounters with many ideas and scholars that form constituent parts to this work today and sparked my own curiosity to engage in theoretical practices further on.

At least as important as the academic networks for this text were my close personal ones: thank you Karla for all the hangouts, work sessions, talking and not talking, your infectious interest to animal politics, your trusting and calming words. Rosa was the first one to read this, when it was still way more messy than it is now, in a moment of overwhelming doubt, thank you for your considerate questions, patience and input from your own theoretical studies.

I also don't want to leave Hanako Emden and Sophie Florian unmentioned, whom I have met in a workshop a while ago. Together with Colorama Books they have published "Gritli - The Moth Diaries" which I loved from the first read and deeply inspired me to take into account my non-human comrades and make our intimate encounters part of this text.

Thank you Fernanda for your thoughts, especially on the texts comprehension and its layout!

Last but not least, this text was carefully proofread by Megan Dieudonné, thank you for your spontaneous commitment to and patience with my words!

Proposed by Karen Barad, the theory of agential realism is about seeing the world as a dynamic interplay of agencies that shape what we perceive as real. It highlights how everything, from the tiniest particles to the biggest systems, play a part in creating the complex reality we live in. Understanding this as the combining ideas of “Agency” and “realism”, here might be helpful to break it down a bit: Agency refers to the ability of things, whether they are human or non-human, to have an effect or influence on the world, while realism is about acknowledging that the world exists independently of our thoughts and observations.

Now in bringing these two together, Karen Barad’s concept suggests that the way we understand the world is through the interactions and relationships between things that have agency. These interactions create what we perceive as reality.

(1) Wikipedia contributors, “Agential realism,” Wikipedia, The Free Encyclopedia  
 (2) Sauzet, Sofie „Phenomena – Agential Realism“ new Materialism [Blog] 2018

Assemblage<sup>(3)</sup>

- 4 4.1
- 4.2
- 4.3
- 4.4
- 4.5
- 4.6
- 4.7

Assemblage comes from French: agencement, “a collection of things which have been gathered together or 60 assembled”, as a philosophical approach frames social complexity through fluidity, exchangeability, and their connectivity. Central to assemblage theory is that organisms do not act exclusively by themselves, and instead human and non-human action requires complex socio-material interdependencies.

(3) Diaz Ruiz, Carlos A.; Penaloza, Lisa; Holmqvist, Jonas (2020-03-07). “Assembling tribes: An assemblage thinking approach to the dynamics of ephemerality within consumer tribes”. *European Journal of Marketing*. 54 (5): 999–1024

Cyberfeminism

There was never a Cyberfeminism but many, which makes this movement a heterogeneous stream, fed through a variety of feminist, techno-utopian visions and disciplines.<sup>(4)</sup>

Delving into a detailed description of Technofeminist histories would go beyond the scope of this introduction, so rather I will try to depict some of its core ideas to lay out the groundwork I can then build upon.

7 What distinguishes cyberfeminist approaches from other feminisms is the thought that technologies are no longer prosthesis and instruments for liberation separate from the body. Cyberfeminist utopian ideology lies in body and gender, which are themselves technologies, it aims to take responsibility for the social relations of science and technology. This means to refuse falling for common demonizing doctrines of technology and instead embrace the “transgressed boundaries, potent fusions and dangerous possibilities” which Donna Haraway makes her cyborg myth about in her seminal “Cyborg Manifesto”. What she proposes with that is a chimeric, monstrous world of fusions between animal and machine, where “people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities”<sup>(5)</sup> But since the cyberfeminism of the 1990s, new ways of acting and thinking has come up in response to rapid technological developments that have unveiled new dimensions of exploitation and discrimination. Cyberfeminism is not all about “cyborg myths”, practices like feminist hacking<sup>(6)</sup> or techno-ecofeminist<sup>(7)</sup> approaches have formed significant contributions along the way. While asking myself if and why Cyberfeminism can be important to this text, Cornelia Sollfrank, early net art pioneer and cyberfeminist advocate, brought in an important perspective with her take on the most recent cyberfeminist states and influences:

Issues have expanded from a purely informational dimension and its emancipatory potential into a material dimension. Questions of technology are now bound together with questions of ecology and the economy.<sup>(8)</sup>

3 3.1

(4) Sollfrank, Cornelia „The Beautiful Warriors: Technofeminist Praxis in the Twenty-First Century”, Preface, P. 5, Released by Minor Compositions 2020

(5) Haraway, Donna, „A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century” in „Simians, Cyborgs and Women: The Reinvention of Nature”, 1991, 149-182

(6) Feminist Hacking is regarded as combination of technical competence, feminist principles, and socio-political engagement. Here technical competence is not pursued for its own sake but rather to engage in common action, informal and formal transfers of knowledge and the production of visibility in the sense of exposing hidden mechanisms of the technological realm, such as various infrastructures (the physical, economic and material structures in which technologies are embedded).

(7) Techno-ecofeminism focuses on the vitality, transformational power, and relationality of human and non-human entities and their different temporalities. Feminist techno-eco subjectivity is a vibrant assemblage of concatenations, relay of pulsating circuits and non/human movements, communication, and sentiments in the technoplanetary layers and deposits called Earth. Volkart, Yvonne „TECHNO-ECOFEMINISM: Nonhuman Sensations in Technoplanetary Layers” in „The beautiful Warriors”, 2021, P. 114

(8) Sollfrank, Cornelia “The Beautiful Warriors: Technofeminist Praxis in the Twenty-First Century”, P. 2

An ecologization of thinking was described by Erich Hörl as the “cipher of a new thinking of togetherness and of great cooperation of entities and forces”. It significantly shapes contemporary thought and demands and drives the radically relational renewal of theories of knowing and being.

1.1 1  
1.2

Ecologization (of thinking)<sup>(9)</sup>

(9) Hörl, Erich. „General Ecology: The New Ecological Paradigm Humanities“ Introduction to General Ecology, P. 3

The term “Ecology” derives from the ancient Greek “oîkos” meaning as much as “house”, “dwelling”, “habitation” and “-λογία” (-logia) for “study of”. Rather than commonly understood today (narrowed down to biological concepts and biotic relations), ecology, from its epistemological roots, describes the study of the place or building where one lives. Comparing the building of own server structures with squatting, (mentioned before in “self hosting”) the political act of occupying (empty) spaces, is closely entangled to the idea of feminist servers.

Ecology (epistemology)

The term Ecotone is a combination of “ecology” and “-tone” deriving from the Greek “tonos” (tension), describing a place where ecologies are in tension. These tensions arise through two or more converging biological communities. The transitional area they converge in is what we describe as “Ecotone”. These come with different shapes and dynamics, some appear as sharp boundary lines, others rather include or blend across broader areas.

Ecotone<sup>(10) (11)</sup>  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7

Ecotones can create diverse ecosystems: two communities have to integrate and myriad different forms of life have to live together, compete for space and nourishment. The influence of the two bordering communities on each other is described as “edge effect”, it commonly brings up higher densities of the single species population, as well as species that are not found in the single areas, but only the overlapping parts of the ecotone. Some of the most often appearing Ecotones are, for example where one body of water meets another (estuaries or lagoons) or where forest transitions into grasslands (mountain ranges or cleared land).

(10) Britannica, The Editors of Encyclopaedia. “Ecotone”. Encyclopaedia Britannica, 29 Nov. 2021  
(11) See also: “Ecotone”, Wikipedia The free Encyclopaedia

7.1 7  
7.2  
7.3  
7.4  
7.5  
7.6

Friction is the force resisting the relative motion of solid surfaces, fluid layers and material elements sliding against each other.<sup>(12)</sup> In computing and interface design, the term lives through a revival and is discussed as an important UX design element, forcing users out of auto-pilot mode and giving a sense of accomplishment while forcing them to put some effort into their actions.<sup>(13)</sup>

Friction

(12) “friction”. Merriam-Webster Dictionary.  
(13) See also: Babich, Nick (2017). 4 Ways Friction Can Improve UX [Blog] Medium

What is of common use today, was a crucial change in computer technology toward making it accessible to a wide public. Before the graphical user interface was widely implemented, computers were operated through various interfaces and methods with different benefits: there was no single interfacing format with a computer. The GUI should be a solution to this rather tedious work in consolidating all interfacing methods into a single screen, keyboard and mouse. It was developed in the white, male environment of Xerox Parc in the silicon valley around 1970, and was first implemented by Apple with the PC Lisa.

GUI<sup>(14)</sup>

(14) American Artist „Black Goey Universe“, 2018

3.1 3  
3.2  
3.3  
3.4

“Inter” is a prefix which describes relations that take place within an already bounded field, it keeps up the orientation to the inward, already given bounded condition to the relation it describes. The word “face” points toward outward orientation. The latin “facies” means as much as “visage”, “appearance”, “character”, “figure” or “form” it derives from the verb “face-re” for “make form”, “act”, “cause” or “bring about”.

“A face then is the aspect of a thing by which it presents itself. From face-re, this is an active making of a presence or presencing”.

“To face” can also be a verb, meaning “to produce a face through which an entity may present qualities outside itself in order to be read or to be oriented toward or to confront with persistence and determination”.

(15) Hookway, Branden. “Between faces and facing between.” *Interface*, 1–57. MIT Press, 2014.

9

The prosthetic-like enhancements of the human eye shape our overall perception of the world, such as: sonography systems, magnetic resonance imaging, artificial intelligence-linked graphic manipulation systems, scanning electron microscopes, computed tomography scanners, color enhancement techniques and satellite surveillance systems, to only name a few.

(16) Haraway, Donna. “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” *Feminist Studies*, vol. 14, no. 3, 1988, P. 575-599

- 4 4.1
- 4.2
- 4.3

Matrix + Informatics of Domination

- 4.6
- 4.7

When thinking about relationships I need to take in account matrices of domination that influence relations of any scale. 5.2

The “Matrix of domination” is a sociological paradigm that was coined by Patricia Hill Collins.<sup>(17)</sup> It explains the interconnected oppressive issues of race, class and gender or, more specific, heteronormativity, capitalism, white supremacy, and settler colonialism. A more specific paradigm was formulated even earlier in Donna Haraway's “Cyborg Manifesto”, a reconceptualization of white capitalist patriarchy as the “informatics of domination”. Informatics, here can be defined as information grasped within its social conditions.<sup>(18)</sup> Dichotomies between mind and body, animal and human, organism and machine, public and private, nature and culture are hereby ideologically questioned. What calls this “informatics of domination” is the actual situation of the woman with her integration and exploitation into a system of production and reproduction. Technologies and scientific discourses can be partially understood as formalizations, as snapshots of the otherwise fluid social interactions constituting them, but must also be viewed as instruments for transcribing meanings.

- 7 7.1
- 7.2
- 7.3
- 7.4
- 7.5
- 7.6

According to Haraway

we are living through a movement from an organic, industrial society to a polymorphous information system<sup>(19)</sup>

and within that

communication sciences and modern biologies are constructed by a common move – the translation of the world into a problem of coding.<sup>(20)</sup>

The challenges that Haraway proposes is to work by the informatics transformations of power, which are regarded specific and material. Both stated paradigms try to name and grasp highly entangled, oppressive dynamics from a feminist point of view and can be understood as early approaches to what is commonly known as “intersectionality” today.

(17) Hill Collins, Patricia „Black Feminist Thought: Knowledge, Consciousness and the Politics of Empowerment“, 1990

(18) „Informatics of Domination: A lecture series organized and introduced by Zach Blas“ e-flux conversations, 2017

(19) Haraway, Donna „Cyborg Manifesto“ in Simians, Cyborgs and Women, P. 161

(20) Haraway, Donna „Cyborg Manifesto“ in Simians, Cyborgs and Women, P. 164

- 3 3.1

Misconvenience + Speedrun Mode<sup>(21)</sup>

Misconvenience is about narrowing down users’ gestures, choices and options. In the tradition of revolutionizing behavioral patterns, this is often sold in terms of convenience, e.g. less work. Silvio Lorusso describes “Speedrun Mode” as follows: Nowadays, people use the computer (and by that I also mean the smartphone) to achieve a specific goal and not to dwell in an ambient (the exception is social media). It doesn’t matter if they spend most of their days in front of it: most of them remain at read level, seldom reaching read-write level, which is the level of medium. By using prepackaged software that doesn’t allow its own reprogrammability,

2.2

2.3

we interact with content. When a read-write issue emerges, it appears as a bug or a nuisance, a time-sucking problem.

1.1 1

(21) Lorusso, Silvio „The User Condition: Computer Agency and behavior“

Permacomputing<sup>(22)</sup>

Permacomputing is inspired by permaculture gardening and describes both a concept and a community of practices oriented around issues of resilience and regenerativity in computer and network technology. Main focuses lie on maximizing hardware lifespans, minimizing energy use and the use of already available computational resources.

(22) Permacomputing wiki, Last edit Fri Jul 14 15:34:38 2023

Poietic is a doublet of the wider known word poetic. A doublet is one of two (or more) words in a language that have the same etymological root but have come to the modern language through different routes, often they sound similar but slightly differ in their meaning. In this case both words derived from the ancient Greek poiētikós.

Poietic

In semiotics, “poiesis” is “the activity in which a person brings something into being that did not exist before.” Resulting from that, the adjective “poietic” means as much as “creative” or “formative”. Despite a similar etymological background, “poetic” is either used as “relating to poetry” or to describe “characteristic of poets”.

4.1 4

4.2

4.3

4.4

4.5

4.6

(23) Donald Polkinghorne, Practice and the Human Sciences: The Case for a Judgment Based Practice of Care, SUNY Press, 2004, P. 115.

Publishing Histories

A very short overview (everything else would go beyond the scope of this discussion) over the myriad publishing histories might go like this: Publishing practices have been informed by and depending on three major technological inventions—writing, paper, and printing—and one social development—the spread of literacy.<sup>(24)</sup> This explanation might be inadequate to certain extents, it leaves out mechanization and digitalization of production-, and circulatory processes, as well as the ongoing powerful interplays of social movements and publishing practices, which have to be considered formative both ways. As this text foremost deals with digital publishing, I would briefly like to introduce the dynamics of how a medium becomes digital<sup>(25)</sup>

It is a process of roughly three steps and regards printed media as much as vhs or vinyl or any other medium that was digitized.

7

7.2

First a digitalization of production would take place. In that, software replaces mechanical or analogue processes. Considering especially the digitalization of print production (or prepress production), this started with rising computer technology and desktop publishing, starting on from the 70s.

7.6

Second, there would need to be standards established for the digital version of a medium. Code for example becomes standardized and is now universally interpreted across operating devices and platforms.

The third step in this process is regarded as the creation of an economy around the newly created standards. Looking again at the digitalization of print this would mean the rising demand for digital devices and stores as well as adapting circulatory networks: the internet.

(24) Tucker, David H. , Unwin, Philip Soundy and Unwin, George. "history of publishing". Encyclopedia Britannica, 1 Oct. 2020

(25) Ludovico, Alessandro (2015): „Post-Digital Publishing, Hybrid and Processual Objects in Print.“ Kulle, Daniel/Lund, Cornelia/Schmidt, Oliver/Ziegenhagen, David (eds.): Post-digital Culture

Post Digital Publishing

“Post” here does not refer to “after” or “beyond” (in means of “without”), but rather appoints a crisis of the digital that eventually leads to a blend of digital and physical elements.

To work beyond digitality — as an ideology and a hegemonial practice — means to reach beyond the glossy surface effects the digital is able to organize.<sup>(26)</sup>

3.1 3

3.2

3.3

In that sense, I would like to point out that the later discussed projects do not provide solutions to afore mentioned issues, because they often discuss so called “wicked problems”<sup>(27)</sup> societal issues that hold a level of ambiguity and do not allow for straightforward answers.<sup>(28)</sup>

10 I also want to distinguish the notation of post digital publishing from ideas that utter “publishing is not evolving. Publishing is

2.2

2.3

going away”<sup>(29)</sup> and further denote these practices as not a job anymore. That’s a button. There’s a button that says “publish,” and when you press it, it’s done.<sup>(30)</sup>

It’s hardly that simple: First, as I have been discussing before in “Netstalgia”, it’s never “just pressing buttons” and secondly, these techno-fatalist mindsets ignore all the processes and organisms, closely entwined with digital and post-digital publishing practices, all the social technological enmeshments, which still are formative to a great extent.

(26) Zielinski, Siegfried, in Martin Conrads, Franziska Morlok (Hrsg.): War postdigital besser? Revolver Publishing, Berlin 2014  
 (27) “Dilemmas in a General Theory of Planning” Horst W. J. Rittel and Melvin M. Webber, Policy Sciences 4, (1973) 155-169, Elsevier Scientific Publishing Company  
 (28) Lorusso, Silvio, Abstract to “Extending Horizons - The Praxis Of Experimental Publishing In The Age Of Digital Networks”, January 2016  
 (29) Shirky, Clay, “How we will read”, Genius [Magazine]  
 (30) ibid. “How we will read”

Solarpunk

- 4.1
- 4.2
- 4.3
- 4.4
- 4.5
- 4.6
- 4.7

Solarpunks cherish nature, progress and science; the individual and the community. Their key points are: An emphasis on renewable energy, especially solar power, a demand for technology and society to re-centre around sustainability, longevity, and balance and a recognition that economic, social, and ecological injustices are all deeply interconnected.<sup>(31)</sup> Solarpunk demands constructive, instructive fictions. Fictions that are not shy about their intended feasibility.<sup>(32)</sup>

(31) Sunbeam City Wiki, Last modified: 2020/11/29  
 (32) Wilk, Elvia “Is Ornamenting Solar Panels a Crime?”, e-flux Architecture, 2018

Worlding

Worlding or world-building is blending the material and semiotic, that removes the boundaries between subject and environment. In a new materialist manner it is important to note that world building is not an exclusively human ability or process. Throughout the text we will encounter many different human and non-human beings and dynamics that have so called poietic qualities. Worlding can be described as an active, ontological process, not simply a result of our existence in our passive encounter with particular environments, circumstances, events or places.<sup>(33)</sup> World building practices form through the turning of attention to a certain experience, place or encounter and simultaneously the active engagement with the materiality and context in which events and interactions occur.

The above mentioned new materialist practices enable us to look at human-world entanglements more closely and inspect how our immediate encounters connect to and intersect with the wider (non-human) world. Donna Haraway’s practice is underpinned through myriad different worldings and their companion species relations. Autre-mondialisation<sup>(34)</sup>, was, introduced to Haraway by Paul B. Preciado, the concept that animated her work on ‘When Species Meet’. In her more recent engagement in “Staying with the Trouble” (semiotic) proposals like the “Chthulucene” and “Terrapolis” center companion species that engage in processes of “becoming with” within a world in which; “natures, cultures, subjects and objects do not pre-exist their intertwined worldings”.<sup>(35)</sup> When writing about worlding, I can not leave SF unmentioned. Donna Haraway understands SF as theoretic figuration or visual expression, that can mean as much as “science fiction”, “speculative fabulation”, “science feminism”, “string figures” or “so far”.

SF [...] is the patterning of possible worlds and possible times, material-semiotic worlds, gone, here, and yet to come.<sup>(36)</sup>

SF has given Haraway the ideas, shapes and stories with which she thinks other ideas in feminist theory and science studies, because “It matters what ideas we use to think other ideas with”.<sup>(37)</sup> <sup>(38)</sup> Speculative worldings are to come throughout the text and will show themselves in the most different shapes and colors.

(33) Palmer, Helen; Hunter, Vicky “Worlding” New Materialism [Blog] 2018  
 (34) This specific version of autre-mondialisation, with its companion species characters is the one that motivated the first thoughts about “When species meet”. Fabricated at the end of the nineteenth-century, French bulldogs and lesbians co-evolve from being marginal monsters into becoming media creatures and bodies of pop and chic consumption. Together, they invent a way of surviving and create an aesthetics of human-animal life. Haraway, Donna “When Species meet”, Notes to Chapter One, P. 304  
 (35) Haraway, Donna (2016) Staying with the Trouble: Making Kin in the Chthulucene, Durham and London: Duke University Press. P. 13(36) Shirky, Clay, “How we will read”, Genius [Magazine]  
 (36) ibd “Staying with the Trouble”, P.31  
 (37) Haraway, Donna “Science Fiction, Speculative Fabulation, String Figures, So Far”, Ada New Media, Issue no. 3, 2/24/2021, Archived  
 (38) Strathern, Marilyn, “Reproducing the Future”, 10; “The Gender of the Gift” read in Haraway, D. (2016) Staying with the Trouble: Making Kin in the Chthulucene, Durham and London: Duke University Press. P. 12

1.1 1

1.2

1.3

1.4

9

4.1 4  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7

5.1 5  
5.2  
5.3

6.1 6  
6.2

7.1 7  
7.2  
7.3  
7.4  
7.5  
7.6

8

3.4

3.3

3.2

3.1

3

10

2.1 2

2.2

2.3

- 1 1.1 maybe.press, Available at <https://maybe.press/> [Accessed August 20th 23] 1.3
- 2 Sollfrank, Cornelia „The Beautiful Warriors: Technofeminist Praxis in the Twenty-First Century“, Preface, p. 8, Released by Minor Compositions 2020, ISBN 978-1-570-27-365-0
- 3 Sauzet, Sofie „Phenomena – Agential Realism“ new Materialism [Blog] 2018, Available at <https://newmaterialism.eu/almanac/p/phenomena-agential-realism.html> [Accessed August 9th 2023]
- 4 Cf. Grusin, The Nonhuman Turn. in TECHNO-ECOFEMINISM Nonhuman Sensations in Technoplanetary Layers, Yvonne Volkart, P. 122
- 5 Bennett, Dynamische Materie und Zero Landscape, p. 20; Bennett, „Vibrant Matter – Zero Landscape,“ p.19
- 6 Barad, Karen. (2003). Posthuman Performativity: Toward an understanding of How Matter Comes to Matter. *Journal of Women in Culture and Society* 28(3): 801-831. p. 827
- 4 4.1 Haraway, Donna „Simians, cyborgs and women: the re-invention of nature“, Introduction, 1991, ISBN 978-0415903875
- 4.2 Hejnl, Andreas „Ladders, Trees, Complexity and other
- 4.3 Metaphors in evolutionary thinking“ in *Arts of living on a damaged planet- Ghosts and Monsters of the Anthropocene* (pp. Ghosts 87– Ghosts 102), University of Minnesota Press, Edited by Anna Löwenhaupt Tsing, Heather Anne Swanson, Elaine Gan, Nils Bubandt 5.3
- 4.4
- 4.5
- 4.6
- 4.7
- 9 Engelhardt, Lukas. (2022). Squatting: New Dependencies. [Blog] Institute of Network Cultures. Available at: <https://networkcultures.org/longform/2022/03/29/new-dependencies/> [Accessed July 10th 2023] 6 6.1
- 10 K. Le Guin, Ursula "A Man of the People", p. 140 *Four Ways to Forgiveness* (1995)
- 12 Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies*, vol. 14, no. 3, 1988, p 575-599. JSTOR, <https://doi.org/10.2307/3178066>. Accessed 10 July 2023
- 7 7.1 15 Haraway, Donna. "Situated Knowledges: The Science
- 7.2 Question in Feminism and the Privilege of Partial Perspective." (581)
- 7.3 18 Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham NC and London: Duke University Press, 2016),
- 7.4 p. 21
- 7.5 20 „Q&A: Why clouds are still ‘one of the biggest uncertainties’ in climate change“, Richard Gray, *Horizon EU*, November 2020, Available at <https://ec.europa.eu/research-and-innovation/en/horizon-magazine/qa-why-clouds-are-still-onebiggest-uncertainties-climate-change> [Accessed September 1st 2023]
- 7.6 „Clouds May Speed Up Global Warming“, Chelsea Harvey, *Scientific American*, July 2021, Available at <https://www.scientificamerican.com/article/clouds-may-speed-up-global-warming/> [Accessed September 1st 2023] „How extreme weather conditions could last longer due to climate change“ Peter Pfeleiderer, Kai Kornhuber, Carl Schleussner, *Climate Analytics*, August 2019, Available at <https://climateanalytics.org/blog/2019/how-extreme-weather-conditions-could-last-longer-due-to-climate-change/>[Accessed September 1st 2023]
- 3 3.1 25 Kastrenakes, Jakob "Apple Suppliers linked to Uyghur forced Labor in new report", *The Verge*, May 202, Available at <https://www.theverge.com/2021/5/10/22428899/apple-suppliers-china-uyghur-forced-labor-repor>[Accessed Septmeber 22nd 2023]
- 3.2 26 Axbom, Per "The Slavery supported by that Device in your Pocket" *Ethical.net*, Available at <https://ethical.net/technology/the-slavery-supported-the-device-in-your-pocket/> [Accessed September 2023]
- 27 Amnesty International "This is what we die for" 2016, Available at <https://www.amnesty.org/en/wp-content/uploads/2021/05/AF-R6231832016ENGLISH.pdf> [Accessed September 2023]
- 28 Gribkoff, Elizabeth "Consumers Will Throw Away 63.3 10
- 2 2.1
- 2.2
- 2.3

1.1 1  
 Million Tons of Electronic Waste This Year. Where Will It Go?” <https://childrenshealthdefense.org/defender/electronic-waste-digital-dumps-global-south/> [Accessed September 2023] 1.4

29 Kari, Paul; Anguiano, Dani “Facebook crisis grows as new whistleblower and leaked documents emerge” *The Guardian*, 10/2021 Available at <https://www.theguardian.com/technology/2021/oct/22/facebook-whistleblower-hate-speech-illegal-report> [Accessed September 2023]

30 Persuasion Through Mobile Devices and Operant Conditioning via Interactive Technology, Media at Stanford University, Available at <https://mediax.stanford.edu/research-projects/scs-fogg/> [Accessed September 2023]

33 Abbe, Becca. (2019). The Internet’s Back-to-the-Land Movement. [Blog] *Are.na Case Study*. Available at: <https://www.are.na/blog/the-internet-s-back-to-the-land-movement> [Accessed July 10th 2023]

37 Lorusso, Silvio „The User Condition: Computer Agency and behavior“ Available at <https://theusercondition.computer/> [Accessed August 1st 2023]

42 Ford, Paul. 2020. “‘Real’ Programming Is an Elitist Myth.” *Wired*, August 18, 2020, Available at <https://www.wired.com/story/databases-coding-real-programming-myth> [Accessed August 17th 2023]

43 Hoff, Melanie „Always already programming“ Available at <https://gist.github.com/melaniehoff/95ca90df7ca47761dc3d3d58fead22d4> [Accessed August 17th 2023]

45 Mark A Hernandez Motaghy, Max Fowler and Alice Yuan Zhang „Solidarity Infrastructures“, via Instagram School for Poetic computation, @sfpc\_nyc, May 2023, Available at <https://www.instagram.com/p/CsHz0pbMCfX/> [Accessed August 17th 2023]

46 Mark Anthony Hernandez, „The Art of Co-Hosting“ *School for Poetic Computation [Blog]* Available at <https://sfpc.study/blog/the-art-of-co-hosting> [Accessed July 12th 2023]

47 „Web Hosting service“ *Self hosting manual [Glossary]* Available at [https://self-hosting.guide/dokuwiki/why/hosting\\_yourself](https://self-hosting.guide/dokuwiki/why/hosting_yourself) [Accessed July 12th 2023]

48 „Host“ *Biology Online [Dictionary]* Available at <https://www.biologyonline.com/dictionary/host> [Accessed July 12th 2023]

49 „Hosting Yourself“ *Self hosting manual [Manual]* Available at [https://self-hosting.guide/dokuwiki/why/hosting\\_yourself](https://self-hosting.guide/dokuwiki/why/hosting_yourself) [Accessed July 12th 2023]

50 Engelhardt, Lukas; Bille, Paul and Reinthal, Ada as part of the Digital Shadows Exhibition [<https://waag.org/en/event/oba-expo-digital-shadows/>] in Amsterdam, NL.

52 Tsing Anna, *Interlude: Tracking in "The Mushroom at the End of the World"* p. 140, 2015, Princeton University Press

53 Haraway, Donna „When Species Meet“, University of Minnesota Press, 2008, ISBN 9781452913537 P.4

54 Tsing, Anna, Lowenhaupt. “Contamination as Collaboration.” In *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*, 27–35. Princeton University Press, 2015. <https://doi.org/10.2307/j.ctvc77bcc.7>.

56 Scott F. Gilbert, Emily McDonald, Nicole Boyle, Nicholas Buttino, Lin Gyi, Mark Mai, Neelakantan Prakash, and James Robinson, “Symbiosis as a source of selectable epigenetic variation: Taking the heat for the big guy,” *Philosophical Transactions of the Royal Society B* 365 (2010): 671–678, on 673

57 Margulis L, Fester R (1991-01-01). *Symbiosis as a Source of Evolutionary Innovation: Speciation and Morphogenesis*. MIT Press. ISBN 9780262132695.

58 Jefferson R (2019-04-04). "Agriculture and the Third World". *figshare*. doi:10.6084/m9.figshare.7945781.

59 TSING, ANNA LOWENHAUPT. “Arts of noticing” In *The*

4.1 4  
 4.2  
 4.3  
 4.4  
 4.5  
 4.6  
 4.7  
 7.1 7  
 7.2  
 7.3  
 7.4  
 7.5  
 7.6

- 1 1.1  
Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins, 17–27. Princeton University Press, 2015. <https://doi.org/10.2307/j.ctvc77bcc.7>.
- 60 1.4  
Diaz Ruiz, Carlos A.; Penaloza, Lisa; Holmqvist, Jonas (2020-03-07). "Assembling tribes: An assemblage thinking approach to the dynamics of ephemerality within consumer tribes". *European Journal of Marketing*. 54 (5): 999–1024. doi:10.1108/EJM-08-2018-0565. ISSN 0309-0566. S2CID 216399732.
- 63  
McLuhan, Marshall "Understanding Media: The Extensions Of Man", 1964, P. 8
- 64  
Kleesattel, Ines. Situated Aesthetics for Relational Critique: On Messy Entanglements from Maintenance Art to Feminist Server Art. (181-199) In: *Aesthetics of the Commons* edit. Sollfrank, Cornelia; Stalder, Felix and Niederberger, Shusha. DIAPHANES, ISBN 978-3-0358-0391-4
- 66  
Larkin, Brian, Politics and Poetics of Infrastructure, in: *Annual Review of Anthropology*, 42, 2013, S. 327–43.
- 4 4.1  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7  
67  
Susan Leigh Star (mentioned in Niederberger, Shusha. *Feminist Server – Sichtbarkeit und Funktionalität: Digitale Infrastruktur als gemeinschaftliches Projekt*. Springerin [online magazin] Heft 4/2019 Available at <https://www.springerin.at/2019/4/feminist-server-sichtbarkeit-und-funktionalitat/> Accessed July 16th 2023 5.2
- 68  
Lauren Berlant, "The commons: Infrastructures for Troubling Times," in *Environment and Planning D: Society and Space* 34, no. 3 (2016): 393–419
- 69  
„About“ Available at: <https://constantvzw.org/site/-About-Constant-7-.html?lang=en> 6 6.1
- 71  
Femke Snelting (with Spideralex) interviewed by Cornelia Sollfrank, "Forms of Ongoing- ness," Basel 2018; <http://creatingcommons.zhdk.ch/forms-of-ongoingness/>; transcript of the interview, pp. 6.
- 72  
Toupin, Sophie; Spideralex, „Radical Feminist Storytelling and Speculative Fiction: Creating new worlds by reimagining hacking“ *Ada New Media*, Issue no 13, [Journal] p.197 Archived at <https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/26821/ada13-intro-tou-2018.pdf?sequence=1&isAllowed=y> [Accessed August 17th 2023]
- 7 7.1  
7.2  
7.3  
7.4  
7.5  
7.6  
73  
Are you being served? Introduction Available at: <https://areyoubeingserved.constantvzw.org/Introduction.xhtml> [Accessed July 18th 2023]
- 80  
Toward a Minor Tech, A Peer-reviewed Newspaper, Introduction Andersen, Christian Ulrik; Cox, Geoff. Volume 12, Issue 1, 2023 Available at [https://monoskop.org/images/c/c7/Toward\\_a\\_Minor\\_Tech\\_2023.pdf#page=4](https://monoskop.org/images/c/c7/Toward_a_Minor_Tech_2023.pdf#page=4) [Accessed July 18th 2023]
- 82  
Satchell, Christine, and Paul Dourish. "Beyond the User: Use and Non-Use in HCI." In *Proceedings of the 21st Annual Conference of the Australian Computer-Human Interaction Special Interest Group: Design: Open 24/7*, 9–16. OZCHI '09. New York, NY, USA: Association for Computing Machinery, 2009
- 85  
Kay, Alan. "User Interface: A Personal View." In *The Art of Human-Computer Interface Design*, edited by Laurel Brenda, 191. Reading: Addison-Wesley, 1989.
- 86  
Graham, Paul. 2001. "The Other Road Ahead" (blog). September 2001.
- 3 3.1  
3.2  
94  
Melvaer, Mia „A reparative approach to publishing“, *March* [journal], April 2022, Available at <https://march.international/a-reparative-approach-to-publishing/#easy-footnote-3-84076> [Accessed August 23rd 2023]
- 95 3.4  
Genderchangers, Monoskop, Available at <https://monoskop.org/Genderchangers> [Accessed August 4th 2023]
- 97  
Online Hosting, Varia, Available at <https://varia.zone/en/pages/collective-infrastructures.html#online-hosting> [Accessed August 4th 2023]
- 98  
„About“, Varia, Available at <https://varia.zone/en/pages/> 10
- 2 2.1  
2.2  
2.3

about.html [Accessed August 4th 2023] 1.2

100 "Collective Statement", Varia, Available at <https://varia.zone/en/pages/collective-statement.html#fnref:1> [Accessed August 4th 2023]

101 "A traversal network for feminism servers" collectively made publication with: Wendy Van Wynsberghe, Vlad Dobrițoiu, Teo Săvoiu, Spideralex, Sergiu Nisioi, Roel Roscam Abbing, Reni Hofmüller, ooooo, Nina Botthof, Martino Morandi, Marloes de Valk, Mara Karagian-ni, Manetta Berends, Lídia Pereira, Julia Bande, Femke Snelting, elodie Mugrefya, Donatella Portoghese, Danae Tapia, Cristina Cochior, Azaha-ra Cerezo, Aymeric Mansoux, Artemis Gryllaki, Aggeliki Diakrousi, Anca Bucur, amy pickles, Alice Strete, Alex Ștefănescu, 3/2023, Available at <https://zoiahorn.anarchaserver.org/wp-content/uploads/2023/03/ATNOFS-screen.pdf> [Accessed August 4th 2023]

105 "Why a feminist Server?" Available at [https://alexandria.anarchaserver.org/index.php/History\\_of\\_Anarchaserver\\_and\\_Feminists\\_Servers\\_visit\\_this\\_section#Why\\_a\\_feminist\\_server.3F](https://alexandria.anarchaserver.org/index.php/History_of_Anarchaserver_and_Feminists_Servers_visit_this_section#Why_a_feminist_server.3F) [Accessed August 4th 2023]

109 "Hello from the dead! - Anarchaserver nekrocemetery" Available at [https://alexandria.anarchaserver.org/index.php/Nekroceme-tery:\\_Hello\\_from\\_the\\_dead](https://alexandria.anarchaserver.org/index.php/Nekroceme-tery:_Hello_from_the_dead) [Accessed August 4th 2023]

113 Michael Warner (2002) Publics and counterpublics (ab- breviated version), *Quarterly Journal of Speech*, 88:4, 413-425, DOI: 10.1080/00335630209384388

118 Soulellis, Paul "Making public" p16. 22 June 2015 [goo- gle doc] Available at: <https://docs.google.com/document/d/1-yrTRf2-Hjv8WNoQtAeJ9ObjWjv0w2LITDXzGPFtw/edit> [Accessed: July 18th 2023]

122 "Multidimensional Citation", Laura Coombs, Laurel Schwulst, Mindy Seu, Meg Miller, The Serving Library, Available at [https:// www.servinglibrary.org/journal/17/multidimensional-citation](https://www.servinglibrary.org/journal/17/multidimensional-citation) [Accessed Au- gust 8th 2023]

124 Sharing as Survival, Mindy Seu on the Cyberfeminism In- dex, November 2020, Walker Art [Magazine] Available at <https://walkerart.org/magazine/sharing-as-survival-mindy-seu-cyberfeminism-index> [Ac- cessed September 1st 2023]

126 Popova, Maria "By the Book", *The New York Times*, Feb. 7, 201, Available at <https://www.nytimes.com/2019/02/07/books/review/maria-popova-by-the-book.html#:~:text=I%20often%20say%20that%20li-terature,a%20hyperlink%20to%20another%20text>. [Accessed September 21st 2023]

127 Ahmed, Sara "Making Feminist Points", *Feministkilljoys* [Blog] 2013, Available at <https://feministkilljoys.com/2013/09/11/making-feminist-points/> [Accessed August 8th 2023]

128 Fournier, Lauren "Autotheory as Feminist Practice in Art, Writing and Criticism" 2021, MIT Press

129 Ahmed, Sara, on "use" at Akademie der Künste's "Plane- tary Utopias" symposium in Berlin (2018) Stream Available at <https://youtu.be/OlzDe2rgfzs?t=4172>

131 Schwulst, Laurel "On Writing and Worlding—Part 1 of 2", in "Another Day in the Dome", September 14th 2023, Available at [https://anotherdayinthedome.substack.com/p/on-writing-and-worlding-part-1-of?utm\\_source=post-email-title&publication\\_id=11012&post\\_id=136774772&utm\\_campaign=email-post-title&isFree-mail=true&r=1wcokx&utm\\_medium=email](https://anotherdayinthedome.substack.com/p/on-writing-and-worlding-part-1-of?utm_source=post-email-title&publication_id=11012&post_id=136774772&utm_campaign=email-post-title&isFree-mail=true&r=1wcokx&utm_medium=email) [Accessed Septemb 18th 2023]

140 Haas, Annika "Self-Hyphen-Publishing" in *Lerchenfeld* ausg.63 [Magazine] Available at: [https://www.hfbk-hamburg.de/docu-ments/920/221012\\_LF63.pdf](https://www.hfbk-hamburg.de/docu-ments/920/221012_LF63.pdf) [Accessed July 18th 2023]

141 Barone, Adam "Bottleneck: A Point of Congestion in a Production System" *Investopia*, 2022, Available at: <https://www.investope- dia.com/terms/b/bottleneck.asp#:~:text=A%20bottleneck%20is%20a%20 point,delay%20and%20higher%20production%20costs> [Accessed July

4.1 4  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7

7.1 7  
7.2  
7.3  
7.4  
7.5  
7.6

3.1 3  
3.2

		1	1.1	20th 2023]	
		144	1.2	Soulellis, Paul „Publishing as Practice, as Resistance“	
				2018 Available at: <a href="https://soulellis.com/writing/oct2018/index.html">https://soulellis.com/writing/oct2018/index.html</a> [Accessed July 20th 2023]	
		147		Fred Moten	
		148		Andre Breton quoted in Gareth Branwyn, „Jamming the Media: A Citizen’s Guide Reclaiming the Tools of Communication (Vancouver: Chronicle Books, 1997), 52	
		150		Shukaitis, Stevphen and Figiel, Joanna „Publishing to Find Comrades: Constructions of Temporality and Solidarity in Autonomous Print Cultures“ [Journal] Available at: <a href="https://csalateral.org/issue/8-2/publishing-comrades-temporality-solidarity-autonomous-print-cultures-shukaitis-figiel/#fnref-6098-5">https://csalateral.org/issue/8-2/publishing-comrades-temporality-solidarity-autonomous-print-cultures-shukaitis-figiel/#fnref-6098-5</a> [Accessed July 19th 2023]	
		153		Weinmayr, Eva in „Publishing to find Comrades“ examining Bretons statement on the example of the „See Red“ women’s workshop, which printed feminist posters in the uk between 1974 and 1990, Available at <a href="http://evaweinmayr.com/wp-content/uploads/Eva-Weinmayr%E2%80%93One-publishes-to-find-comrades.pdf">http://evaweinmayr.com/wp-content/uploads/Eva-Weinmayr%E2%80%93One-publishes-to-find-comrades.pdf</a> [Accessed July 19th 2023]	
4	4.1				
	4.2				
	4.3				
	4.4				
	4.5				
	4.6				
	4.7				
		159		Hoejlund, Marie with Seū, Mindy. Sharing as Survival, Walker Art, [Interview] 2020, Available at: <a href="https://walkerart.org/magazine/sharing-as-survival-mindy-seu-cyberfeminism-index/">https://walkerart.org/magazine/sharing-as-survival-mindy-seu-cyberfeminism-index/</a> [Accessed July 19th 2023]	
					5.3
		162		Soulellis, Paul „On the power of mutual aid publishing during crisis“ The Creative Independent, 2020, [Essay] Available at: <a href="https://thecreativeindependent.com/essays/on-the-power-of-mutual-aid-publishing-during-crisis/">https://thecreativeindependent.com/essays/on-the-power-of-mutual-aid-publishing-during-crisis/</a> [Accessed July 20th 2023]	
		166		„The World Bank“ Available at: <a href="https://data.worldbank.org/indicator/IT.NET.USER.ZS">https://data.worldbank.org/indicator/IT.NET.USER.ZS</a> [Accessed July 20th 2023]	
		167		Ludovico, Alessandro „Post-Digital Print: The mutation of publishing since 1894“, Onomatopée 77, 2012, p.8	
		168		Parramore, Lynn, „Eli Pariser on the future of the Internet“, Salon, 2010, Available at <a href="https://www.salon.com/2010/10/08/lynn_parramore_eli_pariser/">https://www.salon.com/2010/10/08/lynn_parramore_eli_pariser/</a> [Accessed August 25th 2023]	
7	7.1				
	7.2				
	7.3				
	7.4				
	7.5				
	7.6				
		170		Zuboff, Shoshana, „The Secrets of Surveillance Capitalism“, Frankfurter Allgemeine Zeitung, 03/2016, Available at <a href="https://www.faz.net/aktuell/feuilleton/debatten/the-digital-debate/shoshana-zuboff-secrets-of-surveillance-capitalism-14103616.html">https://www.faz.net/aktuell/feuilleton/debatten/the-digital-debate/shoshana-zuboff-secrets-of-surveillance-capitalism-14103616.html</a> [Accessed August 25th 2023] or Sadowski, Jathan „When data is capital: Datafication, accumulation, and extraction“, Introduction (2019) Available at <a href="https://journals.sagepub.com/doi/full/10.1177/2053951718820549">https://journals.sagepub.com/doi/full/10.1177/2053951718820549</a> [Accessed August 25th 2023]	
		171		Wikipedia contributors. (2023, July 18). Internet Archive. In Wikipedia, The Free Encyclopedia. Retrieved 06:44, July 21, 2023, from <a href="https://en.wikipedia.org/w/index.php?title=Internet_Archive&amp;oldid=1165910900">https://en.wikipedia.org/w/index.php?title=Internet_Archive&amp;oldid=1165910900</a>	
		176		Ludovico, Alessandro „Post Digital Print: The mutation of publishing since 1894“, Onomatopée 77, 2012, 4.7 print and online: friend or foe? conceptual differences and similarities between print and blogs (111-115)	
		177		&Shy Magazine „About“, Available at <a href="https://andshymagazine.com/about">https://andshymagazine.com/about</a> [Accessed July 21st 2023]	
		179		Hookway, Branden. “THE SUBJECT OF THE INTERFACE.” In Interface, 1–57. The MIT Press, 2014. <a href="http://www.jstor.org/stable/j.ctt9qf5xn.5">http://www.jstor.org/stable/j.ctt9qf5xn.5</a>	
3	3.1				8
	3.2				
		185		Barad, Karen „Nature's Queer Performativity“. (2012) Kvinder Køn og Forskning 1-2: 25-54, p.46	
		187		Geerts, Evelien; van der Tuin, Iris „Diffraction & Reading Diffractionally“ New Materialism: Networking European Scholarship on 'How Matter Comes to Matter' 2016 [Journal] Available at <a href="https://newmaterialism.eu/almanac/d/diffraction.html">https://newmaterialism.eu/almanac/d/diffraction.html</a> [Accessed July 22nd 2023]	
		188		Chun, Wendy Hui Kyong. “On Software, or the Per-	10
			2		
			2.1		
			2.2		
			2.3		

1.1 1  
 sistence of Visual Knowledge.” Grey Room 182 (2005): 26-51.  
 doi:10.1162/1526381043320741. 1.3  
 191 American Artist “Black/Goopy Universe”, 2018, Available  
 at: [https://static1.squarespace.com/static/59238d36d2b8575d127794a4/t/5a60bdecf9619a7f881b02a0/1516289526013/UNBAG\\_2\\_AmericanArtist.pdf](https://static1.squarespace.com/static/59238d36d2b8575d127794a4/t/5a60bdecf9619a7f881b02a0/1516289526013/UNBAG_2_AmericanArtist.pdf) [Accessed July 30th 2023]  
 195 Glickstein, Adina “situated knowledge” – a reflection on  
 folder poetry, Digital Love Languages [Blog] Available at <https://lovelanguages.melaniehoff.com/situated-knowledge-a-reflection-on-folder-poetry/>  
 [Accessed July 30th 2023]  
 203 Seegert, Alf. “Cybercultural Ecologies: Interfacing Nature,  
 Virtuality, and Narrative.” Doctoral Dissertation, British and American  
 Literature (2010): n. pag. Print.  
 205 Reddy, Martin (2011). API Design for C++. Elsevier Science.  
 p. 1. ISBN 9780123850041  
 206 „Learning How to Walk while Catwalking“ Special Issue  
 16, XPUB, Available at <https://hub.xpub.nl/soupboat/si16/intro/> [Accessed  
 July 26th 2023] 4.1 4  
 209 Mark A Hernandez Mothagy in conversation with Austin  
 Wade Smith, Solar Protocol, January 26 2023, Available at <http://solarprotocol.net/sunthinking/smith.html> [Accessed August 1st 2023] 4.2  
 210 Queer Servers and Feral Webs, mirrorxyz, April 2023, 4.3  
 Available at [https://mirror.xyz/austinwadesmith.eth/wrBCelWNsXbse-QiLBj5jR\\_bkMFZ03nNYs4rg0IU8X2s](https://mirror.xyz/austinwadesmith.eth/wrBCelWNsXbse-QiLBj5jR_bkMFZ03nNYs4rg0IU8X2s) [Accessed August 1st 2023] According 4.4  
 to their website <http://www.austinwadesmith.com/> AWS are „an artist / 4.5  
 technologist and a bundle of eco-technical actions rooted in North 4.6  
 Brooklyn“. 6.1 6 4.7  
 214 Dictionary.com, Online: <http://www.dictionary.com/browse/gimmick>.  
 219 Craig Snyder (March 20, 2012). "10 Single-Serving Sites  
 That Are Useful, Funny, Or Weird". MakeUseOf. Retrieved March 21,  
 2014.  
 7.1 7  
 7.2  
 7.3  
 7.4  
 7.5  
 7.6

Appendix 1 Wikipedia contributors, "Agential realism," Wikipedia, The  
 Free Encyclopedia, [https://en.wikipedia.org/w/index.php?title=Agential\\_realism&oldid=1141159745](https://en.wikipedia.org/w/index.php?title=Agential_realism&oldid=1141159745) (accessed August 24, 2023)  
 2 Sauzet, Sofie „Phenomena – Agential Realism“ new Materialism  
 [Blog] 2018, Available at <https://newmaterialism.eu/almanac/p/phenomena-agential-realism.html> [Accessed August 9th 2023]  
 3 Sollfrank, Cornelia „The Beautiful Warriors: Technofeminist Praxis  
 in the Twenty-First Century“, Preface, p. 5, Released by Minor Compositions 2020, ISBN  
 978-1-570-27-365-0  
 4 Haraway, Donna, "A Cyborg Manifesto: Science, Technology, and  
 Socialist-Feminism in the Late Twentieth Century" in „Simians, Cyborgs and Women: The  
 Reinvention of Nature“, 1991, 149-182 3.3  
 6 Volkart, Yvonne "TECHNO-ECOFEMINISM: Nonhuman Sensations  
 in Technoplanetary Layers" in "The beautiful Warriors“, 2021, p. 114  
 8 Hörl, Erich. „General Ecology: The New Ecological Paradigm Humanities“ Introduction to General Ecology, p. 3. Available at [https://research.gold.ac.uk/id/eprint/20449/1/9781350014701\\_txt\\_revise2.pdf](https://research.gold.ac.uk/id/eprint/20449/1/9781350014701_txt_revise2.pdf) [Accessed August 17th 2023]  
 9 Britannica, The Editors of Encyclopaedia. "Ecotone". Encyclope-

dia Britannica, 29 Nov. 2021, <https://www.britannica.com/science/ecotone> [Accessed September 4th 2023]

10 „Ecotone“, Wikipedia The free Encyclopedia, Available at <https://en.wikipedia.org/wiki/Ecotone> [Accessed September 4th 2023]

11 "friction". Merriam-Webster Dictionary. Available at <https://www.merriam-webster.com/dictionary/friction#:~:text=%3A%20the%20force%20that%20resists%20relative%20motion%20between%20two%20bodies%20in%20contact> [Accessed September 21st 2023]

12 Babich, Nick (2017). 4 Ways Friction Can Improve UX [Blog] Medium Available at: <https://uxplanet.org/when-friction-in-design-is-good-for-ux-e2dd82cfab67> [Accessed July 11th 2023]

13 American Artist „Black Goopy Universe“, 2018, Available at: [https://static1.squarespace.com/static/59238d36d2b8575d127794a4/t/5a60bdecf9619a7f881b02a0/1516289526013/UNBAG\\_2\\_AmericanArtist.pdf](https://static1.squarespace.com/static/59238d36d2b8575d127794a4/t/5a60bdecf9619a7f881b02a0/1516289526013/UNBAG_2_AmericanArtist.pdf)

14 Hookway, Branden. "Between faces and facing between." In *Interface*, 1–57. The MIT Press, 2014. <http://www.jstor.org/stable/j.ctt9qf5xn.5>

15 Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies*, vol. 14, no. 3, 1988, p 575-599. JSTOR, <https://doi.org/10.2307/3178066>. Accessed 10 July 2023 (p578)

4

16 Hill Collins, Patricia „Black Feminist Thought: Knowledge, Consciousness and the Politics of Empowerment“, 1990, ISBN 978-0-04-445137-2 5.1

17 „Informatics of Domination: A lecture series organized and introduced by Zach Blas“ e-flux conversations, 2017, Available at <https://conversations.e-flux.com/t/informatics-of-domination-a-lecture-series-organized-and-introduced-by-zach-blas/5890> [Accessed August 8th 2023]

20 Lorusso, Silvio „The User Condition: Computer Agency and behavior“ Available at <https://theusercondition.computer/> [Accessed August 1st 2023]

21 Permacomputing wiki, Last edit Fri Jul 14 15:34:38 2023, Available at <https://permacomputing.net/permaculture/> [Accessed August 2023] 6.2

22 Donald Polkinghorne, *Practice and the Human Sciences: The Case for a Judgment Based Practice of Care*, SUNY Press, 2004, p. 115.

23 Tucker, David H. , Unwin, Philip Soundy and Unwin, George. "history of publishing". *Encyclopedia Britannica*, 1 Oct. 2020, <https://www.britannica.com/topic/publishing>. Accessed 23 August 2023.

24 Ludovico, Alessandro (2015): „Post-Digital Publishing, Hybrid and Processual Objects in Print.“ Kulle, Daniel/Lund, Cornelia/Schmidt, Oliver/Ziegenhagen, David (eds.): *Post-digital Culture*, <http://www.post-digital-culture.org/ludovico>

25 Zielinski, Siegfried, in Martin Conrads, Franziska Morlok (Hrsg.): *War postdigital besser?* Revolver Publishing, Berlin 2014, ISBN 978-3-95763-004-9.

26 "Dilemmas in a General Theory of Planning" Horst W. J. Rittel and Melvin M. Webber, *Policy Sciences* 4, (1973) 155-169, Elsevier Scientific Publishing Company, Amsterdam, Available at [https://www.sympoetic.net/Managing\\_Complexity/complexity\\_files/1973%20Rittel%20and%20Webber%20Wicked%20Problems.pdf](https://www.sympoetic.net/Managing_Complexity/complexity_files/1973%20Rittel%20and%20Webber%20Wicked%20Problems.pdf) Accessed August 23rd 2023

27 Lorusso, Silvio, Abstract to „Extending Horizons - The Praxis Of Experimental Publishing In The Age Of Digital Networks“, January 2016, Available at: [https://www.researchgate.net/publication/353371281\\_Extending\\_Horizons\\_-\\_The\\_Praxis\\_Of\\_Experimental\\_Publishing\\_In\\_The\\_Age\\_Of\\_Digital\\_Networks](https://www.researchgate.net/publication/353371281_Extending_Horizons_-_The_Praxis_Of_Experimental_Publishing_In_The_Age_Of_Digital_Networks) [Accessed August 24th 2023]

28 Shirky, Clay, „How we will read“, *Genius* [Magazine] Available at: <https://genius.com/Clay-shirky-how-we-will-read-annotated> [Accessed August 24th 2023]

30 Sunbeam City Wiki, Last modified: 2020/11/29, Available at <https://wiki.sunbeam.city/doku.php?id=start> [Accessed August 24th 2023]

31 Wilk, Elvia „Is Ornamenting Solar Panels a Crime?“, e-flux Architecture, 2018, Available at <https://www.e-flux.com/architecture/positions/191258/is-ornamenting-solar-panels-a-crime/> [Accessed August 24th 2023]

32 Palmer, Helen; Hunter, Vicky „Worlding“ *New Materialism* [Blog] 2018 Available at <https://newmaterialism.eu/almanac/w/worlding.html> [Accessed Aug 9th 2023] 3.4

33 Haraway, Donna „When Species Meet“, *Notes to Chapter One*, P. 304

34 Haraway, D. (2016) *Staying with the Trouble: Making Kin in the Chthulucene*, Durham and London: Duke University Press. P. 13

36 Haraway, Donna „Science Fiction, Speculative Fabulation, String Figures, So Far“, Ada New Media, Issue no. 3, 2/24/2021, Archived at <https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/26308/ada03-sfscihar-2013.pdf?sequence=1&isAllowed=y> [Accessed August 9th 2023]

37 Strathern, Marylin, „Reproducing the Future“,10; „The Gender of the Gift“ read in Haraway, D. (2016) *Staying with the Trouble: Making Kin in the Chthulucene*, Durham and London: Duke University Press. P. 12

9

					4.1	4
					4.2	
5.1	5				4.3	
					4.4	
5.2					4.5	
5.3					4.6	
					4.7	

	6.1	6
	6.2	

	7.1	7
	7.2	
	7.3	
	7.4	
	7.5	
	7.6	

					3.1	3
8					3.2	
					3.3	
					3.4	

10

		2.1	2
		2.2	
		2.3	

Bibliography

0

1

1.1

1.2

1.3

1.4

9

4

4.1

4.2

4.3

4.4

4.5

4.6

4.7

5

5.1

5.2

5.3

6

6.1

6.2

7

7.1

7.2

7.3

7.4

7.5

7.6

3

3.1

3.2

3.3

3.4

8

2

2.1

2.2

2.3

10

1.4 1.3 1.2 1.1 1

9

5.1 5  
5.2  
5.3

4.1 4  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7

6.1 6  
6.2

7.1 7  
7.2  
7.3  
7.4  
7.5  
7.6

8 3.4 3.3 3.2 3.1 3

2.3 2.2 2.1 2

0

1

1.1

1.2

1.3

1.4

9

4

4.1  
4.2  
4.3  
4.4  
4.5  
4.6  
4.7

5

5.1

5.2

5.3

6

6.1

6.2

7

7.1  
7.2  
7.3  
7.4  
7.5  
7.6

3

3.1

3.2

3.3

3.4

8

Web

ecologies.online

Paper  
Fonts

Munken Lynx 90g/m<sup>2</sup>  
Arial by Robin Nicholas and Patricia Saunders  
Oracle Triple by ABC Dinamo Typefaces

10

Hand-bound at Hochschule für bildende Künste Hamburg  
Printed at Scharlau Hamburg

2

2.1

2.2

2.3