

Morphogenesis Of The Outside

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There are many ways to mix genres.

Hacking, blending, agitating, encrypting, intrincating, weaving, cyphering, entangling, percolating, un-dominating, representing, projecting, jamming, interlocking, exapting, knotting, blurring, smoothing, transforming the striated into the seamless, infinitizing...

And by genres, i mean genders, forms, categories, types, manifolds, cosmoses...

Genres are traditionally defined regarding different entities they resemble. They ex-ist out of these outsides. Their "shapes" are counter-forms. Therefore, investigating how they evolve and develop over time, space and scale would require an epigenetic **xenology**, the morphogenesis of the outside(s).

Accordingly an out-side implies an in-side. There is an inherent duality - dualness, dualism, difference, division, dissociation, diversion, dislocation - gravitating around genres. They are often perceived in our culture as **dimorphic** entities.

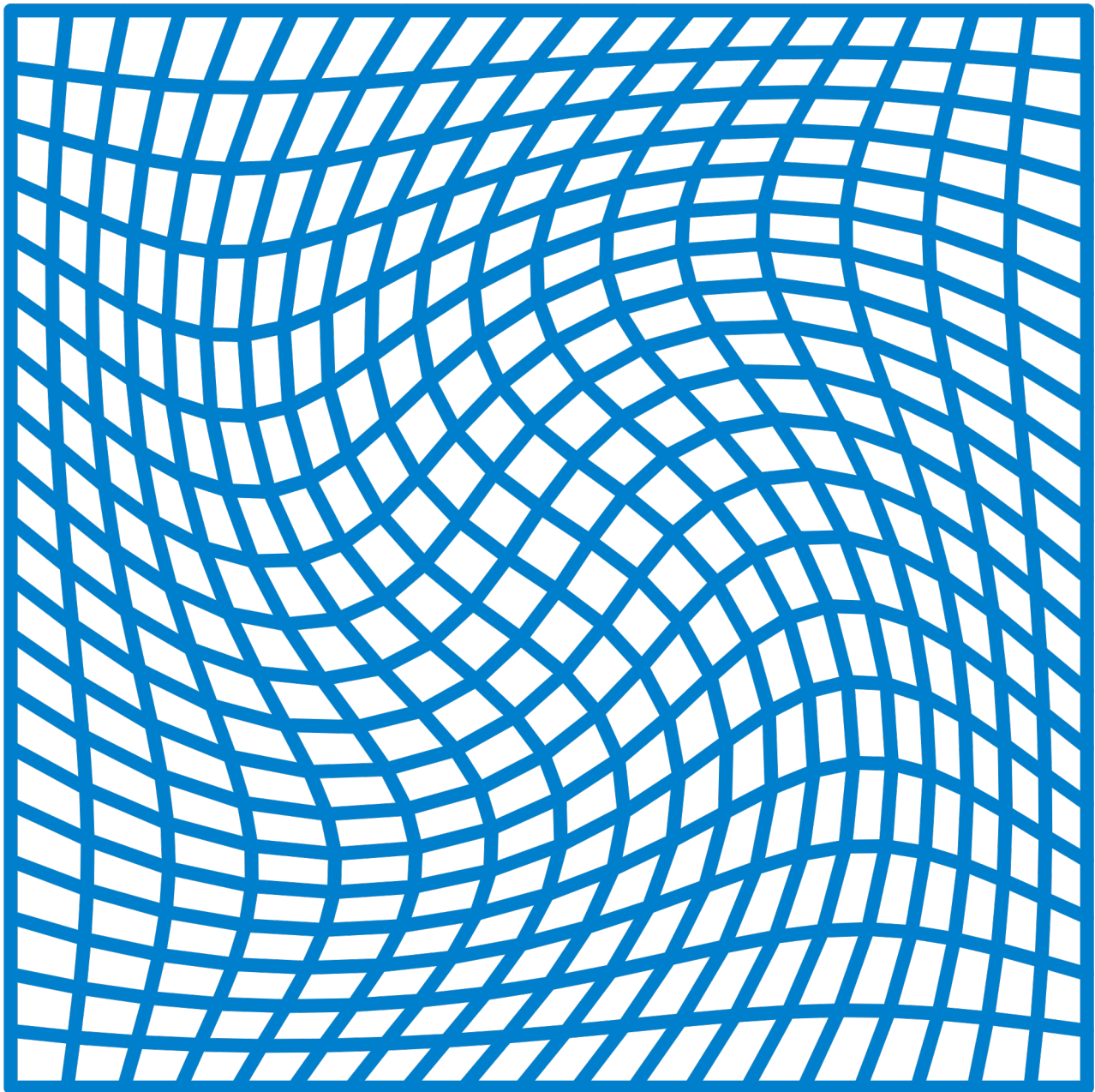
A cosmo-accelerationist remix of genres, a turbo genderfuck¹, would consist precisely in challenging sexual, conventional and traditional dimorphism. In that respect, i introduce libidinal and socio-cultural **diffeomorphism**. This term comes from a branch of mathematics called topology. A diffeomorphism - or differentiable homeomorphism - is an isomorphism of smooth manifolds. It is an invertible function that maps one differentiable entity to another.

Our hypothesis is double: this concept should help to understand how the "outside" could be seen as an homeomorph alterity, but also as a differentiable self. An **exaptive** recursive identity leading to a morphogenesis from the outside, an epigenetic feedback loop: a **diffeomorphogenesis**.

From a neoliberal perspective, there are many "outsides": fringes, marginal practices & people, avant-gardes, copyleft, so-called 'peripheral' countries, but also off-shore islands, transnational corporations and of course plants and animals in the anthropocene. How do these articulate with established socio-political core systems ? Which strategies arise when negotiating with power structures based on asymmetric secrecy, governance lock-ins and generalized copyright ?

We'll answer by exploring some practical ideas for the creation of experimental places, creative environments and institutional experiences based on recursive governance and diffeomorphic strategies to cope with **cryptopolitical** insides.

1 https://en.wikipedia.org/wiki/Gender_bender



The image of a rectangular grid on a square under a [diffeomorphism](#) from the square onto itself
[Oleg Alexandrov](#) - self-made with MATLAB - Source code ([MATLAB](#)) – License CC0 Public Domain

```
% Compute a diffeomorphism from a square to a square which leave
% the boundary fixed.

function main()

    N = 20; % num of grid points
    epsilon = 0.1; % displacement for each small diffeomorphism
    num_comp = 10; % number of times the diffeomorphism is composed with itself

    S = linspace(-1, 1, N);

    [X, Y] = meshgrid(S);

    Z = X; W = Y;

    % take num_comp compositions of the same small diffeomorphism
    for iter = 1:num_comp

        for i=1:N
            for j=1:N

                [Z(i, j), W(i, j)] = small_diffeo(Z(i, j), W(i, j), epsilon);

            end
        end
    end

    % graphing settings
```

```
lw = 2;
mycolor = [1, 0, 0.1];
small = 0.1;

figure(1); clf; hold on;
for i=1:N
    plot(X(:, i), Y(:, i), 'linewidth', lw, 'color', mycolor);
    plot(X(i, :), Y(i, :), 'linewidth', lw, 'color', mycolor);
end
axis([-1-small, 1+small, -1-small, 1+small]);
axis equal; axis off;

figure(2); clf; hold on;
for i=1:N
    plot(Z(:, i), W(:, i), 'linewidth', lw, 'color', mycolor);
    plot(Z(i, :), W(i, :), 'linewidth', lw, 'color', mycolor);
end
axis([-1-small, 1+small, -1-small, 1+small]);
axis equal; axis off;

function [z, w] = small_diffeo(x, y, epsilon);

    A1=epsilon*(cos(pi*x)+1)*(cos(pi*y)+1)/4.0;
    A2=epsilon*cos(pi*x/2)*cos(pi*y/2);

    A = (A1+A2)/2;

    z = x + (-y)*A;
    w = y + ( x)*A;
```

1. Xenology

The challenge with a proposition such as "the morphogenesis of the outside" is to establish which field or context is appropriate to frame it. It affords very different notions. Shape, space, time, scale, territory, philosophy, metaphysics, architecture, politics, biology, complex sciences, epistemology, inter-disciplines, but also pseudo-science, alchemy, theology, science of fiction, mythology.

The latter traditionally consider things, objects, entities outside of our realm. They preserve the integrity of the other - of the foreigner - by treating it/her/him as a stranger, an hostile enemy or, as a guest-friend, depending on the flavor. They propose an extended discourse on the xenos, the distant friend, outside of the local philos. Xenia vs Philia. Accordingly, I propose to adopt a xenological point-of-view in addition to a philosophical one.

Consequently, this leads to outsidings philosophy itself from our thinking. And, as a preliminary gesture, proceeding to its retreat. Allowing to recognize that if we want to immerse ourselves into the outside, we might operate first what religious poets call a TsimTsum, a dimensional contraction. Avoiding the void in a contracted refuge. Neither chaos nor order but a single entity intrincating them. A yod detached from the aleph. Philosophy as a singular dot in a scalar horizon of **Xenology**.

2. Morphogenesis of the outside

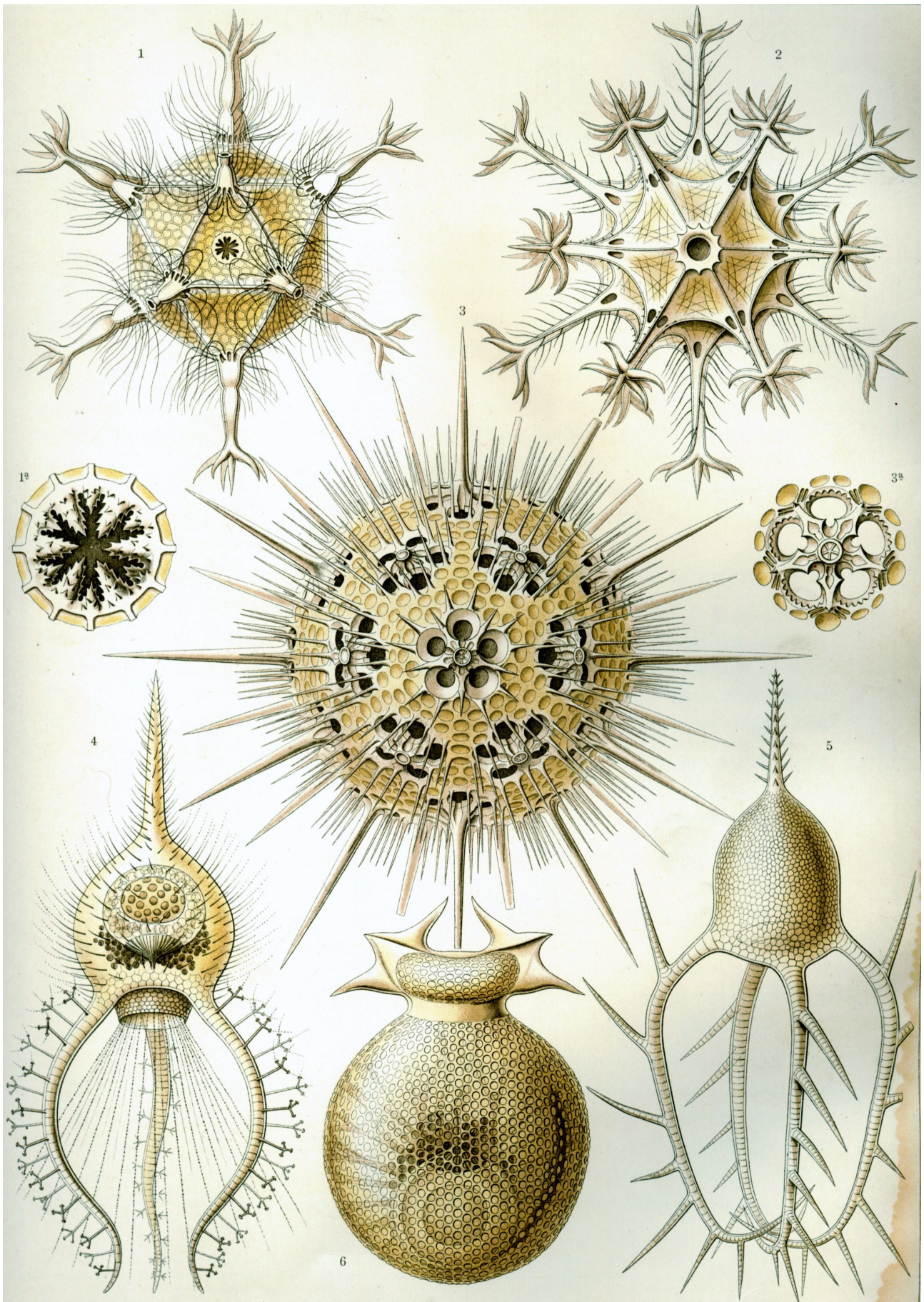
2.1. *Short history of the terms*

Morphogenesis refers to the way a shape arises, a form evolves over time or a being expresses its structure for instance in embryogenesis. In 1952, Alan M. Turing describes in his article "The Chemical Basis of Morphogenesis" how "systems, although they may originally be homogeneous, may later develop a pattern or a structure due to an instability of the homogeneous equilibrium, which is triggered by some random disturbances".

Few years before him, in 1917, the Scottish mathematical biologist D'Arcy Wentworth Thompson published a descriptive book on the physico-structural influences on biological form. Although he criticized the evolutionist approach from Darwin, he tackled morphostasis through mathematical morphogenesis, using simple geometric rules. Thompson analysed for instance the polyhedral forms of Radiolaria (protozoa developing a siliceous exoskeleton) from the Challenger expedition drawn by Ernst Haeckel in 1904. He inspired Turing but also Conrad Hal Waddington, a british developmental biologist, paleontologist, geneticist, embryologist and philosopher who laid the foundations for systems biology and epigenetics.

Dutch sociocybernetist Felix Geyer places Morphogenesis as the foundational brick of Complexity ² : "In stressing this possibility for self-organization, for "order out of chaos", Prigogine comes close to the concept of autopoiesis. In modern societies, the mechanistic and deterministic Newtonian worldview - emphasizing stability, order, uniformity, equilibrium, and linear relationships between or within closed systems - is being replaced by a new paradigm.

2 <http://www.critcrim.org/redfeather/chaos/006challenges.html>



Ernst Haeckel - [Kunstformen der Natur](#) (1904), plate 1: Phaeodaria – License Public Domain CC0

Circogonia icosahedra (Haeckel) = *Circogonia icosahedra* Haeckel, 1887 (1a: opening of shell) *Circostephanus coronarius* (Haeckel) = *Circostephanus coronarius* Haeckel, 1887 *Haeckeliana porcellana* (John Murray) = *Haeckeliana porcellana* Murray, 1885 (3a: pore circle without spines) *Cortinetta tripodiscus* (Haeckel) = *Cortinetta tripodiscus* Medusetta tetranema (Haeckel) = *Medusetta tetranema* Haeckel, 1887 *Challengeria murrayi* (Haeckel) = *Protocystis murrayi* (Haeckel, 1887)

This new paradigm is more in line with today's accelerated social change, and stresses disorder, instability, diversity, disequilibrium, non-linear relationships between open systems, morphogenesis and temporality. Prigogine indeed calls it the science of complexity. It is exemplified amongst others by Prigogine himself, Maturana and Varela, Laszlo and "second-order cybernetics" in general: i.e. the (non-mechanistic) study of open systems in interaction with their observers."

Today, in biology, it's considered that animal markings, segmentation of animals, phyllotaxis, neuronal activation patterns like tonotopy, and predator-prey equations' trajectories are all examples of natural patterns constructed through morphogenesis. Similarly, in other scientific fields, phenomenas and entities such as Belousov-Zhabotinsky reactions, Liesegang rings, Bénard cells, Lasers, cloud formations in stripes or rolls, ripples in icicles, washboard patterns on dirtroads, dendrites in solidification, liquid crystals, solitons, sphere packing and cellular automata are examples of morphogenesis.

The notion of outside is even more difficult to firmly grasp. If we consider that a side can be a flat outer surface of an object, especially one that is not the top, the bottom, the front, or the back; an edge or border of something; a place next to something. The outside is therefore an out side of something. Over its edge, beyond the next entity close to it or an alternate surface to its own.

This very short history would of course welcome a thorough philosophical assessment of the concept of Outside but also of Form, Evolution, Becoming, etc.. Nonetheless, I tried to register these terms in a different context than mine, my subjective one, which we will see next is somehow distant to historicity and traditional philosophical linearity and rational causality.

2.2. Short speculation on the terms

Morphogenesis

From a linear point-of-view, morphogenesis is the accountable difference between different states of a form. The evolution or reception of diverse segments. Different forms browsed in a versatile repertoire of sequenced dimorphisms. From a xenological point-of-view, morphogenesis is neither a bottom-up structural accretion nor a top-down theological revelation. It is a recursive metaphor across perpetually generating spaces, times and scales. Patterns as invariants in a multidimensional operation.

Outside of what ?

1. void -> tohu-bohu / tsimtsum / fiat lux /
2. universe -> 4-manifold contingent non-metaphysics
3. a sheet of paper -> diffeomorphism
4. cybernetics -> self-referential cybernetics
5. masculine rational advantage -> feminine xenological alliance
6. verbal language -> iconic & enactive expression
7. cryptopolitical power -> supranatural propitiatory talent

2.3. What other concepts have been associated with it?

2.4. In what ways has this concept affected the lives of species?

30000 years from Eric Gunther and Jeff Lieberman

Iridescence

Camouflage

Transparency

Crypto-capitalism

Power

Shamanism

Playing

2.5. From Dimorphism to Diffeomorphism

How might this concept be changed to work better?

- Morphogenesis of an outside: separated evolution, growth → epigenesis
- Morphogenesis from the outside: intrication, entanglement, co-constitution → Diffeomorphogenesis

3. Diffeomorphogenesis

By what kinds of evidence can the proposition be proved or disproved ?

Can we prove that there is a diffeomorphogenesis ?

Can we disprove it ?

4. What counter-arguments must be confronted and refuted ?

5. Practical implications

5.1 Introspective creativity

The value of creative, scientific, artistic, pedagogical, technological knowledge is essentially defined in terms of its quantitatively predictable impact. In a modern world, this impact is measured with KPI's : Key Performance Indicators. They are often financial, directly convertible into a currency or monetary value, but in other cases they can be socio-political - jobs created, the amount of visitors in an exhibition, a theater performance, the span of a social network – or even ecological, aesthetic, cultural, spiritual, emotional, cognitive-behavioural...

In addition to these indicators, we could imagine to manifest how much an art piece or performance, a scientific experiment or apparatus, knowledge on how to take care of a plant, build a house or a computer is valuable for itself, for oneself, in a self-referential fashion. We could proceed to a diffeomorphogenetic examination and describe how this particular micro-

universe is composed without necessarily trying to convert its xenological structure to a known one. Preserving its unique, singular, genuinely differentiable qualities. Resist the temptation to compare, integrate or project only a fraction of the shadow of its inherent light.

One consequence of introspection is the necessity of allowing many ways to understand, observe, make accountable the inner and systemic entities in the systems at stake. This leads to many paradoxes. On the one hand, the outsideness should be preserved, on the other hand, its differentiable qualities should be characterized. One outside calls for another one.

An example of this paradox is common in the so called "Free" Software world. This movement also called Copyleft or Libre culture initiated by Richard Stallman in the eighties is based on four freedoms:

- The freedom to run a program as you wish, for any purpose (freedom 0).
- The freedom to study how a program works, and change it so it does your computing as you wish (freedom 1). Access to the source code is a precondition for this.
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to distribute copies of your modified versions to others (freedom 3). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

Copyleft, Free, Libre culture demand a full disclosure of the building blocks of software. Access to source code is a necessary condition for two of the freedoms: freedom to study and modify program (F1), freedom to redistribute a studied and modified program. The paradoxical consequence of this precondition is that it allows everyone to inspect source code not only in the prospect of celebrating its ingenuity but also very often in the idea of layering a financial, social or symbolic added value out of it without a reciprocal gesture towards people who shared their secret of fabrication in the first place. This is why secrecy was the longtime preferred method for protecting the value of something. Initiatic societies were for instance architected around restricted knowledge.

Libre culture is rooted in a exoterritorial (Patent Law, Copyright, Trademark) attempt to overcome the esoterritorial (Secret of fabrication, Sacred culture, Initiation). The difference when it comes to software compared to other forms of cultural production is that there remains a certain form of technological barrier. How many people know how to compile a source code ? Likewise, how many people would know how to read and reproduce an experiment published in Nature ?

In contrast, a text such as this one, a song or a visual presentation of concepts can be easily "used" without requiring a complex technological knowledge. The source code is the document itself. It can be easily retro-engineered. No need for a compiler, twenty years of piano playing or visuo-motor training practicing to commodify it. Of course, this is unethical, it does not respect the otherness of the others who spent existential tokens, space, time, ingenuity and energy to give form to such or such production. The paradox, the price to pay for introspection is to let anyone speculate on the fruits of your own production and therefore be to some degrees your competitor, your enemy.

But what if this enemy is a xenological one, could it be in the same time your philosophical ally ? What if its outside would define your inside? What if the

operation of seducing you, diverting you from your own profit would bring a different kind of profit, at a different scale, on a different plane, in an other dimensional surface? Although I surf here very close to an onto-theological wave(!), what if the differentiable homeomorph relationship that bind you to your un-allied competitors would be characterized and carefully examined and taken into account as an alternative to KPI's ?

Enforcing this proposal on a legal perspective would be first useless if not a waste of time and money. However, from a technological point-of-view, many decentralized systems could semi-automatically help to compute the global resonance of copyleft/libre cultural production items in a global camouflage neoliberal cryptopolitical economy. Libre crawlers compiling the libre intergalactic network fantasized by J.C.R Licklider and populated few years before him by Von Neumann universal constructors³. Diffeomorphogenesis analysis tools wandering across the different dimensions of the neoliberal universe, reuniting instances from their copyleft prototypes.

5.2 Recursive places

Beyond crypto-politics and fake talent shows

Feedback governance

Outside europe, Outside the body, Outside institution, Outside capitalism and neoliberalism.

5.3 Institutional experimentation

Outside-In places: recursive governance

Introspective creativity, copyleft, non-ecclesiastic free software, bioware and hardware.

Inside-Out institutions

3 https://en.wikipedia.org/wiki/Self-replicating_machine