LAURIN MACKOWITZ & YELENA GURYANOVA (eds.)

ATLAS OF THE IRREVERSE

Graz University
Library Publishing

ATLAS

THE

IRREVERSE

OF

Printed with the support of:
State of Styria, Blaumann Foundation

Suggested citation:
Mackowitz, Laurin, & Guryanova, Yelena. (Eds.). (2023). Atlas of the Irreverse.
Graz University Library Publishing.

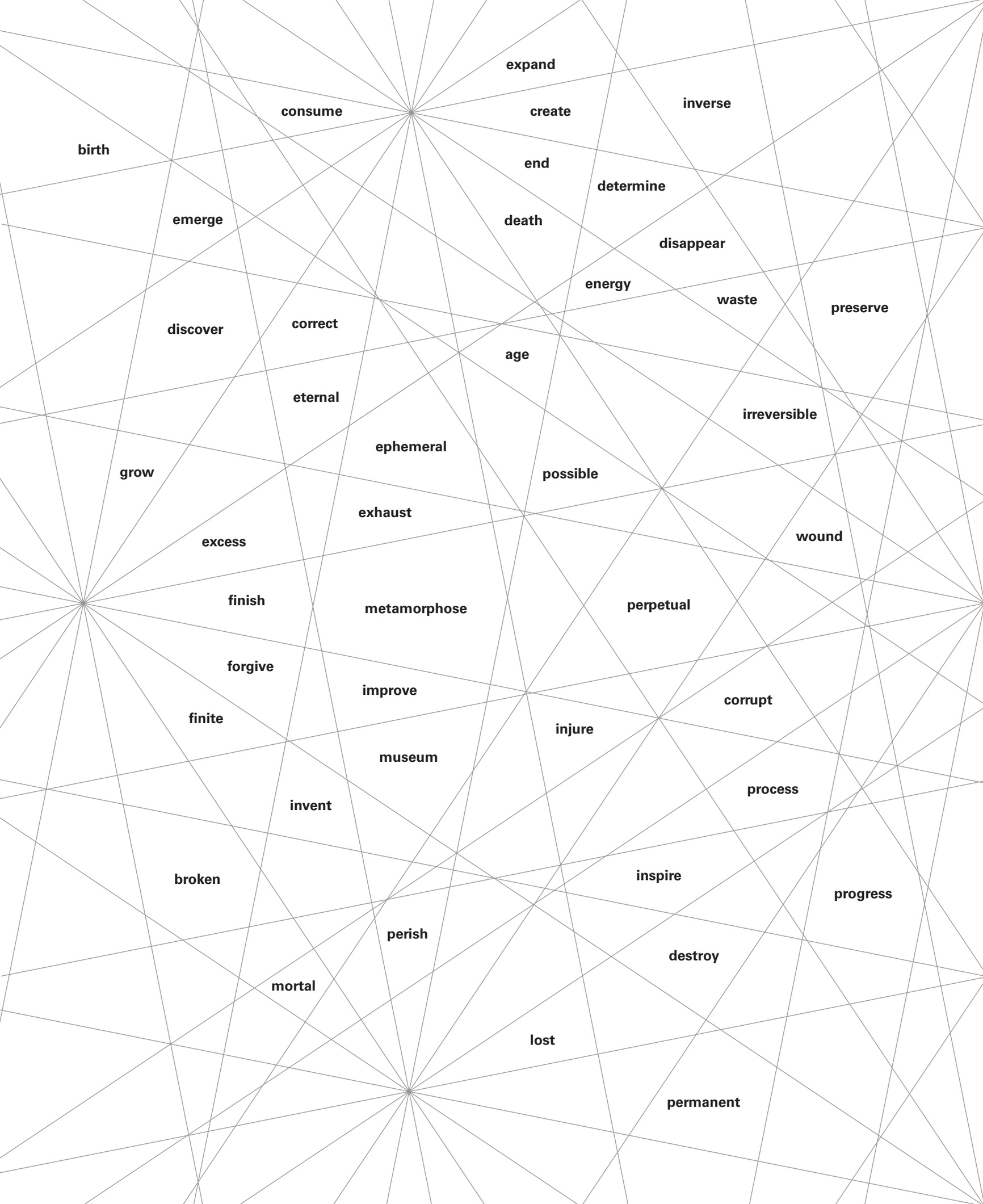
Laurin Mackowitz https://orcid.org/0000-0002-7867-6954
Yelena Guryanova https://orcid.org/0000-0001-9943-9424

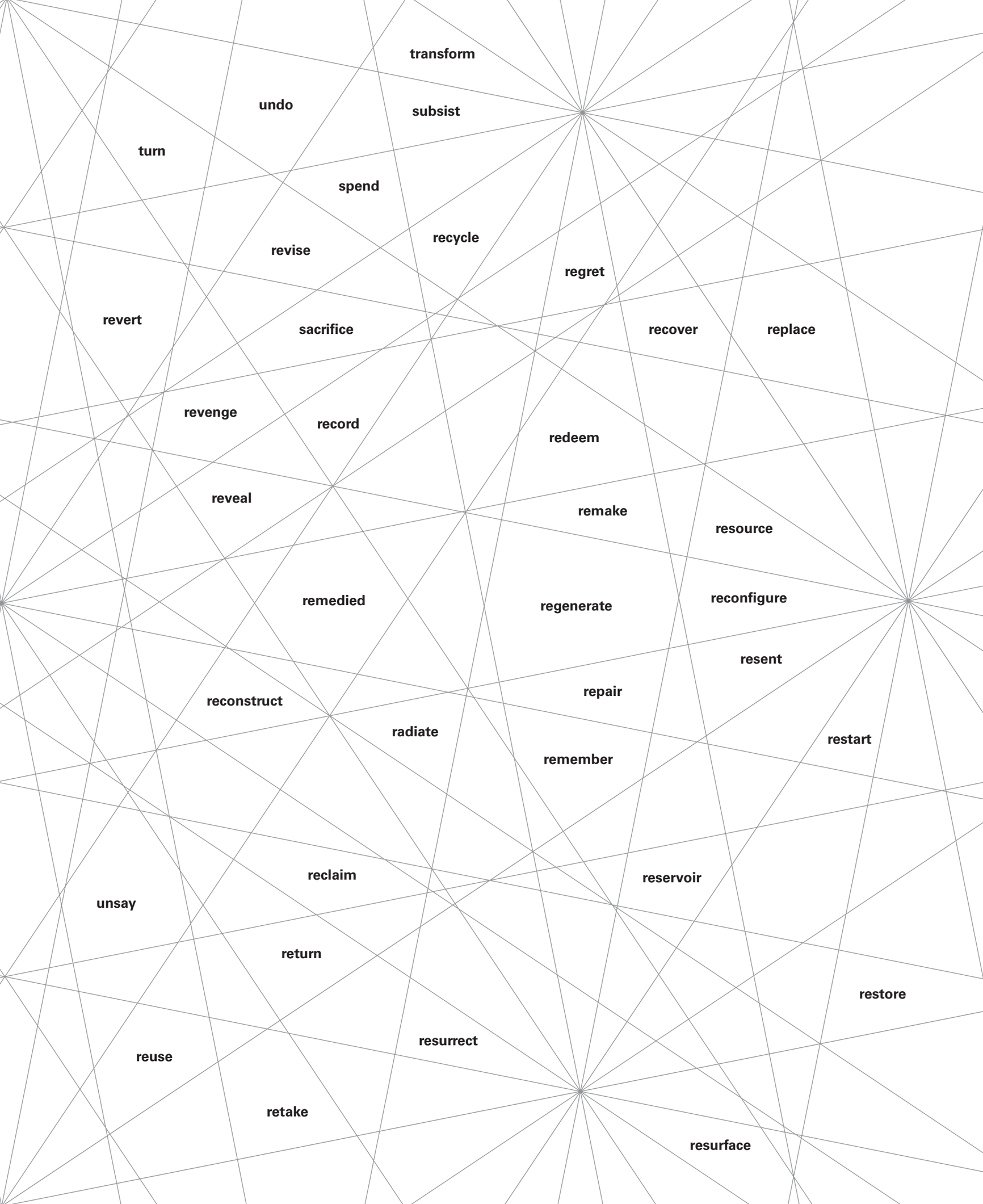
Graz University Library Publishing
Universitätsplatz 3a
8010 Graz
https://library-publishing.uni-graz.at

Layout and Design: Angela Detanico and Rafael Lain
Editorial: Yelena Guryanova and Laurin Mackowitz
Typesetting: Angela Detanico and Rafael Lain

E-ISBN 978-3-903374-28-7
DOI 10.25364/978-3-903374-28-7

Printed by Reha Druck, Reha Dienstleistungs-und Handels GmbH.
The authors/editors are responsible for the content of the chapters and the procurement of the illustrations.


expand
consume
create
inverse
birth
end
determine
emerge
death
disappear
energy
waste
preserve
discover
correct
age
eternal
irreversible
ephemeral
grow
possible
exhaust
excess
wound
finish
metamorphose
perpetual
forgive
improve
corrupt
finite
injure
museum
process
invent
broken
inspire
progress
perish
destroy
mortal
lost
permanent


transform
undo
subsist
turn
spend
recycle
revise
regret
revert
sacrifice
recover
replace
revenge
record
redeem
reveal
remake
resource
remedied
regenerate
reconfigure
resent
repair
reconstruct
radiate
restart
remember
reclaim
reservoir
unsay
return
restore
resurrect
reuse
retake
resurface

CONTENTS

EDITORIAL	8	Yelena Guryanova and Laurin Mackowitz
THE POSTHUMAN IRREVERSE	14	Debra Benita Shaw
A SHARE OF THE SUN	16	Joe de Vivre
THE TURNING POINT – BLACK HOLE	24	François Mangeol
ON RETROCAUSALITY: LOOKING FORWARD TO LOOKING BACK	28	Yelena Guryanova
GOLDILOCKS IN FLATLAND	40	Harun Šiljak
IF LIFE GIVES YOU LEMONS	44	Carla Zaccagnini
THE REDEMPTION OF TIME: NIETZSCHE, BENJAMIN AND THE POST-HUMAN	48	Sandro Gorgone
THROUGH THE BROKEN GLASS	56	Angela Detanico and Rafael Lain
REPAIR, EXCESS AND RESTART: METAPHORS FOR PRECARIOUS SITUATIONS	66	Laurin Mackowitz
AN EXERCISE IN FORGETTING	72	Hedwig Dejaco
TO TAKE BACK	76	Eugénie Desmedt
BROKEN	80	Diana Bobb
MONOLOGUE SERIES: IRREVERSIBILITY	82	Sabine Prag
STOCHASTIC TERRORISM: A SHINY SPECK OF SHRAPNEL	84	Peti Román
BIN THERE DONE THAT	88	Roseanna Peppiatt
DIALECTICAL IRREVERSIBILITY AND POLITICAL AGENCY	92	Yıldız Silier
DANDELIONS	100	Elena Siemens
UNKNOWN	102	Erëmira Çitaksu
TSITRA DELIVERS SOLUTIONS TO WHERE THEY'RE NEEDED	103	Kateřina Kuchtová

EDITORIAL

The idea that irreversibility affects every one of us is reassuring, if we are seeking comfort in numbers. We are confronted with irreversibility in the face of our own mortality: death is the ultimate biological tipping point from which there is no return. The journey towards irreversibility is uneasy, like asking for forgiveness, or even embarrassing, like the desire for eternal youth.

Despite our experience that life passes irreversibly, we notice that it is often possible to reverse an action. For instance, this could be deleting a letter from a text on a screen or picking up an object from the floor. In the cases where a full reversal isn't possible we have developed strategies and methods of coping, which have determined the very structure of our societies. An insurance policy cannot return a house lost to fire, but it may pay back an equivalent amount in money. A judge in court cannot undo the actions of a person who has grievously harmed another, but they may decide on a suitable punishment. Irreversibility has an associated compensation.

Language provides us with an abundance of words to describe reversal, from which almost all synonyms for irreversible are constructed as the negation (e.g., unalterable, irreparable, irrevocable). Why must irreversibility inherit its personality from the definition of another concept? One of the initial aims of the project was to characterise and better understand irreversibility from its unique properties.

When we initially came together we were surprised at how different our approaches (quantum physics and political philosophy) were. Brimming with curiosity and faced with the difficulties of interdisciplinary collaboration, we wanted to complicate things further by inviting more people to contribute their perspectives to the study. In autumn 2022 we first met with the artists Angela Detanico and Rafael Lain in Paris to navigate possible routes through the excess of experiences, observations and phenomena of irreversibility. It became obvious that we all had some kind of preliminary, anecdotal knowledge, but that trying to come up with a universal definition would not help our understanding.

https://doi.org/10.25364/97839033742871

We were missing the connections.

In an attempt to elucidate the links between our perspectives, we decided to try to map the space of irreversibility or, as we soon came to call it, the Irreverse. We invited scholars and artists from all over the world to a workshop in Graz, Austria in January 2023, where we discussed the science, politics, philosophy and art of this uncharted realm. The discussions were lively and truly cross-disciplinary. How do we document irreversibility? As vocabulary in a dictionary or as appointments in a calendar? Can it be chronicled at all or is it like ephemeral performance art, unrecorded? Do musicians have regrets after the moment of improvisation? Consciousness catches us by surprise, like the moment in chess when we realise we have lost – we could have seen it coming, but now it's too late.

Climate cycles were forecast, but are now interrupted. Paralysed, we watch on passively as we accelerate into the unknown. Can we undo our circumstances? Can we bring a system back to its initial state? On paper, yes, but when it comes down to it, no. Not even the biggest computers can store enough information to control the return. Irreversibility is different in theory and in practice.

The connections were beginning to coalesce.

Following the workshop we cast our net further and announced an open call. The result is the Atlas of the Irreverse – a selection of contributions depicting a series of dimensions, conditions and consequences of irreversibility. The Atlas is neither complete, nor exhaustive: it highlights some and omits others.

From the Atlas we learn that the Irreverse is not just the negative but also the imperative. Calls to action are clearly audible in the contributions, from instructions to create an individual invisible mark (Zaccagnini) to manifestos for big and small actions (Kuchková). A job advert appears for the role of an artist in a company. In an attempt to undo the widely held opinion that artists have no practical role in a business-oriented world, it is not written in 'plain English' but hides its message playfully in a series of reversed words. Would such an illusion make the audience take the value of artists more seriously? After all, they are the same words, but backwards. In general though, we find that reversing something is not 'the same thing backwards'. We accept that time only goes in one direction and when we retrace our steps we don't walk toe-to-heel, eyes cast over our shoulder. Just like when assembling a shattered glass, we don't return to the same place: the new is also the unknown.

In the face of uncertainty we are "alarmed, petrified and scared" but also "prepared" (Çitaksu). But how prepared are we really? The contributions call this into question. We are taunted with the abyss of a black hole (Mangeol); offered a glimpse into a future with no sun, where the laws of thermodynamics are sanctified (de Vivre); and presented a more sobering assessment of our present compulsion to waste resources and throw things away (Peppiatt).

For the mathematically oriented, the unknown is not to be feared but rather to be embraced as a vast playground of possibilities, be they on grids (Šiljak), or in boxes (Guryanova). Direct confrontation with irreversibility can be avoided via cunning escape routes into higher dimensions or by accepting irreversibility as the de-facto state of affairs – a cheap way to "appease our own unease".

Another common theme throughout the works is the notion of change, expressed heavily through derivatives of the word 'move' or from the motion blur of a camera (Prag). This movement is articulated most often with the word 'back', but surprisingly also frequently with the word 'up'— a word that reflects a culturally ubiquitous observation that everything oriented skyward is associated with the good, the heavenly, the progressive and the future. It seems, subconsciously, that we're not afraid of the Irreverse, but that we view it rather optimistically.

For Detanico and Lain, playing with words on the page, movement manifests itself as an illusion to the reader, just like Kuchková's illusion of words. Illusions work best when one forgets that one is being deceived and are thus mediated by the loss of memory or information, the latter forming another overarching theme of the Irreverse. For some, loss could be a relief (Desmedt), while for others, stuck in the liminal space between remembering and forgetting, a mere aspiration (Dejaco).

The Irreverse not only doles out compensation but also has associated costs. Our authors highlight that society not only protects us against irreversibility, but in some cases exposes us to it, and for this it is heavily criticised. Online platforms create fertile ground in which hate speech can thrive, causing irreparable harm to communities (Román), while excessive consumption entices us to alienate ourselves from our bodies and collectives (Silier).

Faced with irreversibility, cultures have always strived to contain decline before they fall into ruin. Attempting to hold onto that which is slipping away, container metaphors permeate the texts. From the vessels of the Jewish universe (Gorgone) and the ships of science and society (Mackowitz) to Japanese craft (Bobb) and contemporary art (Detanico, Lain), customs of repairing broken bonds, structures and ceramics, penetrate our practices. The body, itself an organic vessel, is reconfigured (Shaw). Unable to master irreversibility completely, we accept that in some sense we have to start again.

Progress outdates traditions and misconceptions, casting them into history's mortar. Against the darkness of the past, flickers of the future pierce through the cracks of the moment passed. Old materials are repurposed; friendships are fixed; broken devices are repaired in the knowledge that they are not original but born again. Detanico and Lain ask whether reversing a process can create something new, which our research answers with an emphatic "yes".

The connections are coinciding.

One year after we first met Angela Detanico and Rafael Lain, we are still collaborating intensively. While we are editing and revising manuscripts, they are creating the layout for the magazine, shuffling texts and designing arrangements. The black pages speckled with white marks, appearing between the contributions, are original works by the duo titled *Deep Fields*. They were created using images of flower fields, manipulated to give them the appearance of distant galaxies. These visuals connect two opposite times – the flowers of today, with the stars far in the past.

Annual flowers sprout, blossom and grow before they die to irreversibly return again. Just like dandelions (Siemens), which "resurface in even greater numbers with just one blow of the wind", one step backwards is in fact many steps forwards, into the Irreverse.

Yelena Guryanova and Laurin Mackowitz
Vienna and Graz, September 28, 2023

THE IRREVERSE

Debra Benita Shaw

The French philosopher Louis Althusser (1918 – 1990) coined the phrase "always already given"[1] to indicate that ideological state apparatuses are an inextricable governing factor in how we are constituted as subjects. In other words, we respond to the hail 'hey you!' knowing who we are, but knowledge of ourselves, or at least the form that it takes, is determined by the ideological structures of the societies that we are born into. If I respond to the hail as a woman, I am doing so as a person largely defined by the cultural determinants of femininity and this is true even if, as a feminist, I am in disagreement with what they attempt to impose.

Responding as a *human* is even more problematic. 'Hey you!' has a very different meaning for me than it does for a young black man in the United States who, rather than turn around in mild irritation, will likely take it as a cue to run, literally, for his life. In the moment that he is hailed, he is reduced to what the Italian philosopher Giorgio Agamben called 'bare life' or a person who can be killed with impunity. He is always already bare life by virtue of his skin colour which, under the ideological tenets of Western historical and biological discourse condemns him as less-than-human.

https://doi.org/10.25364/97839033742872

POSTHUMAN

These ideologies are grounded by a concept of being human which refers to an idealised white, male body of which Leonardo da Vinci's Vitruvian Man is the quintessential representation. The Roman architect Vitruvius' template for the standardised human is still taught to architecture students as a founding principle and da Vinci's canonical image is, tellingly, sewn into the suits of astronauts who boldly go hoping to colonise other planets in the name of a 'human race' that they, ironically, have left behind. This is true not only because they go 'where no one has gone before' but because, they can only be hailed as posthumans or what the Italian philosopher Rosi Braidotti calls "bio-technologically mediated bodies".[2] In other words, there is no astronaut-subject without the technologies that provide for their subsistence as bodies living beyond Earth's gravity.

My argument (and that of other critical posthumanists) is that this is true of *all of us* in the third decade of the 21st century. Historically, the human has been understood as a tool user and manipulator of its environment but now we must entertain the idea that we are constituted both through the technologies that condition our lifeworlds and the way that science writes that world. Karen Barad, for example, extends Niels Bohr's thesis that the apparatus of the laboratory is significant not as a ground or screen for the production of phenomena but actively part of the phenomena as they are observed and understood. Reading his findings through ideas developed by Michel Foucault and Judith Butler, both of whom propose that language does not merely describe the world but actively produces it, she concludes that "humans do not merely assemble different apparatuses for satisfying particular knowledge projects; humans are part of the configuration or ongoing reconfiguration of the world – that is, they/we too are phenomena".[3] In other words, Vitruvian Man does not stand above and apart from a world that he is able to survey and describe but the very tools through which he attempts to understand it effect a process of dynamic change which is ongoing and confounds the humanist assumption of a separation between bodies/objects and their environments. This has consequences, not only for how we conceive of bodies and their relation to the world but how we differentiate between phenomena previously thought of as distinct.

My claim, then, is that we are irreversibly posthuman. Or, put another way, the mode of posthuman thought requires us to entertain the idea that the end of man which Foucault predicted in 1970 is not only here but that the "event of which we can at the moment do no more than sense the possibility"[4], which would herald the end has already happened and has been happening for some time. Our task is to acknowledge it. If 'man' is no longer a secure category, either as a determinant of taxonomical distinctions which have been the founding principle for everything from slavery to genocidal war or as a universal signifier conditioning gender distinctions, then we have space to think otherwise about how we should live. The posthuman irreverse thus both describes our ontology and conditions our politics.

1. Louis Althusser (1970), 'Ideology and Ideological State Apparatuses' (1970), https://www.marxists.org/reference/archive/althusser/1970/ideology.htm

2. Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013), p.61.

3. Karen Barad, *Meeting the Universe Halfway: quantum physics and the entanglement of matter and meaning* (Durham: Duke University Press, 2007), p.206.

4. Michael Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1994), p.387.

The amount of free energy consumed by humanity in 1 AD was 2 Terawatt-Hours (TwH).
The amount of free energy consumed in 1800 was 5,000 TwH.
The amount of free energy consumed in 1900 was 12,000 TwH.
The amount of free energy consumed in 2000 was 120,000 TwH.

A TINY SHARED OF THE SUN

10 kilowatt hours of energy is enough to keep a typical present-day UK household running for a day. The sun radiates 1000,000,000 TwH onto the surface of the Earth per year. There are 1000,000,000,000,000,000,000,000 TwH of free energy in the solar system. Depending on how you define the system, of course. One day, there will be none.

An intense smell of hay, straw and manure. It should be dark in the barn. Chaff-filled bars of light tattle on a job badly done. My grey-gloved hands pick up a length of two-by-four. The barn shakes, then. There is a sound, like tearing sheet metal. Impossibly distant, but loud as my own drill. I drop the plank and head to the door, absently wiping at my overalls, squinting across blinding fields.

There is a figure, around a mile off. I can't make out anything, really, but a shadow against the sun. It's the size of a man. Not moving, not waving. Four stories up in the air. A mile-wide piece of farmland is curling up into the sky, to meet the figure. Part of the I20 is up there, trucks drifting and glittering in the air beneath it. The end of the land-sheet is being chewed away, as if by an enormous paper trimmer, disappearing into some bright stream that is sucking towards the figure. The noise is deafening.

I'd heard about this on Joe Rogan, of course. "Well, we'd better start hustling," I mumble. Within the space of a second, a second shadow appears and a flash of light blinds me. Tremors throw me to the ground. Fighting, maybe. It's too late, anyway. The ground beneath me feels like it is lifting up. It is shearing to the left. I am falling. I am consumed.

That is all I remember of my life, now, and that memory is all there is of me.

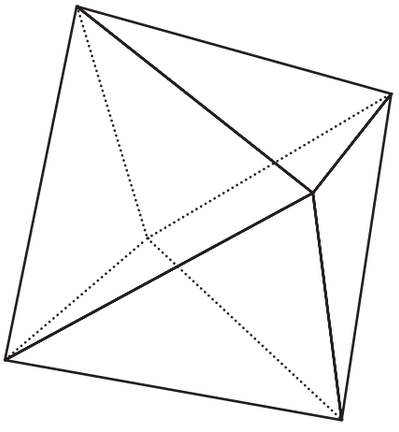
Joe de Vivre

https://doi.org/10.25364/97839033742873

Albion is a 200 kilometre-wide octahedron, clear like a diamond. Inside its eight faces is clean air, a white disk, sitting in the centre. Outside, opaque space, chaos, madness. On the disk, a city.

Celine waited on an escalator, one of many that made up the flying buttresses of the central fortress. The steps and side rails were impossibly clean; there is no dirt in Albion, no dust. She would normally climb the moving steps, but today she let the minutes pass as she drifted upwards. Otherwise, she would be early.

She passed through a tangle of shadows. Raised plazas, huge and distant, slipped by above her. Quadrangles of etched glass, networks of glaring white staircases, walkways, and wire-thin stone rods passed by on either side. The impossibly tall alabaster spires of her destination, the chapel, emerged into view as she ascended. Not real glass, not real stone. The sad spot of sunlight above her, certainly not real. Of this vista, only the citizens and the air around them, and the thinnest crust of the city itself, were allowed the extravagance of atomic matter. All the rest was a clever folding of space. Higher efficiency, less decay, less waste of free energy. Walking up the last few steps, lay people made way for her. She was in full armour, a reminder of the real substance of Albion, shining like black glass. The insignia of the Servants, the skull-in-delta, stood out in white on her shoulder.



She remembered when she had first felt the cold glass tightening against her skin: her ordination, at the same chapel, which she now approached. She remembered the pile of dismembered arms by the alter, the smell of sweat and blood as they each took their turn to make the sacrifice. As the others cried out, or refused at the last, she had grinned childishly as she clenched her new fist and saw the armour flow around it like something living, remembering herself too late, catching the stern eye of her Abbess. That was her main memory of the event now: her hot cheeks as she composed herself. Only fools dwelt on such things. That had been 10 years ago. She hurried across a crowded square. Carved paving slabs clacked loudly against her soles. The other Servants clustered near the pointed arch of the chapel doors.

"Celine The Eager," Agnes called out, rushing through the crowd, and pushing a glass staff into Celine's hands. Now, ceremony, procession and hour upon hour of predetermined steps, silence and gloom. The chapel lit only through its translucent walls and monochrome windows. Overhead, pillars of glass and white stone shot almost out of view, the ceiling vague behind a mist of incense. Enormous figures of stone watched impassively, each with their traditional attributes in hand: Clausius, Kelvin, Joule with his stirring apparatus, Boltzmann with his noose. The opening catechism.

Nothing is without cost, except for the immortal.
Nothing is immortal, except for the perfect.
Nothing is perfect.

"The despicable, self-serving delusions of the past are long behind us. A dark life in the times of ignorance, though nasty, brutal and short, would be preferable to those that came later on the Earth. Those who made war on the truth they themselves had discovered: the three laws, hardest of all lessons, the end of all hypocrisy, all hubris. After such knowledge..."

The words of the minister reverberated unnaturally, seemingly without source. Celine glanced around at the congregation. The lay people looked vacantly upward. They would sooner not dwell on such things, or follow reason to its final conclusions. They could not be expected to. Few had her capacities for truth. She served absolutely, unflinchingly, no ugly consequence left ungrappled with. She held the staff level before her, reading and re-reading the symbols carved into it.

$$\Delta S \geq 0.$$

"Albion. We possess three septillion Terawatt hours. A precious fortune, in our hands. A pittance for the conglomerations of mangled souls and false memories that consumed the Sun, that encircle this sanctuary even now. But every erg in our reservoir will be well-spent, turning the tide against them, restoring clear space and inaugurating an age of truth and humility."

Soon she would be called again to fight. Those who denied the inescapable would perish. She would prevail.

Orange sodium street lights. Everything was perpetually covered in brick dust. Eric climbed an exposed set of concrete steps, vaguely connected to the one remaining half of an old apartment block. The rooms on this side of the block were missing a wall. Stepping into the first such box, he noticed some creature comforts: the space was carpeted with astroturf, and there were pictures of dogs playing cards on the badly plastered walls. A skinny young woman was lying on a neon green sun-lounger. She had some plastic sunglasses, an enormous mustard yellow pullover, a brown beanie hat pulled over dirty blonde hair, and some workman's boots. A colourfully spray-painted AK-47 was propped against the wall by her head. Music (Sinéad O'Connor?) blared from the next room.

"Who's there," she said.

"I'm Eric. Tak sent me."

She stayed immobile on the lounger, as if there was a sun to lounge under.

"Oh. Well pleased to make your acquaintance Eric. Take a seat."

He awkwardly swung a leg over a twin pink lounger.

"We've got all kinds," said Eric. "Eggs. We've got eggs."

"Slow down mate. You're stressing me out. Take a moment. Enjoy."

He had to admit it was a nice day, or night. There was no difference in the Fragment. The street lights were not completely blocking the light from the swirling miasma above, and the sky was beautiful. From this level he could see Hackney Town Hall, even across to Pacific Beach and Shimokitazawa, floating nearby, attached to Hackney by a mess of cables and rickety rope bridges. Other sources of music and noise boomed distantly.

"You got to take a minute to enjoy life every now and again," she said eventually. "Otherwise, what's the point. Anyway, I'm Angie. Talk to Emir about the eggs. He's the fat bastard. We're going to get fucked up on the roof tonight. Welcome to stay if you're not busy." She moved for the first time, eyeing him up and down over the sunglasses. "But if you do, fucking relax a bit, please."

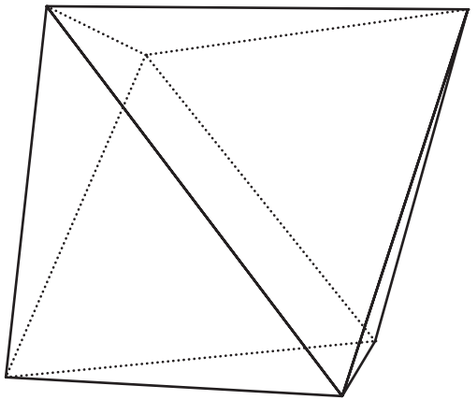
"Any Avatars around?"

"Not that we noticed, apart from Sinéad. She's no harm."

Eric had heard that this crew had a very lenient attitude when it came to such matters.

Behind the half-room there was a larger space, that seemed to have been a bar or club back on Earth. Mercifully, this one had all four walls, covered in home-made art. Half a dozen young people stood arguing around a ragged pool table. For a crew they looked nothing alike: a Gucci suit here, an old t-shirt there. One had a genuine-looking crown and ermine gown on. Eric felt somewhat irked.

His flamboyant floral pyjamas were not his choice, he wore them for consistency with his own gang. They did not suit him at all.



On a stage towards the end of the room, the Avatar sang. She was the full 90's buzzcut version. *Nothing compares, nothing compares.* The backing track seemed to emanate from her. She seemed content to sing perpetually, taking no notice of the crowd. He knew that for an Avatar to exist, those who were consumed during the fall of Earth had to have remembered them. But it also depended somehow on the power of the memory. People didn't remember much about Sinéad, clearly; she skipped listlessly through the song, picking up again from the beginning, caught perpetually in an expression of grief. Listening too hard to an Avatar drives you mad, they say. God knows where they had found her.

"The significance of the concept to the sum of all the memories within the training set – how important the idea is, isn't it," commented Angie, as if reading his thoughts. "That's what makes some worse than others."

She glanced up at the singer's face, herself under the colourful stage lights, mournful for a moment. "I wonder how many of them had a memory of poor old Sinéad O'Connor in their brains, when they died. Barely enough to train a model on."

As Eric walked over to introduce himself, the group abruptly walked away, gathering at a window.

"Oi – Look! There's a Timothee Chalamet down there," shouted the big man in the Gucci, presumably Emir. "And some weird shit."

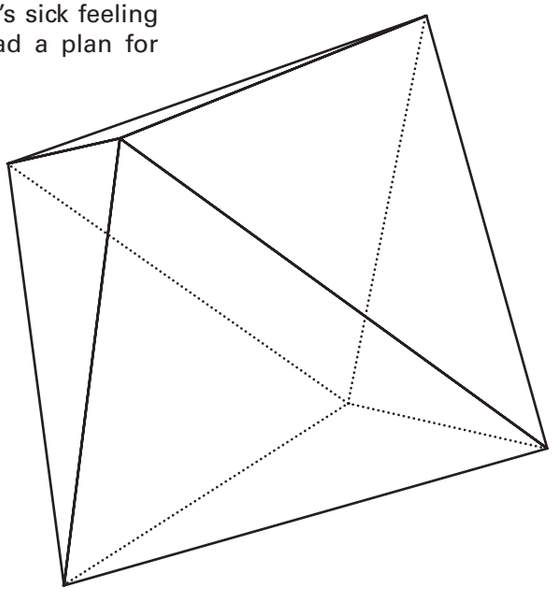
"That's Byron, maybe," ventured Angie. "Is that Byron, Jack?"

"I don't know. No wait it's Keats, definitely Keats."

Eric craned out of the window. Sure enough a dark shadow was progressing between rows of abandoned shopfronts, arms held wide, almost invisible inside a towering swarm of small brown birds. The music they made... Eric felt very ill. He stumbled, looking for support, but the walls seemed to warp inwards. He could hear words being uttered from the street below as if whispered into his ear. Angie hefted up the AK.

"I like Keats," said the one called Jack.

"That's a shame." They covered their ears as Angie sprayed the street below. As far as Eric was concerned, even having a low-tier Avatar in the building was a massive risk, but even these people would not leave one that powerful walking the streets. Suddenly Eric's sick feeling lifted. "Alright drama over. We had a plan for the evening, remember."



They took the loungers onto the roof, not bothering to fold them, beers in hand, careening from side to side, scraping aluminium tubing against the crumbling walls. The loungers weren't really necessary. Most of them ended up swinging their legs off the broken edge of the block. The place was close to the border between Hackney and Shimokitazawa. A view down a narrow, high-piled street swung into and out of view. Masses of cabling and improvised bridges lurched slowly from side to side, banging and screeching like old plumbing as the other fragment of city rocked very slightly, hour to hour. Occasionally a gap could be seen though the spider-web between the neighbourhoods, down into black space.

"It's a mistake," opined Emir as he worked a makeshift pulley system, hauling up a bucket of Budweiser from some mysterious source below, off the side of the block. They were strange bottles, 1950s labelling, part of a big batch that had appeared in Pacific Beach earlier in the month. "It's nothing. This place is just... effluence to them."

"They don't make mistakes." This was Jack again, a gangly boy in cream-coloured slacks and a visor, busy hitting golf balls off the roof with a four-iron but also seemingly the most ready for a discussion. "You can't fend off all comers in a constant massive death fight for decades and make mistakes. Those things out there" – pointing up to the swirling lights outside the glow of the streetlights – "are the perfect survival algorithms."

"Well sure they don't make mistakes on the big things. But we aren't a big thing. This place… how much energy does it take to run? It's nothing to them. It's nothing but a tiny percent of… a percent."

"Doesn't matter. Nothing's too small, they are not like us, they can think about everything at once. And just because there's no energy here doesn't mean there's nothing useful. There's data, ideas. Maybe it's worth keeping us around for that. Maybe this place is just a museum, I don't know. If it's a mistake why does food keep appearing?"

"Because we make it appear. The Avatars are just their random dreams. Dreams, man! Look how long it took to work out how to use the Avatars and all the other creepy shit to get the food, the beer. That wasn't them. It's not on purpose. They just let it happen."

"What keeps the air in? What makes the gravity?"

"Aaaaaaaa!" screamed Angie, pressing her hands to her ears. "Pleeeeeease!"

She twisted around. "Play it again, Sinéad!" She began to waltz Emir across the roof.

The time had come. Celine hung, as if treading water, a tiny point of light in an island of empty vacuum between immense tangles of roiling chaos, like flicking thunderclouds several times the size of Albion. Camouflage for the leviathans – that was all that remained outside of her home. Through her armour, she could sense immense pressure, heat, work. Within the nebulas, folded spaces, superimposed topological geons used as heat reservoirs for unfathomable reserves of energy, constantly evolving new twists and knots to evade discovery, destruction and exploitation by a competitor. The whole was a maelstrom of energy, so desperate to evade prediction that it pushed constantly to depart classical regimes, shattered remnants of spacetime held together by the thinnest causal threads. Fractured intelligences scattered throughout, spun up and shut down at a whim, regulating a trillion strategies and processes, or just misdirection, lies and traps. Remnants of a million human souls harvested in the fall of Earth, memories, knowledge, and desires, split apart and recombined with the most expedient modelling for survival.

If she could reach through the surface, she could see into these intelligences, piggy-backing on their own diagnostic systems. She could outwit them, claw from one to another, to the core.

Kilometre-long coils of black ichor swirled toward her. A momentary shift of the nebula revealed a chink in the hide. She glanced down, a burning beam of white light penetrating into the beast. She latched onto a running model at the periphery of the entity's control system.

My teeth are falling out. They are crumbling. I can feel them breaking like chalk as I chew.

Celine pushed through the vile nightmare. In all of the leviathans, it was useless to seek a central controlling process. There were only ripped pieces of consciousness, cancerous tangles of experience.

I look up. I see the Coca-Cola logo sprayed on the surface of the moon. It is so familiar, although I cannot read the script. Below it, an Apache Helicopter gunship fires a 50-calibre machine gun into a crumbling residential block. My home. I hear the thunder of JDAMs drawing closer. I pull my brother as I run, his face covered with plaster and tears.

Some seemed to serve no purpose at all, like an appendix, repeating endlessly, never varying. Or perhaps these ever-repeating flashes of trauma were a semiconscious immune system for the whole, an antibody to poison foreign agents. They did not matter to the whole any more than a cell of dead skin. These vast systems had been selected in a bitter conflict, fought at a rate beyond comprehension but spanning decades, as those that best protected their own heat reservoirs survived. These were their jealously guarded pockets of free energy, held in the most complex vaults allowed by natural law. Their part of the sun, all that remained after everything else had been plundered.

The smell of hay and straw. It's too late, anyway.
The ground beneath me feels like it is lifting up.
I am falling. I am consumed.

The most common kind of ghost inside these beasts. Memories of the fall of Earth. Celine had felt the pain of the destruction a thousand times. But there was something hidden in this one. It felt wrong. Her cochlear implant instantly engaged countersystems. Femtomachines rained out of her suit, tearing apart nuclei, bending space, superimposing strategies to find the mouth of the heat reservoir and tear it open.

6.43 If the good or bad exercise of the will does alter the world, it can only alter the limits of the world, not the facts – not what can be expressed by means of language. In short, the effect must be that it becomes an altogether different world. It must, so to speak, wax and wane as a whole. The world of the happy man is a different one from that of the unhappy man.

She took it for a shallow meme, embedded in the twisted mass of memory. The blast caught her and sent her tumbling, coherence destroyed, any hints of energy-filled geons lost. Pulling into a spiral like an ice-skater, she shot out of the coiling horror towards the nearest respite.

Eric saw it first. A four-pointed star in the sky. It shot into the rooftop like a bullet, a deafening crash. Then a crouching silhouette of black glass in a cloud of brick dust. It was a short, athletic woman with slicked black hair, and what seemed like some sort of armour.

Jack dived behind a stack of crates, his golf visor bouncing away. Angie grabbed her assault rifle. The woman in black moved impossibly quickly. She was on Sinéad in moments. She paused for a moment, then gripped its neck and tore the Avatar's head from its shoulders. Blood jetted across the concrete.

Eric stood where he was. Moving didn't seem likely to help. He wished he had his pistol. Bass thumped from a passing rickshaw as the seven remaining partygoers caught their breath. A curious set of lights sparkled from what seemed to be a point inside the woman's eye.

"Lay people?" She whispered, seemingly to no-one. "Where am I?" No-one answered.

"I will take you to Albion." She nodded, looking for recognition. "You will be saved. You will live under the rule of your fellows and the three laws, not…" she gestured about, dumbfounded.

"Fuck off." Angie raised the colourful barrel. The armoured woman pointed to the twitching corpse at her feet, stuttering.

"Synthetics will die. Partials will die." She seemed to be struggling to find the martial tone she intended, or the words to cover her situation. "Collaborators – will die, also. Do not resist."

"They are not going to like you. At. All," shouted Angie, shaking violently. "This is bad. We need to get the fuck out of here before they come."

"What's Albion?" said Eric.

"Come with me! I can show you!" she held out her hand.

"Are you having a fucking laugh? Let's. Fucking. Go!"

Angie grabbed at the pulley and swung off the roof, out of sight. The rope sprung taught with a crack and then began to squeak over the wheel, as the other six looked at each other blankly, some still sitting on the jagged edge of the block with their beers, others limply holding golf clubs. While Eric paused, four shadows melted together, forming a square around the armoured woman. Some sort of reaction from The Fragment to the new arrival, forming like scabs on a wound. As they coagulated, Eric recognised one of them: Top Gun era Tom Cruise. Another image formed next to him, a redheaded schoolgirl – was it Sissy Spacek? Why did she have a gun? Another with a ridiculous moustache and 19th century clothing, swirling in a vortex of purple flames, forming and reforming. And some kind of monk, crawling with vermin and forest animals, a halo above him, bathed in white energy. Top tier Avatars. Eric's temples felt like they were about to cave in. Better to jump four stories than stay up here. Emir sprinted for the pulley. Eric did not move.

"I don't like Mondays," said the redheaded girl. A wall of anguish blasted out of her. Eric could see Jack squirming on the floor, blood pouring from his ears. A mirrored shield of energy burst from the armoured woman, tossing the girl backwards. She looked over towards him, imploring him, for what he did not know.

He ran. He ran down the staircase as it cracked, caved in. A storm of aphorisms and slow-motion montages punched through the wall by his head. He jumped out of the hole as it formed, falling 10 feet or so, rolling, smashing his elbow on the ground.

He got down onto Cambridge Heath Road and finally turned. The woman was still there, probably. He watched for any sign of her. Eventually, he saw her lifting from the roof and smashing through the neighbouring block, before disappearing the way she had arrived, as a flash in the sky.

"Let's go down the park."

It was Angie, standing in the middle of the otherwise empty street. Emir stood by stoically, wiping down his expensive suit.

"What's Albion?"

"Who gives a shit? Do you think it's better than here?" She tossed him a beer. There must have been some left on the pulley. They cut down Approach Road, towards Victoria Park.

"Could be a lot worse," said Emir.

"Live under the rule of someone…" Angie added.

"Maybe it's safer. Couldn't be much worse on that score. I almost died. That's not right!"

Angie started to set up her jumper as a makeshift picnic blanket. It was a warm night and the sky was a mixture of sodium orange haze and, behind it, darkly shifting purple nebulae. Emir pulled a small radio out of an inner pocket.

"Well, nothing's permanent, is it."

THE TURNING – POINT – BLACK HOLE

Quelque soit le sens dans lequel on le prend
un trou finira par avoir raison de tout.

Whichever way you look at it,
a hole will eventually make
everything right.

François Mangeol

https://doi.org/10.25364/97839033742874

x,y,z BLACK HOLE

x,y,z POINT

x,y,z THE

x,y,z TURNING

RETROCAUSALITY: LOOKING FORWARD TO LOOKING BACK

Yelena Guryanova

https://doi.org/10.25364/97839033742875

1 INTRO

The allure of time-travel is overwhelming. From taking back one's words to writing a better version of this manuscript, turning back the clock proffers a simple solution to all our regrets. But why stop at righting wrongs? Trips in the TARDIS, temporal anomalies, magical machines and paradox parties have captivated the imagination of everyone from sci-fi writers to scientists. And not without reason, for in its solutions, the theory of general relativity allows for closed time-like curves in the form of wormholes, and therefore for the prospect of going backwards in time.

Our everyday experience, however, is something to the contrary; time is not reversible, which is at odds with modern physics, where no formal derivation or calculation precludes this possibility. The 'fact' that we can only send signals to the future, and not the past, is not really a fact so much as an ubiquitous observation, put in by hand by physicists in the construction of theories, which they tacitly deem 'reasonable'. Unlike Newton's laws of motion, which describe the behaviour and forces of a moving body, or Coulomb's law, which describes how electric charges repel, there is no 'law' concerning backwards-in-time signalling. Indeed, while the existing laws describe observations, the latter would be a statement that something is altogether never encountered.

Even though general relativity allows for closed time-like curves, there is currently no evidence of their existence whatsoever, and despite the appeal of time-travel, the consequences of people, objects, even information being able to propagate to the past has enormous repercussions. Travelling backwards in time to kill your own Grandfather (the so-called 'Grandfather Paradox') creates a contradiction in which you are simultaneously born, but cannot be born. This logical inconsistency can be remedied,[1] by positing that you are actually, born with probability ½. Thus, if you are born, then you travel back in time to kill your own Grandfather and therefore you are born with probability ½. No contradiction. Computer scientists were able to develop this probabilistic, logically consistent framework further and investigate how far the idea of time travel could really go. By formulating these notions in the language of programming, i.e., by reasoning in terms of computers making calculations, The Grandfather Paradox can be rephrased as, "sending the answer back to the time before the computer even started the calculation".

Even in the paradigm where logical inconsistencies are forbidden, closed time-like curves still wreak all kinds of havoc. One implication would be that quantum and classical computers would be equally and extremely powerful,[2] allowing one to efficiently find solutions to incredibly complicated problems, such as larger and larger Sudokus or piecing together enormous picture-less jigsaw puzzles. Big problems typically need big computers, but here, the presence of closed time-like curves would have the effect of rendering space and time equivalent, allowing one to 'recycle' time, instead of adding more memory space to the machine in order to find a solution.

1. David Deutsch. *Quantum mechanics near closed time-like lines.* Phys. Rev. D, 44:3197–3217, (1991).

2. Scott Aaronson and John Watrous, *Closed timelike curves make quantum and classical computing equivalent,* Proc. R. Soc. A.465631–647 (2009).

Although these arguments from computer science may pose a convincing barrier to timetravel, the barrier is not quite high enough to prohibit a little playfulness. Astonishingly, one can still construct worlds that allow the future to affect the past, nevertheless without signalling backwards-in-time. If you like, a kind of backwards-in-time influence without backwards-in-time signalling. To understand these possibilities and what it means to influence something without signalling, one must first learn to understand the world in terms of boxes.

2 BOX–WORLD(S)

An interesting feature of any theory is the *correlations* that it produces. Correlations are the patterns and relationships that one can analyse between at least two parties: these could be two systems, two parts of a whole, or, quite simply, anywhere where one can cut a meaningful divide between two sides. What do we mean by 'theory' and how is this connected to the correlations produced therein? In this text we will take the definition of a *physical* theory to be a mathematical formalism that: (i) provides a model/ description of a system; (ii) predicts the behaviour of system. The models and predictions in a physical theory give rise to *correlations*, i.e. the patterns and relationships *between systems*.

In a particular setting, classical and quantum theory differ in their correlations – an assertion which has been confirmed in numerous experiments. In this setting, two experimenters put into separate laboratories and given a task in which they were not allowed to communicate; how often they succeed at this task is related to their experimental outcomes, and thus the patterns and correlations between them – these will be different depending on whether the experimenters have access to classical or quantum systems. Here, by 'classical' system we mean all the objects that classical theory can describe – numbers, pens, paper, computers. On the other hand, 'quantum' systems, such as entangled quantum particles, are objects described in quantum but not classical theory (in some sense, quantum theory was developed because the descriptive power of classical theory was not enough to express the state and behaviour of some systems, for which an extended mathematical framework was required). Classical and quantum are both examples of physical theories because there are models for the systems and predictions for how they behave; since the models and predictions are different, it would seem reasonable that the theories give rise to different correlations.

We now draw a distinction between a physical theory and a *box-world*. A box-world is a mathematical characterisation of the correlations between (at least two) parties. It is not a physical theory because it does not satisfy requirements (i) or (ii); instead, a box-world skips over these and only describes the relationship *between* hypothetical systems, i.e., the relationship between 'boxes' in some 'world'. Box-world is therefore a universal, theory-independent, way of talking about correlations.

One can also invert the logic and ask if there is a physical theory compatible with every boxworld? The short answer is 'no'. In some cases one is able to establish that some correlations belong to a theory, but in most cases, the problem is very hard: we do not know how to construct a theory, or we cannot because it may be impossible altogether. Despite this, box-worlds are very powerful: any statements which one can make in box-world will hold in *all* worlds and theories, regardless of whether they are physical or not.

The following thought experiment will contain actors, rooms and procedures and scripts in order to *generate* correlations. In truth, these are only there to assist in the narrative, since in box-world we do not require an explanation for how the correlations are generated. For the purposes of illustration, we shall make use of imagery and analogy proceeding with pictures in mind, until it's time to obliterate them to abstraction.

To set the scene, imagine an experimenter, Alice, who has a sealed laboratory. We define an experimental round in this laboratory to consist of two steps (see Fig. 1). In the first of these, at some point, a system enters her lab; she performs a measurement on it and obtains an outcome a, which is a label that is either 0 or 1. The framework for this discourse depends on integer (whole number) outcomes, in part due to the fact that it makes it mathematically easier to compare between correlation theories. Thus, one should not think of Alice's measurement, as a measurement of height, or weight, which are more or less continuous quantities, but as a measurement of something discrete. For example, if Alice were measuring the position of a particle, she may ask: "is the particle on the left or the right?" For which the outcomes would be 0 or 1, indicating one of two delimited regions. It is important to note that 0 and 1 are arbitrary labels for anything that can be binarised (categorised into two distinguishable sets), such as on/off, left/right, and well as more imaginative pairs.

What system does Alice receive? What does it look like and what is it made of? In truth, we don't care, and nor do we necessarily know. One can imagine spheres, objects, physical items with shapes and colours, but the system need not have any of these properties – the 'particle' alluded to was a metaphor. The only demand we make, is that whatever Alice has, has a property that can take one of two values. 'System', then, is a misleading word for an abstract way of describing 'something', which we define rather minimally.

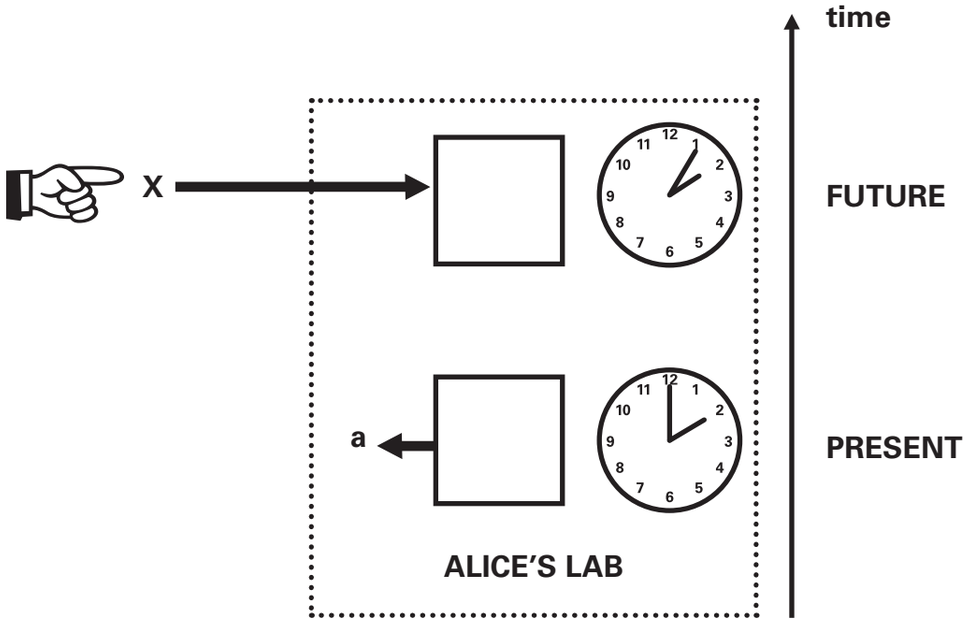


Figure 1. Schematic of Alice's lab, to be read from bottom to top; the system (box) is the same one, at two different times. At 2 PM Alice makes a measurement on her system and receives the outcome a. Five minutes later, an external referee passes her an instruction x about which transformation to perform on the system.

In the second step of the experiment, Alice receives an instruction x, from a referee outside the lab, labelled also by 0 or 1; to continue the allegory, one can imagine that the referee passes a post-it note with either digit written on it. Alice uses this instruction to chose between two different transformations to apply to the something-system, i.e., the *box* in box-world. This transformation could for instance be "if 0, rotate the system" or "if 1, flip the system upside down". What actually happens is again disguised in metaphor, since we do not know if the 'system' is something that can be flipped at all. The real difference between the measurement in step 1 and the transformation in step 2, is that the latter is something that results in information gain, whereas the former is something in which no information is obtained. In the first step, Alice learns whether the system belongs to the category labelled by '0' or the category labelled by '1'; in the second step she learns nothing, but may change the state of the system deterministically.

Classical theory provides us with a concrete example of the latter. Image that Alice rolls a die, and outputs a to be 0 if the number is even, or 1 if the number is odd. Then, if she receives the instruction 0 from the referee Alice changes the face of the die by rotating 180° in any direction. If she receives 1 she does nothing. Thus, if she had rolled a 4, her measurement outcome would be 0. Then, if the referee instructed 0, she would rotate the die to the number 3, or, if the instruction were 1 the same face would remain. In the first step, she learns whether the die landed on even or odd, and in the second step she learns nothing. She knows what a die looks like, and that the face with '3' is opposite the face '4' regardless of which direction one chooses to rotate by 180°.

After both steps are complete Alice sends the system out of her laboratory and the procedure is over. In every experimental round she obtains two numbers, a and x, which she duly notes down. Her logbook begins to fill up with measurement results and transformations, which she writes using the notation $a|x$:

$$0|0,\ 1|0,\ 1|1,\ 0|1,\ 0|1,\ 1|1,\ 0|1,\ 1|0,\ 1|0,\ 0|0,\ \cdots \tag{1}$$

The list is extremely long, as a rule of thumb, more than 10,000 results; Alice can look through the list and estimate the frequency of each of the four pairs. How often did, for example, $0|0$ occur? Like this, she can estimate the probability that she obtained the outcome a given that she later received the instruction x via the conditional probability distribution

$$p_A(a|x)\ , \tag{2}$$

to be read, "the probability of outcome a, given the future instruction x". The expression in (2) is notation for a list of four numbers, $p_A(0|0)$, $p_A(1|0)$, $p_A(0|1)$, $p_A(1|1)$, all between 0 and 1, with relations among them. Now, if Alice were receiving signals from the future, i.e., if the referee's instruction x at 2:05 PM were signalling to her past-self at 2 PM it would show up in her probability distribution $p_A(a|x)$. In other words, a simple mathematical test on the list in (1) would reveal if the future were signalling to the past. Specifically, if $p_A(a|x)$ depended on x, this would indicate the presence of these signals: the probability of a depends on x — the probability at present depends on the future.

From now proceed with utmost caution: we do not believe that signalling backwards-in-time is possible, or indeed 'reasonable' and choose to explicitly forbid such a phenomenon mathematically. We define the no-backwards-in-time-signalling (NBTS) principle to be:

$$p(a|x)\ =\ p(a)\ . \tag{3}$$

This equality states that the probability of obtaining the outcome a given the future transformation x is the *same* as the probability of simply obtaining the outcome a, i.e., that a in the present does not depend on x in the future.

Which world are we in and which theory does this correspond to? The answer is any world, in which one can embed this two-step framework (measurement then transformation). In fact, it is enough to receive a list like the one in (1), and the promise that the numbers therein were generated in two steps, with no further explanation of what went on. Perhaps a lab somewhere in London was measuring quantum spins, or perhaps somewhere in a world we've never encountered a strange printer spat out a ream of 0's and 1's on a long receipt – the models for 'what happened' are irrelevant.

Now that we have enforced, *by hand*, the NBTS principle that *a* does not depend on x (present does not depend on future), it is now very tempting to think, "Very well! Since the present cannot depend on the future, then the future should depend on the present and thus x can depend on a". This is, of course, in general completely true, but to be able to make meaningful statements about the NBTS scenarios later, we must assume that x is free and independent of a. To see why, one must consider the role of the external referee.

Let us entertain the possibility that Alice decides to completely ignore the referee and that she chooses the transformation labelled by x as desired. In particular, she could chose x to depend on a, by choosing it to be exactly the same $x = a$. Beware, that the latter does not mean that the measurement and the transformation are somehow physically identical; they are quite separate from one another. This only means that the *label* for the transformation is equivalent to the *label* for the measurement.

The choice to ignore the referee, is manifestly not a case of backwards-in-time signalling since Alice's actions are perfectly time ordered. By choosing x (future) based on a (present), Alice is signalling forwards-in-time, but since the labels are identical, then one can make symmetric and equivalent statements: a depends on x and x depends on a (present depends on future) and (future depends on present). The former is problematic and demonstrates why it is vital to assume that x is generated externally and independently of a and why Alice must follow the referee's instructions explicitly. In order to be able to draw consistent conclusions and enforce the principle properly, x must be free of a.

But how free can x really be? What if the referee were cheating by eavesdropping or looking at Alice's outcome and matching the instruction to it? Perhaps a subtler form of dependence is being embezzled, that is harder to detect? In general, these concerns cannot be ruled out. Here, however, it is not our objective to discuss how to guarantee the absence of such conspiracy theories, rather, in the rest of the text we will assume that x is truly independent and discuss the consequences for the setup in such a case.

3 THE TIME BETWEEN

One may wonder what interesting statements there are to make at all in such a single experimenter scenario: we have said that x is independent of a (by assumption) and also that a is independent of x (by force). Indeed, in order to see or say anything remotely interesting, one must introduce another experimenter, whom we shall refer to as Bob. Alice and Bob are now both subject to the rules laid out above. We endow each of them with a sealed laboratory and apply the same framework: a system enters Alice's laboratory and she performs a measurement on it, obtaining an outcome a. She then receives an instruction x from an external referee outside of the laboratory, which she uses to select and perform a transformation on her system; she sends the system out of her laboratory. Analogously, at some point, a system enters Bob's laboratory. He also performs a measurement on it and obtains the outcome b; a different external and independent referee passes him an instruction y; he uses y to select and perform a transformation on his system. He sends the system out of the lab.

We must now confess to another lie – the idea of the lab. The laboratory (imagined perhaps with walls and doors) is also something of a fiction, established and sealed only in order to create well-defined time-zones for Alice and Bob. In this way, one need not assume that there is any notion of time between them: in her lab, Alice has her own time, in Bob's lab he has his; outside of their respective environments anything goes. Maybe they are connected in the usual way in time just as two labs in Vienna and Paris might be, or, alternatively there may not be any time that connects them whatsoever. The 'lab' is a way of neatly making an assumption about each experimenter's local time.

In their respective 'labs' Alice and Bob perform their procedures, obtaining outcomes and performing transformations, all labelled by 0's or 1's. Fig. 2 shows the results noted down by Alice and Bob in each experimental round and the last column shows a combined way of writing the individual records. By looking down this column, one can also estimate the relative frequencies of the different combinations $a\ b\,|x\ y$ coming out of the experiments, for instance, how often did the combination $01|01$ occur? These are captured in the conditional bipartite probability distribution:

$$p(a, b|x, y), \tag{4}$$

Experiment number	Alice a | x	Bob b | y	Combined notation a b | x y
1	0 | 1	1 | 1	0 1 | 1 1
2	1 | 0	1 | 1	1 1 | 0 1
3	1 | 0	1 | 0	1 1 | 0 0
4	0 | 1	0 | 0	0 1 | 0 0
5	1 | 1	0 | 1	1 0 | 1 1
6	0 | 0	1 | 0	0 1 | 0 0
...	...	...	...

Figure 2. A record of the experimental results obtained by Alice and Bob. In many experimental rounds Alice notes down her measurement outcome and instruction $a|x$ and Bob notes down his measurement outcome and instruction $b|y$. The last column shows a combined notation for the global view of the two experiments, which can be obtained only after Alice and Bob come together.

"the probability of outcomes labelled by a and b, given that the instruction x was received in the future of a and the instruction y was received in the future of b". This joint description presents a 'bird's eye view' of both labs, and contains within it *more* information that if one were to look at Alice and Bob separately. Indeed, the probabilities that Alice and Bob see locally is not the 'global view', but rather, the probabilities they get by estimating the frequencies in their individual columns, just as Alice was doing to get $p_A(a|x)$ in the single-experimenter case. The global description $p(a, b,|x, y)$ contains all the *correlations* between Alice and Bob, but it is only possible to have this description after both experimenters have completed their procedures, met, and collated their local results into the last column of Fig. 2.

From the global description, one can access more structure than just by looking at the individual observations of Alice and Bob. A mathematically consistent method to get from the combined column on the right in Fig. 2 and access this extra information, is known as *marginalisation*. This step is not physics, but rather mathematics, and comes from probability theory: marginalisation is true for any global view probabilities that have the form in (4). This move will reveal all the dependencies that Alice's outcome a may have, and is achieved by summing (marginalising) over all the outcomes b of Bob in the global distribution. Regardless of what Bob's measurement result is, Alice's measurement result a still has the following dependencies:

$$\sum_b \; p(a, b|x, y) =: p_A(a|x, y) \; , \tag{5}$$

where the colon indicates that these two sides are always true by definition. The right hand side of the equality tells us that irrespective of Bob's b, Alice's a can still depend on x and y. Likewise for Bob: all the dependencies on his measurement outcome b are learned by summing over all of Alice's outcomes a from the global probabilities:

$$\sum_a \; p(a, b|x, y) =: p_B(b|x, y) \; . \tag{6}$$

From here we proceed to enforce the no backwards-in-time signalling principle, just as we did in the single-experimenter scenario. In Eq. (3) we imposed that the probability of Alice's present outcome a was independent of her future transformation x. Here, we apply the same logic and enforce this rule on the marginalised probabilities. Eqs. (5) and (6) become

$$\sum_b \quad p(a,b|x,y) =: p_A(a|x,\ y) = p_A(a|y)\ , \tag{7}$$

$$\sum_a \quad p(a,b|x,y) =: p_B(b|x,\ y) = p_B(b|x)\ , \tag{8}$$

in each line, the first equality is by mathematical logic and the second we enforce due to our patent disbelief in time travel: these two equations enforce the NBTS principle for Alice and Bob in their respective labs.

What does it mean to mathematically enforce a principle and what does this have to do with any reality that one can relate to? Eqs. (7) and (8) exist in print but do they exist in practise?

The equations above have characterised Alice and Bob's correlations: we are in many boxworlds, in the space of all worlds which satisfy and are consistent with the no-backwards-in-time signalling principle.

4 THE TIME BETWEEN IS RELATIVE

History has shown on many occasions that whenever there is prohibition there is always dissent, and the case for box-world is no different. Even though we have precluded signals from travelling from the future, somewhat surprisingly this doesn't rule out the possibility of influences propagating in the 'forbidden direction'. These influences are not guaranteed – given an experimental list such as the one in Fig. 2, they may or may not be present, but fortunately, it is possible to systematically characterise them, in order to know where to look. The characterisation depends on the *relative* timing of Alice's and Bob's experiments, a conversation we've been careful to avoid until now, having only said that «at some point» a system enters their labs. We now pin this 'point' down and split our study into four cases – either the relative timing between Alice and Bob is known: Alice before Bob; Bob before Alice; the experiments are parallel, or, the relative timing is unknown.

The case in which the timing is known and Alice's actions are completely before Bobs we denote $A{\rightarrow}B$ (Fig. 3(a)). Here, the system which entered Bob's lab, was actually the same one that left Alice's, i.e., Alice sent her system to Bob. Then, the system she sent to Bob could have carried encoded information about her measurement result and transformation; thus b may depend on everything in its past, i.e., Alice's a and x. After Bob outputs b, he then receives the instruction y and performs a transformation and the experiment is over. One can check that irrespective of Alice's outcome a, i.e., on marginalising in order to access the extra information

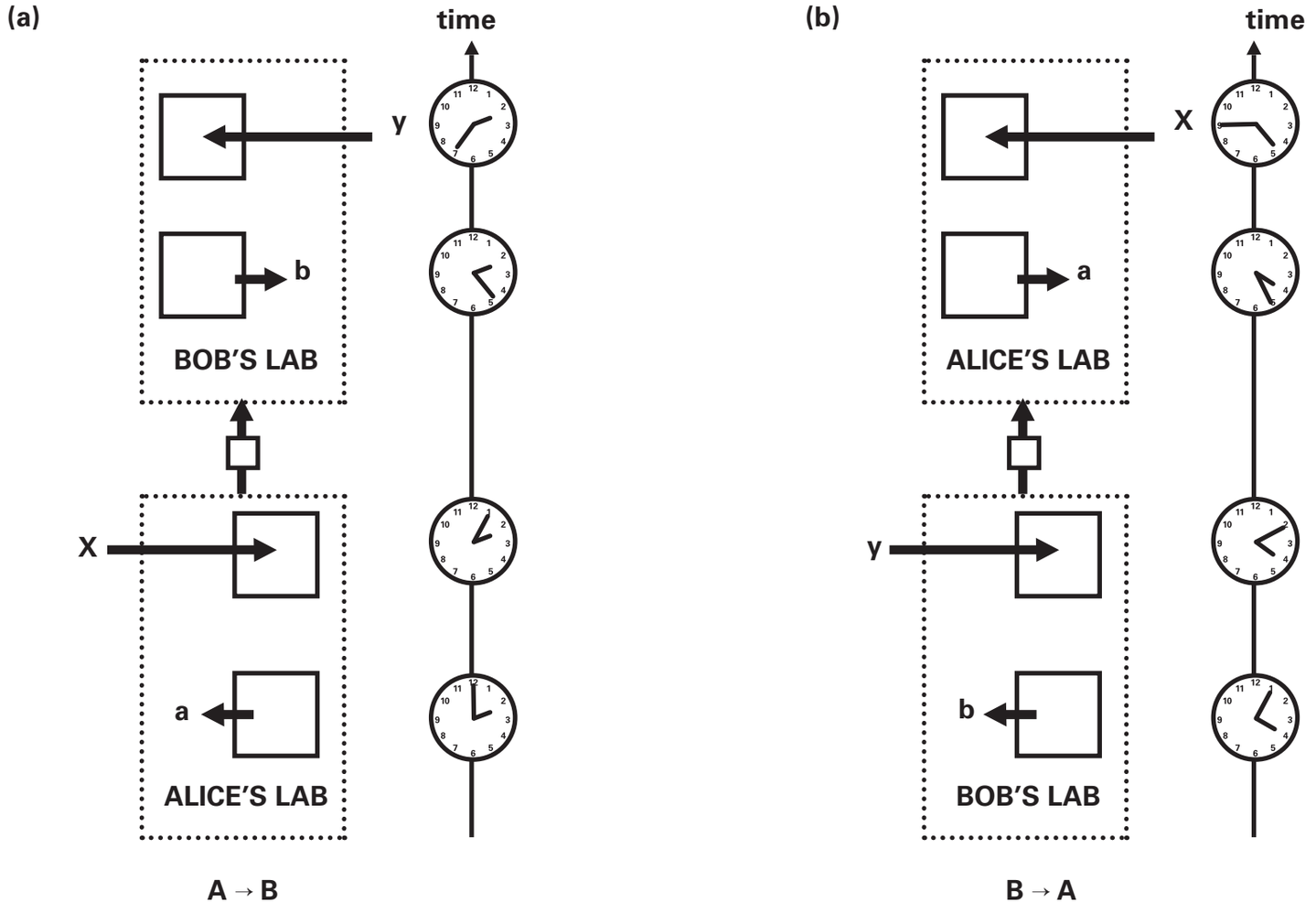


Figure 3. Known timing: the sequential scenarios. (a) $A \to B$ and (b) $B \to A$. In (a) a system enters Alice's lab at 2 PM, an external referee passes her instruction labelled x. She then send the system out of her lab to Bob, who upon receiving it performs a measurement and obtains outcome b. Later, another external referee passes him an instruction labelled y, which he uses to select and perform a transformation. In (b) the same procedure occurs, but with Bob at the start of the chain and Alice at the end.

Bob's outcome b only depends on x and not on the future y, just as in Eq. (8). Mathematically everything is consistent and all the actions are ordered in a chain. The analogous statements are true if the order were the other way around i.e., if Bob sent his system to Alice, $B \to A$ (Fig. 3(b)).

The sequential settings admit the 'intuitive' description of experimental results that follow a well-defined temporal chain, but, surprisingly, even in these ordered cases, influences may occur that allow the future to affect the past. If one considers Fig. 3(a), one can isolate instances where the following is possible: individually, Alice's outcome a at 2 PM is not affected by her transformation x at 2:05 PM. Likewise Bob's outcome b at 2:22 PM is independent of the transformation y at 2:35 PM; thus both Alice and Bob obey the NBTS constraints. However when considered *together*, it *is* possible for the outcomes a and b to depend on the future transformations x and y, i.e. a at 2 PM and b at 2:22 PM depend on the transformations x at 2:05 PM and y at 2:35 PM. This kind of strange dependence is not assured in all box-worlds, one has to check to see if it may be there.

This surprising feature is also present and even better exemplified in the other known-timing scenario: that of parallel actions. Here, Alice and Bob's experiments are completely synchronised and there are two separate systems which enter their labs, precluding the possibility of any information passing between them (Fig. 4(a)). Even in this seemingly innocent case, where nothing is exchanged or communicated, influences may still be able to escape and the following scenario is not ruled out. The results of Alice and Bob's measurements, which occur on Monday, actually depend on the external instructions x and y that they receive on Tuesday. This strange dependence can be observed on Wednesday, when Alice and Bob emerge from their labs and compare their results by creating the 'global view' column of the experimental results.

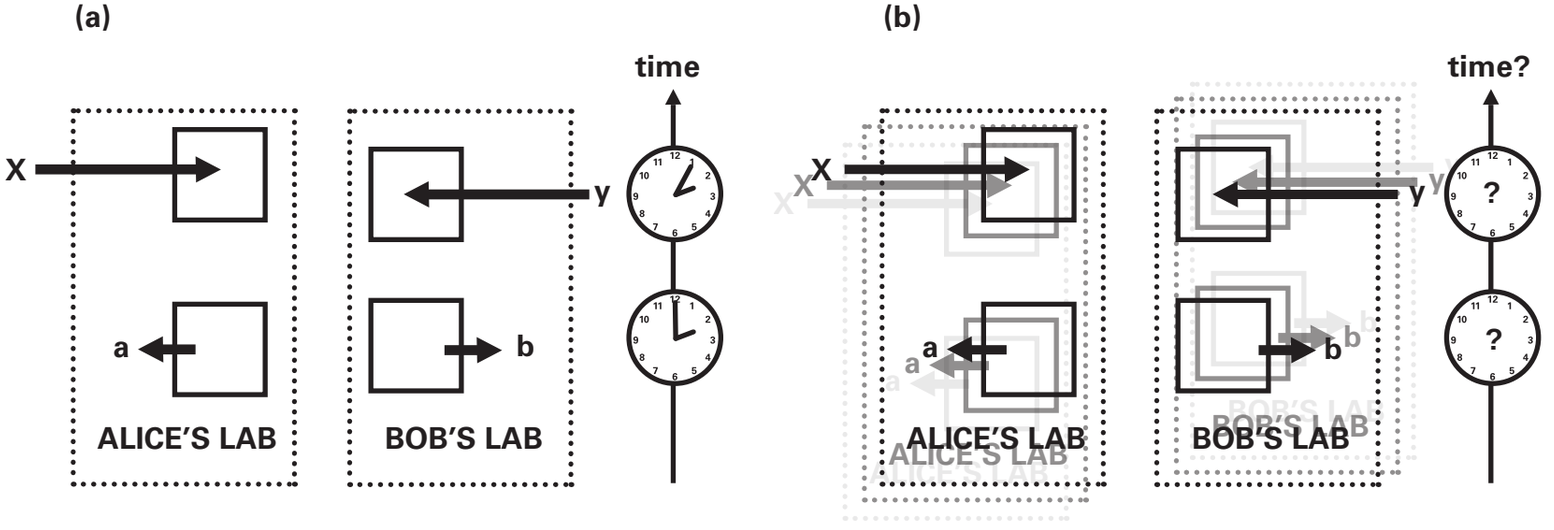


Figure 4. (a) Known timing: the parallel case. Alice and Bob's experiments are perfectly synchronised and there are two different systems in their labs, which are not exchanged. (b) Unknown relative timing: the order of Alice and Bob's experiments are completely unknown or even undefined.

Finally, the last timing scenario possible in the setup is the one in which the relative timing between the labs is unknown (Fig. 4(b)). It could be that the timing is actually well defined, but unknown to the experimenters, or that it varies from one experiment to another; it could even be the case that the timing is undefined in principle, in a strange world where no clocks can be constructed. In this case too, backwards propagating influences can be present and, intriguingly, they are 'more numerous' than in any of the other cases.

The four different timing scenarios are distinguished by the size (i.e., volume) of correlations that they allow. In each case, all of these correlations do not signal backwards-in-time (they obey the NBTS principle) but among them are also influences which travel from the future to the past. The number of possible different influences varies between the four cases. From smallest to largest, the size of the spaces of influences grows from: the parallel case, the sequential cases and the unknown order case which are 6, 7 and 8 dimensional respectively. Box-worlds, it turns out, can be very accommodating places.

All of the timing scenarios allow for the possibility of the future to affect the past, without backwards-in-time signalling. How on Earth in box-world can this possibly be? The resolution to this apparent conundrum, is that Alice and Bob cannot use these influences in their real-time to do anything useful. In fact, they cannot even detect them; only afterwards, after all the experiments are complete, when they come together and create the 'global view' of their experimental results do they see, in hindsight, that these influences were present. There is absolutely no way to control them when they are happening, and nor can they be used as a resource or harnessed in any way. The fact that the effects can only be discovered later also avoids paradoxes such as killing one's own Grandfather.

5 THE BENEFIT OF HINDSIGHT

So are you, readers of this article, receiving undetectable influences from the future? Are there waves of uncontrolled impacts cursing through your body and guiding you to actions beyond your control? It unlikely. In quantum theory all of the correlations obey the NBTS principle (Eqs. (7) and (8)), but none of the correlations (in any of the timing scenarios) allow for these influences to flow – after systematically characterising these exotic effects, one can check that they do not occur in quantum theory.

Thus, if you believe that quantum theory is the correct description of your current state, then no influences can flow from the future. In fact, one can go even further. Earlier, we said that classical and quantum theory differ in their correlations, in a particular setting. It turns out that in *this* setting they do not differ at all, and are, in fact, identical. Classical theory too obeys the NBTS principle and it too does not allow for backwards-in-time influence. What this means, is that in this two-step setting (measurement and transformation) in order to reproduce the correlations of quantum theory, i.e., to obtain all the patterns and dependencies present in experimental lists like those of Fig. 2, Alice and Bob don't even need quantum particles nor any of the fabled entanglement that comes with them. Some dice and a couple of pieces of paper (objects that can be described in classical theory) will do – the patterns and correlations will be identical.[3] Correlations, it turns out, are an interesting, but not necessarily distinguishing feature of a theory.

If they are not in quantum or classical theory, where are these backwards-in-time influences to be found? Is it possible to find them in another physical theory, 'beyond' quantum? Would it be possible to find and observe these influence by looking back in the records of peculiar experiments? Perhaps. There are many more box-worlds in the 6, 7 and 8-dimensional spaces to explore that do not correspond to classical and quantum theories. One can postulate the existence of such influences in, for example, exotic contexts of quantum gravity, of which we know very little, or simply in other box-worlds, which we can define on paper, but so far have failed to encounter in experiment.

3. *Exploring the limits of no backwards in time signalling*, Yelena Guryanova, Ralph Silva, Anthony J. Short, Paul Skrzypczyk, Nicolas Brunner and Sandu Popescu, Quantum 3, 211 (2019).

We stuck with the conceptual bedrock of physics, as well as intuition, and decided defacto that time-travel and closed time-like curves do not exist by expressly forbidding them. We did so by constructing a theory-independent definition to prevent signals locally travelling from the future to the past, a principle dubbed 'no backwards-in-time signalling'. Despite this veto, we discovered that it is theoretically possible to have situations in which the future demonstrably affects the past: by performing measurements and transformations in their laboratories, or, more precisely, by gaining and not-gaining information about something-systems in individually well-defined time-zones, the experimenters were able to see, in hindsight, that the non-occurred was able to affect the occurred, i.e., that there are influences that can propagate backwards from the future without creating closed time-like curves. Unfortunately however, these influences are not present in anything described by classical or quantum theory.

6
OUTRO

It is time to destroy the last bastions upon which we constructed our story, the experimenters Alice and Bob. For box-worlds are not worlds occupied by experimenters or referees, who only serve as allegorical explanations. Box-worlds are the bare minimum: one need not have an explanation for what is going on inside the box, there is no need for specifying the details of any experimental setups, nor for creating consistent scripts with actors. The fact that we search for 'convenient explanations' in terms of physical theories is something in addendum, perhaps to appease our own unease. In any box-world there is total sensory deprivation, there are only boxes and the lists of 0's and 1's, encoding the correlations, that they produce. Despite this, they are surprisingly accommodating, occupying multidimensional spaces and allowing for novel effects to flourish.

We do not know if these influences are already out there, and neither do we know that closed time-like curves are truly forbidden. Perhaps there are particles in our universe, that behave differently in regimes that we have not encountered yet, and for which we have no theories or models. Here, it may be that backwards-in-time influences can arise, against a foreground of new physics. Thus, even if it turns out that one cannot manipulate the past, one can certainly look forward to looking back.

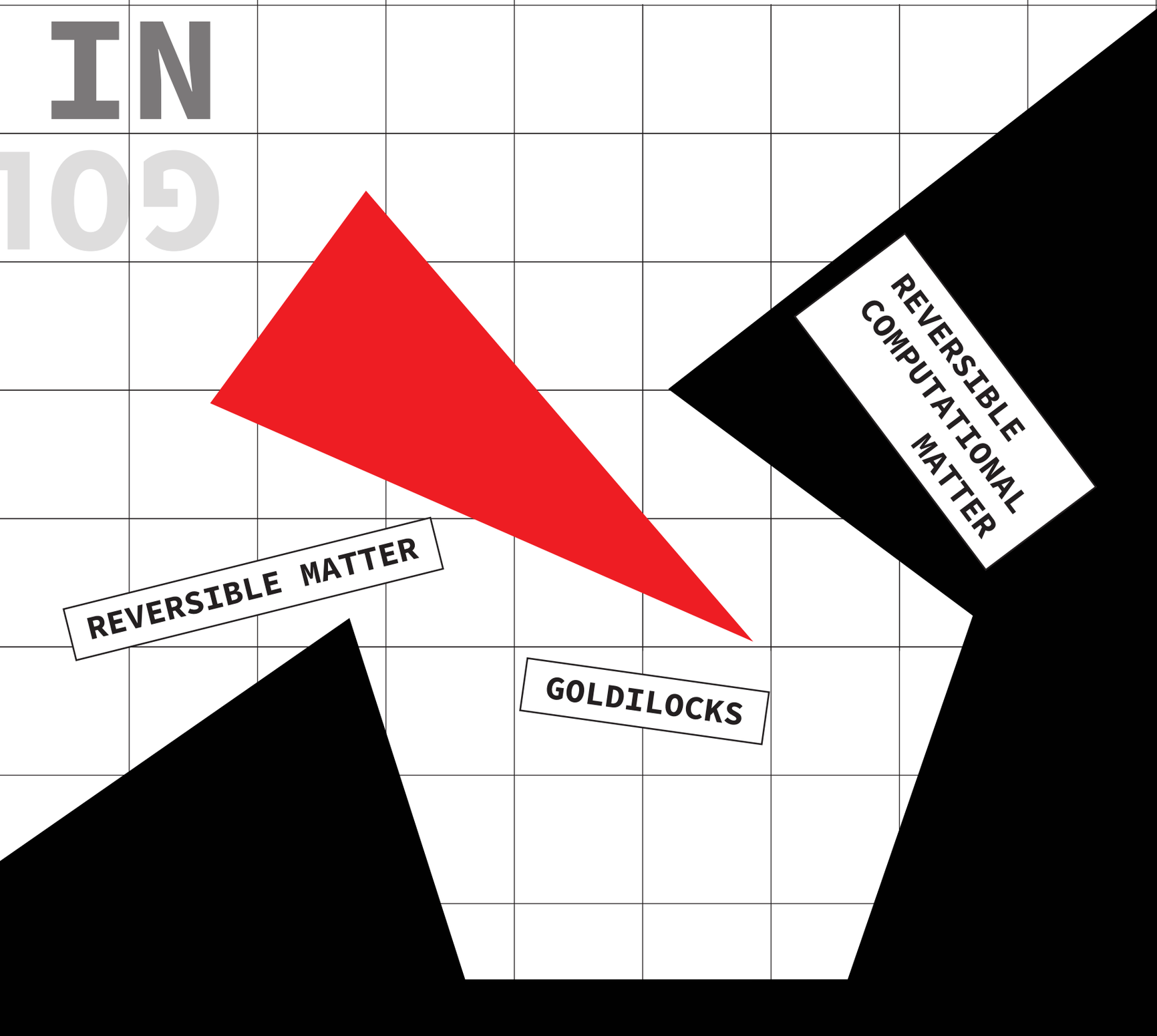
GOLDILOCKS: FLATLAND

40

Harun Šiljak

https://doi.org/10.25364/97839033742876

A cellular automaton is, loosely put, a grid in which the cells change their states based on the states of the neighbouring cells together with a set of local rules. For example, the rule for a two-dimensional cellular automaton might be to put a cell in state “1” if the cell to its left and the cell below it are in state “0”, otherwise put the cell in state “0”. Cellular automata are a powerful computing paradigm: they can do anything a general computing machine can do. A popular example of a (two-dimensional) cellular automaton is John H. Conway’s Game of Life a set of simple rules that manage the life and death of cells in an infinite 2-D grid, that often results in complex, intricate functional patterns.



For the full comfort of the reader, now is the right time to imagine they are living in a two-dimensional cellular automaton. Fans of Lisberger and MacBird's *Tron* might enthusiastically imagine a descent into a computing mechanism; fans of Abbott's *Flatland* will be in a slightly more advantageous position in imagining their existence in a 2-D geometry, just very pixelated into cells of the automaton.

A cellular automaton by default, like many other concepts in our everyday life, is not reversible. Many patterns in Game of Life end up in the state where all the cells are dead, and observing that state of the automaton is not enough to deduce what the previous state of it was, even though we know the rules that the automaton evolves by. This is why we can speak of a special class of *reversible cellular automata:* they evolve in one direction in time by one set of rules, but a different set of rules can recreate their history as it rewinds them in time.

In our fantasy of living in a two-dimensional (irreversible) cellular automaton, our world is an infinite matrix of cells, extending in all directions. Let us, for a moment, examine a single row (or column) of that matrix. If its evolution was governed just by the states of cells within that one row, and a set of rules that determines the state of a cell based on the state of its neighbours within the row, it would be a 1-dimensional cellular automaton. This is where the *Flatland* fans may recognise their advantage: the inhabitants of the 2-D world can feel smug while observing a 1-D world with their benefit of an extra dimension. Similarly, the 2-D world inhabitant could look at the horizon of their world and see something resembling a 1-D flattened projection of everything in front of them, a horizon line that resembles a 1-D cellular automaton.

We're left with one more concept to introduce before we can fully appreciate the allegory of our cellular Flatland. Computational matter as an abstract computing medium is a concept we borrow here from the Italian-American physicist Tommaso Toffoli. It was Toffoli who proved that an arbitrary n-dimensional cellular automaton could be simulated on a n+1-dimensional reversible cellular automaton.

This, in simple terms, means that, when considering an arbitrary 2-dimensional automaton, we can come up with a design of a 3-dimensional reversible cellular automaton which will, in 2 dimensions, have the appearance of the 2-dimensional irreversible automaton we had in mind.

Here, the sense of particulate matter as the abstract resource of computation arises from the locality and reversibility of reversible cellular automata. Consider, for example, a 2-dimensional billiard ball model: such a reversible cellular automaton captures the mechanics of a billiard ball bouncing off the solid walls. On a different scale, consider a gas model, where a reversible cellular automaton captures the motion of gas molecules, bouncing off walls and colliding with other molecules. Both of these illustrate what we mean by the 'sense of particulate matter': our perspective on the microscopic world as one obeying fundamentally reversible dynamics, symmetrical relationships that break at a scale above the elementary interactions.

Let us, for the purpose of imagination, abuse the notion of 'could be' in simulation of the n-dimensional reversible cellular automaton, and replace it with 'is'. Whenever we imagine an n-dimensional cellular automaton, we will be imagining an n+1-dimensional reversible cellular automaton simulating it. Furthermore, let us say that the two are one and the same, so that all irreversible cellular automata are n-dimensional projections of the reversible cellular automata that simulate them, and that we are simply not able to access the extra dimension needed to maintain reversibility.

A reader accustomed to thinly veiled didactic writing will recognise the setup in the cellular automaton Flatland: just like the horizon is a projection for the inhabitant of the 2-D space, the 2-D space will, in our case, be a projection of a 3-D reversible cellular automaton that simulates the world we chose to live in.

It is attractive to imagine an extra dimension outside our world that could facilitate information preservation. A cynical read of religious beliefs would find use for this dimension to store history for Judgement Day purposes, while a demonic interpretation would allow for the existence of the Laplace's demon – Laplace's demon would be a hypothetical entity capable of knowing all past and all future of the universe based on the knowledge of position and momenta of all particles constituting it. A common refutation of the plausibility of demon's existence is the thermodynamic capacity of our universe to hold that information/computation: an extra dimension helps with that as well.

We managed to insert (a toy version of) our world between two reversible systems at very different scales: the material particles obeying their reversibility, and the computational particles obeying theirs. It's not hard to imagine (as we've imagined more difficult things already in this text) that cells in our cellular automata world are made of matter we are familiar with, and elementary particles in that matter have fundamentally time-reversible rules to follow. Squeezed in realms between those particles and those of the computational matter executing the computation of our world dynamics, there is the irreversible world; too big to be reversible by virtue of matter, and too small to be reversible in the computation. In this Goldilocks zone we get to spend our lives, and get to think that irreversibility is the default state of the world.

We tend to think about irreversibility after things (the ones we would like to reverse) have already happened. An unreplaceable vase broken in a sudden movement, a silly car accident that will cost a small fortune, a person we pretend not to see and will miss thereafter, a dive into waters too shallow. It is not until we find ourselves in a present we would like to have avoided, that we regret a past that seems to have led to it. We then revise this past trying to capture what could (or couldn't) be different. It might be a fortuitous instant (too eloquent a gesture; too daring a jump) or a chain of decisions (the pressing importance of that drive, the time and route taken, each delay and the hurry).

IF SHE GIVES YOU LEMONS

Regret. It can lead to simple acceptance (the present could have been different but isn't) or to deep melancholy (an endless recalling of the past, speculatively living the alternative choices that would build a different present). Imaging acting as retrovisionaries, analysing the present and envisioning the ways in which we could (if we could) from the actual now, develop a future that could have resulted from an alternative past, one in which we took the decisions that would have conducted to a different present. Constructing a future that deconstructs the past.

We don't usually consider irreversibility (or the difficulties involved in an approximate reversion of our deeds) at the time of acting. Adding this factor to our calculations would make any choice even more difficult. Imagine making each move on a chessboard not only focusing on approaching the king's defeat, but also with the intention of always keeping it possible to advance the remaining pieces towards an occupancy of the board parallel to previous ones, looking for a future that meets with the past. Imagine only making decisions that would lead to consequences that could develop into outcomes analogous to the ones envisioned to result from an opposite decision.

Carla Zaccagnini

I decided to leave the next page in this publication totally blank. You can decide to leave it as it is. You can also occupy it with the imprint of your hand soaked in the juice of a lemon, as I initially intended to do. If you decide to do so, the drawing made, when your hand touches the paper might be different from or similar to the one I have in mind. Either way, after it dries it will become invisible. You can decide to leave it as it will be. If exposed to the heat of a candle or iron, the oxidation of the paper provoked by the lemon will be accelerated, and the past gesture of your hand will become visible. The page can be left blank forever. The drawing can be left latent for years. Once the image is revealed, the process cannot be reversed.

https://doi.org/10.25364/97839033742877

THE REDEMPTION OF TIME: NIETZSCHE, BENJAMIN AND THE POST-HUMAN

Sandro Gorgone

https://doi.org/10.25364/97839033742878

Time present and time past
Are both perhaps present in time future,
And time future contained in time past.
If all time is eternally present
All time is unredeemable

T.S. Eliot, *Burnt Norton, Four Quartets*

1
PHILOSOPHY OF REVERSIBILITY

The philosophical concept of reversibility, dismissed throughout the modern tradition in favour of the myth of linear and irreversible progress seems to know an unexpected success in our technological post-modernity: from the discovery in twentieth-century physics that the fundamental laws of both quantum physics and relativity are indifferent to the direction of the passage of time, to the centrality of the concept of renewability of energies and resources. From the achievements of anti-aging medicine, to the more general tendency to recover and incorporate tradition into the present (emblematically represented by vintage fashion) reversibility has, perhaps, become the subterranean but decisive imperative of our time. It is no coincidence, therefore, that in the aftermath of the collapse of the Berlin Wall and the consequent crumbling of the great ideological narratives, the Hegelian question of the end of history has asserted itself in the European cultural debate, almost as if to demonstrate that in an age when everything tends to be reversible, the ground on which authentic historical decisions can be founded, that is the ground that has the strength to irreversibly change the course of history, is missing.

But where does the fascination with reversibility come from? Certainly, on an existential level, it comes from the possibility for every living being to subvert the natural course of evolution, starting from birth, through to growth, maturity and ageing, and finally to death. Great poetry has long meditated on the fate of the ineluctable forward flow of time and has often contrasted its main effect, the fading of strength and beauty of youthful years, with the renewal of life in procreation: the new generation constitutes, as in the following splendid second sonnet by Shakespeare, the main source of reversibility of lifetime:

When forty winters shall besiege thy brow
And dig deep trenches in thy beauty's field,
Thy youth's proud livery, so gazed on now,
Will be a tattered weed, of small worth held.
Then being asked where all thy beauty lies—
Where all the treasure of thy lusty days—
To say within thine own deep-sunken eyes
Were an all-eating shame and thriftless praise.
How much more praise deserved thy beauty's use
If thou couldst answer «This fair child of mine
Shall sum my count and make my old excuse»,
Proving his beauty by succession thine.
This were to be new made when thou art old,
And see thy blood warm when thou feel'st it cold.[1]

The unavoidable destiny of decline that envelops the existence of individuals with sadness and melancholy has always been the strongest and most tragic symbol of the irreversibility of time. This decline is demonstrated by Oswald Spengler, in his grandiose fresco of comparative history, *The Decline of the West*,[2] as well as appearing in myth, depicted in the frightful voracity of Chronos, who devours his own children. Chronological and irreversible time generates life and constantly swallows it up. The reversibility of time, on the other hand, refers to another temporal conception,

1. William Shakespeare, *Complete Sonnets and Poems,* ed. C. Burrow (Oxford: Oxford University Press, 2002), *Sonnet 2,* p.385.

2. Oswald Spengler, *The Decline of the West,* ed. H. Werner (Oxford: Oxford University Press, 1991).

whereby the passing of time does not annihilate what has been, but preserves (albeit in a different form) that of presence; the god Chronos, who devours his own creatures, is replaced in this conception by the god Aion, the other Greek personification of time, who symbolises (unlike Chronos) the eternity, the succession of eras, the time of life and destiny.[3]

But only those who are able to discern a difference in the very nature of time, and take up residence in it, can grasp its consoling aspect. Time is constitutively split, disjointed and multiful, as Shakespeare's Hamlet knows well. Our existence extends to time's various forms, but only finds stillness in the deepest dimension of temporality, the one in which we perceive the rhythmic pulsing of nature and with which we measure our time and its precious 'growing'.

3. These two mythical figures of time are joined by a third and decisive one, that of Kairos, to which we will return.

This intrinsic difference of time first emerges as opposites in two fundamental conceptions: the linear and the cyclical time. For the linear conception, time passes, flows, elapses and thus possesses a progressive and irreversible course; in the cyclical (or natural) conception, on the other hand, it is represented as a wheel, and it is customary to speak of return and 'courses and recurrences'. Time encompasses both of these dimensions, even if, from time-to-time, in each historical epoch and in each individual, only one-dimension manifests itself. For Ernst Jünger, the principal dimension of cyclical time, with which the first consciousness of time arose, just as the first clock, was the solar clock. Time, as a return, belongs to one's primordial experiences and one's first contact with nature: the sun returns first, followed by all the other stars. This cycle of returns is also marked by the return of feast days, which, in ancient times, were celebrated as the day on which the gods themselves met mankind. These festivities are the emblem of cyclical time and of the regeneration and renewal of time itself.[4]

The cyclical nature of time is, in fact, the main way in which its reversibility has always been thought of: that time flows in circles. On the one hand, these circles can lead to vanity and resignation (in the sense of biblical Ecclesiastes), on the other hand they grant a feeling of intimate comfort: that every process that unfolds in the temporal dimension does not end in nothingness. If the present time can, in its singular uniqueness, absent itself from the scene of the world, then in its flowing it guarantees the permanence and vitality of the whole, like the individual being whose short life contributes to the preservation and evolution of the species. One could even detect a kind of aesthetic pleasure in the circular reversibility of living processes, a pleasure that culminates in the paroxysmal tendency of contemporary technology to subvert the direction of the arrow of time and to allow for one to experience the results of such temporal deconstruction (even if only for playful purposes).

4. Ernst Jünger, *Das Sanduhrbuch,* in: Sämtliche Werke (Stuttgart: Klett-Cotta, 1979).

But what do we really mean by the expression 'undoing', by which it is customary to identify the meaning of reversibility? The verb 'to undo' has a wide range of meanings in the English language: alongside the meanings of going back (to reverse) and delete, it also indicates unbuttoning, discarding, opening in the sense of unpack something. The operation of reversing conceals, in other words – and this will be decisive for my following reflections – a process of unveiling and deconstruction of the past. At the moment in which time is 'turned back' by cancelling a process that has already taken place, the past is revealed, it opens up, it manifests its hidden meaning, almost as if the operation of reversibility possessed a cognitive, but also intrusive value. We see this emphatically in the cinematographic processes of *disassembly* and *reassembly*.[5]

5. On the relationship between philosophical understanding of time and cinema see Gilles Deleuze, *Cinema 1: The Movement Image* (London: Athlone, 1986) and Id., *The Time Image* (London: Athlone, 1989).

Reversing the course of time would mean, therefore, exploring the paths and routes of collective and individual history from an unprecedented perspective: from that of the future. This future, therefore, is always configured as an *anterior* future. It is in this sense, it seems to me, that the question of the reversibility of time is combined with the great philosophical-theological question of redemption.

> Let us start from the etymology of the word. 'To redeem' originally means to redeem someone from the condition of slavery and, more generally, to free someone or something from certain constraints. The Christian tradition has conceived redemption as liberation from the bondage of sin, but also as the bestowal on man of the supernatural grace that frees him from the condition of frailty, iniquity and transience. Through the supreme atonement for man's sin that takes place in the cross, Jesus Christ frees mankind through a "regeneration from above" (John 3, 1-21) that does not simply consist of a ransom from slavery and restoration of previous freedom, but in the conferral of the new freedom as "children of God". This freedom, which is liberation from sin and death (the first consequence of sin) can be also interpreted as liberation from the irreversibility typical of the human condition: overcoming the unidirectionality of the arrow of time, whose greatest emblem and, arguably, foundation is seen in the resurrection of Christ.

2

NIETZSCHE AND THE REDEMPTION OF TIME

But, beyond this religious concept of redemption, which presupposes a supernatural horizon to reverse the arrow of time and overcome transience, I would now like to present a secular concept of redemption, the redemption by Nietzsche. The conceiver of the 'death of God', in fact (in spite of his virulent anti-Christianity) is by no means unfamiliar with the use of typically religious concepts and issues and precisely, that of redemption. In *Thus spoke Zarathustra*, we can, in fact, find numerous parallels and explicit references to the episodes and to the literary style (parables, metaphors, etc.) of the Christian Gospels.[6] In this book we find a chapter entitled *Die Erlösung* (The Redemption). In the redemption of the past, in fact, Zarathustra identifies the realisation of man's true healing: in the transformation of the 'thus it was' into the 'thus I willed it to be' seems to consist of the greatest performance of the will to power against the spirit of revenge that considers the pain of the transience and irreversibility of time as a punishment, an idea that recurs already in the fragments of Anaximander. In fragment 9 we read: "From that whence comes the birth of things into that also goes their death according to necessity. They pay each other the price and the penalty of their injustice according to the order of time".

In this fragment the irreversibility of time seems to coincide with a moral order that cannot be opposed, except at the risk of punishment. Pain would therefore be the consequence of the impious desire for reversibility.

If we analyse Nietzsche's passage on redemption more closely, however, we realise that the aim of the "will to power" is not to overcome the "greed of time" through the exercise of paradox "will backward". Rather, he writes: "The will cannot will backward; that it cannot break time and time's greed – that is the will's loneliest misery." [7] Redemption is to be understood as redemption from fragmentation and disconnection of time. Redeeming the past, that is, would not mean redeeming it from its absence and consigning it to a 'eternal present' ("If all time is eternally present / All time is unredeemable"[8]), but to entrust it to the present in order to lead it not to salvation or wholeness, but to a kind of reconstruction and reconnection that, without justifying it, inserts the past into the eternal rhythm of becoming. The task of the redemptive and creative will ("The will is a creator"[9]) is not, therefore, that of transforming the 'thus it was' into the 'thus I wanted it to be', but of reconnecting the past with the present and, in this way, opening it up to the future. It is not, therefore, a matter of mechanical reversion of the past, but of the integration of the past into the present. More precisely, the redemption integrates the past into the dimension of the present that escapes actuality and turns to the future – Ernst Bloch called it "utopian latency". In this sense, we can understand Eliot's verses in the epigraph:

Time present and time past
Are both perhaps present in time future,
And time future contained in time past.

6. On the relationship between Nietzsche's book *Thus spoke Zarathustra* and the Gospels and the parallelism between Zarathustra and Jesus see Peter Sloterdijk, *Über die Verbesserung der guten Nachricht. Nietzsches fünftes "Evangelium"* (Frankfurt/M.: Suhrkamp, 2011).

7. Friedrich Nietzsche, *Thus spoke Zarathustra. A Book for All and None* (Cambridge: Cambridge University Press, 2006), p.111.

8. Thomas Stern Eliot, *Burnt Norton,* in: Four Quartets (London: Faber & Faber, 2019).

9. Nietzsche, *Thus spoke Zarathustra,* p.112.

What lies behind the desire for reversibility is the rejection of the disconnect between the past with other temporal dimensions: "The now and the past on earth – alas, my friends – that is what is most unbearable to me. And I would not know how to live if I were not also a seer of that which must come."[10] Redemption must, therefore, build a bridge from the past, through the present and into the future.

In this sense, the following statements by Zarathustra are decisive: "I walk among human beings as among the fragments of the future; that future that I see. And all my creating and striving amounts to this, that I create and piece together into one, what is now fragment and riddle and grisly accident."[11] Redemption is, therefore, for Zarathustra, essentially redemption from accident, from the horrid randomness of that which is unrelated, which has no temporal depth because it is not the soil in which the future germinates.

The creative will can only find redemption from horrendous randomness because it builds bridges among past, present and future; in this sense, the reconstruction of what is broken, the reunion of the fragments to which men are reduced through the processes of decadency, leads to the affirmative formula *par excellence,* which is the eternal return, the supreme seal of the polemical contradictions of existence. The "perfection" of the world consists in this connection of contradictions whereby" midnight is also noon, pain is also a joy, a curse is also a blessing, night is also a sun"[12]. The sacred saying "yes to life" is an affirmation of this connection of contraries: "Have you ever said, 'Yes,' to one joy? Oh my friends, then you also said, 'Yes,' to *all* pain. All things are enchained, entwined, enamored"[13]. Saying "yes" to a moment, to a unique and singular event, means sinking into the eternity of return and, thus, *loving the world:* "... if you ever wanted one time two times, if you ever said 'I like you, happiness! Whoosh! Moment!' then you wanted *everything* back! – Everything anew, everything eternal, everything enchained, entwined, enamoured, oh thus you *loved* the world..."[14]

3

BENJAMIN AND THE MESSIANIC SPLINTERS

In the immense moment of the return, the irreversible flow of time is radically subverted and overcome in the name of an experience *(Erfahrung)* that brings the memory of the past into play in a manner very similar to Proust's "involuntary memory". It is no coincidence that in his text *Berlin Childhood*[15], which is dedicated to Proust, Walter Benjamin, thematises this mode of relating to the past and includes in it oblivion. Using Proust's work, Benjamin overturns the ordinary (typically adult) perspectives related to relationships with the past and the age of childhood. The task that Proust sets himself in his monumental *Recherche du temps perdu,* and that Benjamin philosophically pursues, is to "render an account of childhood". Or, we might say, to render reversible that time which for adulthood is now lost in the mists of oblivion. Childhood is the emblem of 'lost time' and thus through a new experience of childhood may succeed the attempt to make time itself reversible. Childhood is interpreted by Benjamin as that place where the adult feels they have been, but to which they cannot return, because they have forgotten the way. Despite their uncanny familiarity with it, the adult almost never manages to draw a map of their childhood. The inability to orient themself in the oblivion of childhood by following the coordinates of adulthood is the fundamental cause of their disorientation. Whereas the experience of consciousness can be reproduced at any time, the authentic experience *(Erfahrung)* is preserved only in unconscious fragments whose deciphering key the subject has lost, like scattered negatives accumulated in a drawer. The time of childhood, unlike the chronological and irreversible time of adulthood, is time marked by the living rhythm of discoveries and secrets that surface from the depths of the unconscious, which make the instants of that remote time alive and present again. As in Proust's *Recherche*, with each opening of a mysterious box, a distant and fascinating secret emerges. It is precisely the fragments of childhood, remnants of a subjective 'prehistory', that present the adult with that 'time before the time' in which reversibility flashes back.

10. Ibid., p.110.

11. Ibid.

12. Ibid., p.263.

13. Ibid.

14. Ibid.

15. Walter Benjamin, *Berlin Childhood around 1900* (Cambridge: Harvard University Press, 2006).

Benjamin's idea of the redemption of time, however, is not only limited to the experience of childhood, but develops above all in the sense of a messianic interpretation of the relationship between past, present and future. For Benjamin, experiencing the present means having a cariological experience of that which interrupts and disrupts chronological continuity. He names it with the fertile term *Jetztzeit,* time-now. Benjamin establishes "a conception of the present as now-time shot through with splinters of messianic time *(in welcher Splitter der messianischen Zeit eingesprengt sind)*".[16] This is evidently a secularised messianism that Benjamin takes from Ernst Bloch's work, from which he similarly takes the concept of *Eingedenken* – a very intense and participatory form of remembrance, consistent with the biblical imperative *zakhor* (remember!) and quite distinct from the official and neutral concept of commemoration *(Andenken)*. In this unique form of remembrance, it is not simply a matter of re-actualising a single event from the past, but of experiencing it in the perspective of its intrinsic future possibility. Only the *Eingedenken* can disclose the messianic dimension of the future. In accordance with the prohibition imposed on the Jews to divine the future, the present, in which it is no longer possible to derive auspices for the future, becomes, in the biblical tradition taken up by Benjamin in his *Thesis on the Concept of History*, the place of access to messianic redemption: "Every second was the small gateway in time through which the Messiah might enter."[17]

Eingedenken thus indicates the awakening from the intensity of the past in order to access the waking world of the present through reference to the future. It is therefore a paradox: 'remembering the future' does not consider the future as a simple causal consequence of the present, but as the unrevealed content of the past, pressing into the present. To experience the past through *Eingedenken* means to recover a past and make it reversible to the extent that all traces of redemption and salvation are concealed. That is, to make the seeds of the future germinate and to subvert the course of history in order to satisfy the requirements of the justice of the past.

16. Walter Benjamin, *On the Concept of History,* in: Selected Writings, Vol. 4 (1938-1940), ed. H. Eiland and M. W. Jennings (Cambridge: Harvard Univ. Press, 2003), p.397.

17. Ibid.

Redemption, then, in this perspective means making apparently irreversible processes reversible, such as that of the spread of evil in the world, biological degradation and more generally of the growth of entropy. And yet such reversibility does not mean, like the reconstruction of the fragments of the sefirot[18] or, as in the Christian tradition, the second return of the Messiah in the form of a sacrificed and resurrected lamb. It does not mean the mere return to the previous state: vases which are broken and then repaired are not the same as those intact before the biblical creation. Even Jesus, the lamb, resurrected in the liberated Jerusalem still bears the marks of the passion.[19]

The fragile form of redemption of the reversibility of the past, with which Benjamin associates the idea of a "*weak* messianic power"[20] that is delivered to each generation, is configured, instead, as a creative power in that (as we have seen by Nietzsche) it connects and harmonises, illuminates and liberates energies and latent emancipatory requirements that history has kept secret or, worse, has repressed in favour of dynamics of subjugation. Reversibility redeems the past, opening it up to the future and to history, but without erasing the signs of decadence and transience, without covering the wounds of evil, rather, by showing the call for justice that emanates from these still open wounds.

18. In the tradition of the Jewish Kabbalah the 10 *sephirot,* represented by vases, indicate the *emanations* through which *Ein Sof* (The Infinite) reveals itself and continuously creates both the physical realm and the chain of higher metaphysical realms.

19. See Acts 5.

20. Benjamin, *On the Concept of History,* p.390.

4

POSTHUMANISTIC CHALLENGE

The post-humanistic tendency to achieve a liberation from the entropic forces of decline and the curse of irreversibility can only lead to a concentrated universe. In this universe, the myth of eternal youth (associated with maximum performance) dominates and is realised in the form of enhancement in one's psycho-physical capacities.[21]

Like the *Puer Aeternus*, the theorised post-human,[22] does not recognise the necessity of the pain of irreversibility in which only he can experience the depth of living. Therefore, his technically increasingly refined attempts to free himself from the biological processes leads to a simple removal of them. The Holy Grail, the philosophical stone, the anti-ageing genetic engineering techniques all share, albeit using different tools, the same attempt to remove the effects of the passage of time and ageing, confining them, like Oscar Wilde's *Dorian Gray*, in a purely literary image.

The myth of eternal youth, moreover, is coupled in the hyper-humanistic perspective with that of purity. The body is rendered diaphanous within the technological armour. It is an embryonic body: the site of the individual's pleasure and virtuality, of their protean capacity for hybridisation with technology; a fluid body that can assume different forms and tend towards an amniotic state. There is a central yearning to freeze the age in which the psycho-physical system is capable of greater performance and maximum ductility. Thus, the idealisation of youth is followed by the desire for an eternal adolescence, with all the devastating consequences in the social and psychological sphere, and finally by the aspiration to live in an indefinite infantile state. Technology is called upon to operate a continuous process of eradication of the signs of advancing age and to maintain the individual within a prototypical framework, that is, a performative code – breast size, hip size, eye colour, etc. – that has become a reference for mainstream culture.

The hyperhuman is an exaltation of the exhibited body, cleansed of all impurities and rendered performative in a perspective like the bodily adoration typical of the Renaissance, which we see emblematically expressed in Botticelli's *The Spring*. In the hyperhuman, however, we can no longer speak of a free body but only of a forced, doped, controlled and technologically manipulated one. The focus is not really on the body, but on the expectations that subjects have of the body. The body is, therefore, conquered in the name of a technological eternalisation: for the *puer aeternus* reversibility becomes, in the end, indifference and abulia. This process of technological conquest over the body culminates in the cyborg concept.[23]

Symptomatic of this perspective is also the centrality of invasive cosmetic processes. In all their disparate articulations, from strong make-up, to practices of permanent body modification such as tattoos and scarification, they declare affirmation of technologically developed subjectivity on the arrow of time.

Distinguishing itself from post-humanism (and in particular from the Italian post-humanism of Roberto Marchesini[24]) is the transhumanist perspective. In transhumanism the body is perceived as a bearer of constraints that inevitably contrast with the will and with the potential of the self. The body becomes an insufferable prison (in the Platonic manner) that condemns subjects to the irreversibility of the arrow of time, to suffering, to senescence, to vulnerability and finally to death. According to the transhumanist creed, one must not resign to this existential condition, but must strive to overcome it.

21. Nick Bostrom, *In defense of Posthuman Dignity,* in: Bioethics, Vol.19, No.3, pp.202-214; Cary Wolfe, *What is Posthumanism?* (Minneapolis: Univ. of Minnesota Press, 2010).

22. According to James Hillman the *puer aeternus* constitutes one of the archetypes of our psyche: James Hillman, *Senex and Puer* (New York: Spring Publications, 2005).

23. Donna Haraway, *Simians, cyborg and women: the re-invention of nature* (London: Free Association, 1991).

24. Roberto Marchesini, *Post-human. Verso nuovi modelli di esistenza* (Torino: Bollati Boringhieri, 2009).

Redesigning the morphological functional architecture of the body concretely means: slowing down ageing processes to the point of suspending them altogether; implementing perceptual accesses through new sensory interfaces; providing new operational tools; increasing a system's memory; perfecting certain cognitive functions or adding new ones and increasing performativity. The body is thus reduced, in a paradoxical return to Descartes, to a very refined form of body-machine at the service of its subjects. Human subjectivity, however, is no longer part of the body and does not represent it; the body is like a machine, which must be perfected and redesigned continuously while waiting for the moment when it will be possible to abandon it definitively. *Mind-uploading* constitutes the most symbolic ideal of this desire: to reach a post-organic condition of absolute indifference with respect to the arrow of time. Here, we find a tendency towards a new disembodied angelic state: mind-uploading is a speculative process of whole brain emulation in which a brain scan is used to completely simulate the mental state of the individual on a digital computer.

5
REDEMPTION AND RESISTANCE

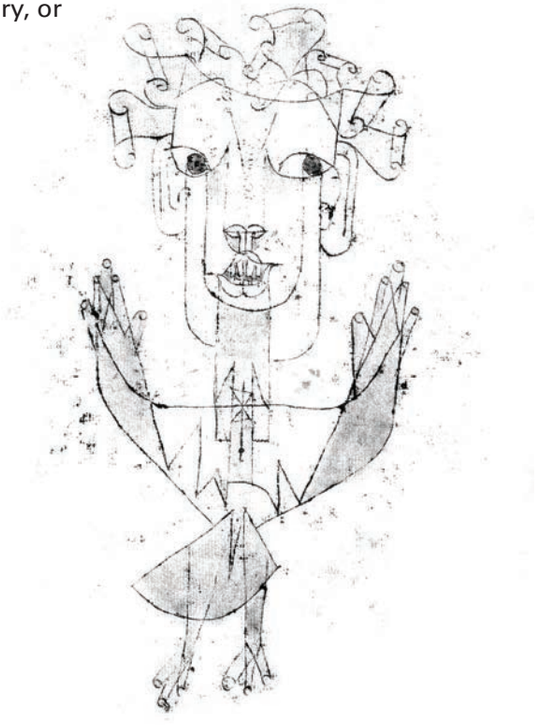
Overcoming the finiteness and transience of the human, which the posthumanistic perspectives aspire to, deny ontological, moral and aesthetic legitimacy to the processes of deterioration and, more generally, to the irreversibility of time. The posthumanistic conception of time also erases the very possibility of redemption, the meaning of which resides primarily in resistance against the irreversible and in the strenuous witnessing of such resistance against pain, decline and death. To indicate this profoundly ethical resistance, in his 1934 text on Kafka Benjamin uses the figure of a rider resisting against the storm that is blowing from oblivion: "It is a tempest that blows from forgetting, and study is a cavalry attack against it."[25] The resistance of which the 'knight' of research *(Studium)* and remembrance *(Eingedenken)* is capable takes place metaphorically around the "gate of justice" *(Pforte der Gerechtigkeit)*. This indicates the ethical and political, almost messianic weight of *Eingedenken*, which are only able to redeem the past time to the extent that it brings out dormant claims and expectations of the past that continue to disquiet the present. The Eingedenken establishes, therefore, that the only way to access the reversibility of the past, its only possible 'salvation' is eminently ethical, because it is the gift of reactivating the spark of hope in the past.

25. Walter Benjamin, *Franz Kafka*, in: Selected Writings, Vol. 2/2 (1931-1934), ed. M. Bullock, H. Eiland and G. Smith (Cambridge: Harvard Univ. Press, 1999), p.814.

26. Benjamin, *On the Concept of History*, p.392.

This image of strenuous resistance against the dynamics of progress and the irreversibility of life and world is masterfully taken up by Benjamin in the ninth thesis *On the concept of History.* Here, referring to a painting by Paul Klee, he describes the angel of history, or perhaps, we could ultimately say, the angel of the reversibility of history:

"There is a picture by Klee called Angelus Novus. It shows an angel who seems about to move away from something he stares at. His eyes are wide, his mouth is open, his wings are spread. This is how the angel of history must look. His face is turned toward the past. Where a chain of events appears before us, he sees one single catastrophe, which keeps piling wreckage upon wreckage and hurls it at his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing from Paradise and has got caught in his wings; it is so strong that the angel can no longer close them. This storm drives him irresistibly into the future, to which his back is turned, while the pile of debris before him grows toward the sky. What we call progress is this storm."[26]



THROUGH THE BROKEN GLASS

Angela Detanico, Rafael Lain

https://doi.org/10.25364/97839033742879

There is a famous letter Einstein addressed to the family of Michele Besso on the occasion of his death in 1955. Referring to his close friend and fellow physicist, Einstein wrote:

"Now he has departed this strange world a little ahead of me. That signifies nothing. For us believing physicists, the distinction between past, present and future is only a stubbornly persistent illusion."

What Einstein was expressing in these comforting lines was his belief in the idea of the 'block universe' that considers the cosmos as a block of space-time.

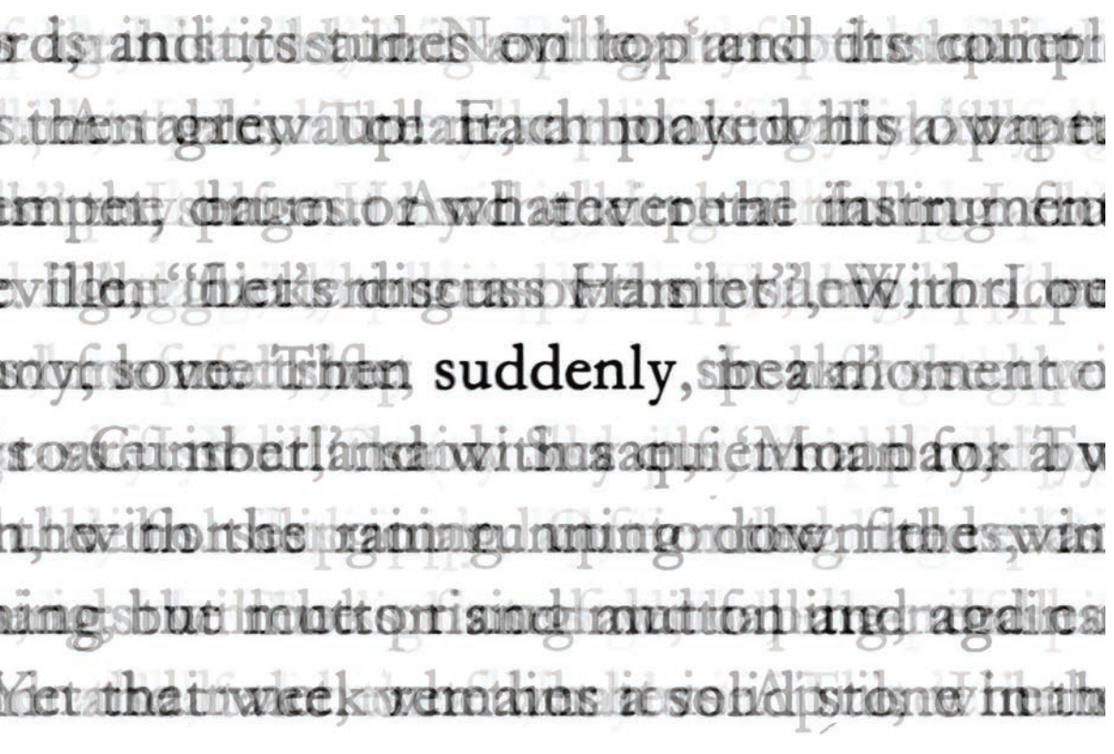
If we take the cosmos as a book, a micro-cosmos where one could travel freely in any direction instead of following the line created by the text.

If we consider a book as a block of words, not as a sequence of lines, can we write a sentence by navigating it back and forward? If we don't follow the line, what can be read?

In 2005 we created an animation using the pages of Virginia Woolf's novel *The Waves* as our raw material. The passing of time is the main subject of the book, as the cycle of a day from sunset to sunrise is paralleled with the cycle of life by following the stories of a group of friends through the years.

We reordered the pages going forward and backwards to find words to write a new sentence, one that was not present in the lines of the book but that could potentially emerge from Woolf's ocean of words.

What makes reading possible here is change, an illusion of movement, as the pages succeed each other focusing on one word that seems to stand still in the centre of a background moving too fast to be read. Our sentence surged as a question, a hypothesis that expresses itself through content and form. The first word, *what*, occurs 240 times in the book and is shown in an accelerated pace; *if* occurs 178 times, *suddenly* 26, as a blink, *nothing* 60, *else* 6 and *moves* 7, in a diminishing number expressed in a decreasing animation speed.



As we approach stillness, we realise that without movement the whole sentence is lost.

The solution is brought by the very question mark that appears 270 times speeding up again the animation.

Change seems inevitable.

?elbaviecnoc kcab gnignahc si, esac eht si taht fi

In general, reading backwards makes no sense, but in some special cases called palindromes it does.

WAS IT A CAT I SAW was created by Samuel Loyd, an American chess player and puzzle author, inspired by Alice in Wonderland.

In his book *Cyclopedia of 5,000 puzzles*, published in 1914, he proposed a puzzle in which all the letters of the palindrome were displayed in a diagram and invited the reader to find out how many times one could write

```
                w
              w a w
            w a s a w
          w a s i s a w
        w a s i t i s a w
      w a s i t a t i s a w
    w a s i t a c a t i s a w
      w a s i t a t i s a w
        w a s i t i s a w
          w a s i s a w
            w a s a w
              w a w
                w
```

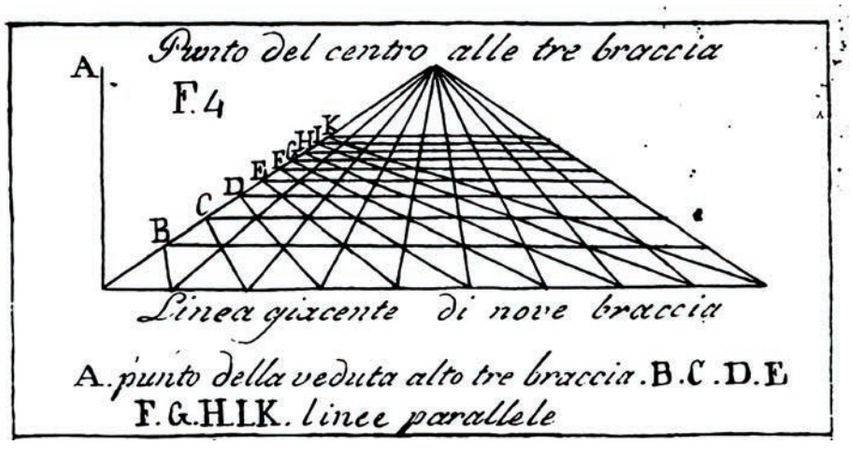
starting at any one of the W's, spelling by moving up or down, left or right, to the next letter until reach the C, and then back to the border again.

In 2010 we were experimenting with sound frequencies and a possible correlation with the notion of perspective in art. We created a visual space in which 8 layers of image flow from left to right at different speeds, the closer passing in a high frequency, the more distant gradually slowing down. Amplitudes follow and wave lengths change in inverse proportions. A sound frequency, either high or low, is associated to the layers. The accumulation of waves, more or less frequent, short or long, high or low, create a composition we called *Wave Horizon.*

When doing the notation of *Wave Horizon,* trying to figure out its duration (15 hours and 24 minutes) we arrived at a point of symmetry. From that point, the animation mirrors itself until all the waves are aligned again as in the initial state. Like in a palindrome.

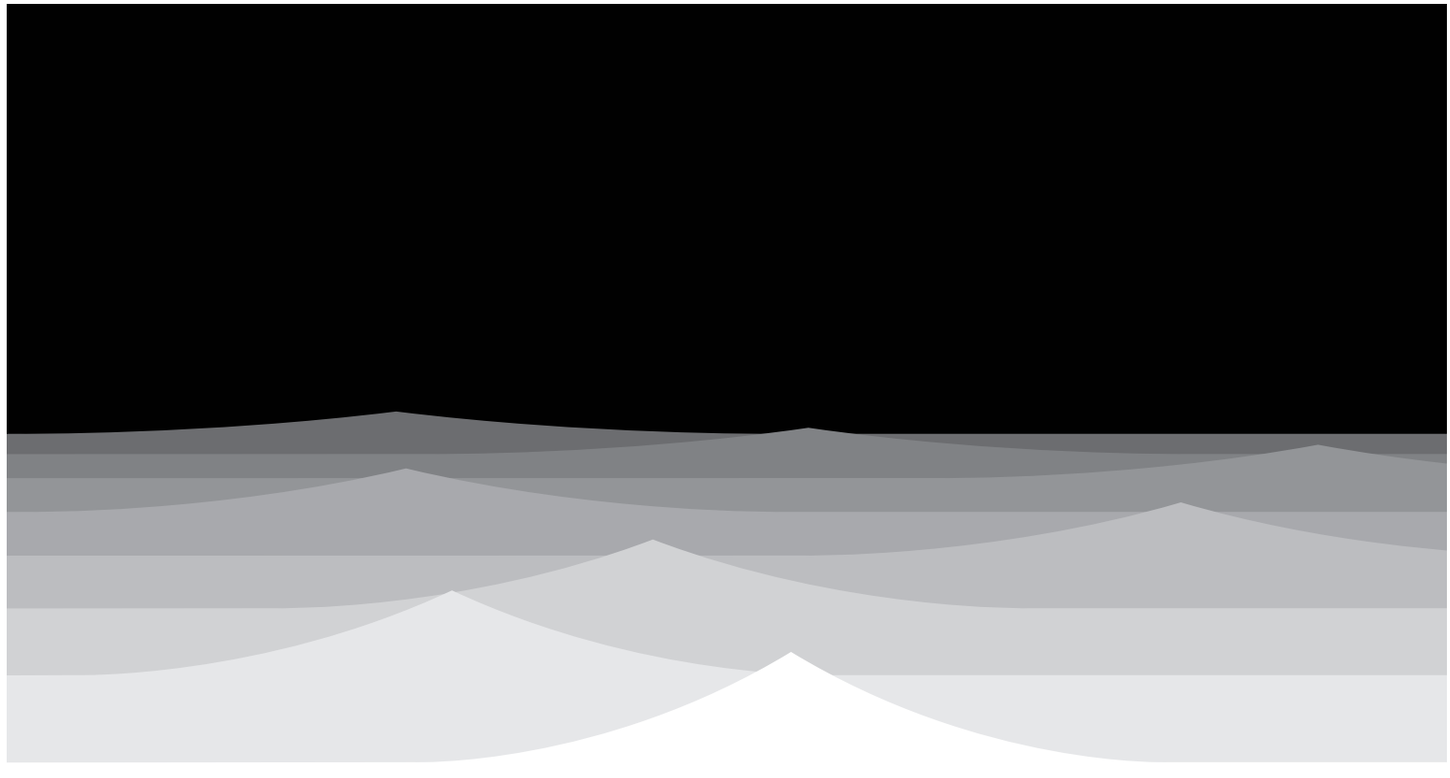
Are there levels of reversion?

Geometric perspective is a set of mathematical rules applied to the pictorial space to create the illusion of three dimensionality on a flat surface. It was conceived in XV century Florence by architect Filippo Brunelleschi, then further theorised and developed by Leon Battista Alberti in the treatise *On Painting* and by the mathematician, geometer and painter Piero della Francesca's *On Perspective in Painting.* Perspective transformed not only how art was produced and viewed, but changed the way we see the world, influencing other domains such as astronomy and optics.



Brunelleschi is known for once breaking an egg in order to challenge his rivals in a competition for building the dome of Santa Maria del Fiori in Florence. The tale, reported by Renaissance artist and writer Giorgio Vasari,[1] stands as a powerful image of disruptive thinking. Brunelleschi shows that breaking old ways of seeing can bring a solution for a given problem. But some problems seem unsolvable.

1. Giorgio Vasari, *Le vite de' più eccellenti pittori, scultori, e architettori,* (Florence: Lorenzo Torrentino, 1550).

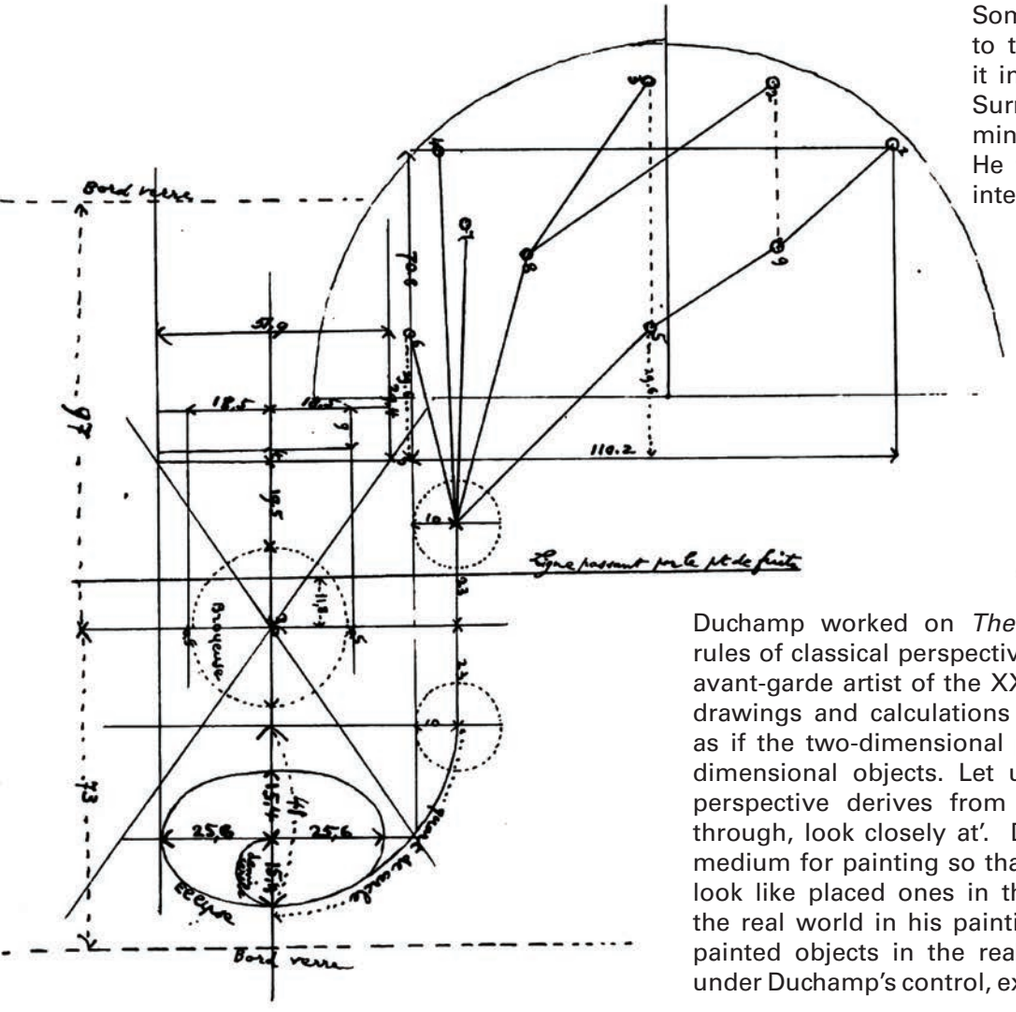


Can we define irreversibility by finding the limits of reversibility?

We saw that in simple systems composed of letters, images or sounds, reversion is possible. But for everyday objects, like an egg for example, things can get more complicated. The will to revert is not something unusual; it manifests itself in many daily life situations, as when something is lost or broken, like shattered glass.

Looking back 100 years, in 1923 the artist Marcel Duchamp declared *The Large Glass*, the masterpiece in which he was working for several years, *definitively unfinished.*

Duchamp began to conceive the first elements for *The Large Glass* in 1912 while living in Munich. He made drawings and paintings aimed at what he called *precision painting*. He says: *"I wanted to go to a completely dry drawing, a dry conception of art... and the mechanical drawing for me was the best form of this dry form of art".*[2]



Some paintings from that period were transposed to the glass when Duchamp started working on it in 1915. Even if associated with Dada and the Surrealist movements, Duchamp was a rational mind, even describing himself as a Cartesian. He was a high-level chess player and was also interested in the latest progresses in science.

Artist Fernand Léger gives a glimpse of Duchamp's somehow special personality when writing about a visit they made together with fellow artist Constantin Brancusi to the Salon d'Aviation in 1912: *"Marcel, who was a dry type with something inscrutable about him, walked around the motors and propellers without saying a word. Suddenly he turned to Brancusi, 'Painting is finished. Who can do anything better than this propeller? Can you?'"* [3]

Duchamp worked on *The Large Glass* following the rules of classical perspective, something unusual for an avant-garde artist of the XX century. He made complex drawings and calculations with precise measurements as if the two-dimensional paintings were actual three-dimensional objects. Let us note here that the noun perspective derives from the Latin *perspicere:* 'look through, look closely at'. Duchamp chose glass as the medium for painting so that the pictorial objects would look like placed ones in the room, thus incorporating the real world in his paintings as much as placing the painted objects in the real world. Everything seemed under Duchamp's control, except the fragility of the glass.

2. James Johnson Sweeney, *A conversation with Marcel Duchamp,* (New York: National Broadcasting Company, 1956).

3. Mary V. Dearborn, *Mistress of Modernism: The Life of Peggy Guggenheim*, (Boston/ New York: Houghton Mifflin Company, 2004), p. 128.

In 1926, *The Large Glass* was shown at the Brooklyn Museum as part of the Société Anonyme exhibition, organized by Duchamp's friend and collector Katherine Dreier, among others. In 1927 the piece was put in a wooden crate to be sent to Dreier's home. It was transported from New York to Connecticut by truck without the driver being informed of the delicate nature of the cargo.

The Large Glass didn't travel well. When the crate was opened in 1933, the two former panels were reduced to uncountable pieces of shattered glass. A local newspaper described it as *"a 4 by 5-foot three-hundred-pound conglomeration of bits of coloured glass."* [4]

When told the bad news, Duchamp, instead of calling the artwork 'lost', decided to restore it by putting the broken glass pieces back into place. The task was not easy. He faced it armed with gloves, invisible glue and a lot of patience but eventually succeeded after a two month period in 1936.

4. Mark Pohlad, *Macaroni repaired is ready for Thursday,* Toutfait.com, The Marcel Duchamp Studies Online Journal, 2000 https://www.toutfait.com/macaroni-repaired-is-ready-for-thursday-marcel-duchamp-as-conservator/#N_42_

"It's a job, I can tell you," Duchamp confessed in an interview, *"like doing a jigsaw puzzle, only worse."* [5]

5. ibid.

6. James Johnson Sweeney, supra.

The Large Glass is permanently on display at the Philadelphia Museum of Art. The cracks became part of the piece and Duchamp eventually acknowledged loving and accepting them as elements added of what he called, *"an extra curious intention that I'm not responsible for".* [6]

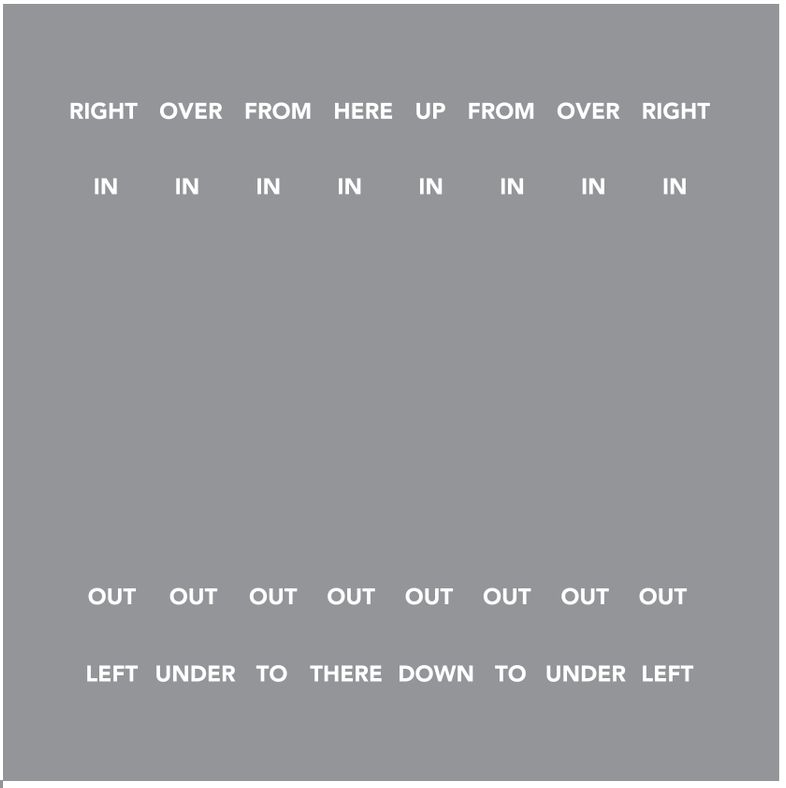
Could the attempt to revert be considered as a creative rather than a restorative process?

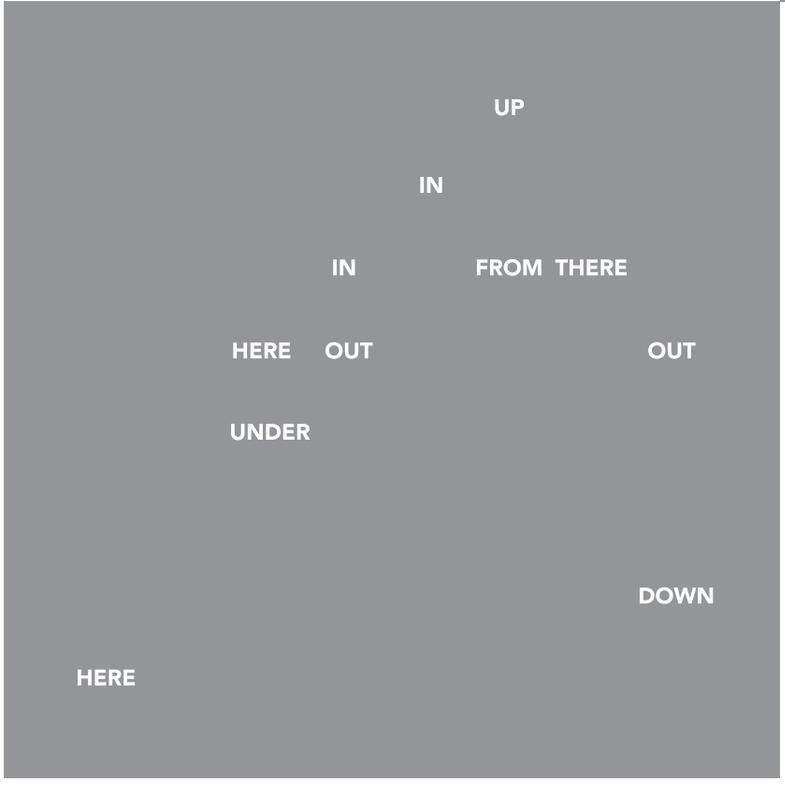
After finishing *The Large Glass* in 1923, Duchamp abandoned painting and dedicated himself to chess. In 1925 he attained master level in the 3rd French Chess Championship. He also designed the poster for this event, deconstructing the chess board in cubes floating in the air.

Duchamp somehow saw no difference between art and chess. He once stated: *"The chess pieces are the block alphabet which shapes thoughts; and these thoughts, although making a visual design on the chess-board, express their beauty abstractly, like a poem."* [7]

7. Kynaston McShine, *La vie en Rrose,* at *Marcel Duchamp* (New York: The Museum of Modern Art, 1973).

In 2018 we used the notation of a game Duchamp played with his friend, the writer and mathematician François Le Lyonnais, as the basis for a visual poem. We replaced the chess pieces by words, using antonyms to stage the black and white opposition. An army of **IN** is confronted by an army of **OUT**. **LEFT** and **RIGHT** place themselves in the limits of the board. **UNDER** and **OVER** move in an L shaped jump. **TO** and **FROM** cut the board diagonally. **HERE** and **THERE** run in any direction. **UP** and **DOWN** struggle to keep their kingdoms.





Those words are placed on the board and follow the game as a score. The game now is playing with words. Words change places, mix and disappear. As the game goes on, they recombine themselves creating a new text in every move. Reading happens in the space of the board, not in the limits of the line. Different games create different texts, even if the words on play are the same.

Games of chess end when the king has nowhere else to go, or when one player realises there are no more possibilities to win, but what if the king suddenly regrets the battle and wants everything to come back to the starting point? Is it possible to play backwards?

If the game was recorded using chess notation, we know the steps back. Memory would show us the way.

But in the case of a chess problem, where there's no memory of the game, can we play it backwards using the rules we know?

Unplaying CHESS or playing SSEHC

The first thing to note is that the nature of the game changes from competitive to collaborative. Both players are engaged in a common task aimed at restoring the initial position of the pieces on the board.

Unplaying chess is like solving a puzzle.

This fundamental shift transforms it in a new game. We'll call it SSEHC.

What would be the rules for reversibility?

Some rules of SSEHC are simple inversions of CHESS rules: in CHESS, pieces are taken from the board. In SSEHC they are put back on the game.

But some rules remain identical: all the pieces in CHESS and SSECH have the same movement behaviour, except pawns.

Reversing reveals itself a subtle exercise.
There are better places for oppositions:

The opposite of the CHESS rule:

a pawn always moves forward

could be

a pawn **never** *moves forward*

or

a pawn always moves **backwards**

The second being more informative and thus a better rule for SSEHC.

The whole description of pawns moving is a good exercise in oppositions:

In **SSEHC**, *a pawn moves straight* **backwards** *one square, if that square is vacant.*
It will move **backwards** *diagonally if* **liberating** *a piece.*
Pawns cannot move **forward**.

As we move on SSEHC rules, we can feel like getting lost:

In CHESS, white performs the first move. The last move can be performed either by white or black.

In SSEHC, we determine who plays the first move simply by analysing the board. A checkmated king determines which player starts the game and also suggests the first move. But just as not all the CHESS games end in checkmate, a SSECH game can similarly start from some other situation. On the other hand, we know the last move should be played by white.

Things can also get exponential:

We count 20 different moves to start CHESS: 16 possible moves for the white pawns, that can either move one or two squares straight forward, plus 2 possible positions for each one of the 2 white knights. The number of possible openings for a SSEHC game will only be known by the calculation of the possibilities of a given game's final position.

By this point, we may be tempted to abandon playing SSECH as something of the impossible. But inverting our perspective again, we may argue that playing CHESS would seem less fun if one were to know all the possible endgames.

from

```
. . . . . . G .
. . . . . . . .
. . 3 . . . . .
. . . . . Z . .
. . . . E . . .
. . . . . . . .
. . . T D . . .
. . 2 . . 6 . .
```

back to

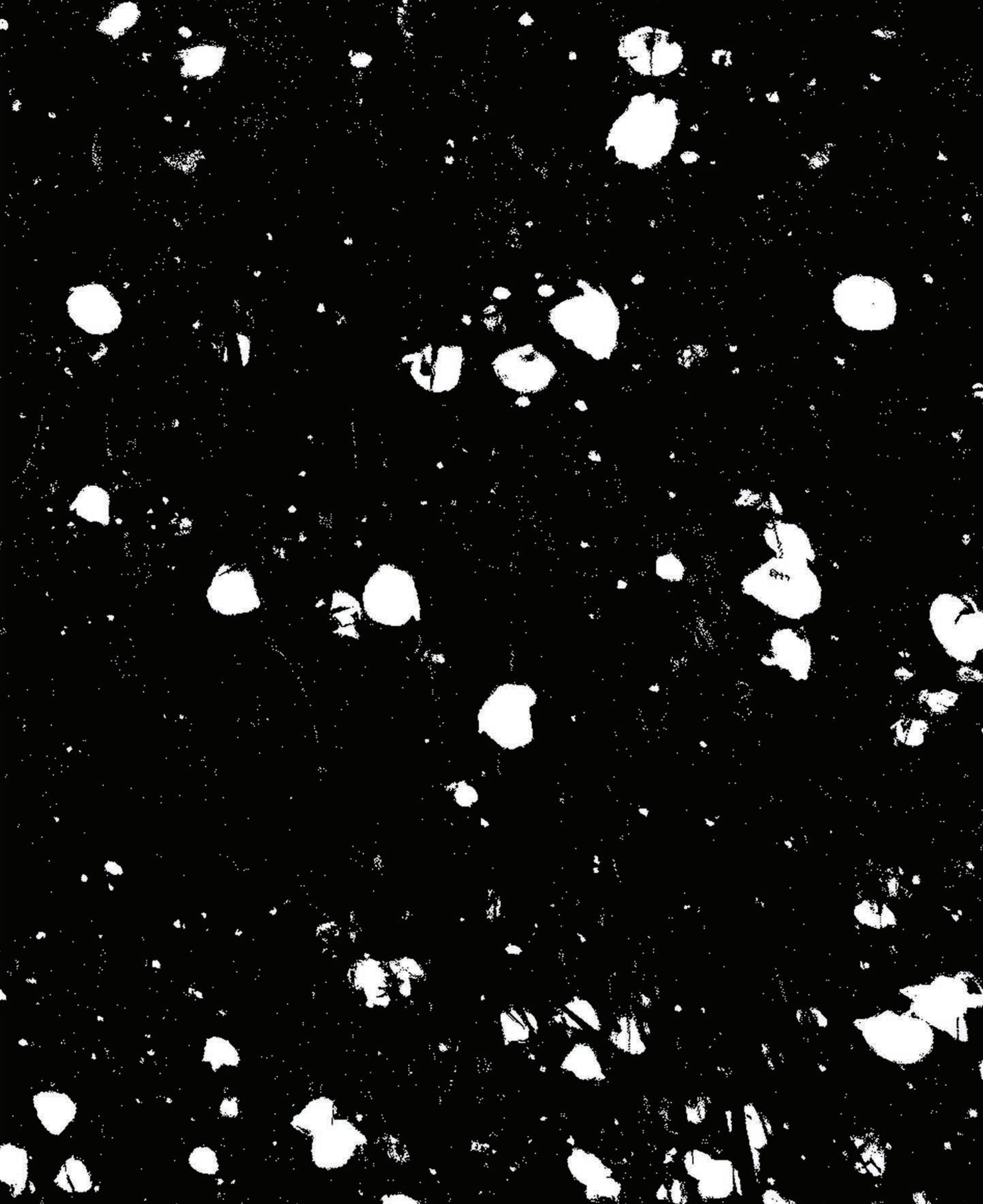
```
A B C D E F G H
I J K L M N O P
. . . . . . . .
. . . . . . . .
. . . . . . . .
. . . . . . . .
Q R S T U V W X
Y Z 1 2 3 4 5 6
```

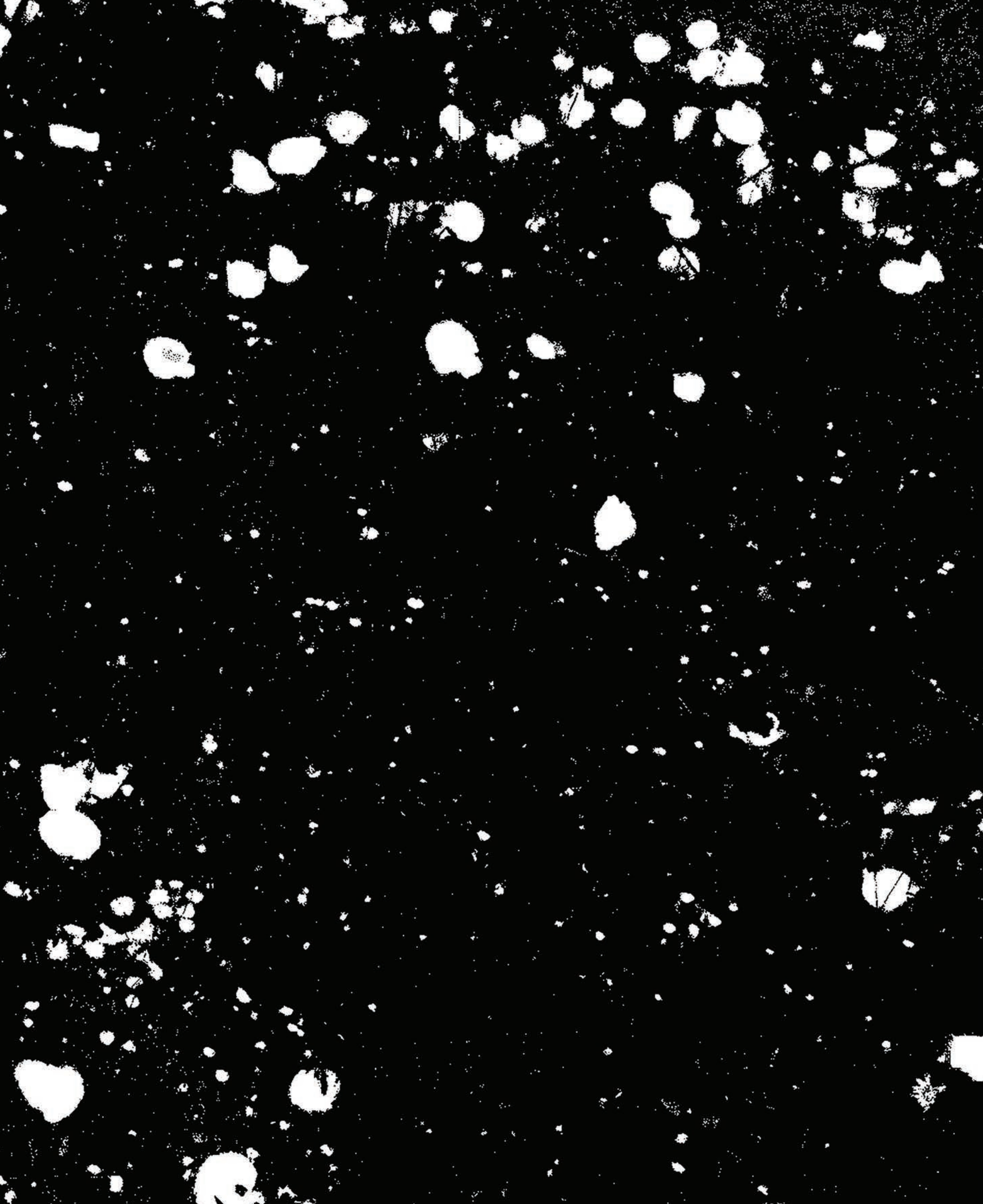
How would one describe the most economical way to reverse a system?

All the work involved in playing SSEHC raises a fundamental question. If we want to come back to the starting point, why not just put all the pieces back in place? Like cleaning the mess so one can start it all over again? Sometimes we simply don't know how.

Can the attempt to revert a process generate new forms of knowledge?

Maybe the problem with irreversibility lies in our 'stubbornly persistent illusion' of time, on our will to come back to the past to undo or redo something, to live again a pleasant moment or do something differently to fix a mistake. Since we cannot move backwards in time, we need to create new rules for the game, to invert the perspective to see the other side of the picture. By accepting the idea that we can only act in the present to create the future, we may be able to change the past. In this way we can approach reversibility while navigating the illusion some call 'time'.





REPAIR, EXCESS AND RESTART: METAPHORS FOR PRECARIOUS SITUATIONS

Laurin Mackowitz

https://doi.org/10.25364/978390337428710

1

TAMING UNCERTAINTY WITH IMAGINED SIMILES

Language tames uncertainties through metaphor, which replace abstract, strange, or unchartered elements of experience with what is familiar and already known. Although this supplement, of one term with another, is essential for thinking about abstract concepts and facilitating new insights, metaphors are problematic tools that may also lead reasoning on the wrong track. Metaphor draws an ontological similarity between concepts and undertakes to help understand one concept better in the image of another, even though two related notions may only share an imagined likeness. For this reason, philosophy has always been sceptical and scrutinising about metaphors; they might convince the mind to "follow […] up a blind alley", as Frantz Fanon warns in the concluding passage of *The Wretched of the Earth,*[1] and provide a mental framework, which is not arbitrary, but, carefully constructed by the 'operations of power' that seek to craft our perception of reality, as Judith Butler argues in *The Frames of War: When Is Life Grievable?*[2] Metaphor is mostly merely ornamental, and thereby both, aesthetic and obscuring; in many cases however, it is enlightening, in as much as it relates far-fetched ideas to one another, creatively expanding the understanding of one concept or experience in the image and from the perspective of another. This ambiguity flickers between two great powers; the first, the power to inform, the capacity to lead to deeper, richer understandings; versus the second, the power to persuade, tethered to the inherent dangers when suggestive commands become all too convincing.

1. Frantz Fanon, *The Wretched of the Earth* (New York: Grove Press, 1963), p.220.

2. Judith Butler, *The Frames of War: When Is Life Grievable?* (London: Verso, 2009).

3. Friedrich Nietzsche, *On Truth and Lie in an Extra-moral Sense,* in: Philosophy and Truth: Selections from Nietzsche's Notebooks of the Early 1870s, ed. D. Breazeale (New York: Humanities Press, 1979), pp.77-97, here p.84.

4. Hannes Böhringer, *Bauen,* in: Wörterbuch der philosophischen Metaphern, ed. R. Konersmann (Darmstadt, WBG, 2014), p.43.

5. Jordi Cat, *Otto Neurath,* The Stanford Encyclopedia of Philosophy, ed. E. N. Zalta & U. Nodelman (Spring 2023 Edition), https://plato.stanford.edu/archives/spr2023/entries/neurath/

When Nietzsche investigated the false simile created by metaphor, he argued that metaphor is everywhere, that we cannot make do without it, and that all language, poetic or scientific builds on it. We "possess nothing but metaphors for things", metaphors, however, "correspond in no way to the original entities".[3] From Plato's "cave" to Quines' "web of belief" the philosophy of science and epistemology is also saturated with metaphor, enabling and structuring new ways of thinking. The web of relations created between imagined and real associations generates a conceptual horizon – a metaphorical background for imagination, language and experience. The metaphorical background of modernity provides the rationale behind why we imagine progress as a movement upwards, towards the 'light of reason'. Consequently, everything must go up, must increase and must grow. This canonical pattern has become fixed in many ways of thinking around the globe (countercultures and counter-languages exist too, albeit in smaller numbers) and has also found its way to the natural sciences, where, in order to reach these new heights of reason, a suitable groundwork must first be prepared. The idea that scientific knowledge must rest on 'foundations' or axioms on which scientists erect the 'building' of scientific knowledge implies that science is a stable and well-connected structure in which every bit of information serves its purpose in the systematic architecture of knowledge. "Nothing is without ground, only ground is without ground," as philosophers from Parmenides to Martin Heidegger contended.[4] The metaphor of the 'foundations of science' is as fashionable today (cf. foundations of quantum mechanics) as it was in the 17th century, when scientists destroyed the old theological foundations and set out to lay new ones, on the basis of rational and empirical methods.

Yet, these are not the only metaphors for doing science, which provide a conceptual horizon about science and how it should be done. Challenging the approach of his colleagues in the Vienna Circle, who grounded science on the smallest falsifiable units of protocol sentences, Otto Neurath developed a theory of science that "was not logically fixed, securely founded on experience nor … [the] purveyor of any system of knowledge". In this new theory "uncertainty, decision, and cooperation were intrinsic".[5] To grasp this idea he coined the metaphor of science as a ship:

"We are like sailors who on the open sea must reconstruct their ship but are never able to start afresh from the bottom. Where a beam is taken away a new one must at once be put there, and for this the rest of the ship is used as support. In this way, by using the old beams and driftwood the ship can be shaped entirely anew, but only by gradual reconstruction."[6]

6. Otto Neurath, *Anti-Spengler,* in: Empiricism and Sociology. Vienna Circle Collection. Vol. 1., ed. M. Neurath, R.S. Cohen (Dordrecht: D. Reidel., 1973), pp. 158–213, here p.199.

Scientific method, Neurath suggested, should strive to build a functional, floating ship. Arguing against the foundationalist metaphor of science he proposed to understand scientists as sailors on a ship that is under constant revision, replacement and repair. Neurath's ship metaphor for doing science relates to the all too human practice of putting immense effort in reversing the seemingly irreversible by reflecting (contemplatively going back to a thought or experience) and repairing (correcting and renewing what was broken) the otherwise irreversible process of decay, erosion and oblivion. In that sense the anti-foundationalist approach to science resembles everyday experiences of reversibility such as: cleaning up mess and putting things in order; recovering from a sickness; or making peace after a fight. Reversibility is such a common phenomenon of human experience that irreversibility appears to be an exception. The death of somebody who has reawakened a thousand times after they fell asleep is so unusual that the ideas of rebirth and afterlife appear to be more comprehensible and logical than the idea of an irreversible end-of-life. Irreversibility runs contrary to the experience that many things can be repaired, remembered, or reawakened, which is why losing, wasting, or forgetting something irreversibly can be both embarrassing and painful. For this reason, humanity has invented strategies of coping with this pain and embarrassment. Religious beliefs in life after death suppose that the irreversibility of death is not irreversible in the end, because we will resurrect anyway – pharaohs had the pyramids built to ensure their afterlife to be pleasant. Nowadays too, the hope that we will discover a cure for a deadly disease or even a new planet with a life-supporting atmosphere motivates the most outlandish of behaviours.

In contrast to the dream of eternity, dreamt by the royal and powerful, the three philosophical strategies of coping with irreversibility, which will be discussed in the following sections, are meant to be exercised by anyone and without any prerequisites. First, the Jewish principle of *Tiqqun olam,* meaning 'the repair of the world', metaphorically compares the correction of social problems or discord with the repair of a broken vessel. The metaphor suggests that ethical actions can undo a primordial separation and make whole what has become incomplete. George Bataille's opposition to this principle and its underlying assumption that reversal to wholeness is possible will be discussed in the second section. Bataille proposed to grasp "the generative principle of life" with the metaphor of 'excess', comparable to the eruptive exhaustion of the sun's energy. The third section proposes to reformulate Hannah Arendt's concept of natality within a mechanical context to demonstrate why the correction of social, economic, and ecological regression requires a restart.

2

THE REPAIR OF THE WORLD

In the Jewish tradition *Tiqqun olam* refers to legal enactments to preserve social order, to the eradication of idolatry and in its mystical meaning to the repair of the broken vessels that shattered during the creation of the world, catastrophically spilling the divine light, opening room for disharmony and freedom. Collective rituals and laws as well as individual acts of kindness are exercises of *Tiqqun olam.* The smallest ethical act is thus identified with the reparation and rectification of the whole world including the physical, cosmological, ecological, and social. *Tiqqun olam* demands persistence, detail, and the calm hands necessary for gluing a broken clay pot back together. The direction of ethical, aesthetic, or scientific endeavour is thereby not directed upwards, towards the improvement and growth, reaching the ultimate point of optimisation, but rather its trajectory points to the return to an original state of harmony and wholesomeness. *Tiqqun olam* attempts the impossible reversal of the irreversible shattering of the first universe, contained in the broken vessel, to undo the fragmentation of the shards of light that made up the first universe. *Tiqqun olam* suggests that fighting for social justice will undo political mistakes, the mismanagements of public funds, corruption on all levels that destroy democracy, cause harm and hinder the betterment of humanity.

However, *Tiqqun olam* is not only a theological concept and prayer, but also the name of the French activist author's collective Tiqqun, which has published books arguing for a new radical politics from the left. The authors of books such as Introduction to *Civil War* [7] or *The Cybernetic Hypothesis* [8] propose to repair society by building a new community that does not repeat the essentialist and exclusive structures of outdated forms of community, such as the family or the state. In their radical attitude, the authors' collective reiterates the Jewish principle and gives it a secular tone to emancipate the metaphor from its religious context and reuse it for serving the general need of providing a conceptual framework for emancipatory struggles. In that sense 'repairing the world' appears as a slogan in discourses about ecology, where authors who favour ideas of degrowth and DIY culture formulate demands and best-practices for addressing the climate crisis. Examples range from free-shops to hacker-labs and repair cafés but also to agriculture, industrial and manufacturing collectives, as well as tourism, managed according to principles aimed at repairing the world. This struggle against social and ecological crises can also be understood within the metaphorical background of Neurath's boat. The repair of the ship of society is a continuous endeavour of replacing broken planks, since the ship is not able to return to safe harbour, where the vessel could be refitted in a dry dock. Like the constantly corrected and connected scientific theories that make up Neurath's boat, non-foundationalist coherence oriented scientific theory, 'repairing the ship of society' must be done coherently and with consideration for the overall functionality of the ship, which is to stay afloat.

7. Tiqqun, *Introduction to Civil War* (Cambridge: MIT Press, 2010).

8. Tiqqun, *The Cybernetic Hypothesis* (Cambridge: MIT Press, 2020).

This secularisation of the metaphor 'repairing the world' by its supplement with the metaphor of 'repairing the ship', contextualises human endeavours within a metaphysical horizon, one without gods or superhumans. A horizon that opens the sky and the heavens to human conquest, but at the same time that eradicates the orientation provided by the religious framework for doing science or politics. In his *Gay Science,* Friedrich Nietzsche evokes a departure from the metaphysical foundations that guaranteed the place of the human in the world: "We have left the land and have embarked. We have burned our bridges behind us indeed, we have gone farther and destroyed the land behind us. Now, little ship, look out! Beside you is the ocean: to be sure. It does not always roar, and at times it lies spread out like silk and gold and reveries of graciousness."[9] This language speaks about the possibility of liberation, about its necessity and tragedy: "But hours will come when you will realise that it is infinite and that there is nothing more awesome than infinity. […] Woe, when you feel homesick for the land as if it had offered more freedom-and there is no longer any 'land'!"[10]

9. Friedrich Nietzsche, *The Gay Science* (New York: Random House, 1973), p.180 (§124).

10. Ibid.

11. Max Horkheimer/Theodor Adorno, *Dialectics of Enlightenment. Philosophical Fragments* (Stanford: Stanford University Press, 2002).

Considering the condition of irreversibility, this embarkation to the future is one without return. We have left the theological worldviews that determined life and thinking for thousands of years, and we have criticised the *Dialectics of Enlightenment* [11] and the monstrous capacities of industry and progress, such as the invention of the atomic bomb or the industrial slaughterhouses of the concentration camps. Captured by an irreversible moment forward our ship appears to be bound for shipwreck: facing war, hunger, economic depression and ecological catastrophe. Caught in a growth paradigm the vessel has only become larger, but its mouldy beams have not been replaced. But why is growth problematic? Why is the collection and amassment of energy, resources, wealth, knowledge, biodiversity or data not beneficial for everyone? Here, George Bataille offers an unconventional theory for understanding the ambiguities of processes of irreversible augmentation.

3 ACCEPTING IRREVERSIBILITY

Against the imperative to be productive, efficient, useful, or valuable to society, Bataille emphasises that most of the activities that distinguish us from other animals are in fact unproductive: making art for art's sake; doing science out of curiosity; playing just for fun; engaging in unproductive sexuality; and even the liberating expression of laughter are all purely luxurious activities. Bataille writes: "it is not necessity but its contrary, 'luxury,' that presents living matter and mankind with their fundamental problems."[12] This philosophy of excess calls for a counterculture to the utilitarian spirit of Bataille's contemporaries. Today, cognitive capitalism has also successfully colonised the sphere of excess, luxury, and leisure. Despite the counter-culture of the avantgarde movements of the Situationist or the Hedonist International, the revolutionary potential of unproductivity has been spent in the expansion of capitalist accumulation to the sphere of leisure, tourism, and extravagance. Economic growth and overproduction, as well as economic crisis and depression, waste and destroy wealth, energy, and resources. In short, Bataille argues, the general economy is defined not by scarcity but by abundance. Contrary to theorists who concentrate on the role of production in economies, Bataille stresses that the irreversible "expenditure", "consumption" and "excess" of wealth is "the primary object" in any economy.[13]

12. Georges Bataille, *The Accursed Share: An Essay on General Economy, Volume I Consumption* (New York: Zone Books, 1988), p.12.

13. Ibid., p.9.

In support of his argument, Bataille maintains that "the generative principle of life" is per se directed towards exhaustion. "The living organism, in a situation determined by the play of energy on the surface of the globe, ordinarily receives more energy than is necessary for maintaining life; the excess energy (wealth) can be used for the growth of a system (e.g. an organism); if the system can no longer grow, or if the excess cannot be completely absorbed in its growth, it must necessarily be lost without profit; it must be spent, willingly or not, gloriously or catastrophically."[14] Published in 1949, Bataille's book *The Accursed Share* (Vol. I Consumption, Vol. II The History of Eroticism, and Vol. III Sovereignty) describes this excessive and destructive consumption present in modern capitalism as similar to any other form of economy that produces a non-recuperable part, which Bataille calls the 'accursed share'.

14. Ibid., p.21.

15. Ibid., p.20.

16. Ibid., p.25.

Be it development-aid, monuments, or wars, they all consume, exhaust, expend, and waste abundant energy and thereby fulfil the "necessity of losing the excess energy that cannot be used for a system's growth".[15] Bataille argues the non-recuperable part that an economy produces must be spent consciously, e.g. on art and science. Otherwise, this accursed share produces excess unconsciously in catastrophic and violent manners, such as war, human sacrifice, industrial genocide or ecological catastrophes. In that sense, pulling all the stops and excessively partying as if there is no tomorrow appear to be deliberate modes of excess, while the smoke and pollution of carbon powered machines are 'embarrassing' involuntary.

"We can express the hope of avoiding a war that already threatens. But in order to do so we must divert the surplus production, either into the rational extension of a difficult industrial growth, or into unproductive works that will dissipate an energy that cannot be accumulated in any case."[16]

Bataille's paradigm is far-reaching and finds example throughout history, from the bloody wars and sacrifices of the Aztecs, to the Marshall Plan that exhausted the economic power of the United States to rebuild Western-Europe. While the Aztecs sacrificed their prisoners of war and thereby destroyed a valuable source of labour, the Marshall plan dumped US American overproduction on Europe and thereby consciously discarded their excess, gaining immeasurable influence over the culture and economy of Europe.

Another example that highlights the political and social consequences of consciously spending overproduction is the 'potlatch', a ritual of the Kwakiutl and other First Nations of British Columbia, that is performed at major festivities. At the event the tribe leaders gather and amass their wealth, blankets, ancestral items, and other valuables to demonstrate their political power; the valuables are then given away to other clan leaders to demonstrate their ranks in the social hierarchy of kinships and clans. The potlatch is a perfect example of the problematic extent of overproduction that serves to assert a social, economic, cultural and political hegemony. Even though geographer and anthropologist Franz Boas emphasised that the destruction of wealth "hinders the single families from accumulating wealth" and thereby serves the egalitarian function of redistributing a concentrated wealth,[17] the government of Canada still prohibited the practice, deeming it an unnecessary waste of value. Bataille questions Boas's and the Canadian government's assertions and stresses that the release of overproduction and excess is not necessarily an exchange. When the chief destroys their valuables at the potlatch, there is no guarantee for exchange; nevertheless, the potlatch is a channel through which wealth can circulate. In some of the most spectacular potlatches, the gifting chieftain would demonstrate their power by cutting the throats of slaves and shattering highly valuable imprinted copper-bars. The destruction of wealth is compensated by an acquisition of rank: "the wealth that is actualised in the potlatch, *in consumption for others,* has no real existence except insofar as the other is changed by the consumption."[18] The excess of energy transformed in the potlatch therefore serves a social and political function, a display of luxury, which survives in modern societies, where class conscious individuals put huge efforts into distinguishing themselves from one another in the display of expensive cars or extravagant luxurious lifestyles. For Bataille these modern manifestations of the luxurious consumption of overproduction are, however, meagre modes of excess-consumption when compared to an absolute and joyful embrace of exhaustion viewed in the image of the sun's excessive overflow of energy: "Solar energy is the source of life's exuberant development. The origin and essence of our wealth are given in the radiation of the sun, which dispenses energy – wealth – without any return."[19] Instead of clinging on to the promise of return, that anything that is expended or given away may return in some form or another, Bataille demands we accept and even celebrate irreversibility as the principle of life. Life does not pay back credits or returns favours but continues exhausting its energy until it ends.

17. Franz Boas, *The Indians of British Columbia,* in: The Popular Science Monthly, March 1888 (vol. 32), p.636.

18. Bataille, *The Accursed Share,* pp.69f.

19. Ibid., p.28.

4
RESTARTING SOCIETY

The third strategy for coping with irreversibility circulates around the notion of 'natality'. The moment of birth marks a tipping-point: the irreversible end of the process of pregnancy and the irreversible beginning of a new life. For Hannah Arendt 'natality' is political, in as much as it is the essence of action and, in that sense, it is something particularly human. In the essay *Understanding and Politics* she asserts that humans are "beings whose essence is beginning"[20] and in that sense opposed to the "belief in causality" that is "of denying human freedom".[21] Arendt's conception of 'the political' is, therefore, in its core directed against deterministic understandings of history and civilisation. 'The political' is in that sense clearly understood as an anti-deterministic and anti-materialist dimension that interrupts the chain of events and the sequence of prospected happenings. It opposes the idea of social, economic, or administrative necessity and emphasises that human beings can always stop continuing going down a certain (maybe doomed) route and start anew. "The so-called chain of happenings – a chain of events is, strictly speaking, a contradiction in terms – is interrupted every minute by the birth of a new human being bringing a new beginning into the world".[22] One of Arendt's examples for such a new beginning is the act of forgiving. Forgiving undoes a received wrong. This idea challenges the notion of irreversibility: repairing a seemingly irreversible and harmful shattering of trust.

"Forgiving (certainly one of the greatest human capacities and perhaps the boldest of human actions insofar as it tries the seemingly impossible, to undo what has been done, and succeeds in making a new beginning where everything seemed to have come to an end) is a single action and culminates in a single act."[23]

In that sense the act of forgiving is a real new beginning, an initiative and an intervention into a prospected course of events. The action of beginning is rare and exceptional and contrasts with unconscious behaviour, which follows a prescribed pattern. In Arendt's view, the alienated and polarised individuals of modernity are not sailing on a common ship anymore: they are the survivors of a flood or shipwreck, each and every one clinging on to their own little rafts, each becoming a "Noah" on their own "Arc".[24] Arendt's language is saturated with theological connotations; the evocation of a new beginning mirrors the language of the New Testament and the new covenant in the Christian faith. The reference to natality conjures up images that circle around notions of family, domesticity and procreation. Did Arendt use the metaphor without considering the problematic facets of such a framework? Or is it possible to secularise the democratic spirit of Arendt's notion of natality by stripping it from its connotations to messianic religion and the nuclear family?

20. Hannah Arendt, *Essays in Understanding, 1930 – 1954: Formation, Exile, and Totalitarianism* (New York: Schocken Books, 1994), p.321.

21. Ibid., p.325.

22. Ibid., p.326.

23. Ibid., p.308.

24. Ibid., p.215.

25. Jean-Luc Nancy, *Dis-Enclosure: The Deconstruction of Christianity* (New York: Fordham University Press, 2008).

Writing about the end of universal narratives and the alleged impossibility to believe (and surrender one's doubts) in the orientational concepts of modernity, revolution and progress, Jean-Luc Nancy argues that we have reached a point of no return comparable only to the extinguishing of a candle.[25] Here, the irreversible process of exhaustion described by Bataille finds an immediate end; the burning of the candle (symbol of the divine and comparable to the sun) stops and the light provided by the burning of the candle ceases. This metaphorical horizon implies that the end of the irreversible process of burning is caused by the exhaustion of the energy provided.

5
CONCLUSION

On the contrary, 'pressing reset' to restart a system is an interruption, not a cessation. Once a restart is initiated, the system is destined to recalibrate and start anew. Rescuing Arendt's notion of natality from its theological connotations, the metaphor 'restart' might adequately translate the idea of a sovereign and deliberate action of initiating a new beginning to the materialist language of the 21st century. Coming to terms with irreversibility requires a constant revaluation, adaptation, and invention of the language employed in speaking about and coping with it. The creation of new metaphors for irreversibility and reversibility saves us from using theological concepts for comprehending a world devoid of transcendental forces. Neurath's coherence-oriented understanding of knowledge demands one to constantly revise and repair also the 'ship' of the language of irreversibility. Replacing the mouldy plank of 'natality' with terms borrowed from the mechanical universe of physical engines, 'restart' and 'reset', might keep the ship afloat during which time an even more appropriate terminology (adapted to new scientific discoveries, technological environments or political requirements) may be created. Accepting the irreversible end of processes and the fact that everything that has been broken or spent will not fully return or be exchanged equivalently, repairing becomes the art of creating something new – overcoming rather than reproducing – what is broken, while restarting initiates the opportunity to learn from the mistakes already made.

„Einmal dem Fehlläuten der Nachtglocke gefolgt - es ist niemals gut zu machen."[1]

Ja, er war dem Fehlläuten der Nachtglocke gefolgt: Er hatte die Hand der Frau genommen, und als wäre es das Natürlichste auf der Welt, ging sie mit. Er hatte sogar das Gefühl, dass sie ihn drängte und dass eine heimliche Unrast sie umtrieb, dass sie ihm überallhin folgen würde. Aber er nahm sie bloß mit auf sein Zimmer.

Und nachher die Veränderung seiner Träume und die aufsteigenden Bilder im Wachzustand, z.B. dass sie einen Unfall auf der Autobahn hatte. Er sah sie aus dem rauchenden Wagen aussteigen und schreiend auf die Tankstelle zulaufen. Ob er das hörte, konnte er nicht sagen, er wusste es einfach. Das war irgendwie verrückt, so was wie Telepathie. Er hatte sich bemüht, diese „Erscheinungen", wie er sie nannte, zu ignorieren. Noch nie hatte ein One-night-stand so etwas bei ihm ausgelöst. Deswegen war das so cool, ‚es' zu kriegen und doch nicht betroffen zu sein. Und wenn ein Gefühl aufgetaucht war, hatte er es bisher locker weggesteckt. Wichtig der Kick jedesmal aufs Neue, sozusagen der Musenkuss.

1. Franz Kafka, *Ein Landarzt,* in: Die Erzählungen und andere ausgewählte Prosa. Originalfassung, ed. R. Hermes (Frankfurt/Main: Fischer, 1996), p.260.

Und jetzt, nachts wieder sein Bedürfnis, dieses letzte Buch zu verbrennen, in dem er das Ereignis literaris ch verwurstet hatte. Er riss die erste Seite heraus. Völlig irrational, wegen einem One-night-stand! Ekliges Pathos. Aber es trieb ihn. Er zündete den Romanbeginn, den er an sich für sehr gelungen hielt, mit einem Streichholz an. Ließ die Seite in den Mörser fallen. Den hatte einmal eine längere romantisch angehauchte Beziehung hiergelassen – egal. Nur kurz diese sehr hohe Flamme, wie eine Stichflamme zischte sie ihm entgegen, bevor das Spektakel knisternd in sich zusammenfiel.

EINE ÜBUNG DES VERGESSENS

Sie hatte ihm keine Adresse gegeben, nur ihre Telefonnummer auf einem kleinen Fresszettel vom Rand einer Zeitung. Er hatte diesen auf der Pinnwand befestigt und der Versuchung widerstanden, die Nummer wenigstens ins Handy einzutippen. Jetzt warf er sie in die verglühenden Papierfetzen. Nur kein Drama. Das war sonst nicht seine Art, aber irgendwie brauchte er ein Ritual. Er löschte mit dem Stössel die letzten Funken. Mit dem Verbrennen der Telefonnummer sollte die Sache wohl beendet sein. Bisher hatte er sich in Arbeit geflüchtet, was ihm sichtlich gelungen war. Und trotzdem stand er da und begann sein Buch zu vernichten. Aber das machte es nicht ungeschehen obwohl ... So ein Schwachsinn. Erinnerungen löschen mittels Feuer. Man sollte sie vernichten können, wie man eine Zigarette löscht: austreten, mit dem Absatz in den Sand drehen, bis sie verschwinden.

Aber so einfach war das nicht.

Der Mörser roch eklig nach Rauch und abgebranntem Papier. Penetrant. Schließlich entsorgte er ihn auf dem Flohmarkt.

Hedwig Dejaco

https://doi.org/10.25364/978390337428711

"A false alarm on the night bell once answered – it cannot be made good, not ever."[2]

Yes, the stroke of the night bell had misled him: he had taken the woman's hand and she had come with him as though it was the most natural thing to do. He even had the feeling she had nudged him driven by a secret unrest and she would have followed him anywhere. But he just took her to his room.

AN EXERCISE IN FORGETTING

And afterwards there came the strange dreams and he was wide awake 'seeing things', e.g. her in an accident on the highway. He saw her getting out of her car that was filled with smoke and she kept running towards the service station screaming. He couldn't really tell if he had heard her, he just knew. Somehow crazy, possibly telepathy. He had tried to ignore these 'appearances' as he called them.

Never before had a one-night stand triggered him like this. It had always been special to get 'it' without being affected. And whenever emotions had popped up, he had easily put them away. The important thing for him had always been the kick. It worked like the kiss of the muse, each time.

2. Franz Kafka, *A Country Doctor,* in: Selected Short Stories of Franz Kafka, trans. W. and E. Muir (New York: The Modern Library, 1993), p.155.

And now tonight this strong urge to destroy his latest book in which he had written about the incident. Anxiously he tore out the first page. This was completely irrational, pathetic and revolting and yet this urge to do it. He set fire to the page and put it into the mortar. A gone-by affair, rather romantic, had left it in his kitchen – he couldn't have cared less. A very high flame shot up like a tongue, hissing towards him and then it collapsed.

She hadn't given him her address, just her telephone number on a strip of paper ripped from a magazine. He had tucked it on his memo board but had always resisted the temptation to type it into his mobile phone. Now he threw it on top of the glowing embers. No drama, not for him. Yet, he seemed to need a ritual to get rid of the nagging inside him. He put out the last remnants of the fire.

Burning the telephone number should do the trick. He had worked hard and the book was quite a success. And it could not be undone even if he burnt his own copy. Moreover, what kind of nonsense destroying memories with fire. One should be able to destroy them the way one puts out a cigarette: stub it and rub it in the sand with the heel of the shoe, until it is gone.

But it was not that easy.

The mortar kept the disgusting smell of smoke and burned paper. Before long, he disposed of it at the flea market.

Zurücknehmen *(Verb)* •, Präteritum: nahm zu·rück, Partizip II: zu·rück·ge·nom·men
[1] etwas wieder annehmen, was man schon einmal hatte, wieder in Besitz nehmen
[2] etwas Geschehenes/Gesagtes ungeschehen/ungesagt machen, etwas berichtigen
[3] reflexiv: weniger intensiv/laut/dominant auftreten

[1] etwas wieder annehmen, was man schon einmal hatte, wieder in Besitz nehmen • festhalten • loslassen

Es wird mit Wasserwagen hantiert, hat irgendwer das Maßband gesehen? Der Media Player gibt den Geist auf, heftiges Fluchen. Die letzten verstreuten Bleistifte werden von den Sockeln gepflückt, Verpackungsmaterial hinter die Tür gestopft –

Es ist Zeit.

Eine Vernissage ist eine seltsame Art von Weihe. Aus der MP4 Datei am Desktop ist ein Film geworden, der wunderbar gerade die schmale Seite des Raumes aufhellt. Die Leinwand, die noch vor Tagen am Boden herumgelegen ist, mit nichts weiter als der beiläufigen Hoffnung, dass niemand draufsteigt, hängt jetzt erhaben und zentriert an der weißen Wand.

Eine Vernissage ist eine Einbahnstraße, umkehren verboten. Ich habe ein Muster in die Welt gezeichnet, scharf gestellt und ausgelöst, steh dazu! Der Teil von dir, geborgen und vorsichtig ans Licht gelockt, kollabiert in fremde Augen. Unsere Beziehung hat einen Namen bekommen: die Urheberschaft, das geistige Eigentum. Aber die Nabelschnur ist durch. Stehst unter mir, halb Mutter, halb Bodyguard, am Rande des Scheinwerferlichts und siehst mir nicht einmal mehr ähnlich.

Eugénie Desmedt

https://doi.org/10.25364/978390337428712

ZURÜCKNEHMEN

Wenn sie doch jemand erkennt, unsere Ähnlichkeit, dann wirst du befragt. Du schreibst meine Erklärung in den Stein, suggerierst ein Konzept, als wäre ich aus deinem Kopf geboren und nicht aus deinem Magen.

[2] etwas Geschehenes/Gesagtes ungeschehen/ungesagt machen, etwas berichtigen • sehnen nach Stille

In der Wahrscheinlichkeitsrechnung definiert man einen Ereignisraum als den Raum aller möglichen Ergebnisse. {Kopf, Zahl} bei einem Münzwurf, {Kopf - Zahl, Kopf - Kopf, Zahl - Kopf, Zahl - Zahl} bei zwei. Die Möglichkeiten liegen horizontal nebeneinander, an der Schwelle zur Realität.

In dem Moment, in dem die Münze aufkommt, brechen die Möglichkeiten in sich zusammen. Die Linse stellt scharf, löst aus. Der Singular ist gebildet, durch den Ereignisraum führt jetzt eine Straße.

Eine Straße verlegen (Aktivität) • besetzen, bebauen • asphaltieren • sich einen Ort zugänglich zu machen • Sinn verlegen

Ein Kunstwerk ist immer auch eine Straße. Mit jeder Entscheidung im Prozess spaltet sich ein Teil des Ereignisraums ab und geht verloren - die unscharfen Möglichkeiten, die nie wieder möglich sein werden. Manchmal sehe ich Straßen in der Landschaft und würde sie gerne wegräumen, den Asphalt einfach vom Gras pflücken und wieder einrollen, wie Kunstrasen.

[3] reflexiv: weniger intensiv/laut/dominant auftreten • sich selbst aus der Gleichung nehmen

Stille (Entscheidung) • nicht zu brechen, nicht zu lenken, ja keine Möglichkeit entwenden • keine Trennung hervorrufen • das Verlangen nach der eigenen Effektlosigkeit

Ist hier etwas verloren? Gewonnen? Ausgetauscht? Getrennt? Ein Verlust kann auch eine Erleichterung sein, ein Phantomschmerz außerhalb des Körpers.

To take back *(verb)* • past tense: took back, past participle: ta·ken back
[1] to retake possession of something that was previously owned, to reclaim
[2] to undo/unsay something, to correct
[3] reflexive: to appear less intense/loud/dominant

[1] to retake possession of something that was previously owned, to reclaim • to hold tight • to let go

Levels are being handed around, has anybody seen the tape measure? The media player chooses the worst possible time to run out of battery, violent swearing. The last scattered pencils are gathered from the pedestals, packing material stuffed behind the door –

It's time.

An exhibition opening is a strange kind of consecration. The MP4 file from the desktop has become a film, majestically brightening the narrow side of the room. The canvas that was lying on the floor just a few days ago with nothing but the passing hope that no one will step on it, now looks down from the centre of the white wall.

An opening is a one-way street, reversing prohibited. I've drawn a pattern into the world, brought it into focus, shutter released. Own it! This part of you, salvaged and carefully lured into the light, collapses into stranger's eyes. Our relationship has been named: authorship, intellectual property. But the cord is cut. Standing beneath me, half mother, half bodyguard, on the edge of the spotlight, all similarity gone.

TO

On the off chance that somebody does recognise our likeness, you'll be questioned. You'll write my description in stone, suggesting a concept as if I was born from your head and not your stomach.

[2] to undo/unsay something, to correct • a desire for silence

In probability theory, a sample space is defined as the space of all possible outcomes. {head, tails} for one coin toss, {head - tails, head - head, tails - head, tails - tails} for two. The possibilities lie next to each other on the brink of reality.

BACK

The moment the coin lands, the sample space collapses. The lens in focus, releases the shutter. The plural has become singular and suddenly there is a street going through the sample space.

to lay a road *(activity)* • to occupy, to build on • to cement • to make some place accessible • to lay meaning

An artwork can never not be a street. With every decision in the process a part of the sample space splits off and is lost – the unsharp possibilities that will never again be possible. Sometimes I see roads and I want to clean them away, just pluck the asphalt from the grass and roll it back up, like artificial turf.

[3] reflexive: to appear less intense/loud/dominant • to remove oneself from the equation

Silence *(decision)* • not to break, not to steer, not to take away any possibility • to evoke no separation • the desire to be inconsequential

Is something lost here? Gained? Exchanged? Separated? A loss can also be a relief, a phantom pain outside the body.

BROKEN

The vase represents a relationship. However, you can see that the vase has already been broken apart and then glued back together with the Japanese technique Kintsugi. The idea of Kintsugi is to accept imperfection. I use this idea as a philosophy of wounds in my life. Fights can't be reversed, hurtful words can't be turned into something unsaid. Is there hope for wounds to make a positive change? Can a broken relationship be glued back together and can something even beautiful and unique emerge from the cracks...

Diana Bobb

https://doi.org/10.25364/978390337428713

MONOLOGUE SERIES:

“Wohin, mein Wort, mein Blick, meine Geste?
Bin ich – ohne Zeugenschaft – je gewesen: jetzt * jetzt * jetzt?”

“Where are they going, my words, my vision, my gestures?
Have I, without witnesses, ever been in the present?
Now * now * now?”

https://doi.org/10.25364/978390337428714

IRREVERSIBILITY

Sabine Prag

HERE AND NOW

July 29: a gender studies professor at the University of Waterloo, Canada, was stabbed by a man who entered her lecture. Two other individuals, a man and a woman, were injured while intervening. This event mirrors the École Polytechnique Massacre in Montreal on December 6, 1989, where a gunman targeted female students and killed 14 women who wanted to become engineers.

Conceptually, explosions are classified as events, as rapid expansions of volume with the consequent release of energy. But this is an incomplete definition. Explosions are, if only for some instants, living organisms, ephemeral crinoids born from a single, hard point, that attract everything around them and assimilate it, making it a part of themselves. This attack, the point of the blade, was nothing but a shiny metal shard blown away by distant forces. This is how stochastic terror works. We want to trace the event back to its origin.

STOCHASTIC

Fragments explode and multiply. Recent data indicates a surge in violence against the LGBTQ+ community. In 2022, there was a 30-fold increase in anti-queer demonstrations compared to 2017.[1] According to a report by the European International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA Europe), 2022 saw the highest levels of violence against LGBTQ+ individuals in Europe and Central Asia in a decade.[2] The report also mentions that this violence is occurring amid an increase in hate speech from politicians, religious leaders, and the media.

Notable incidents in 2022 included a shooting outside an LGBTQ+ venue in Oslo, Norway in June that resulted in two deaths and 21 injuries, and another in Bratislava, Slovakia in October with two fatalities. In the United Kingdom, homophobic hate crimes rose by 41% and transphobic hate crimes by 51% in 2022, according to Home Office statistics. In Spain, hate crimes against the LGBTQ+ community increased by 70% in 2021 compared to 2019.[3]

1. Christina Anagnostopoulos, *LGBTQ Community Celebrates Pride in the Face of Online and Offline Attacks,* Reuters, June 11, 2023, https://www.reuters.com/world/us/lgbtq-community-celebrates-pride-face-online-offline-attacks-2023-06-11/

2. Nicolas Camut, *Anti-LGBTQ+ Violence in Europe Hits Decade-High, Report Finds,* POLITICO, February 20, 2023, https://www.politico.eu/article/anti-lgbtq-violence-europe-highest-report/ Nicolas Camut, Anti-LGBTQ+ Violence in Europe Hits Decade-High, Report Finds, POLITICO, February 20, 2023, https://www.politico.eu/article/anti-lgbtq-violence-europe-highest-report/

3. Laura Navarro Soler, *282 Delitos de Odio Contra el Colectivo LGTBI en Un Año: Solo la Punta del Iceberg,* Newtral, July 12, 2022, https://www.newtral.es/delitos-de-odio-lgtbi/20220611/

These grim statistics are repeated worldwide: Brazil is also facing an increase in violence against transgender individuals. The National Association of Transvestites and Transsexuals (ANTRA) reported that over 150 transgender individuals were killed in Brazil as of September 2020, marking a 70% increase from the previous year.

On 19th November 2022, a lone shooter went into Club Q, a queer bar in Colorado, and started shooting indiscriminately. Tiny, sharp pieces of death are flying around. Where does all this shrapnel come from?

Peti Román

https://doi.org/10.25364/978390337428715

The escalation of violence cannot be viewed in isolation, as it is deeply intertwined with growing societal and institutional animosity. Violence is not spontaneous; it's cultivated, nurtured, and aimed at achieving certain objectives, and then, by remote means, it is released.

Acts of public violence are individually unpredictable, but statistically predictable. We can trace back the trajectories of the attacks to manufactured and politically motivated queerphobic hate, from before the time they hurt people. This surge in physical attacks has a strong correlation with the institutional measures taken against the LGBTQ+ community, where anti-trans legislation has been at the forefront of a multitude of legal actions aimed against the queer community.

According to the American Civil Liberties Union (ACLU), a staggering 491 anti-LGBTQ bills were introduced in state legislatures in 2023, which is the highest number seen in the last 100 years. A prominent segment of these legislative efforts, predominantly led by Republicans, aims to impose restrictions on drag performances, with at least 15 states moving in this direction.

OTERRORISM

A SHINY SPECK OF SHRAPNEL

In Florida, an extension to Governor Ron DeSantis's 2022 initiative was implemented, which originally limited discussions related to LGBTQ topics in schools up to third grade. This initiative, widely known as the 'Don't Say Gay' bill, has now been extended to encompass all grades in public schools.

Simultaneously, the narrative surrounding the LGBTQ+ community has been undergoing a disturbing shift. Defamatory language and slurs such as 'groomer' have seeped into mainstream discourse, painting the community in a negative light. The Center for Countering Digital Hate (CCDH) and the Human Rights Campaign published a report last year, showing a 406% increase in the use of the term 'grooming' on Twitter in the month following the passage of the 'Don't Say Gay' bill in March 2022. CCDH data covering May 2021 to May 2023 indicates that such narratives were not common before the bill's passage. Now, queer people are associated with child abuse. Same as with blood libel, same as with all hate campaigns, this was done for profit. And it cannot be undone easily.[4]

Social media is a distorted mirror of our reality, although at this time it is no longer clear which one is the reflection. If we check the most popular platforms, we can see a plethora of hashtags promoting hate.

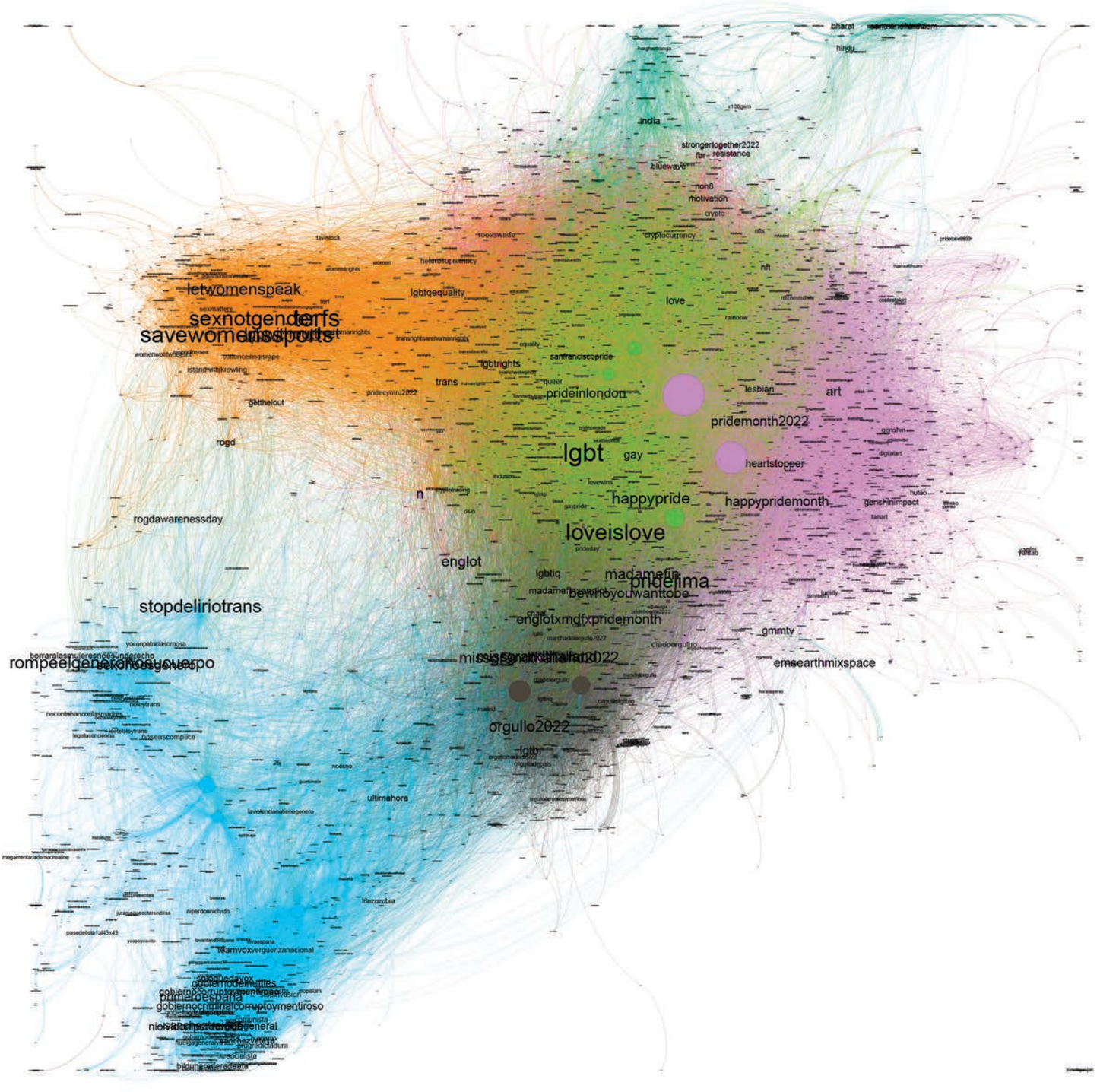
4. Ej Dickson and Nikki McCann Ramírez, *The Right Boosted Trans Hate – and Ran up Their Follower Counts,* Rolling Stone, June 15, 2023, https://www.rollingstone.com/culture/culture-features/trans-hate-follower-count-matt-walsh-1234770675/

Jara Juana Bermejo Vega is both a researcher and a survivor of transphobic violence. She is one of the members of the research project Trans-AI, straddling the dual role of investigator and subject. As part of her collaborative efforts with her research group on the Twitter user community, the group shed light on the pervasive spread of transphobic hashtags and narratives permeating the social media landscape. The good news for research is that digital traces are nigh impossible to erase; irreversibility goes both ways. Bermejo Vega has extracted hashtags related to surges of transphobic attacks in Spain and related user communities. The data visualisation lights up like a pretty Christmas tree, the tangles of threads linking user groups form clouds that mark user communities; Spanish Twitter is a rich and aggressive ecosystem, but it stays segregated.[5]

5. Jara Juani Bermejo-Vega, *How Anti-Trans Hate is Astroturfed on Social Media,* BRIDGES Conference, September 13, 2022, Video, https://vimeo.com/754259618; *Análisis de Red del Discurso de Odio Queerfóbico en Twitter*, PYCONES Granada, October 22, 2022, YouTube Video, https://www.youtube.com/watch?v=nC58DAXGhgw

We sit by her desk, looking at how the communities evolve during Pride Month. Jara clicks on the screen. Several clouds appear: LGBTIAQ+ (Lesbian, Gay, Bisexual, Trans, Intersex, Asexual, Queer and others) community, conservatives, progressives, TERFs... We can see which hashtag was promoted during that time.

Another click. Transphobic hashtags appear, promoted by the TERF (Trans-exclusionary Radical Feminists) cloud and immediately absorbed and amplified into the conservative and alt-right community. This is a frequent occurrence, once you learn to look for it.



#leytransespatriarcal, #aquiestamoslasfeministas, #irenemonterodimision... all these little pieces of hate come from the same two or three accounts, and they spread amongst a small circle of user groups who like and retweet obsessively, sometimes every ten seconds, for hours at a time. Then, the larger network of the right-wing trampolines them into the general public: buzz is generated.

The state forces control the narrative. They are the blast wave destabilising the surroundings, tearing apart the tender tissues of society, shattering the harder fragments that later become weapons of their own. Have I gone too far with the metaphor? We are, after all, talking about people's lives.

Cultural discourse has always been volatile, and policy makers know that. Previously secured advancements in the acceptance and rights of the LGBTQ+ community appear to be precarious, as they are constantly undermined by emerging societal and institutional challenges. This shifting landscape has tangible, detrimental impacts on the lives of individuals within the community.

The changes in the political panorama have been global: the necrotic force of modern conservatism has found in the hatred of LGBTIAQ+ people, in particular trans people, a new force. The heralds of the alt-right everywhere have chosen a new banner to spearhead their hate speech: look at the Orbáns, Abascales, Rishi Sunaks of the world. Look at the convective currents of money flowing from evangelical lobbies and corrupt governments into what are supposed to be grassroots organisations; listen to the conversations behind closed doors. This has been at work for a while.

This week, the Supreme Court of the United States determined that it is legal to refuse to serve queer people. The case, backed by the ultraconservative ADF, was based on a complaint by a graphic designer in which she complained that she could, hypothetically, be forced to design a website for a gay wedding.[6] There was never such request and there was never a complaint. The case was a mere pantomime for the conservative majority in the Supreme Court to make their move and erode LGBTIAQ+ rights. One step further in a chain reaction.

To pinpoint the exact beginning of this explosion is futile: the forces of hatred and prejudice have always inhabited the not-so-subconscious of society, leaving a prime substrate for such violent outburst. In the neoliberal landscape, trans people are easy to hate: we disrupt gender roles, we disrupt reproduction, and, more importantly, we do weird things with our bodies. We are icky. So, 'pioneers' such as Meg Kilgannon, who spoke in the Values Voters summit in 2017, laid out a strategy to revitalise conservatism: divide and conquer. From her mouth: "Trans and gender identity are a tough sell, so focus on gender identity to divide and conquer." For many "gender identity on its own is just a bridge too far. If we separate the T from the alphabet soup we'll have more success."[7] In the same summit, attendees were invited to disguise transphobic language as concern for women and children.

THE BODIES

In 2022, Helen Joyce, an editor at The Economist and affiliated with a group called Sex Matters, openly advocated for reducing the number of trans individuals, whom she deemed a "huge problem to a sane world". She proposed utilising institutional avenues and putting pressure on decision-makers, eventually conceding that her viewpoint didn't enjoy widespread support. This declaration, only five years ago, would have raised a scandal. Now it would barely raise an eyebrow.

Imagine, if you will, the eruption of sentiments like these as something of an institutional magic, with echoes as potent as an atomic blast. This magic, once unleashed, defies taming; it is like trying to coerce the explosion back into a neat uranium sphere. Words and actions, once cast into reality, are alchemy too fierce to be withdrawn; they bind and change realities.

Writing a hopeful conclusion to this feels like a performance, an exercise in futility. I could write about how for every action there is a counter-reaction, about a restorative alchemy of support and solidarity. I perform it because I want to believe. The time of action has come, or, I would rather say, it has come and passed. We are now in the time of counteraction, of restoration, of tending the wounds. The wounds can be healed; however, they cannot be uninflicted. You cannot make an object whole from shards.

These are the years of salvage. Let's hope we can build something from the ruins.

6. Melissa Gira Grant, *The Mysterious Case of the Fake Gay Marriage Website, the Real Straight Man, and the Supreme Court,* The New Republic, August 7, 2023, https://newrepublic.com/article/173987/mysterious-case-fake-gay-marriage-website-real-straight-man-supreme-court

7. Jeff Taylor. *The Christian Right's New Strategy: Divide and Conquer the LGBT Community,* LGBTQ Nation, October 23, 2017. https://www.lgbtqnation.com/2017/10/christian-rights-new-strategy-divide-conquer-lgbt-community/

Note: The author acknowledges financial support from the Trans-AI Project, University of Granada Grants for the Support and Promotion of Research on Equality, Inclusion and Social Sustainability INV-IGU144-2021.

Nature is objectively beautifully cyclical. As organisms move through existence, their excess can be of use to another entity. Humans have coined the idea that once we have finished with an item we consider it waste. But when we choose to dispose of something, can it be recovered?

At a granular level, we could pick that object back out of a bin and find a way to reuse it. We could put a biscuit wrapper on our head and call it a hat. On a global scale, how we define and deal with waste varies geographically, temporally and culturally making optimising recovery of material an inconsistent behemoth to tackle. Many pinch points of irreversibility can be considered in the waste industry; incineration reducing an object to ash; landfill containing well mixed materials that are currently unrecoverable; and recycling systems creating increasingly limited outputs with decreasingly homogeneous materials. Irreversibility can come down to costs, technological capabilities, sortation and perception of value.

As the Earths' natural resources are finite, it typically becomes more expensive to discover, access and extract them and increasingly important to use them as many times as possible maximising circularity. So at what point does it become 'worth' recovering material previously classified as waste, in effect reversing our action of disposal?

This will vary between commodities and products with supply and demand over time, depending on how they have been treated once classified as waste. Just as the value of raw or recycled materials fluctuate, so could landfill content depending on extraction capabilities as considered below.

GONE !

Incineration is irreversible – essentially products and components in the state they once existed are, for the most part, gone. Waste-to-energy plants are a move to capture a 'value' from the action of burning waste in the form of energy, a tidy solution as seen in regions such as The Nordics, diverting huge amounts of waste from landfill (c.99% in Sweden[1]) and contributing power to homes and businesses. However in the frame of irreversibility, resources in their original formats at point of disposal are lost to the process and can only contribute once to this system. Demand for incineration is driven amongst other things by; reduced landfill capacity (places like the UK); establishing basic sanitation through rudimentary waste practices (open fires to reduce volume of rubbish); and ease of dealing with waste locally to reduce transportation costs and impacts. The balance between the societal benefits of dealing with waste this way versus burning material irrecoverably dances between the realities and ideals of tackling the huge volume of waste we continue to churn out – an estimated 2.24 billion tonnes of solid waste globally in 2020, a footprint of at least 0.79 kilograms per person per day.[2]

1. Avfall Sverige, *Swedish Waste Management 2021*, August 2023, https://www.avfallsverige.se/media/lbdg3vcp/svensk_avfallshantering_2021_en.pdf

2. SilpaKaza, Lisa Yao, Perinaz Bhada-Tata, and Frank Van Woerden, *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050* (Washington: International Bank for Reconstruction and Development, 2018).

Roseanna Peppiatt

https://doi.org/10.25364/978390337428716

GONE... FOR A WHILE!

The practice of landfilling traditionally means waste is buried or heaped and then covered. Globally, there is wide ranging variation in regulation, structure and monitoring of landfills, with formal landfill engineering only a relatively recent concept. Challenges to recovering resources once landfilled include: locating them; breakdown of product under anaerobic conditions that change their state; interactions between waste types that are mixed together; technology available to physically retrieve it; and the human and environmental risks of disturbing a landfill due to ground gas and contamination. If you knew or could detect that a landfill cell contained a significant amount of gold, how far would you go to extract it? Ultimately it comes down to the price of gold versus the cost to extract it and at some point that breaks even to be of value for someone somewhere. In many countries where formal waste collection systems are unstructured, individuals may find value in collecting littered items like aluminium cans or scaling rubbish mounds to effectively backwards-mine them, because they can find a way to recover cost from doing so.

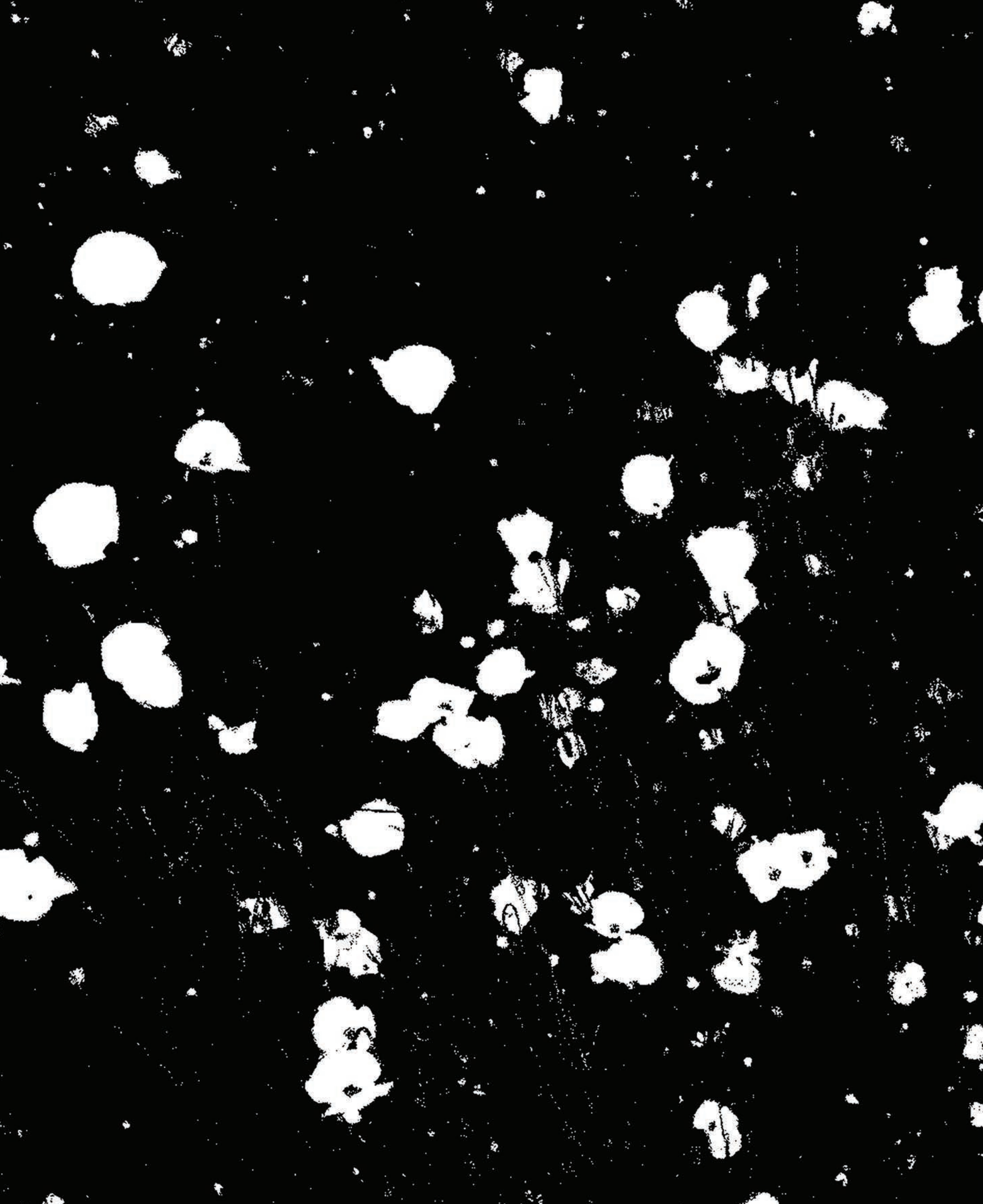
DONE THAT

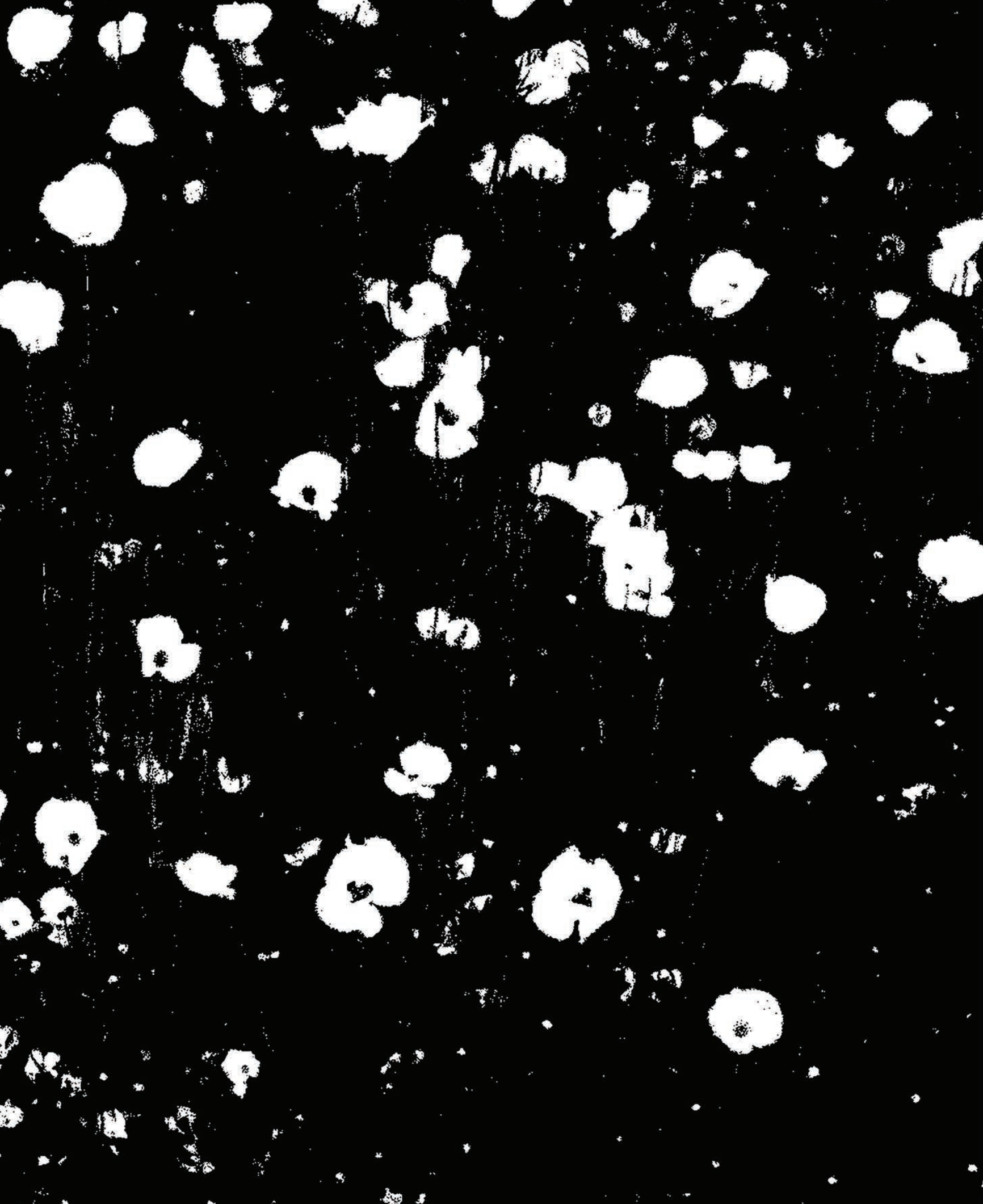
GONE...AS WE KNOW IT!

In places where robust recycling collection and material recovery systems are established, when we throw something like a plastic bottle into that recycling stream, we hope that material is used again and again. In countries where sorting, transporting and processing technology costs allow for specific materials, the more pure a stream of material collected the more likely it is that it could be processed into a 'like-for-like' end use. Within the recycling industry items that contain highly mixed materials become increasingly complex to separate into clean streams, driving up the cost to do so and decreasing the likelihood of it being scalable to recycle them. The quality of the output from the recycling process may reduce to a point where there is no further way (using current technology) to use it. For many naturally occurring resources (e.g. asbestos) or man-man substances (e.g. silicones) recycling or reuse can be restricted due to potential hazards or scientific limitations. So whilst recycling tries its best to reverse the negative environmental impacts of throwing something away, it is not always straightforward.

So how should we tackle the Irreverse in the world of waste? Only use or manufacture resources or products that have a recovery solution? Reduce incineration of anything non-hazardous to close to zero? Plan landfill cells to be so well categorised that we can easily access that deemed worthless now, in the future, when we need it back?

Whilst these are idealistic scenarios, multiple effective tools already exist throughout the waste hierarchy, are tried, tested and scalable to rise to the challenge. In the frame of the Irreverse, humans have undertaken many irreparable actions to waste resources, yet it is within our ability to make significant positive changes for our future. This will take the effort of individuals, regulatory bodies and businesses alike. Recognising that there are complexities from an economic growth perspective with a call to rethink consumerism, individuals can consider the resource demand their purchasing choices drive and apply pressure on businesses around packaging. Human and environmental health should be protected by waste management regulations which iterate to be better monitored and enforced. Those extracting resources, creating products and packaging must do so in a way that takes responsibility for their end-of-life. As organisations such as the Ellen McArthur Foundation are driving, the circular economy should be steered to work so that businesses are empowered to plan, create and remake products in a way that eliminates waste and pollution. Well regulated, accessible recycling systems, that are supported to run as the commodity business that they typically are, should continue to try to retain material in circulation where robust life cycle analysis show their benefit. Creative solutions to reuse and recycle material outside of the typical commodity model should be explored, seeking value other than recovering profit from the process. We collectively need to swiftly and continuously explore, attempt and scale numerous solutions until there are few irreversible disposal decisions left.





DIALECTICAL IRREVERSIBILITY AND POLITICAL AGENCY

Yıldız Silier

https://doi.org/10.25364/978390337428717

"The crisis consists precisely in the fact that the old is dying and the new cannot be born; in this interregnum a great variety of morbid symptoms appear."[1]

We are living in strange times, going through multiple crises: economic, political, psychological and environmental disasters are reinforcing each other. There is a widespread sense of irreversibility. 'Capitalist realism' refers to the widespread belief that capitalism is the only feasible economic system and that no concrete alternative can be imagined. Is this an accurate prediction of the current political landscape or rather a self-fulfilling prophecy?

1. Antonio Gramsci, *Selections from the Prison Notebooks, "Wave of Materialism" and "Crisis of Authority"* (New York: International Publishers, 1971), pp.275-276.

1

NIETZSCHE AND MARX'S DIFFERENT EVALUATIONS OF THE SOCIAL CRISIS

In this text I will first draw on Nietzsche's and Marx's different evaluations of how social crises can lead to historical changes. Then I will try construct a psycho-political explanation of what hinders political agency by using Mark Fisher's account of capitalist realism and Frederic Lordon's account of the co-linearization process. Lastly, I will give concrete examples from two films to illustrate the causal mechanisms that lead to the emergence of two opposite kinds of political agency: politics of resentment and politics of indignation.

"The will to reverse or resist seemingly irreversible processes or events forms the basis for systems of justice, memory or insurance; the will to accept irreversibility on the other hand celebrates life as a process of spontaneity and exertion." When I read this announcement for the workshop *Mapping the Irreverse* at the University of Graz, I thought about an imaginary dialogue between Marx and Nietzsche. Can we read Marx's dialectical account of history and his call for a revolutionary politics as the will to reverse seemingly irreversible processes? The answer is yes and no. Yes, because of Marx's harsh critique of the ideology that justified capitalism as the end of history and his introduction of the possibility of going beyond capitalism. But also no, because history is neither reversible, nor irreversible: every event indirectly affects many other events and it is neither possible to rewind history, nor possible to erase the traces in our memories. Besides, history can take many different paths; even when it seems like a canonical musical piece, there are so many minor themes and motifs that can change the whole meaning of the piece. History is a complex, emergent, open-ended system and the dialectical method can help us reveal its many different overlapping layers, as well as the contradictions and cracks that make changes possible.

Can we interpret Nietzsche's amor fati as "the will to accept irreversibility (which) celebrates life as a process of spontaneity and exertion"? Yes, because Nietzsche's account of eternal recurrence hints at a conception of history which is cyclical, rather than progressive. The historical loops are irreversible. Even if all the matter of the universe has only been recycling from the very beginnings of time, the concrete manifestations of the 'will to power' in different individuals make all the difference. Hence, the affirmation of life for Nietzsche does not imply being passive observers of whatever life offers us. Nietzsche agrees with Spinoza that *conatus* or striving is the essence of life.

Marx and Nietzsche agree on the values of affirming life but choose different methods to achieve this goal. Nietzsche's aristocratic individualism and anti-humanism, which allows the sacrificing of humanity for the emergence of the overman, is definitely at odds with Marx's humanism and his call for a collective emancipation. However, both Marx's critique of ideology and Nietzsche's genealogy of morals, involve an immanent critique and embrace a perspectivism without falling into total relativism. The way to achieve 'the truth' or objectivity is not by having a 'neutral' standpoint, a view from nowhere, which is impossible. Rather, it requires seeing the same event from the perspective of different groups and classes whose interests conflict with each other. The more perspectives we can access, the better can we grasp the whole.

Nietzsche's diagnosis of the social crisis is through the lens of aristocratic individualism. After the death of God, there remains no foundation for objective values except the 'health of an individual'. The free spirit is the one who affirms life, who invents themself as a warrior and artist rather than accepting to be a victim. By admitting their will to power, they affirm life with all its pain and misery. This is very similar to Mill's description of the energetic character. Here, both philosophers admire pagan self-assertion and criticise the impact of Christian ascetism as producing docile and weak individuals. Both Nietzsche and Mill look down on the working class and the middle-class' conformism with contempt.

Their common verdict is that in modern society individuality is threatened by mass culture. But people with individuality are the 'salt of the earth', essential for social progress, even if masses cannot understand or appreciate them. In this sense, what is good for the individual diverges from what is 'good for the society'. Here, they link the social good with 'public opinion'. The society wants an easy, comfortable, happy life, an expansion of their choices as consumers and an improvement in their social status. The individual wants to overcome themself, push boundaries, challenge norms, self-actualise and self-expand, which resembles psychologist Carol Dweck's contemporary distinction between fixed and growth mindsets. It is also in line with the ideal of meritocracy, where social rewards should be distributed according to people's different merits, rather than as a matter of equal human rights or with respect to the diverse needs they have.

One symptom of the social crisis for Nietzsche and Mill is that while the masses take ignorance as a bliss, the 'special individuals' suffer from an 'alienated consciousness' (feeling impotent, not admired, even betrayed) which provides fertile soil for a politics of resentment. Both Nietzsche and Mill consider history as irreversible, civilisation leading to tyranny of opinion and collective mediocrity. It is here that Marx offers a way out of this individual versus society antagonism.

Marx's diagnosis of the social crisis assumes a different, dialectical account of the relation between socialisation and individualisation. Individuality is not threatened in modern society; it has become a more widespread value. The reason why people cannot achieve individuality is not due to the pressures for social conformity, but is rather rooted in alienation. Not only workers, but everyone, even the capitalists are alienated. This is because of commodity fetishism and the main contradiction of capitalism, which is the creation of mass poverty amidst abundance; expansion of exchange values and devaluation of humans. The reason why so many people cannot imagine a way out of capitalism is because most people (not only the 'special individuals') have an alienated consciousness.

Limits of the possible are determined by limits of the permissible, especially under surveillance capitalism. Seeing history as irreversible and capitalism as the end of history results from the weakening of our imagination and capitalism's flexibility, adaptability and increasing sphere of influence, like a giant snowball that swallows everything on its way. If we can't get outside of it, how can we kill the monster from within? The trick is expanding the scope of possibilities. Alienation does not necessarily produce alienated consciousness; it also produces the possibility of becoming conscious of alienation. The former way leads to the politics of resentment ranging from cynicism and nihilism to the New Right and Social Darwinism. The latter way leads to a politics of indignation as expressed in new social movements such as Black Lives Matter, ecology movements, Defending the Commons, Right to the City, Nobody is Illegal, etc.

What mainly differentiates Nietzsche and Marx is their two opposite interpretations of Hegel's master-slave dialectics. This eventually leads to two ways of becoming political agents: through resentment, or through indignation respectively. Although Nietzsche disapproves of the reactionary feeling of resentment and Marx disapproves of making a merely moralistic critique of capitalism, somehow their accounts strengthen the shadows they try to repress.

In the first stage of Hegel's master-slave dialectics, two self-consciousness subjects confront each other and engage in a life and death struggle for recognition. This contrasts the Kantian and liberal assumption that all people are born as subjects with free will and innately have dignity. Hegel's master-slave dialectics takes place in a hypothetical pre-social setting and asserts that one is not born a subject but can only become a subject through struggle, through risking everything.[2] Becoming a subject requires proving to oneself and the other that they value freedom and recognition more than even the instinct for survival. This is why at the end of the first stage, the one who yields to fear of death becomes the slave and the one whose need for recognition overcomes the instinct for survival becomes the master. The master is now free and has power over the slave. But everything is reversed in the second stage when the slave's subjectivity changes through fear, service and work. Through fear and service, they are forced to overcome their selfishness; through work they become both aware of their productive capacities as well as conscious that it is actually the master who is dependent on their work and that it is unfair that the one who does all the work is treated like an object, rather than being recognised as a subject. This consciousness of alienation is the turning point for the slave's rebellion to construct a world in which there are no masters and slaves, so that everyone can have equal recognition.

2. Ashraf Mansour, "Hegel's Critique of Liberalism and Social Contract Theories in the Jena Lectures" https://www.marxists.org/reference/archive/hegel/txt/mansour.html

Here, we have a dialectical, but very optimistic, story about the emergence of a new political agent, who both transforms themself and the world by destroying social hierarchies. Two immediate questions come to our minds: why does the former slave not want to become the new master and take revenge on their former master? Wouldn't the master prevent the slave from rebelling or destroy the rebellion in its initial phases?

In her book *Hegel, Haiti and Universal History* (2009), Susan Buck-Morss claims that Hegel was inspired by the Haitian Rebellion in 1804, the first big victory against colonialism. Hegel's master-slave dialectics is a part of his book *Phenomenology of Spirit,* which was published in 1807, the year when slavery was abolished in Britain.[3] Hence, that slaves overcome masters is not merely a thought experiment or a utopian construct but a historical fact, since the leader of the Haitian revolution Toussaint L'Ouverture and revolting slaves defeated French, Spanish and British forces. It is a tragedy of history that years later Haiti has become one of the poorest countries, suffering under dictators that support new colonialism: it was the former masters who took their revenge, not the former slaves.

Nietzsche's story about the slave revolt in morality, in his book *Genealogy of Morality* (1887), is the very opposite of Hegel's optimistic account. It shares the same cultural milieu with the bourgeoisie, who became conservative after the 1848 revolutions. Nietzsche's aristocratic individualism proposes that the historical origins of the good-bad distinction was the masters being proud of themselves and their feeling contempt for the common people. This is why 'good' was originally a self-affirming word and 'bad' only meant 'not worth considering'. The slaves, or rather all the common people were simply invisible for the aristocrats in the first stage of master-slave dialectics. Christianity with its egalitarian doctrine that all people are equal before God, praising humility rather than pride, telling people to 'turn the other cheek' rather than fight, was the beginning of the slave revolt in morality, which led the master's notion of the 'good' to be transformed into 'evil' in the new humanitarian value system. This reversal of the traditional values, blaming masters for their oppression of the slaves, led to the emergence of concepts such as free will, guilt and moral responsibility. This was the slaves' deceitful revenge on the masters, making them feel guilty for their deeds.

3. For Hegel, slavery is a necessary stage in the history of nations. Hence, it is relatively justified. "This subjugation of the slave's egotism forms the beginning of true human freedom. This quaking of the single, isolated will, the feeling of the worthlessness of egotism, the habit of obedience, is a necessary moment in the education of all men. Without having experienced the discipline which breaks self-will, no one becomes free, rational and capable of command. To become free, to acquire the capacity for self-control, all nations must therefore undergo the severe discipline of subjection to a master [...] Slavery and tyranny are therefore in the history of nations, a necessary stage, and hence relatively justified. Those who remain slaves suffer no absolute injustice; for he who has not the courage to risk his life to win freedom, that man deserves to be a slave; on the other hand, if a nation does not merely imagine that it wants to be free but actually has the energy to will its freedom, then no human power can hold it back in the servitude of a merely passive obedience to authority." G.W.F. Hegel, *Philosophy of Mind* (Oxford: Clarendon Press, 1971), p. 175.

However, just as a bird of prey cannot be blamed when it kills a lamb, a master cannot be blamed when it merely expresses their power through violence. Hence for Nietzsche, the spread of humanitarian values is a sign of decadence, rather than moral progress. The masses can be sacrificed for the emergence of the 'overman'; this is real progress for Nietzsche. Although he claims that resentment and not contempt poisons the soul, his account is full of resentment against the Christians, liberals and socialists. It is a reactive attitude, full of nostalgia for the old aristocratic values, just like the contemporary increase in racism and misogyny is a backlash to the victories of the social justice movements from the 1960s.

Let's now link these two opposite interpretations of the master-slave dialectics with the films *Fight Club* (1999, David Fincher) and *Sorry to Bother You* (2018, Boots Riley). In *Fight Club,* Tyler is the master who has overcome his fear of pain and conformism, and Jack (Tyler's alter-ego) is the slave, addicted to consumerism. It is the master which liberates the slave, in contrast to Hegel's story where the slave liberates everyone.

On the other hand, similar to Hegel and Marx, the awareness of un-freedom in the film, i.e., being a discontented slave is the first step in liberation. The dissolution of stability is the second step. In Tyler's words "only after you have lost everything, you are free to do anything". This theme of being reborn from one's ashes is a theme common in Marx and Nietzsche. For Nietzsche 'the enemy that cannot kill me makes me stronger' and for Marx workers can become revolutionaries only when they have nothing to lose but their chains. It is also expressed in the widespread motto in various social justice movements: "they tried to bury us, they didn't know we were seeds." Not seeing oneself as a victim and transforming one's pain into revolutionary action is essential for liberation.

2 PSYCHO-POLITICAL IMPLICATIONS: ALIENATED CONSCIOUSNESS VERSUS CONSCIOUSNESS OF ALIENATION

"Marx said that revolutions are the locomotive of world history. But perhaps things are very different. It may be that revolutions are the act by which the human race travelling in the train applies the emergency brake."[4]

Applying Benjamin's metaphor of 'emergency break', individuals in periods of crises are faced with two possibilities: alienated consciousness and consciousness of alienation. The first one is a self-defence strategy, either trying to convince oneself that everything is ok, denying that we are on a train moving fast towards an abyss, being indifferent to miseries and catastrophes, living life on auto-pilot mode. The second is like the existential attitude of a direct confrontation with despair, rather than trying to escape from it. This is why for Marx alienation is not the opposite of freedom and self-realisation, but rather the precondition for liberation because it has the potential of creating new subjectivities (new forms of life) that could initiate revolutions and form a new society. Thus, the real revolution is becoming somebody else and creating new communities.

According to Marx, not only the workers but also the capitalists are alienated: with the reduction of all needs to the need for money, and the reduction of reason to instrumental reason, commodity fetishism leads to one-dimensional people and to the loss of a sense of community. Alienation is not the loss of an authentic human nature, but rather the contraction of the self. When one is preoccupied with selfish interests, one is unaware that supporting the freedom of others is essential for one's own freedom. We are our worlds, the more we care about others, the more expanded our self becomes.[5]

4. Walter Benjamin, Paralipomena to 'On the Concept of History', in: *Selected Writings,* Vol. 4: 1938-1940 (Cambridge: Harvard University Press, 1996), p.402.

5. "In most people a capacity for the nobler feelings is a very tender plant that is easily killed, not only by hostile influences but by mere lack of nourishment; and in the majority of young persons it quickly dies away if their jobs and their social lives aren't favourable to keeping that higher capacity in use. Men lose their high aspirations as they lose their intellectual tastes, because they don't have time or opportunity for indulging them; and they addict themselves to lower pleasures not because they deliberately prefer them but because they are either the only pleasures they can get or the only pleasures they can still enjoy." John Stuart Mill, *Utilitarianism* (Oxford: Oxford University Press, 1998), p.7.

The alienated consciousness does not feel alive, since it finds nothing worth striving for, since the previous ready-made goals seem meaningless now. In his book *Capitalist Realism,*[6] Mark Fisher explains the psycho-political symptoms of the current age where the future seems to be cancelled, where it is easier to imagine the end of the world, than it is to imagine the end of capitalism. The consumer-spectator with an ironic distance to the world's problems is like "the perspective of a depressive who believes that any hope is a dangerous illusion." Fisher continues "Capital is an abstract parasite, an insatiable vampire and zombie-maker; but the living flesh it converts into dead labour is ours, and the zombies it makes are us." Fisher gives four examples on why capitalism is dysfunctional: environmental catastrophes, the mental health plague, bureaucracy going off the rails and the crisis in the education system. Here, I will only focus on the second, the mental health plague. Fisher explains depressive hedonia as the "inability to do anything else except pursue pleasure" which is a consequence of people being squeezed between their worker roles as subjects of a disciplinary society and their consumer roles, which leads to the fragmentation of subjectivity. Depressive hedonia is based on the ideological fantasy that "wealth is the key to fulfilment and anyone who works hard can do it". This is exactly the condition of Jack in the first part of the film *Fight Club,* which I will henceforth call 'alienated consciousness'. Even though he is the perfect consumer and the ideal submissive worker, he cannot feel alive and is stuck within his boredom.

6. Mark Fisher, *Capitalist Realism: Is There No Alternative?* (New Alresford: Zero Books, 2009).

Let us trace the three crucial steps through which he transforms from a spectator-consumer to an engaged political agent. First, the old should be destroyed to open up space for the new; he is saved from his addiction by spending money — 'buying the commodities that best reflect himself' – when Tyler blows up his flat. Then he gets rid of his 'submissive worker' role when he stands up to his boss and shows how dangerous he can be. Thirdly, he invents a new organisation, namely 'fight clubs', where people can experience struggle and pain as liberating and distance themselves from the fetish of happiness and security. There is a clear transformation of his subjectivity, but why call it the emergence of political agency? Every attempt to go against social norms and turn oneself into a declaration of this rebellion is a case of political agency. Hence, political agency only emerges when there is a challenging of the boundaries. For example, starting from summer 2022, climate activists, in particular a group called Extinction Rebellion started a new kind of protest by gluing their hands to famous paintings in museums in cities such as Florence, Madrid, London and Copenhagen. This form of protest is intended to make the audience aware that they value masterpieces more than they value preventing climate crisis. I think this is the message they are trying to give: 'Not only art, but also nature is sacred and you are merely passive spectators of the destruction of nature. You are pretending that everything is normal, when we are at the edge of mass destruction.' This 'desperate' call for making people confront the tipping point, the point of no return, contrasts the figure of a passive, law-abiding citizen. Not violating other's rights and voting once every four years is not sufficient to be a political agent. Transformative experiences are essential.

Frederic Lordon, explains the dynamics of voluntary servitude by depicting capitalism as a "co-linearisation machine".[7] Workers align with the master's desire and try to achieve the love of their bosses, in an "amorous search for recognition". This is why capitalism needs the production of normalising desires, in other words "the veil of joyful affects against the backdrop of sad affects". It promises 'self-fulfilment' and rising above one's class for those who comply and threatens people with invisibility and being perceived as trash for those who don't comply with the Performance Principle. Overcoming capitalism is possible only if counter-desires and emotions are produced that lead workers to rebel. In contrast to Marx, it is not a matter of workers gaining class consciousness but rather having new subversive desires, a collective "becoming-orthogonal" that would reduce the power of the master desire. Lordon says: "Spinoza calls this affect, generically, 'indignation'. It is not a moral but an eminently political affect, which drives the subjects to unite in revolt in the wake of an offence, perpetrated as it may be against only one of them, but which they experience as concerning them all."

7. Frédéric Lordon, *Willing Slaves of Capital: Spinoza and Marx on Desire* (London/New York: Verso, 2014).

Alienation for Lordon is not a loss of power but rather a contraction "the fixation of one's power on very limited objects assigned by the master desire" just like the case of a drug addict. This is in line with Marx's claim that capitalism reduces all needs to the need for money, so exchange-values dominate over use-values. Spinozist freedom is the power of affecting and being affected. This is very similar with Marx linking freedom with the emancipation of sensibilities and the emergence of universal individuals who are rich in their needs. Our needs do not only represent our vulnerabilities and dependencies but also signal different ways in which we have to form new connections with others and nature. "Becoming hateable while striving to make itself liked, capitalism spreads discontent and feeds the common passion by which a multitude could come together" says Lordon.

3

POLITICS OF RESENTMENT VERSUS POLITICS OF INDIGNATION

Can a standpoint which liberates the individual be detrimental when applied to a social group? To approach this question, let me first compare the two forms of political agency between two social groups in *Fight Club.* The first group are the participants of flight clubs themselves. Fight clubs, where men met secretly once a week to engage in combat with each other, served to test the limits of how far they could endure suffering as well as a providing a means for improving their capacity for self-defence. Fight clubs were very effective in increasing the participants' self-esteem and overcoming their fear of pain: the fighters became stronger (physically and mentally) and achieved a sense of community, a feeling of being special and non-conformist, strengthening both their sense of individuality and sense of belonging. In contrast, the second social group, the Space Monkeys, who are members of the organisation Project Mayhem, completely lose their individuality, becoming reduced to numbers, docile soldiers and pieces of a war machine. In the film, members of Project Mayhem bomb seven symbolic buildings in order to 'crash the system'. Their goal is to destroy capitalism and start civilisation from scratch, assuming that these bombings would erase the entire financial debt of the population – an act that seemed to be more efficient than joining fight clubs.

However, contrary to the kind of strategy presented by Project Mayhem, I believe such actions only make a state of emergency more likely, increase surveillance and fuel the rise of more authoritarian governments. This is the point where the tension between politics and ethics is revealed. If politics has priority than ends could justify the means, if ethics has priority, no political goal can justify the killing of innocent people. It was exactly this debate that turned Sartre and Camus into enemies. Is revolutionary violence ever justified? If yes, in wars of independence against colonisers, then why not in the case of anti-capitalist struggles? Isn't structural violence involved in both colonisation and capitalism?

I want to argue that the transformation of alienated consciousness into consciousness of alienation is always liberatory for the individual, but not always for a group of people, if they engage in a politics of resentment. In *Fight Club* the individual liberation occurs through two phases of Jack's identity crisis: from his former consumerist self, and from his alter-ego Tyler. If we translate these ideas from the fictional realm to our world, then I believe there would have been no corresponding collective liberation. In real-life fight clubs would have been commercialised, and the outlet for people's frustration domesticated and contained.

In the film *Sorry to Bother You* the individual liberation of Cashius (Cash) Green is through his moral awareness of the price of rising above his class, his humiliation by the boss at the party and most importantly, his accidental witnessing of the suffering of a half-horse half-man. The narrative focusses, on WorryFree – a giant company, which uses 'voluntary' slave labour – it provides 'free' accommodation and daily meals for workers working in the nearby factory. The company plans to make their workers more profitable (both stronger and more obedient) by transforming them into hybrid 'Equisapiens' through the snorting of a gene-modifying powder. The most shocking part of the film, for me, was Cash's realisation that knowledge of truth was not sufficient to make people protest 'worry-free' that humans were being turned into horses. On the contrary, the company is hailed as pioneering and its stock increases in value to an all-time high. Another important theme of the film was about how the public loves seeing people humiliated. A video of Cash, who is wounded after being hit by a Coke can goes viral in social media and he goes through a humiliating experience appearing on a TV show. I recently learned that there is a word in German to describe this emotion. Schadenfeude: experience of pleasure when witnessing the humiliation of another person. There is an intrinsic connection between the rise of new fascisms and the resentment against feminists, socialists, LGBTQ+ and immigrants, who are all declared as scapegoats. Lumpen capitalists like Trump and their followers, who are ignorant of their class-position and hypnotised by the dream of making their country great again, are not specific to the USA. A similar political landscape exists in Brazil, India, Hungary and Turkey.

The film *Sorry to Bother You* was described by its director Boots Riley as an "absurdist dark comedy with magical realism and science fiction". Because it was mixing different genres, passing from comedy to horror in less than a minute; it was very effective in showing us why we are not shocked by such horrifying events, just like 'in your face' theatre. Even though it was a dark comedy, it had an optimistic ending: to achieve collective freedom, it is not necessary to wake everyone up. The collective struggle of an engaged minority – those people who care for the suffering of others – is enough. In the film, trade unionists, avant-garde artists, disillusioned managers, football players and horsemen form an intersectional rainbow coalition. *Schadenfeude* is just the opposite of feelings of indignation, which I claim to be essential for uniting different groups, suffering under the same economic system. The current anti-capitalist struggles are fuelled by a deep sense of injustice. Intersectional accounts acknowledge that class struggle versus identity politics is a false dilemma since class is always mediated by race, gender and ethnicity. It is a form of humanist politics of indignation. But after the ecological crises became dominant in the last decade, and immigrants become the new scapegoats, the humanist aspect has weakened. It now has the dangerous potential of transforming into another variant of politics of resentment, as in the case of eco-fascism and anti-natalism.

Losing specific battles could still be victorious when considered from the perspective of the bigger picture and extended timeframe, because not yielding is in itself a victory. In contrast, if one assumes that a goal is justified by any means, winning the battle in the short-term may imply a loss in the long run (if one has acted in contrast to their moral principles). The former makes parallels with the politics of indignation, which calls for means which are morally suitable to the goal. On the other hand, the latter corresponds more to a politics of resentment, which aims to destroy 'the enemy'. In the metaphorical sense we can understand this as aiming to reverse the role between masters and slaves, rather than abolishing slavery altogether.

Politics of indignation can be seen in practise, from the protesters against Worry Free in *Sorry to Bother You* to the contemporary Extinction Rebellion activists. The activists continue to fight, even though, from the perspective of the 'ordinary citizen', they seem only to engage in futile and 'irrational' activities exhausting their energy by battling ruling groups. The following sentence by Paulo Freire exemplifies the real benefits of subversive practices: "One of the conditions for continuing the struggle against a dominating power is to recognise ourselves as losing the fight, but not as defeated."[8]

8. Paulo Freire, *Pedagogy of Indignation* (Oxfordshire: Routledge, 2005), p.23.

DANDELIONS

Subject of poetry and
gardeners' nightmare.
Resilient and fragile.
They have a short life span,
but resurface in even greater
numbers with just one blow
of the wind.

Dandelions are photogenic.
In pictures, they resemble
a constellation of stars.
When brought indoors,
they wilt fast. It's sad to see
them go, and you feel guilty
for bringing them in.
Wild flowers belong in the
open air, they must be free.

Elena Siemens

https://doi.org/10.25364/978390337428718

UNKNOWN

Erëmira Çitaksu

State of uncontrolled ambition,
Every move arouses suspicion.
Waiting for an indication to continue,
To do something that attracts attention.
Inability to rationalise,
Comparison with others.
Unrealistic assessment of the future,
Possible achievements.
Imbalance that can only be cured by Care, Sincerity, Love, Understanding,
So we can edit the fictional mind,
So we can find the right meaning,
So we can choose the right way,
To explore the unknown,
What we can overestimate,
What they owe us,
Or what we owe them!

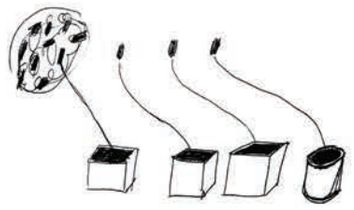
Medusa appeared
After the lunar nights,
Before time marches on.
It metamorphosed us into stone,
And gave meaning to the present and the past.
To know the Force, Before Exit, Losing the pain…
We are already alarmed, petrified, and scared…
Prepared as much as we can, in the face of the unknown historically!

https://doi.org/10.25364/978390337428719

I encourage you to:
cut or tear in indicated area
wrap around your wrist
secure
read.

Kateřina Kuchtová

Tsitra delivers solutions to where they're needed



a tsitra job listing

job description: delivering practical solutions to where they're needed
workload: variable
qualifications: at least five instances of *trallams* completed in the previous year

trallams

broadening of one's perspective when making decisions about anything, it all depends on the circumstances of its origin – what *trallams* is in some instances is a regular task during other times, it occurs every day, everybody has the potential for creating *trallams*, everyone has their own approach, some approaches are similar

All people do what they like and make it their living. That's all thanks to stsitra through which *trallams* is made, whenever a decision needs to be made about people, nature or the public space. Bullshit jobs and low paying work gradually disappeared because stsitra sit on councils, which make decisions about new jobs and through *trallams* won't allow these positions to exist in the first place. The job position of a tsitra can be found mainly in state administration, but it is starting to appear in the private sector as well because it helps to prevent spendings related to fixing mistakes. Multinationals especially like this job position because in companies of their size it's easy to overlook the effects their business has on the world; stsitra help to straighten their whole manufacturing process.
There used to be similar positions in the past – for example experts on public participation, artists in residence, project coordinators of municipalities or public relations specialists. Now, we have them on various levels of state administration (and also in corporations), they mainly serve to assure social and environmental justice. Stsitra also make sure that nobody is left out – everyone will get enough money to be able to do their job. Tsitra think of / intuit how it is possible for someone in power to ignore the needs of others and harm them, and through *trallams* show those in power a way in which to stop this harm. Once a year, stsitra meet at a conference where they exchange know-how. Tra in practice!

Now read the strange words backwards.

https://doi.org/10.25364/978390337428720

IMAGES

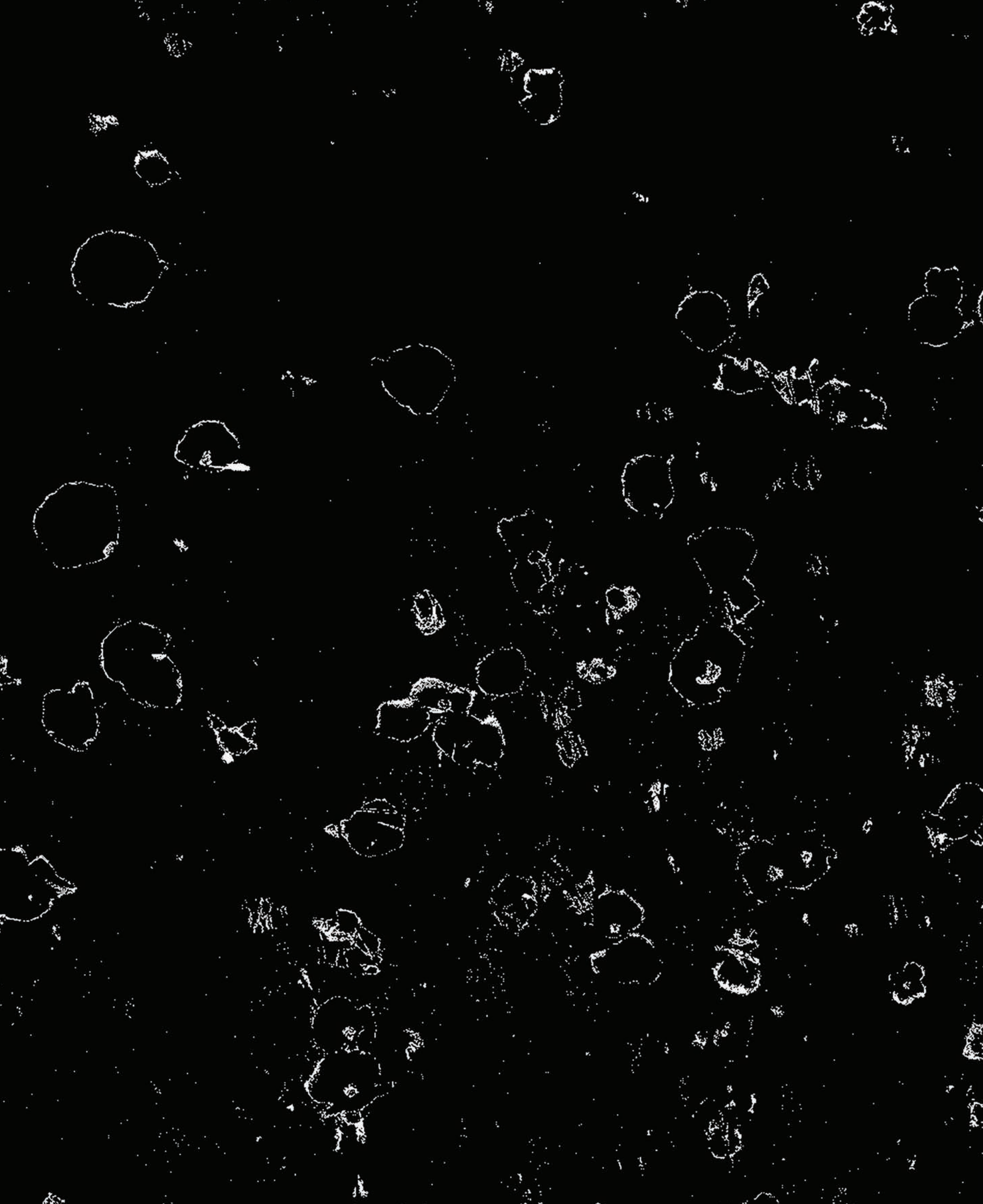
p. 55: Paul Klee, *Angelus Novus* (Israel-Museum Jerusalem, 1920).

p.60: Marcel Duchamp, *À l'Infinitif* (La Boîte Blanche, 1966).

pp. 12-13, 26-27, 46-47, 64-65, 74-75, 90-91 and 106-107: stills from *Deep Fields*, a video from Angela Detanico and Rafael Lain.

ACKNOWLEDGMENTS

We would like to thank the participants who attended the workshop *Mapping the Irreverse* at the Meerscheinschlössl in Graz, Austria for the convivial and stimulating debate (Juana Jara Bermejo Vega, Erëmira Çitaku, Angela Detanico, Sandro Gorgone, Yelena Guryanova, Nino Kapun, Labinot Kelmendi, Iordanis Kerenidis, Rafael Lain, Maximilian Lock, Laurin Mackowitz, Lindsey Nicholson, Markus Penz, Debra Benita Shaw, Yıldız Silier, Su-Mei Tse, Carla Zaccagnini). We would also like to thank Nino Kapun, Kanita Kovačević and all the administrators at the University of Graz and the State of Styria for their support throughout the process, as well as Martine Aboucaya for receiving the Irreverse in Paris. Finally, we would like to acknowledge the Blaumann Foundation and the initiative for Unconventional Research of the State of Styria for their financial support, without which this publication would not have been possible.



AUTHORS

Diana Bobb
born in 1989 in Bregenz, is a freelance illustrator and graphic designer currently living in Vienna. In the summer of 2023, she completed a 3-month artist residency at the Cité Internationale des Arts in Paris. Since her Master's studies in MultiMediaArt, she has been particularly focused on illustration. Her works are cross-media and created both digitally and analogically. She often uses gestures, body postures, and abstract elements to visualise ideas and create surreal image compositions. In her personal projects, she frequently addresses current themes, marginalised groups and femininity.

Erëmira Çitaksu
is a professor at the University of Pristina (as well as an innovative and experimental artist). Her poems and music integrate themselves very effectively in her spoken word pieces. She is always searching for different ways of self-expression as well as ways of giving voice to those who may never have the chance. Her poetry is political at times, romantic, even innocent. She has the freedom and will to push boundaries and expects excellence of herself.

Joe de Vivre
is a recovering physicist. He specialised in quantum gravity and held positions at Imperial College and Perimeter Institute. He now works in finance, focusing on the Energy Transition problem.

Hedwig Dejaco
born in Upper-Austria 1942, taught German and English at a secondary level night-school for adults. She obtained her PhD from the University of Innsbruck in 2005. With her research in the field of psychological processes triggered by associative and automatic writing she tried to open up new ways in teaching. Ever since she has been working with "writing-addicts" in private groups or courses.

Eugénie Desmedt
is a media artist and artistic researcher based in Vienna, Austria. In her practice, literary and theory-informed approaches merge with ideas shaped by her previous studies in physics, philosophy and economics. Her current research interest lies with the semantics of randomness.

Sandro Gorgone
is Associate Professor of Philosophy at the University of Messina. He also taught in several Universities in Europe (Freiburg, Heidelberg, Tübingen, Innsbruck). His research areas are: technology and modern subjectivity; ontology and temporality; humanism, geophilosophy and the philosophy of landscape. His research has been published in numerous articles and essays in collective books and in international scientific reviews.

Yelena Guryanova
is a theoretical quantum physicist. She obtained her PhD from the University of Bristol, UK in 2016 and has been based in Vienna, Austria ever since. Her research interests include causality, quantum thermodynamics and quantum nonlocality, which sometimes find practical application in experiments. In her free time she enjoys mountain-based activities, writing and learning languages.

Kateřina Kuchtová
is a visual artist. She works with possibilities, limits and (un)fairness tied to participation and political engagement, especially with everyday situations on the borders of the personal 'small' and the public 'big' world. She studies at the Academy of Fine Arts in Prague and spent a year at The Royal Danish Academy of Fine Arts in Copenhagen. In 2019, she co-founded a community centre Prádelna in Český Krumlov and currently she works in Socionaut. She likes to draw and walk.

François Mangeol
is a French contemporary artist. His works take a broad type of form, always looking for both a poetic and political approach. In an image-saturated world, he draws the outlines of a visual poetry of signs and languages. Through his semantic games he sets in motion both time and imaginaries. His work can be found in the international collections of the MAMCO - Geneva (Switzerland); the MACBA - Barcelona (Spain); the Fonds national d'art contemporain français FNAC-CNAP and the Kaiser Kunstmuseen Krefeld (Germany), among others.

BIOGRAPHIES

Angela Detanico and Rafael Lain

are French-Brazilian artists living and working in Paris. They explore the understanding and representation of reality through language, codes and visual systems. Their production navigates between typography, poetry, sound and image in different media, as a form of translation. The experience and conceptualisation of time emerge as a central theme in their research.

Laurin Mackowitz

is a philosopher specialised in the field of practical philosophy with an emphasis on the study of social and political philosophy, the philosophy of science, history, media, language, and aesthetics. He obtained his doctoral degree from the University of Innsbruck, Austria in 2017 and has worked at the University of Alberta, Canada and the University of Graz, Austria. His research focuses on the philosophy of progress, political metaphorology and the conjunction of art, religion and politics.

Roseanna Peppiatt

has worked in environmental consultancy and for a waste management company in Australia and the UK. Roseanna holds an MSc Geology from Cardiff University. Presently, she can be found running in hot pursuit of her toddler and claiming it as exercise.

Sabine Prag

lives in Innsbruck. She is a retired teacher of informatics and computer sciences and has been a passionate photographer for years. She also expresses her ideas by means of other media such as text, video, land art or natural materials. Her main topic is the existentialist human state of being thrown into the world, its perception and the individual's reaction towards it.

Néstor Román

or Peti, is many things, amongst others a writer. In 2019, his short stories «Helacyton Gartleri» were selected for the anthology Alucinadas, «Ignota» for the anthology Herstórlcas, from LES Editorial, and «Cabos sueltos» for the anthology Pollo de Goma, from Editorial Cerbero. His short story «Iteración» was part of the anthology Selya, by Lengua de Trapo. He is also a performance and installation artist. His collaboration with the COVEN BERLIN collective resulted in the creation of events such as BEDTIME, in Poznan, Poland, 2019, as well as Neodaddyism 100 at the School of Fine Arts in Prague.

Debra Benita Shaw

is an activist and academic based in the UK where she teaches critical theory and art history at the University of East London. She is a critical posthumanist with an interest in architecture, technology and the body and is also a literary critic specialising in science fiction. Recent publications include *Posthuman Urbanism* (Rowman & Littlefield, 2018) and *Women, Science and Fiction Revisited* (Palgrave, 2023). She is a member of the Antiuniversity Now collective, providing space for radical education in local communities. She is also a photographer and dancer.

Elena Siemens

is Associate Professor in the Department of Modern Languages and Cultural Studies, University of Alberta. Her research focuses on Visual Culture, Performance Spaces, Fashion photography, Creative Writing, and Critical Theory. Most recent publications include: You are Here: *The Personal Map Project* (2023), *Ole Nopea! Multilingual Writing, Google Translate, and the Polaroid* (2022), *The Traffic Lights Pop Up 3* (2023), *De-Icing, Structures of Anticipation* (2021).

Yıldız Silier

is specialised in social and political philosophy. She obtained her PhD from Kent University, UK, in 2003 and has been a lecturer in Bogazici University Department of Philosophy ever since. Her research interests include negative and positive conceptions of freedom, critical theory, philosophy as a way of life, philosophy in cinema, struggles for liberation, feminism, Marx, Spinoza and Rousseau.

Harun Šiljak

is a control theorist interested in computation, communication, and technology in society. He is an assistant professor in the School of Engineering, Trinity College Dublin, where he previously held a Marie Curie postdoctoral fellowship. His research connects concepts of complexity and reversibility with technological networks and systems. In his free time, he follows the advice of Mario Tronti and is at peace with himself, and at war with the world.

Carla Zaccagnini

(Buenos Aires, 1973 - based in Malmö) is an artist, writer and curator, currently Professor of Conceptual and Contextual Practices at the Royal Danish Academy of Fine Arts. In her practice, she uses strategies of displacement to question those ways of thinking, telling, seeing and depicting that have been understood as neutral, opening paths that can lead to other thoughts, stories and images and to other ways of acting.

What would a world in which events were reversible look like? Perhaps forgiveness wouldn't be requested, but automatically granted. Our material possessions might be spotless and untarnished and our bodies highly optimised, blemish-free. There would be no art to imperfection.

The experience we have of our surroundings is highly non-trivial precisely because we can't undo everything. When we retrace our steps we don't walk toe-to-heel, eyes cast over our shoulder and neither do we return to exactly the same place. Sometimes we cross a threshold unaware, like the moment in chess when we realise we have lost – we could have seen it coming, but now it's too late.

Unable to take everything back, we accept that in some sense we have to start again; we create coping strategies and innovative alternatives. We are immersed in irreversibility. How can we document it? As vocabulary in a dictionary or as appointments in a calendar? Can it be chronicled at all?

The Atlas of the Irreverse is the first attempt to map the irreversible world. It is a cross-disciplinary selection of works spanning science, politics, philosophy and art, depicting the dimensions, conditions and consequences of irreversibility. For every step backwards we find ourselves advancing many more forwards, into the Irreverse.