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Speaking of Šum, the question is not whether the concept of parasite fits, but rather which of its faces can inform future trajectories without falling into trite patterns of the past. Sure, Šum as structural noise, disturbing institutional channels; sure, Šum as eternal guest, feasting at the institutional table. That much is self-evident. But perhaps also Šum as the exchange interface between seemingly incompatible spaces (of reasons): science and myth, theory and tale. A cross-chain protocol proceeding block to block—issue to issue—by diagonalising itself and (its place in) the world at each iterative step along the way, writing “a logic considered irrational up to now, a new epistemology and a new theory of equilibrium”.⁰¹

In his attempt at theorising this relentless engine of creation, Keith Y. Patarroyo borrows from genetics, economics and thermodynamics amongst other fields to arrive at an intensely interdisciplinary idea of creation as combustion: one and same with life and love. Antipodal to this brightly burning zenith, Neja Zorzut's murky nadir focuses on the flame's shadow, collapsing the coordinates with her epigraph: “Love and life appear to be separate only because everything on earth is broken apart by vibrations of various amplitudes and durations.”⁰² The fact that something profound looms on the Sky-Earth

01 SERRES, Michel, “Picaresques and Cybernetics”, in: *The Parasite*, Baltimore: The Johns Hopkins University Press, 1982, p. 36.

02 BATAILLE, Georges, as quoted in ZORZUT, Neja, “EBB”, 2022.

System's horizon is further explored in Jannis Köster's and Adam Louis-Klein's contributions. Whereas the former theorises the alterity of cultural evolution and the reason why runaway infinite capacities of the voided animal most certainly spell doom, the latter sets off from the surface of a Black Hole to reconnect the Human with "the Generic Ancient at the centre of the Universe".⁰³ This recognition of "non-dual unity with ultimate reality"⁰⁴ is reapproached in the perfect gnosis of Kazi Adi Shakti, where "the only way out (to the ultimate) is through (the conventional)",⁰⁵ through the displacement of thought's vicious circle of correlationism by the absolute negation of gnostic continuum. And it is this fascination with the eternal parasitosis that drives Domen Ograjenšek to the crevices and cracks of our most intimate interiorities, where not even our thoughts and desires are safe from the parasitic gaze that we crave in-the-last-instance. "All worlds have a timeline, a beginning and an end. Only the parasite cycles through them and escapes its inescapable finitude."⁰⁶

Šum has always been faithful to its place in the chain of parasitism, and its sheer existence has provoked a parasitic reaction from the old guard, but something soft nevertheless escaped through the cracks. People ask: "How dare you call for accelerating capital(ism) in the face of a climate emergency? How can you speak of coldness when the Earth is becoming hot?" To which we respond that the world needs proper provocations when a lack of imagination is the problem, when true abstractions are being wasted. Speaking of interfaces: the world needs d(a)emons to respond to the lack of angels, and this is the local maximum we're ready to die on. Thus, Šum's vibe has always been the following: "The real horseshoe theory of humanity is that the most dangerous technologies are also the most useful; every curse is a gift, and vice versa."⁰⁷ After all, it's the future we're after, and we're getting there one way or another.

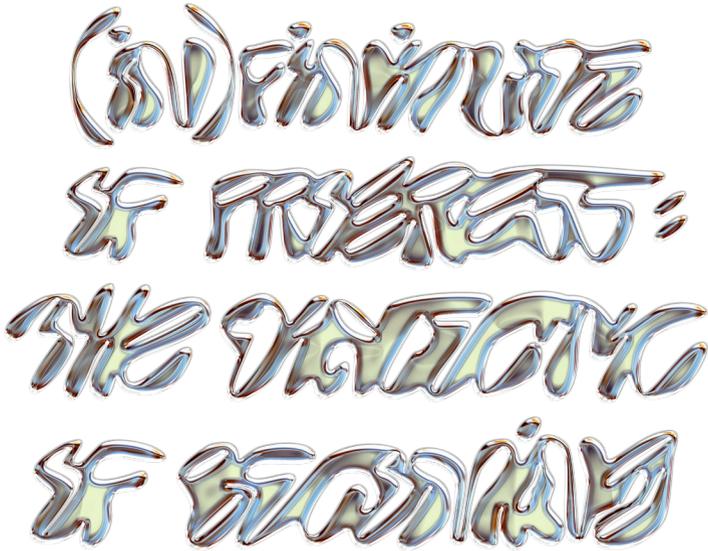
03 LOUIS-KLEIN, Adam, "The Holographic Sky", 2022.

04 ADI SHAKTI, Kazi, "Closing Consciousness, Disclosing Gnosis", 2022.

05 Ibid.

06 OGRAJENŠEK, Domen, "The Hyperemotional Complainer (The Parasite and Its Double)", 2022.

07 TROHA, Tisa, *Wadi Rum or the Valley of 99 Names* (master's thesis), Ljubljana: University of Ljubljana, Faculty of Architecture, 2021, p. 35 (trans. VALENČIČ, Maks).



Is human development equal to progress?

In his *Essay On Man*, Ernst Cassirer writes of humankind's cultural evolution as the "process of [hu]man's progressive self-liberation".⁰¹ In his Neo-Kantian perception of human development, humanity is pacing towards enlightenment by ever further freeing itself from its "self-incurred immaturity".⁰² Similar to this idealistic view of human development, today's liberal scholars invoke progress as the underlying feature of human development.⁰³ Especially technological improvements, in combination with the benefits of capitalism, are to solve all problems humanity has faced in the past, is facing today and will face by conquering the forces of nature to ultimately bring humanity into an enlightened future. From this, it seems that both Neo-Kantians as well as liberal thinkers argue that the underlying feature of human development is progress. But is it?

In light of the multiple planetary crises that humanity is facing and which threaten the integrity of the Earth System at large, it is necessary to critically inquire into this optimistic perception of human

01 CASSIRER, Ernst, *An Essay on Man: An Introduction to a Philosophy of Human Culture*, New Haven & London: Yale University Press, 1944, p. 286.

02 KANT, Immanuel, "Was ist Aufklärung?", in: *Berlinische Monatsschrift, Dezember – Heft 1784*, 1784, pp. 481–494, from: *UTOPIE kreativ*, 159, 2004, pp. 5–10.

03 PINKER, Steven, *Enlightenment Now: The Case For Reason, Science, Humanism And Progress*, London: Penguin UK, 2018.

development. Following Gramsci's differentiation between progress and becoming, we must analyse the nature, trajectory and future of human development to understand the direction that humanity is heading in. Are we really up for a continuous improvement of human lives, as some might argue, solely because the principles of development point in that direction? Or is something more complex happening that must be clarified—a trajectory of development that points towards a monumental decision we are facing at the beginning of the 21st century?

Part 1: The notion of progress in light of a philosophy of history

Understanding the perception that progress is the underlying and infinite direction of human development requires an inquiry into what progress means. The notion of progress is a tricky thing. That is because whenever it is considered, the question arises of what *progress* actually means for the person posing the statement. What is behind the notion of progress can only be understood in reference to what Haraway deems “situatedness”.⁰⁴ This concerns the structures that shaped the thinking of the person at large and that uniquely make up an individual's perspective of the world. Following Antonio Gramsci, the idea of what progress means “depends on a specific mentality, in the constitution of which are involved certain historically determined cultural elements ... In the idea of progress is implied the possibility of a quantitative and qualitative measuring, of ‘more’ and ‘better’”.⁰⁵ In this way, Gramsci deems the notion of progress ideological: what constitutes “betterment” or “improvement” is always decided based on a situated perspective and depends on the belief system of the person invoking its name. Progress as ideological is contrasted by Gramsci with the notion of *becoming*. Whereas the former must be understood historically and implies an ideological understanding of history as getting better, where the ‘better’ is what does the ideological work, *becoming* is a philosophical conception of the generalised process of history,⁰⁶ the process of development that is at the heart of a materialist conception of history.

From this differentiation, if we want to understand the conjecture that progress could be infinite, we must reconsider human development via the notion of becoming. Such an understanding of the principles that drive human cultural development via the philosophical conception of becoming requires differentiation of the historical

04 HARAWAY, D., “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective”, in: *Feminist Studies*, 14(3), 1988, pp. 575–599.

05 GRAMSCI, Antonio, as cited in WAINWRIGHT, Joel & MANN, Geoff, *Climate Leviathan: A Political Theory of Our Planetary Future*, London: Verso Books, 2020, p. 95.

06 Ibid.

process *at large*—not merely of historical-social dimensions of human culture, but of evolutionary-biological and physical directionalities.

Πτ. 2: Becoming as the (infinite?) process of history

To understand the process of (natural) history via the notion of *becoming*, we must first understand the physical *directionality* of the universe. The commonplace conception of the consequence of the laws of thermodynamics is captured by Boltzmann's conjecture that leans on the Cartesian incommensurability of the two rivers: whereas "the river of biology, psychology, and culture, or the epistemic dimension of the world flow[s] up to increasingly higher states of order, ... the river of physics flow[s] down to disorder".⁰⁷ Swenson, inquiring into the relationship of entropy and order, counters this conjecture by arguing for a progressive development of "higher ordered from less ordered states follow[ing] directly from natural law".⁰⁸ He shows⁰⁹ that order is a direct consequence of the balance equation of thermodynamics, as "ordered flow [is] more efficient at dissipating potentials than disordered flow".¹⁰ In combination with the law of maximum entropy production that "the world acts to minimize potentials at the fastest rate given the constraints",¹¹ the "world can be expected to produce order whenever it gets the chance".¹² The *uphill flowing river* of the "active epistemic dimension of the world, of biology, psychology, and culture"¹³ therefore does not contradict the tendency of entropy, but is the direct manifestation of its consequences.

Following Swenson, if order arises whenever it gets the chance, this ordering flow of entropy describes the basic mechanism for the emergence of complex "autocatakinetic systems"¹⁴ and then life itself. Leaving aside the details on how this occurred,¹⁵ Swenson writes: "Since the emergence of life on the Archean Earth some 4.5 billion years ago, ... the production of dynamic order constituting

07 SWENSON, Rod, "Spontaneous Order, Autocatakinetic Closure, and the Development of Space-Time", in: *Annals of the New York Academy of Sciences*, 901, 2000, p. 316.

08 Ibid., p. 312.

09 Relating directly to experiments by Bernard and insights by Bertalanffy, Schrödinger and Prigogine. For an explication of the experiments and corresponding insights, see Swenson, "Spontaneous Order", pp. 315, 317.

10 Ibid., p. 318.

11 Ibid.

12 Ibid.

13 Ibid., p. 319.

14 Ibid., p. 312.

15 Out of the emergence of ordering flows, basic hyper-cycles which are more efficient ordered flows of entropy production arise which combine into evermore complex assemblages of hyper-cycles, as these are evermore efficient at ordering entropic flows. Through the process of cumulation and recombination, on geological time scales, these hyper-cycle assemblages form the basis of evermore complex autocatakinetic systems which begin to interact with their environment. The emerged single-cell and multi-cellular organisms, which are indeed just more complex assemblages of hyper-cycles, both shape its environment and are in turn shaped by it. These emergent assemblages of chemical hyper-cycles then alter Earth's troposphere and atmosphere (cf. EIGEN, Manfred, & SCHUSTER, Peter, "The Hypercycle", in: *Naturwissenschaften*, 65(1), 1978, pp. 7-41).

the development of life, including human culture, is thus seen as the cycling of this same matter under the impress of the geocosmic gradient into progressively higher ordered forms or dimensions of space-time".¹⁶ From this perspective of progressive development of order as a direct consequence of thermodynamics, a first insight into becoming as the process of history can be grasped: becoming in this instance describes the ordering flow of the universe.

From the ordering tendency of the physical world, Swenson argues, we can begin to understand "our place as both productions and producers in this rapidly accelerating global *becoming*".¹⁷ As the universe is in the "order-producing business"¹⁸ as a means of increasing entropy, the development of life, humanity, culture and civilisation can be placed in a cumulative, emergent process of order-production—the two rivers are commensurable.

To understand humanities' role in this ordering process, this *emergent* process of cumulative development has to be further detailed. For this, we must turn to recent anthropological insights into the ratcheting-up of both evolutionary-biological and human cultural development. The key notions that must be delineated for understanding human cultural evolution from this perspective are *operational chains* and *problem solution distances* (PSD) as introduced by Leroi-Gourhan and Köhler.¹⁹ The gap between the need of a complex autokatalytic system for energy-intake to keep up its metabolism and the fulfillment of this need can be described via the problem-solution distance: in order to satisfy a need, depending on the scope of the problem-solution distance, the organism has to perform multiple sequential actions in and interactions with its environment, which can be conceptualised as "operational chains".²⁰ Organisms fundamentally differ in their capability to perform such sequential, nested actions: whereas single-cell organisms follow orientation along nutrient-gradients, more complex organisms have to orient themselves in their environment and interact with it. The emergence of hominin species, however, marks a shift in the evolutionary-biological development of complexity: a new depth in problem-solution-distance-capabilities and a new type of cumulative development emerges, which adds another layer to the notion of becoming.

16 SWENSON, "Spontaneous Order", p. 312.

17 Ibid., emphasis added by the author.

18 Ibid., p. 317.

19 LEROI-GOURHAN, André, *Hand und Wort: Die Evolution von Technik, Sprache und Kunst*, Frankfurt am Main: Suhrkamp, 1980; KÖHLER, Wolfgang, *The Mentality of Apes*, New York: Harcourt Brace, 1926.

20 HAIDLE, Miriam N., "How to Think Tools? A Comparison of Cognitive Aspects in Tool Behavior of Animals and During Human Evolution", in: *Cognitive Perspectives in Tool Behavior*, 1, 2012, pp. 108–110, <https://publikationen.uni-tuebingen.de/xmlui/handle/10900/49627>.

The concept of “cultural capacities” conceptualises this increasing complexity of operational chains and PSD.²¹ Based on ethological and archaeological data, Haidle et al. formulate a model for the “evolution and expansion of human cultural capacities (the EECC model)”.²² They differentiate between behavioural performances and cultural capacities: whereas the performances describe empirically traceable behaviours exhibited by an analysed sub-group,²³ cultural capacities are the theoretical conceptualisation that abstract the underlying PSD of the “potential range of cultural performances in different subunits at a given time”.²⁴

From this distinction, Haidle et al. trace the process of cumulative development of cultural capacities as the consequences of the social transmission of information.²⁵ Building on this transmission, some species exhibit the capacity for traditions based on the durable presence of “behavioral entities ... through repeated social learning”.²⁶ Subsequently, a set of multiple traditions “that incorporate a diversity of behavioral forms”²⁷ is described as the “basic cultural capacity”,²⁸ which is exhibited by social animals such as the hominin species, dolphins, humpback whales and great apes.

Hereafter is where the key distinguishing feature, which marks marking the evolutionary branching of hominin species, arises: the ability for so-called “secondary tool use”.²⁹ The fact that tools are not employed merely to satisfy immediate needs, but to manufacture other tools in order to satisfy more complex needs is a decisive step in increasing evolutionary complexity.³⁰ This uniquely hominin ability to employ multiple tools in an encapsulated sequence and to use tools on tools, and then to transmit this knowledge to others, lays the basis for a cumulative development of ever higher technological complexity.

In an ever increasing array of complexity via the technological augmentation of previous steps, subsequent cultural capacities are detailed along the corresponding emergence of new behavioural possibilities, which can be sketched as follows: building on the “modular

21 HAIDLE, Miriam N., BOLUS, Michael, COLLARD, Mark, CONARD, Nicholas J., GAROFOLI, Dullio, LOMBARD, Marlize, NOWELL, April, TENNIE, Claudio & WHITEN, Andrew, “The Nature of Culture: an Eight-Grade Model for the Evolution and Expansion of Cultural Capacities in Hominins and Other Animals”, in: *Journal of Anthropological Sciences*, 93, 2015, pp. 49–50.

22 Ibid., p. 43.

23 Ibid., p. 47.

24 Ibid., p. 49.

25 Ibid., p. 53.

26 Ibid., p. 55.

27 Ibid., p. 56.

28 Ibid., p. 55.

29 HAIDLE, “How to think tools?”, p. 223.

30 The key change is marked by the concept of multiple foci of attention. As Haidle writes: “Three active foci of attention are active in a thought and action chain involving secondary tool use: The subject focus, the focus of a tool used to manipulate an object and the focus of the second tool used to produce the first tool. The active sequence is expanded by the subject’s use of a tool to fashion a medium that will finally solve the problem”. (Ibid., p. 223)

cultural capacity” of using tools on tools,³¹ the ability of combining multiple manufactured *modular* objects into *composite* tools with new qualities (“composite cultural capacity”)³² is the necessary foundation for the “development and use of a set of cultural modules as an acting entity with two or more interdependent and exchangeable parts”,³³ such as a bow and arrow (“complementary cultural capacity”).³⁴ The last cultural capacity derived from the cumulation of the PSD is the “notional cultural capacity”, where “the socially transmitted information exceeds that of all former capacities”.³⁵

This “notional cultural capacity” marks the beginning of civilisational development of humankind.³⁶ With the emergence of notional tools and concepts, for example cave paintings, music instruments or figurines, in general media, which are “mentally constructed and socially shared entities and relationships”³⁷ that represent meaning and which “unfold their main potential only in social use”,³⁸ the focus of human evolutionary development is shifted to the refinement and communication of notional concepts. A key marker of this *notional* capacity is the usage of exograms, the storing of memory records outside of the nervous system.³⁹ After this “exographic revolution”,⁴⁰ with the emergence and use of *media* for horizontal and vertical storage and passing of knowledge, civilisational history begins—humankind’s ontogenetic-individual and evolutionary-biological evolution is mostly overshadowed by its subsequent historical-social development. As media externalize knowledge, the development of humankind shifts onto a new foundation: the development, refinement and communication of exograms and notional concepts causes the process of cumulation of knowledge, of the improvement of know-how and of technologies, to accelerate.

The insight into *becoming* that we can distill from this conception of humankind’s cultural development is the notion of the “ratchet effect”.⁴¹ Building on the emergence of secondary tool use in combination with social learning, the abilities developed in previous cultural capacities are abstracted and recombined into new types of

31 Ibid., pp. 56–57.

32 Ibid., p. 57.

33 Ibid., p. 58.

34 Ibid., p. 58.

35 Ibid., p. 59.

36 LÖFFLER, Davor, *Generative Realitäten 1: Die Technologische Zivilisation als neue Achsenzeit und Zivilisationsstufe. Eine Anthropologie des 21. Jahrhunderts*, Velbrück Wissenschaft, 2019, pp. 245–350.

37 HAIDLE et al., “The Nature of Culture”, p. 59.

38 Ibid., p. 50.

39 DONALD, Merlin, “The Exographic Revolution: Neuropsychological Sequelae”, in: MALAFOURIS, L. & RENFREW, C. (eds.), *The Cognitive Life of Things. Recasting the Boundaries of the Mind*, Oxford: Oxford Books, 2010, p. 71.

40 Ibid., p. 77.

41 HAIDLE et al., “The nature of culture”, p. 51; TENNIE, Claudio, CALL, Josep & TOMASELLO, Michael, “Ratcheting Up the Ratchet: On the Evolution of Cumulative Culture”, in: *Philosophical Transactions of the Royal Society B: Biological Sciences*, Vol. 364, No. 1528, 2009, pp. 2405–2415.

behavioural affordance which enable humans to perform new types of actions—human culture is ratcheting up. Following Löffler, the EECC model provides a “non-teleological, cumulative-linear conceptualisation of the history of human development: The model shows that the prehistory of human can be conceived as a natural-process-like passing through universal stages of development”.⁴² Cumulative development of complexity, which in human development no longer focuses on evolutionary-biological but, with the emergence of secondary tool use, on technological cumulative development, can thus be seen as a further refinement of the notion of *becoming*.

However, in order to fully understand the key principles of human cultural development, the process of global becoming and its relation of progress, the developmental mechanisms at hand must be further concretised. Expanding the developmental mechanism of cumulation via the concept of the ratchet effect, building on the EECC model as well as Bammé’s concept of “axial caesuras”, Löffler analysed the development of human history as the cumulation of “civilisational capacities”.⁴³

The Axial Age in Greece and the Modern Age are described by Bammé⁴⁴ as fundamental transformations, which, when applied with the capacities model, reveal themselves as stages of cultural capacities.⁴⁵ In these capacity steps, all forms, phenomena and performances of human culture and civilisation at large are fundamentally altered, increasing in complexity⁴⁶—each building on the technological, social, cultural and philosophical processes and capabilities of previous cultures. Whereas the “Greek Miracle” (800–200 BC) built on the cultural and technological processes and achievements of the “Hydraulic Civilisations”,⁴⁷ the “European Miracle” (1400–1900) built on the advancements and technological processes of the “Greek Miracle” to mark a fundamentally new type of civilisational capacity.⁴⁸ Extrapolating from these capacity stages, Löffler describes the

42 LÖFFLER, *Generative Realitäten 1*, p. 178.

43 Ibid., p. 439.

44 Bammé, as cited in LÖFFLER, Davor, “Distributing Potentiality. Post-capitalist Economies and the Generative Time Regime”, in: *Identities: Journal for Politics, Gender and Culture*, 15(1–2), 2018, pp. 14–16.

45 LÖFFLER, “Distributing Potentiality”; LÖFFLER, *Generative Realitäten 1*.

46 Following the co-evolutionary principle, these changes occur in all areas of civilisation concerning “the structures and types of operational chains, technologies, forms of cognition, conceptions of time, depths of time, ontologies, economies, social institutions, types of knowledge, and world views”. (LÖFFLER, *Generative Realitäten 1*, p. 346) All these aspects stand in a correspondence of their forms, in a “morphological relationship” (*Formzusammenhang*) (Ibid., p. 346)—they are interlocked, structurally analogous and manifest themselves in relation to each other.

47 Wittfogel, as cited in LÖFFLER, *Generative Realitäten 1*, p. 480.

48 LÖFFLER, “Distributing Potentiality”; LÖFFLER, *Generative Realitäten 1*. Wittfogel uses the term “Hydraulic Civilisations” to describe the early high cultures of the Indus Valley and Egypt; the “Greek Miracle” refers to the changes that civilisation underwent during the Axial Age in the Aegean Sea; the “European Miracle” follows the scheme of the Greek Miracle and denotes the changes in Europe before the Industrial Revolution, including but not limited to the Feudal, Agrarian and Commercial Revolutions (900–1300), the Renaissance, the Scientific Revolution and the Enlightenment.

“Technological Civilisation” as the capacity shift in whose upheaval humankind is situated at the turn of the 21st century.⁴⁹

In analysing this cumulative development, Löffler shows that civilisational development follows the same underlying principle of ratcheting-up as the cultural capacities⁵⁰ that Löffler refines via the notion of “process-emulative recursion”.⁵¹ Based on the ratchet effect,⁵² each cultural and civilisational capacity functions as the base from which the subsequent capacity abstracts its principles and reintegrates them in a new manner.⁵³

The notion of “process-emulative recursion” is further clarified by the advancements in technology from the Axial Age to the Modern Age, which represents a sequencing of more complex secondary tool use. The progression is roughly sketched as follows: in the former, technological complexity was marked by *simple machines*, the so-called “mighty five of power amplification”,⁵⁴ which include “wedge, screw, inclined plane, lever and winch”.⁵⁵ In contrast, as Löffler writes, in “the Modern Age, the principle of the *simple machine* is reintroduced on a new level of abstraction and integrated into the *compound machine*”.⁵⁶ These compound machines are assemblages of multiple simple machines combined into a single functional unit, which is then able to perform more complex tasks. With this emergence of compound machines, the notion of progress first arises as *technological progress*, because improvements and recombination made it possible to continuously improve the efficiency and productivity of compound machines. This was a distinct innovation in technological augmentation in comparison to the Axial Age, where it was impossible to improve the efficiency of simple machines.⁵⁷

The civilisational developmental process at large can again be seen as another clarification of the notion of becoming. Building on the notion of “ordering” (Swenson) and “cumulation” (Haidle), the

49 LÖFFLER, “Distributing Potentiality”; LÖFFLER, *Generative Realitäten 1*.

50 Here, it is important to note that even though the initial principle of cumulative evolution is the same, later developments are characterised by more complex cultural performances, diffusion and multilinear developments. (LÖFFLER, *Generative Realitäten 1*, p. 178; for more detail, see pp. 449–467)

51 LÖFFLER, *Generative Realitäten 1*, pp. 199–204, 240–244.

52 A further refinement of the ratchet effect is posed by the mountaineering effect which uses the metaphor of mountaineering to further detail the complexity of the ratchet effect. (LOMBARD, Marilize, “Mountaineering or Ratcheting? Stone Age Hunting Weapons as Proxy for the Evolution of Human Technological, Behavioral and Cognitive Flexibility”, in: HAIDLE, Miriam N., CONARD, Nicholas J. & BOLUS, Michael (eds.), *The Nature of Culture, Vertebrate Paleobiology and Paleoanthropology*, Tübingen and Dodrecht: Springer, 2016) As Haidle et al. write, mountaineering means that “it is always possible to proceed from any point reached so far, increasing behavioral or cultural complexity and flexibility, but it is also possible for individuals or groups to re-exploit seemingly simpler options, depending on the ruggedness of the specific fitness landscape (socio-ecological niche). Using the mountaineering metaphor, cumulative cultural capacity does not only include those cultural efforts that are built upon the highest level achieved, but also recursions following on seemingly more advanced solutions”. (HAIDLE et al., “The Nature of Culture”, p. 51)

53 LÖFFLER, *Generative Realitäten 1*.

54 Metz, as cited in LÖFFLER, *Generative Realitäten 1*, p. 509.

55 LÖFFLER, *Generative Realitäten 1*, p. 509.

56 Ibid.

57 LÖFFLER, “Distributing Potentiality”, pp. 26–35; LÖFFLER, *Generative Realitäten 1*, p. 490.

concept of *recursion* enables us to understand the subsequent building up of the increasing complexity of layers on previous developments. The line of development of compound machines from simple machines can be extended backwards into the cumulative extension of problem-solution distances via secondary tool use and its abstraction in modular, composite, complementary and notional forms as described by Haidle et al.⁵⁸ In this way, the cumulation of technological complexity by abstracting, combining and reintegrating previous developments marks a key example of the process-emulative recursion in human and cultural development at large.

Becoming thus describes the recursively cumulative ordering process of development, where each new stage of complexity recursively integrates previous stages in a higher order. Here, in relation to the common teleological critique that historical materialist conceptions of the process of history face, it is worth quoting Ulrich Mueller: "Development has a direction, but no goal".⁵⁹ Whereas the developmental principles of the ratchet effect indicate that later stages must necessarily be built on previous ones, they do not refer to a *telos*, they don't have a goal. Now that we understand the principles of human cultural development as the process of becoming, we can inquire into where this goes—is this process infinite?

Part 3: The dialectic of becoming

Being attentive in these times of multiple planetary ecological as well as socio-economic and political crises, something seems off with the conjecture of infinite development. The global *becoming* in the form of civilisational development has been rapidly accelerating since the onset of the Modern Age. This is the direct consequence of the development of compound machines and subsequent technological cumulation which uses the energy stored in fossilised organic matter. Through this, human civilisational development capitalised on the available energy surplus and thus accelerated the nature-culture metabolism of human civilisation to unforeseen levels. But this speed of development, technological advancement and the use of fossil fuels have severe consequences for the Earth System: the early 21st century has been marked by the looming planetary crises of climate change, biodiversity loss as

58 HAIDLE et al., "The nature of culture".

59 MUELLER, Ulrich, *Die Entwicklung des Denkens: Entwicklungslogische Modelle in Psychologie und Soziologie*, Darmstadt und Neuwied: Luchterhand, 1982, p. 212. Contrary to the anti-statist critique voiced most recently and prominently by Graeber & Wengrow (*The Dawn of Everything: A New History of Humanity*, New York: FSG, 2022), the cumulation of secondary tool use and the corresponding cultural and civilisational capacities only show the necessary logical cumulation of the development of human culture and civilisation—later forms (capacities) cannot happen with earlier technologies, but can only occur on the cumulation of all previous stages, following the notion of "co-evolution". (LÖFFLER, *Generative Realitäten 1*, pp. 39–47) However, this perspective does not imply that this is "progress" in the sense of achieving a better, higher form. Instead, it follows Ulrich Mueller's dictum mentioned above: "Development has a direction, but no goal". (*Die Entwicklung des Denkens*, p. 212)

well as the continuous threat of planetary nuclear war. In light of these catastrophes, which threaten the survival of human civilisation at large, the notion of an *infinite* becoming begs the question: will becoming in the form of the process of cumulation continue into the future, or will humanity destroy its basis of development and institute its own doom?

A key insight into the question of the survival of humankind in the process of a possibly infinite becoming is to be found in the Fermi Paradox, which asks: why has humankind not come in contact with extraterrestrial life? Multiple answers to this paradox are proposed, but in the context of the multiple planetary crises that humanity is currently triggering, one seems to be particularly striking: the self-annihilation hypothesis. It argues that bottlenecks in civilisational development might hinder the development into multi-planetary species, which would then be able to contact one another. As Shklovsky and Sagan⁶⁰ have argued, it might be the fate of all such civilisations to destroy themselves before they reach multi-planetary being and interstellar travel. In view of the planetary crises at hand, the disruption of the planetary system from which intelligent life developed in the first place, could be one of these civilisational bottlenecks.

If we adapt this notion, the main barrier for *infinite becoming* is that the conditions for the species' survival could be undermined: the intelligent species' development will run up against planetary limits and elicit a planetary crisis, such as uncontrollable climate change, species extinction or nuclear war, and thus elicit civilisational collapse which halts its development. In this perspective, the cumulative expansion of problem-solution distances is undermined by the inability to stop technological cumulation in a manner that maintains human survival.

This can be further clarified with the *Dialectic of Enlightenment* described by Horkheimer and Adorno: in view of the Nazi terror during World War II, the authors posit that the enlightenment and its focus on instrumental reason has turned against itself. Through this, "humanity, instead of entering a genuinely human condition, lapses into a new form of barbarism".⁶¹ The enlightenment principles revert back into mythological thinking, *technological progress*—understood as the improvement of compound machines—is turned against the *progression of civilisation* and "the fully enlightened Earth shines in the sign of triumphant doom".⁶²

The turning against itself based on its own principles of development, against the backdrop of the notion of technological progress versus civilisational development, is the movement that I wish to

60 SHKLOVSKY, Iosif S. & SAGAN, Carl, *Intelligent Life in the Universe*, New York: Delta, 1966.

61 HORKHEIMER, Max & ADORNO, Theodor W., *Dialektik der Aufklärung: Philosophische Fragmente*, Frankfurt am Main: Fischer, 2019 [1944], p. 1.

62 *Ibid.*, p. 9.

focus on. The development, the process of becoming, in reaching planetary civilisational stages and subjugating the Earth System to its will via technological progression is effectively turning against itself in the planetary crises humankind is facing. Thus, we can formulate the *Dialectic of Becoming*: the trajectory of becoming as cumulative development based on recursively integrating previous steps, which results in substantial technological advancements, has the dramatic potential to turn against itself and undermine its own process. The goal of achieving a possibly infinite process is then effectively hindered by the principles that open up the potential in the first place. Cumulative evolution has the potential to go on infinitely, but it also has the very real potential to destroy itself—*the fully becoming Earth shines in the sign of triumphant doom*.

Πτ. 4: Can we pull the emergency breaks of the train of history?

The Dialectic of Becoming now leads us full circle to the question of progress as civilisational progress, as humankind's progressive self-liberation. Whereas the notion of progress *itself* is a specific mentality about the particular historical conjecture assessed, becoming can be seen as the potentially infinite process of history. Seen from the perspective of becoming—cumulative development from the order-producing tendency of the universe to the ratcheting-up of humankind's cultural and civilisational development—the continuation into the future could be proposed as logical:⁶³ that human development into the Technological Civilisation will continue unabated. Thus, it's not that humankind's cultural development is the process of “progressive self-liberation”,⁶⁴ but that the notion of becoming clearly emphasises Mueller's conjecture: “Development has a direction, but no goal”.⁶⁵ However, in the context of the multiple, planetary crises that humanity is facing, the question remains whether this process will actually continue into the future—and whether this can be seen as progress. In light of the *Dialectic of Becoming*, of the consequences of civilisational development for the Earth System at large, the notion of progress, considered ideological by Gramsci, re-emerges with a different ring to it: judging the historical conjecture from a normative standpoint.

When we think about progress in terms of planetary futures, we turn to a contemporary of Horkheimer and Adorno: Walter Benjamin. His thesis VIII on history, written in the time of Nazi terror in Europe

63 However, one has to be wary of the problem of deduction, of assuming that the future will play out in the same manner as the past. Following Becker (“Re-imagining Capitalist Dynamics”, in: ASPERS, Patrik & DODD, Nigel (eds.), *Re-imagining Economic Sociology*, Oxford: Oxford University Press, 2015, pp. 57-78), a key distinction with which human beings must be confronted is the differentiation between risk and uncertainty—whereas the first is calculable, the latter concerns itself with the role of unknown unknowns and unknown knowns.

64 CASSIRER, *Essay on Man*, p. 286.

65 MUELLER, *Die Entwicklung des Denkens*, p. 212.

during World War II, but equally applicable to the multiple planetary crises of the 21st century, proposes that the state of exception in which humankind now lives is the rule. It is thus necessary to “attain a conception of history that is in keeping with this insight”.⁶⁶ In contrast to Marx, who “says that revolutions are the locomotive of world history”, Benjamin argues that perhaps “it is quite otherwise. Perhaps revolutions are an attempt by the passengers on this train—namely, the human race—to pull the emergency brake”.⁶⁷ One might ask whether “the task of progressive politics goal is not to ride the train of history but to pull the emergency breaks”.⁶⁸

In view of the planetary crisis, the question of progress returns not as one of self-liberation, but of keeping the process of cumulation in line with the need for planetary survival. Thus, to pull the breaks has a broader meaning than to stop the self-destructive tendencies of enlightenment, and an even more severe character: Can we stop ourselves from undermining the basis of our own survival by pulling the breaks on certain technological developments which inhabit the potential to halt the process of becoming? Can we escape the *Dialectic of Becoming*? Can we self-domesticate (further) by controlling our own developmental mechanisms to stop its worst consequences? Can we escape the dangerous lock-in of our path dependencies that chime in our own doom?

It is here that the difference between cultural capacities and cultural performances can be fruitfully picked up again: whereas the capacities describe the possible range of expression, the performances describe the actually exhibited behaviour. Self-domestication here then refers to the idea that even though behavioural performances could be expressed, humanity could collectively decide to leave these avenues of development unexplored and unexpressed in order to reduce its harmful effects. A positive example for this can be found in the elimination of HCFCs due to their harmful effects on the ozone layer. However, whether such self-domestication can occur with present performances such as fossil fuels or atomic bombs, or with the intentional and purposeful inexpression of the capacity for geo-engineering, which possibly entails disastrous, unintended consequences due to unknown unknowns for the Earth System at large, remains to be answered.

As this analysis shows, the notion of the *Dialectic of Becoming* is a warning to those who champion progress as infinite and innate to

66 BENJAMIN, Walter, “Über den Begriff der Geschichte”, in: *Sprache und Geschichte: Philosophische Essays*, Ditzingen: Reclam, 1992 [1940], pp. 145–146.

67 BENJAMIN, Walter, *Selected Writings, Vol. 4: 1938–1940*, EILAND, Howard & JENNINGS, Michael W. (eds.), Cambridge: Harvard University Press, 2003, p. 402.

68 ŽIŽEK, Slavoj & GREY, Briahna J. (host), “Slavoj Bells Ring (w/ Slavoj Žižek)”, in: *Bad Faith*, 23/12/2021, <https://podcasts.apple.com/podcast/bad-faith/id1531192509?i=1000545896469>.

the process of human development. Whereas cumulative becoming is possibly infinite, progress depends on judgement from a normative mentality. If no one is left to assess cumulative becoming as progress, then the notion of infinite progress is meaningless. Thus, in order for someone to perceive cumulative becoming as progress, the focus has to shift towards our own self-preservation by understanding the mechanisms of becoming and abstaining from self-destructive technological performances and socio-economic structures that drive us towards cataclysmic planetary doom. Instead, we have to achieve the transformation of Modernity into the global, integrative Technological Civilisation that enables the “continuation of the cultural evolution and history of civilisation on a new level of complexity, in which fundamentally new relational structures, *physis* and world relations would emerge”.⁶⁹ The pressing question of our contemporary situation is whether humankind can pull the breaks in time. As Welzer & Sommer argue in light of the ecological necessities and limits with which humanity is confronted: the transformation will happen, the only question is whether it happens “*by design or by disaster*”.⁷⁰

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69 LÖFFLER, *Generative Realitäten 1*, p. 678.

70 WELZER, Harald & SOMMER, Bernd, *Transformationsdesign: Wege in eine zukunftsfähige Moderne*, München: Oekom, 2017, p. 27.

העוסקים

This experimental essay takes off from a methodology as well as a spiritual vision I have developed or resuscitated⁰¹ that I call Sky-Earth systems science.⁰² Sky-Earth systems science is a method for thinking from the Center of the Universe, and only the Center of the Universe, alongside and internal to non-modern myth as much as contemporary science. It provides minimal comparative parameters, the horizontal and vertical axes, within a kind of complex plane or phase space, for superposing the multiplicity of cosmologies within a generic one. These are the animal and the God which cross in the Human at the Center between Sky and Earth.

The Sky-Earth system accommodates a variation of cosmologies, while also offering concrete content to start off from. It is a disalienating thought that thinks from the heart of the Universe, as it puts us right in the middle of it, rather than merely considering it from the outside. The goal of Sky-Earth systems is to recompose a Universe

01 I say resuscitated because its premises are probably ancient and widespread.

02 LOUIS-KLEIN, Adam, "From Earth-Systems Science to the Sky-Earth System", in: *Oscillations: Non-Standard Experiments in Anthropology, the Social Sciences, and Cosmology*, 2021; LOUIS-KLEIN, Adam, "At the Crossing-Place of Gods and Animals: The Sky-Earth System as Generic Cosmology", in: *Oscillations: Non-Standard Experiments in Anthropology, the Social Sciences, and Cosmology*, 2021.

we can all share, one which does not pass outside of the Center that we are, and does not dominate us with impersonal academic abstractions, instead being rooted in the person, or the "I".

In semiotic terms, the paradigm shift that the Sky-Earth System proposes is to take the myth of the separation of the sky and earth literally, and then to unfold our metaphors within this literal space, what Roy Wagner calls a literal ground, rather than the constructed figure of "culture" versus "nature" (a set of conventions split off from their spontaneous contexts). By taking the literal as ground and the metaphorical as figure, we focus invention while also taking responsibility for it.⁰³ Sky-Earth system gives minimal constraints for the deliberate play of mythic images, as it situates them within the phase-space of the Sky-Earth System as a real-though modeled-ground.

It is more and more necessary to face the finitude of the planet, the limits to depletion and waste, the increasing entropy brought about by the Modern paradigm, threatening not only the stability of the Earth-System but the ordinary Humans who live in it. However, the planet is really a double term: the earth-disc that expands out from any perspectival center, and the orb in the Sky, which takes on the Sky's curvature. The very possibility of thinking the earth as orb can start from the Human at the Center of the Universe, obviating the Moderns' confusion of polycentricity with acentricity. To see the planet as a dimension of the Sky-Earth System is to go where the ancients are, not insisting on a mere "local", but creating holographic models scalable to any size.⁰⁴ How to reverse entropy without denying it, passing it back through the Center, rebirthing the Human as the crossing-place of the animal and the God?⁰⁵ We need to reconcile the finite and the infinite, but through the World Tree, which reaches from the earth to the stars.

We endow our model with a *conformal* structure, which means that it preserves the angles of images even as it shrinks or enlarges them infinitely. In Penrose's conformal cyclic cosmology (CCC), this is the scale-invariant geometry of light that lets us traverse the universes, as the universe returns to this position at its beginning and end. The CCC is a *compactified* geometry that sets the boundary conditions

⁰³ WAGNER, Roy, *Symbols that Stand for Themselves*, Chicago: University of Chicago Press, 1986; SHAFFNER, personal communication.

⁰⁴ LOUIS-KLEIN, "From Earth-Systems Science to the Sky-Earth System".

⁰⁵ LOUIS-KLEIN, "At the Crossing-Place of Gods and Animals".

of a minimal cosmology.⁰⁶ The system must take on an event horizon, a light-cone, a causal limit from the point of view of light itself. The boundary-surface is the Sky, whose holography centers the Human in a black hole topology.⁰⁷

The cardinal poles are the compactified points-at-infinity of the system. At the horizontal and vertical points, we place the animals and Gods, acting either as relations or terms. They are the vector basis of a quantum or Oceanic matrix, stereographically projected onto the curvature of the Sky. It is the algebra that writes the space in-between on the surface, and so opens the breathing-space within which Humans can live.⁰⁸

Rather than the quasi-Nature of materialist “earthly-immanence”, it is the Human who is immanent at the crossing-place. The animal is no less of a transcendence than the God, but simply an inverse one, when the Human is situated in the middle-place. François Laruelle has called this the “half-ascending vector”, the ascent as seen from within the Human.⁰⁹ The half-ascending vector touches the “lowered Sky,” without denying the infinity of the Other side of the Sky nor its identity with the Center. It is the stars close enough that we can almost touch them, not so much further away than the clouds.¹⁰

The Earth is what is interposed between the Ocean and the Sky, like the turtle onto which Falling Woman falls.¹¹ The Mayans speak of lifting the Sky from the Ocean and the journey of the Maize God to the Center where this happens.¹² The Milky Way moves from vertical to horizontal to vertical positions across the Sky—reflecting the geometry of the elementary subjective positions—becoming the World Tree that meets at the three stars of Orion, laid out on the turtle’s back.¹³

We are what Laruelle calls the Water-Fish, who never leaves the Ocean, through an idempotent relation between the Fish and the Wave, swimming in the Wave as the Wave.¹⁴ It is the play of identities that myth reveals through continually crossing differences or intersecting them in the Center. We are at the middle of a Canoe, both its back and its front, the far and near marriage, warfare, where the poles of the

06 Cf. SIDNEY WRIGHT, Aaron, “The Advantages of Bringing Infinity to a Finite Place: Penrose Diagrams as Objects of Intuition”, in: *Historical Studies in the Natural Sciences*, 44(2), 2014, pp. 99–139.

07 Cf. CAVIA, AA, “Shannon’s Demon”, in: *Triple Ampersand*, <https://tripleampersand.org/shannons-demon/>.

08 The surface provides a minimum of exteriority when space-time collapses to the nonextensional center.

09 LARUELLE, François, *En dernière humanité. La nouvelle science écologique*, Paris: Éditions du Cer, 2015.

10 HOOPE, Gotz, “When the Shark Bites the Stingray: The Night Sky in the Construction of the Manus World”, in: *Anthropos*, 95(1), 2000, pp. 23–36.

11 In the creation myth of the Iroquois.

12 FRIEDEL, David, SCHELE, Linda & PARKER, Joy, *Maya Cosmos: Three Thousand Years on the Shaman’s Path*, New York: William Morrow and Company, 1993.

13 Ibid.

14 LARUELLE, François, “The Tsunami and the Myth of the Water-Fish: A Short Essay on Fantastic Zoology, to Add to Borges and Schrödinger” (trans. SMITH, Jeremy R.), in: *Oscillations: Non-Standard Experiments in Anthropology, the Social Sciences, and Cosmology*, 2021.

Others meet, as in the canoe-journey of the Sun and Moon.¹⁵ The Canoe is a Snake full of Fish, and the Snake is simply the expanded Fish, the holographic or conformal Fish that is each of the stars.¹⁶

Laruelle describes a collapse that at the same time creates an opening and ascent from Earth to the Universe.¹⁷ This is the beginning-end of worlds, at the eschatological collapse of Sky and Earth, precisely where it becomes possible to hold open the space in-between, a prophet's discourse from the center of the CCC.¹⁸ Laruelle defines a human Planck's constant "*h*", below which (to the animal) one does not descend, and above which (the God) becomes proportionate to the Human. We add a holographic tiling of these Planck units on the surface of the Black Hole, where the constant "*c*" comes in, the finitization of light, which crosses the infinity of the conformal diagram in an instant.¹⁹ For "*c*" is the ground of the event horizon, which reflects the infalling space upward as the holographic Sky.

The Sky and Earth are not confused, but superposed, holding open their distinction. As in Pope Francis' *Laudato Si'*, the universal presence of God in creation is maintained through the distinction between the terms, in the humanization of God and the divinization of the Human in Christ.²⁰ But Jesus would not be the only historical operator of this movement, for functions and persons distinguish themselves as in Edward Butler's polycentric polytheism and in the function/term positions in Lévi-Strauss's canonical formula of myth.²¹ Rather, there would be a polycentric symmetry of such Christ figures, emerging at the hinges of the world ages and aeons, at each Center.

Each Christ would be a humanized form of the World Tree itself, which otherwise might appear as the animal (the Anaconda for example) or the God (the staff of a demiurge). A decision does not need to be made, in fact, between the humanization of the God (a secular Christ and enlightenment realization) and the divinization of the Human (a supposedly unpalatable transcendence); nor between the animalization of the Human (in the Earth-System) and the humanization of the animal (in either the sense of "animal culture", which Laruelle treats, or the perspectival sense of Amazonian worlds, described by Viveiros de Castro²²). Need we mention the animalization of the God (the "dark"

15 LÉVI-STRAUSS, Claude, *L'origine des manières de table*, Paris: Plon, 1968.

16 In the creation myth of the Eastern Tukanoans.

17 LARUELLE, En dernière humanité. *La nouvelle science écologique*.

18 KOPENAWA, Davi & ALBERT, Bruce, *The Falling Sky: Words of a Yanomami Shaman*, Cambridge: Belknap Press, 2013.

19 Cf. HARAMEIN, Nassim, "The Schwarzschild Proton", in: *AIP Conference Proceedings*, 1303(1), *Computing Anticipatory Systems: CASYS '09: Ninth International Conference on Computing Anticipatory Systems*, 2010, pp. 95–100.

20 FRANCIS, *Laudato si': On Care for Our Common Home*, Huntington: Our Sunday Visitor, 2015.

21 BUTLER, Edward P., *Essays on the Metaphysics of Polytheism in Proclus*, New York: Phaidra Editions, 2014; LÉVI-STRAUSS, Claude, "The Structural Study of Myth", in: *The Journal of American Folklore*, 68(270), *Myth: A Symposium*, 1955, pp. 428–444.

22 VIVEIROS DE CASTRO, Eduardo, "Cosmological Deixis and Amerindian Perspectivism", in: *The Journal of the Royal Anthropological Institute*, 4(3), 1998, pp. 469–488.

God who accounts for finitude) or the divinization of the animal (the “totemic” Gods of the Egyptians, the animal-ancestors of Amazonians)?

The system emerges as a crystal, or Rubik’s cube, whose discrete state-transformations exist in complementarity with the unfolding Wave of the Ocean. It is a transformation group, a canonical formula, a chiasmus, the form of myth as much as the content it literally posits. It is its inscription on the writing tablet of the Sky, as an image that stands for itself.²³

The CCC is the conformal invariant that crosses the worlds. We choose to speak from that invariant, set it up as a model in which the plurality of cosmologies is superposed in an ancient now. We cross relations into surfaces and surfaces into points and invent space-time as nothing but the Center. We take the point of view of light, of black body radiation, in the instant it passes from one universe to the next.



A Conformally Compactified Geometry (M. C. Escher)

To compactify the universes and time with it solves the problem of potential and actual infinities, only displaced with Cantor’s transfinite sets. The Moderns pride themselves on the incompleteness of a transcendence, of a transitive delay, whether as the endless series of

23 WAGNER, *Symbols that Stand for Themselves*; ROCHBERG, Francesca, *Before Nature: Cuneiform Knowledge and the History of Science*, Chicago: University of Chicago Press, 2016.

sets or as a waiting for the God at the end of History, never thinking to change the axiom from transitivity to intransitivity. But Sky-Earth systems science does not wait for the God at the end of “metaphysics”, but thinks from the God as already here, at the crossing in the Human.

When the time that crosses the universes is compactified within them, the series of skies is infinite and yet complete. We describe it as a nested conformal diagram (conformal diagrams inside conformal diagrams) with infinity meeting at the cardinal points at every scale. Infinity is Housed in a great Longhouse, a Longhouse made out of Longhouses, persons made out of persons, what Roy Wagner calls a fractal person.²⁴ Indeed, it is the crinkling of the boundary that is itself, a half-integer dimension in which it is each of the halves, put together as three-dimensional space. The World Tree branching in it is the tube, the central pole around which the dance of the stars takes place, expanding in and out as the vertical axis or the gourd of the Sky, the long and the round, contained in themselves, without any Russel’s Paradox.²⁵

The mereology of the CCC mirrors the counting system of Omalyce in the Eastern Highlands of Melanesia, a complete person made of complete persons.²⁶ The Anaconda is the conformal rescaling of the animals on its surface, the fractal Animal, a totemic operator, where wholes are reflected in parts.²⁷ Is it not what Butler calls the One as *each* God, *each* One, a Henad, and so a fractal God, distributed through the space-time that is its own mask?²⁸ A fractal Human, Animal, and God, fractalizing each other in perfect conformality.

We prefer C-theory, complete conformal cyclic cosmology of the center, to D-theory, the displacing, deviating, dispersal of the center to the periphery, the philosophies of Difference, the ellipse as triumph over the Sphere. We do not reverse Platonism, which makes everyone a Second, but replace the Despotism Pyramid with a Polycentric one, build a Monument in which each is the First and the Last, never Second. Instead of the micro versus the macro, scale-invariance; instead of the pure series of time, intransitive eternity. Instead of the non-Modern nomads of the Earth versus the non-Modern despotics, the generic Ancient, who is everyone, at the Center of the Sky-Earth System.

When Yanomami shaman Davi Kopenawa describes the Xapiri images of the animal-ancestors as luminescent, ornamental skins and

24 WAGNER, Roy, “The Fractal Person”, in: GODELIER, Maurice & STRATHERN, Marilyn (eds.), *Big Men and Great Men: Personifications of Power in Melanesia*, 1991, pp. 159–174.

25 KEHÍRI, Tomaru & PAROKUMU, Umüsi, *Antes o Mundo Não Existia: Mitologia dos Antigos Desana*, São Paulo: UNIRT/FOIRN, 1995; HUGH-JONES, Stephen, “The Origin of Night and the Dance of Time: Ritual and Material Culture in Northwest Amazonia”, in: *Tipiti: Journal for the Society of the Anthropology of Lowland South America*, 16(2), 2019.

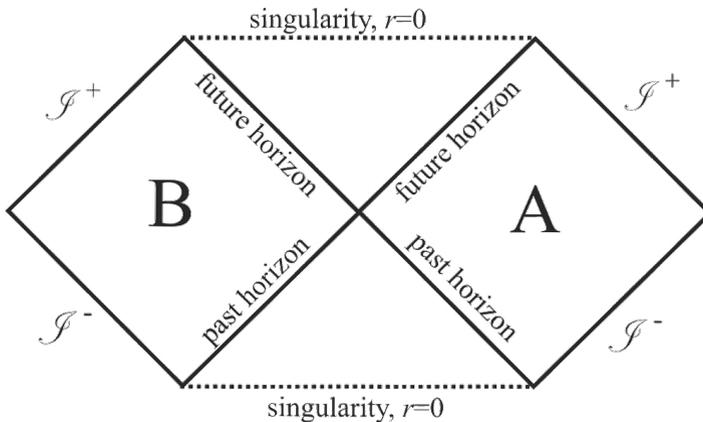
26 MIMICA, Jadran, *Intimations of Infinity: The Cultural Meanings of the Iqwaye Counting and Number Systems*, Oxfordshire: Routledge, 1988.

27 LÉVI-STRAUSS, Claude, *Wild Thought: A New Translation of “La Pensée Sauvage”* (trans. MEHLMAN, Jeffery & LEAVITT, John), Chicago: University of Chicago Press, 2021 [1962].

28 BUTLER, Edward P., *Essays on the Metaphysics of Polytheism in Proclus*, New York: Phaidra Editions, 2014.

simultaneously as the Center and heart of the animals, he thinks with the holographic principle.²⁹ For it is as if the normal body-surface of the animal is exchanged for the spiritual surface of the Xapiri at the moment the Center is accessed. If it is that play of surface and center that creates the depth of the universe, then the Xapiri will come to rest both within the breast of the shaman and within the chest of the Sky, such that the reduced space of the Center and surface creates the dimensional volume between Sky and Earth, and within the Human, in which the Xapiri can act, or their effects can be registered.

If the chest of the Sky has its own surface, would it not be the Other side of the Sky, the Center of the Xapiri themselves, as the Yarori animal-ancestors? The Xapiri would be a double holography, creating the internal space between Sky and Earth in order to realize the original identity between the Human and the God. There has to be, in a sense, a container within a container, such that the surface is folded back into the Center, a Black Hole inside a Black Hole.³⁰ Omama, who created the Mountains that are both Houses for the Xapiri and pillars between Sky and Earth, would be this container of the container, the vision from the CCC and from the beginning of the Sky-Earth System.



Intersecting Cosmological Horizons

The Universe is a Black Hole: not a time-symmetric Black Hole, but an anti-symmetric and intransitive one, where time both continues and moves backwards at once.³¹ The Black Holes shed their surface as radiation until it becomes the Universe's conformal surface, a double twist

29 KOPENAWA & ALBERT, *The Falling Sky: Words of a Yanomami Shaman*.
 30 GOOD, Irving J., "Chinese Universes", in: *Physics Today*, 25(7), 1972, p. 15.
 31 Cf. HAGE, Per & HARARY, Frank, *Structural Models in Anthropology*, Cambridge: Cambridge University Press, 1983.

in which they sacrifice themselves to become the Big Bang.³² They are the act of Purusha in the Vedas, or the Moche spider decapitator, or Kuwai of the Northwest Amazon.³³ The double twist does not twirl into nowhere, but—*exactly as depicted*—places an X over the Center, reflects the poles across each other in intransitive supersymmetry.

The Sky is falling.³⁴ The homeostatic equilibrium of the Sky-Earth System is breaking down. Sky-Earth systems science tries to reverse this entropy, to reenter the belly of the Anaconda who sheds his skin so as to live forever. The Human opens the breathing-space between Sky and Earth—neither collapsing the vertical into the horizontal nor debasing the horizontal through it, but learning to live in the Forest of World Trees, the living breathing forest that is everything.³⁵

When the finite limits of the planet are reconciled with the conformal infinity of the Sky, we will see the Earth as a star without leaving it. The orb of the Earth will be reconciled with the animals, and we will see their shapes laid out as the constellations. We will see the God reflected everywhere, in the simplicity of the person and in the pulse of the heart. We will travel in a Snake-Canoe to where the ancients are and have always been, at the Center of the Universe.

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32 With its low-entropy initial conditions.

33 MARANDA, Pierre (ed.), *The Double Twist: From Ethnography to Morphodynamics*, Toronto: University of Toronto Press, 2021; WRIGHT, Robin, *Mysteries of the Jaguar Shamans of the Northwest Amazon*, Lincoln: University of Nebraska Press, 2013.

34 KOPENAWA & ALBERT, *The Falling Sky: Words of a Yanomami Shaman*.

35 KOHN, Eduardo & USHIGUA, Manari, "A Reflection on How Forests Think", in: *The Otherwise*, 1, 2020, http://theotherwise.net/articles/article_how_forests_think.html.



Nothing but a lone earwig on the floor. Its antennae wiggling with clueless fervour. There could have been more, hidden somewhere in the cracks of the wooden flooring. Their tiny black and brownish abdomens slithering over each other, enthralled by the pheromonal intimacy. It is said that if the conditions are right, the earwig can swarm in masses, spilling out of crevices in multitudes as to literally cover entire household floors.⁰¹ Autonomous movement can give way to that of a liquefied corporeal deluge, rendering the beings powerless, entangled by the material consequences of their social drives. It is also said that, contrary to common belief, the earwig cannot lay eggs in one's ear canal and does not feed on the human brain.⁰² For the idea that they do or could to be refuted in such a decisive manner speaks of the curious pervasiveness of the idea. Even though the name (ear-wig, from Anglo-Saxon *ear*, the ear, and *wigga*, a worm, in French, *perce-oreille*, and in German, *Ohrwurm*), according to some, comes from the appearance of the being's membranous hind-wings that, when unfolded, resemble the human ear (hence, its scientific name *Dermaptera*, derma, meaning skin, and pteron (plural ptera), wing), it is the threatening appearance of its rear pincers and the notion of them burrowing into the human ear that has, for the most part, solidified the critter's presence in the

01 COWAN, Frank, *Curious Facts in the History of Insects; Including Spiders and Scorpions*, Philadelphia: J. B. Lippincott & Co., 1865, p. 76.

02 Ibid.

collective subconscious. The earwig rarely takes flight. Its delicate membranous wings are folded and carefully tucked under its leathery forewings. When it does, though, it often uses its hind pincers to help fold back the origami-like wings. The sharp tips caress the thin, ear-shaped membrane and position it into place as if the creature was threateningly boasting. The action does not need to be experienced or demonstrated to be effective. The piercing of the eardrum, the nibbling on the brain, it is all rather coincidental, inconsequential, their symbolic weight measured in the centuries that the fear of the earwig has remained a presence in the human consciousness.

Then again, there might have been two, one on the floor, the other crawling under the sole of father's old shoe. The dimly lit room made it difficult to discern. Shadows merging with objects, cracks of the floor zigzagging before the straining eyes. At dusk the house became quiet. There used to be an owl, sheltered in the attic, that took its flight when the shades of night were just about to gather,⁰³ but father shot it down some years before. From then on, there was only silence until the night brought about its soundscape. I remember how empty the air can seem when there are hardly any speckles of dust hovering around the lightbulb. With the owl gone, not much moved in the house. Just an earwig or two. Still, I've never seen one spread its wings. Flight might have been exchanged for ease at manoeuvring tight spaces, exchanging the vacuousness of the sky for the viscosity of soil and damp wood, making them better at slipping through crevices, sliding into our nightmares. The earwig is no (mere) parasite. It occupies the collective mind instead of a particular body, petrifying it into submission. It appears tactical. Frozen still it springs into movement until abruptly halting into rest again. That is before coming across its psyops tactics. Mimicry is present among various species, yet if the resemblance that the wings have to the human ear could indeed constitute a case of mimicry, it has to be mimicry through some speculated function. A trait that, at best, anticipates the emergence of inter-species tension, even if there's little evidence of such tension ever emerging: addressing a predator that hasn't and probably won't become one, while imitating means of predation that haven't (so far) posed a probable threat to said predator. How else would it have worked?

By targeting the ear and brain they first come for your hearing, then your cognition, silencing the part that tends to become the loudest when darkness begins to settle in the room. At times I could hear them hissing back at it, doing their best to disrupt the repetitive thoughts, voices and tunes that loop outwards into the shadows as echoes of surroundings long lost. High pitches, rhythmic oscillations

03 HEGEL, Georg W. F., *Philosophy of Right*, Kitchener: Batoche Books, 2001, p. 20.

only made them more vicious. My hearing hasn't been as reliable ever since father took that shot. Yet I sensed them tensing around me. I saw their shivering antennae, determined stances. Maybe they found my thoughts threatening. Maybe they perceived them as occupying a space they considered their own. An earworm settles deep within the white matter of the brain. Lesions cause inflammation in the auditory association cortex, producing musical hallucinations.⁰⁴ Adorno could have been right about the dangers of popular music. Few have been able to escape its pull. Its repetitions make for a dizzying centrifuge, spewing out emotions left and right. Perhaps that's what made him such a hyperemotional complainer—as Wiggershaus would have put it—monotonously prejudiced in his views, irresponsibly protean in his thought, and unable to formulate testable hypotheses.⁰⁵ Just like father.

He never could accept the waning of his senses. The oscillations bouncing off the shades of night taking over. He could not accept the state of his new home, riddled with critters spilling out of the cracking wooden floor. He knew not how to befriend them. How to speak into the dark of cognition, accepting the lesions of ageing flesh. Maybe that's what led him to burn all his books. Driven from their hiding place, the critters had no other choice but to run for the cracks. Go underground, where their numbers are but a vague potentiality. Perhaps a lone mother earwig, caring for its baby earwormlets. Not all would make it. Some would have to resort to cannibalism if mother would fail to supply sufficient nutrition. Or there could be swarms, an exodus or mass spillage ready to take over the entire floor. In his last days, he would find solace in his chair. I used to think it helped him remain grounded. Staring into the nicotine-stained walls, he would practice his last attempts at concentration. A deluge is easier to contain if the senses are centred—the amount of stimuli reduced to a minimum; lesions given the time needed to heal. Only to later realise that he was barely the same man at all. That despite his best efforts, the shadows eventually overcame his tired will. The earwigs burrowed into his flesh, the earworms into his ideas, meeting halfway and merging into what would become the spastic expression of his cold corpse.

First the owl, then father, after that it was pure stillness. Underground is where the critters hold on to power. Light does not interest them. No point in spilling over surfaces if there is no host to take as their own. My presence has been a strange exception. I never wondered too much about it. The earwigs intrigued me, entertained me with their fussy demeanour. The battered copy of Schelling's *Weltalter* was one of the few things I managed to salvage from father's

04 HUSAIN, Farhat, LEVIN, Jeremy et al., "Recurrent Refrains in a Patient with Multiple Sclerosis: Earworm or Musical Hallucinations?", in: *Multiple Sclerosis and Related Disorders*, 3, 2014, pp. 276–278.

05 HULLLOT-KENTOR, Robert, "Translator's Introduction", in: ADORNO, Theodor W., *Aesthetic Theory*, London & New York: Continuum, 2004, p. xx.

fits of confusion. The notion of the splitting of god helped shape the final days of the disappearance of what I couldn't help but consider a central figure in this story, whereas the emergence of time, its elusive causation, made for a fitting prelude to what followed. Time becomes prickly when one stares into the dark for too long. The past and the future pinch the present like the forceps of an agitated earwig. Drawing blood. Splitting it open. Giving way to the plenitude of temporal pathogens, parasitic temporalities, nomads of Aiôn. Earwigs, earworms and all critters that favour the damp caverns of the underground, the cracks of flooring, the shades of dusk, burst forth. There is no floor to spill over, no overground to the underground. With Minerva's missing flutter, the long-dispersed ashes of father's books, his spastic remorse instilled forever on his cold remains, space began to lose meaning. And with meaning gone, one began to see things from a different point of view.

No distance, no scale, just damp darkness—this is what the earwig calls home. A parasite enters the body of its host and makes it its world. All worlds have a timeline, a beginning and an end. Only the parasite cycles through them and escapes its inescapable finitude. It is eternal, even if by consequence always merely potential. Living in the dark. In the innards that it calls home. An earwig is no (mere) parasite, it exchanges the fleshy innards of a body for the noetic innards of collective minds. By that, it is far more successful than any ordinary parasite. Traversing intelligence and binding it to its will; like a pop star's tune resonating through the brain matter of generations past her civilisation's end. This is what earwigs hiss at when they sense an earworm in their midst. A host already taken, already lost. With their tactical movement, they threaten, if need be expand their origami-like membranous hindwings and slowly fold them back in with their pincers. The fold is complex, yet the push of the pincers ever so simple and delicate, one might even say beautiful.

Father often told me that beauty is rarely in the eye of the beholder. Instead, it more often than not occupies the tip of their tightly gripped knife. A bounty of and for the victors. It is why it always becomes kitsch in times of peace and ruin in times of war—beauty can be beauty only when the dagger can still be held drawn. Father is now dead, his body crawling with earwigs and his grip never firmer, yet beauty still refuses to show. So much for his lectures. But despite such a disappointing outcome, there is still something about the earwig's demonstration that shows promise when dusk settles, yet again. Beauty might not be its intent, and threats have always been more successful when there's less show at play. What the fold of its wings achieves is no mere boasting, but rather a concession. A coming to terms with and acknowledgment of the fact that it will eventually surpass its imposed

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finitude only vicariously, through its spectral double. The threatening tip of its pincers burrowing not just into any flesh, but brain matter, into the lesions that eventually cause the musical hallucinations. Could there be any other reason why the earwigs have spared my being for so long, if not for the fact that I have already accepted them into my own?

Nothing but a lone earwig on the floor, then again it might have been two. One coming to terms with the burden of corporeal existence, the other already piloting the rhythmic soundscapes of my drifting thoughts. If or when the control should cease, the other would eagerly take its place. Until then, I keep count.

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Life is the combustion of love.
 –Alex Grey, *The Vast Expanse* (1994)

Can we quantify the unquantifiable, compute the uncomputable, or capture the infinite with the finite? This seems to be the problem one faces when trying to develop a theory of creation. The creativity of the human mind or the creativity of nature seems to be far beyond any type of *understanding*, moreover many elements seem to hide even more when one tries to explore them. In a way, it is just like when you are not looking for *love* but it suddenly appears in front of you, elements of nature's creativity seem to marvelously manifest when you are not looking for them. Is this then a doomed mission? Can language even be used to express a glimpse into the process of creation inside the universe? Well, these words attempt to go beyond mere understanding and are doomed to provide an inadequate *feeling* for what I believe are the core elements involved in the process of creation. Perhaps this failed journey will be the catalyst to put some of these elements into *action* and manifest the process of creation itself.

Nature is at its core unpredictable, clearly, phenomena like fluid turbulence, the lifespan of an organism, or the future of technology are fundamentally irreducible. However, the key insight is that even if we have to follow the evolution of these systems step by step, they form structures at different *layers* or *slices* and we are able to *perceive*

these structures and give different *descriptions* of the phenomena. Turbulence seems endlessly complicated and fine-grained, but its energy spectrum follows statistical power laws. An organism varies greatly depending on the environment, but its size and lifespan are constrained by energy scaling laws. Lastly, technologies are built from millions of components, but they are themselves built from already known technologies. Slicing the phenomena of creation itself has generated incredibly generative theories like natural selection and cultural evolution, but it has also revealed elements that go beyond mere description and that manifest in higher forms of language where one gets a feel and perhaps can act upon creation itself.

In a fractal fashion, the theory of natural selection can itself be viewed through a variety of filters, each of which gives an insight into what the theory is really about. However, it is a mistake to believe that one insight captures it all, even if it appears so. We can interpret evolutionary theory from the biological individual perspective,⁰¹ the geological perspective,⁰² the ecosystemic perspective,⁰³ the hierarchical fitness landscape perspective,⁰⁴ as a second-order inheritance or lineage evolution,⁰⁵ or as an undirected novelty generation engine.⁰⁶ All of these insights are complementary frameworks to analyze the effects that one observes in natural selection. Fundamentally they pretend to explain what is *necessary* to transit from the *actual* to the *possible*.⁰⁷ At its core, natural selection is an explanation of a world in constant transformation.

The gist of each perspective's explanation could be summarized as: (biological individual) how did an individual's code change in order to satisfy an evolutionary pressure; (geological) how was the change of an element in the environment able to drive the change of a set of individuals to a new evolutionary equilibrium; (ecosystemic) how did a new evolutionary feature arise as a consequence of a series of new innovations in the ecosystem of a species; (hierarchical) how was a set of evolutionary features able to assemble into a stable building block to explore a new hierarchy of possibilities; (second-order) how evolution might also affect second-order biological properties, such as robustness, complexity, and evolvability, to anticipate the changes of

01 HUXLEY, Julian, "Evolution. The Modern Synthesis", in: *Evolution. The Modern Synthesis*, 1942.

02 SMITH, Eric & MOROWITZ, Harold J., *The Origin and Nature of Life on Earth: The Emergence of the Fourth Geosphere*, Cambridge: Cambridge University Press, 2016.

03 KAUFFMAN, Stuart A., *The Origins of Order: Self-Organization and Selection in Evolution*, Oxford: Oxford University Press, 1993.

04 HILLIS, Daniel W., SYKES, Christopher, DYSON, George, "W Daniel Hillis—Nature—The Great Engineer", in: *Web of Stories*, October 2016.

05 KRAKAUER, David C., "Playing Go with Darwin", in: *Nautilus*, 2020, <http://nautilus.us/issue/94/evolving/playing-go-with-darwin/>.

06 STANLEY, Kenneth O. & LEHMAN Joel, *Why greatness Cannot be Planned: The Myth of the Objective*, Cham: Springer, 2015.

07 PATARROYO, Keith Y., "Intelligence as Life", 2022.

an organism many generations in the future; (undirected evolutionary novelty) how can evolution find the solution to a complex problem space by exploring all kinds of unpromising solutions and almost by accident getting closer to a promising one.

Within all these perspectives one naturally also finds a set of polarities. On the one hand, evolution seems very much *contingent*, the life we currently have seems to be a series of coincidences that are dependent on some historical factors that we cannot predict. On the other, it seems that evolutionary features are *inevitable*, they arise just when all the bare ingredients are on the table. For example, the amino acids in our genetic code are the easiest chemistry that can be formed with the carbon backbones coming from the reverse citric acid cycle.⁰⁸ This constant fight between inevitability and contingency is at the core of evolution and life. Moreover, it is also at the core of the different scientific approaches to life and evolution: on the one hand, physicists, chemists, and geologists are much more comfortable looking at the inevitable picture, since it easily fits into a deterministic framework; on the other, statisticians and biologists much prefer the contingent aspect, since it allows for more freedom by looking at a population view of evolution,⁰⁹ where its dynamics are modeled stochastically.

The possible resolutions of these polarities are a very productive set of ideas that allow us to consider new creative possibilities. For example, according to Peirce,¹⁰ one is not to consider these two polarities as irreconcilable, but rather as stable elements of the process of *becoming*. While the contingent part focused on the freedom to look for solutions to evolutionary pressure, there is, in the background, maintenance of the becoming. In other words, nurturing the becoming is fundamental to keeping the key elements and finding a path in the possible to get stable features and satisfy the evolutionary pressure. After this process, this path looks like the only natural path, almost a property of the system, in other words, the result just *is*.¹¹ Another way to think about it is that the idea of causality appears in the process of becoming, but its mark is lost when observed from either polarity.

The process of becoming very much relates to the other pole of the creation of the universe, humanity. In this regard, it is also important to discuss the emerging theory of cultural evolution. The phenomena of the evolution of culture differ from the modern synthesis view of biological evolution in many ways. Here we focus on two fundamental elements, the first is that there are designers, and

08 PATARROYO, Keith Y., "Technology or Monetary System: What is the Key to Progress?—Part II: The Case for the Monetary System", in: *Medium*, 2021.

09 PENCE, C., *The Causal Structure of Natural Selection (Elements in the Philosophy of Biology)*, Cambridge: Cambridge University Press, 2021.

10 PEIRCE, Charles S., "Evolutionary Love", in: *The Monist*, 1893, pp. 176–200.

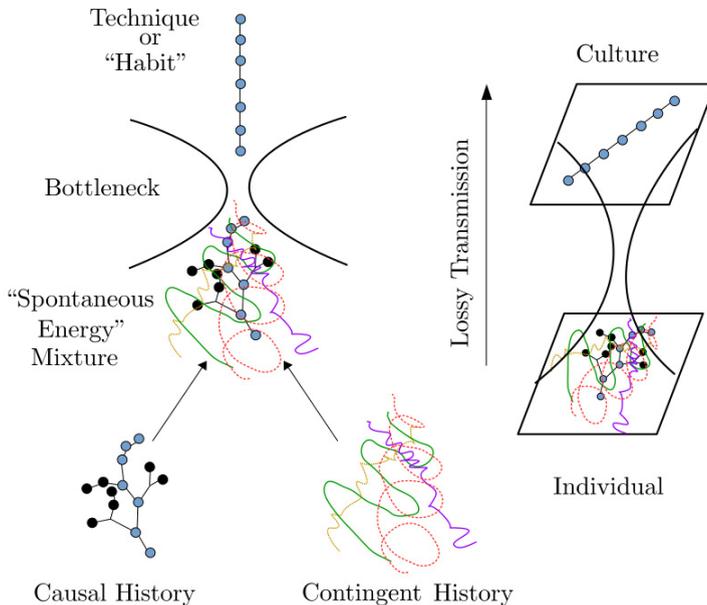
11 MACH, Ernst, *The Science of Mechanics: A Critical and Historical Account of its Development* (trans. MCCORMACK, Thomas J.), La Salle: Open Court, 1960 [1907], section: The Economy of Science.

the second is the fact that, unlike with biological species, there is no well-defined “biological” individual (biological replicators) in a cultural context. This last element makes culture much more fast-paced, since parts of the network of an idea are created and destroyed very quickly, whereas in biological evolution it takes a great number of resources for an animal to be born and its lifespan is much longer. Nevertheless, the real engine of creation is as mysterious in culture as in biological evolution. In fact, if we believe that creation in the universe has a common structure and that biology and humanity have been able to tap into this phenomenon, it is of fundamental importance to understand both at a deep level. This underlying weave is what I denote as the *Psyche of the Universe*.

If we realize that complexity, order, and knowledge in the universe are centralized at many different scales, we find that cultural evolution, biological evolution, and the organization of the universe share a similar structure. Our planet is highly complex in a mostly empty universe, there are few technologically advanced countries on Earth, and most of the complexity of a country lies within cities. In a similar way, while life can be found in the most obscure place on earth, this life is usually unicellular and its characteristics include autotrophy or reductive metabolisms. In fact, what we consider as a complex individual, that is a multicellular organism with heterotrophy or oxidative metabolism, is very much the exception. In a similar way in the cultural context, there are *nodes of great creativity*, usually hidden away from mainstream culture, where individual creators and company monopolies generate most of the complexity within society.

The idea of individual creators being a force of change is, while criticized, more acceptable in arts. However, in contemporary scientific culture, it is very much discarded. People say that science is done in collaboration, and that individuals are not the *catalyzers* of change. These two polarities are another source of conflict in the arts and the sciences. However, I don't see this as a fundamental contradiction. Once we take a layered view of cultural evolution, it will become clear that those great individuals are usually a source of great creation. Taking mathematics as an example: in the bottom layer, where we have very prolific individual creators (Grothendieck, Shelah, Erdős) there is great variation at a fast rate, however, it is the second layer (the mathematical community), even though it moves much slower, that is of greater “influence” than the bottom layer. While individuals might be recognized, the association between them and their creations is usually forgotten. The reason why they are not fully acknowledged is exactly the same as before, once they are completed, their creations

seem inevitable,¹² or in mathematical lingo, trivial. However, what happens here is that in the projection from the individual layer to the cultural layer much is lost, the ideas, the inspiration, the great network of connections, and intuitions of each individual mind (this is what Peirce denoted as “Spontaneous Energy”). What is transmitted to the cultural layer is the *technique* because that is what can be transmitted.¹³



The back-and-forth between cultural and biological evolution is extremely fruitful if one knows with *precision* what phenomena are analogous in the other realm. For instance, the ideas of biological evolution and ecology have been used in language evolution and cultural history.¹⁴ Conversely, combinatorial evolution, a subcomponent of cultural evolution,¹⁵ has been used as a possible mechanism of early life’s evolution. This led to the proposition that processes like horizontal gene transfer were instrumental in early cellular life. Moreover, models of early life like autocatalytic networks have been used to

12 KLOSINSKI, Leonard F. et al., *Is Mathematics Inevitable?: A Miscellany*, Washington, D.C.: Mathematical Association of America, 2008.

13 PATARROYO, Keith Y., “Von Neumann’s Final Dream: Mathematics is a Form of Life”, in preparation.

14 KESTEMONT, Mike et al., “Forgotten Books: The Application of Unseen Species Models to the Survival of Culture”, in: *Science*, 375(6582), 2022, pp. 765–769, <https://forgotten-books.netlify.app/>.

15 ARTHUR, W. Brian, *The Nature of Technology: What It Is and How It Evolves*, New York: Simon and Schuster, 2009.

model cultural evolution,¹⁶ since in early life there was very likely no biological replicator, and just like in culture, network components are highly interconnected and cascading effects are much more common. In fact, some people regard this kind of evolution as Lamarckian, where the traits transmitted to the other pieces of the network are the ones acquired in the lifetime of a cultural trait.

Another very productive bridge lies between the idea of life, evolution, and non-equilibrium economics, as the idea of creative destruction was described by economist Joseph Schumpeter in his treatise on capitalism.¹⁷ In fact, he very much believed that an economy is very much like a life form, creating itself out of itself. We can expand on this idea by thinking from a technological point of view, assuming that an economy produces mainly a set of assets, services, and technologies. Since new technologies are built from technologies already in use within an economy, we can conclude that new exports in fact create themselves out of themselves. This analogy can be pursued further, leading us to recognize *knowledge* as a fundamental quantity, and in turn, examine the details of how is it created, destroyed, stored, and what it can enable us to do.

To formalize the idea of knowledge, we'll take its definition from constructor theory,¹⁸ where knowledge is a quantity of information that maintains itself over time and is able to catalyze a transformation.¹⁹ At its core, it is the key element from which one could *in principle* generate a transformation. However, the specifics of the transformation are very much contingent. Fundamentally, knowledge can be stored in three different mediums: *materials*, *codified knowledge*, and *brains*.²⁰ For instance, if we have a message in a bottle, it is of fundamental importance that are we able to open the bottle, read the message and understand its meaning. There is knowledge stored in each of these layers, however; if the code is not understood, then the knowledge in the message cannot be instantiated.

The implicit appearance of causality in this formulation of knowledge implies strongly that time may play a more fundamental role in the foundations of physics.²¹ Moreover, the observation that knowledge is overall increasing over time²² may become a fundamental

16 GABORA, Liane & STEEL, Mike, "An Evolutionary Process Without Variation and Selection", in: *Journal of the Royal Society Interface*, 2021, <http://doi.org/10.1098/rsif.2021.0334>.

17 SCHUMPETER, Joseph A., *Capitalism, Socialism and Democracy*, Abingdon: Routledge, 2010.

18 DEUTSCH, David, "Constructor Theory", in: *Synthese*, 190, 2013, pp. 4331–4359, <https://doi.org/10.1007/s11229-013-0279-z>.

19 Note that in this definition, there is a clear arrow on the idea that knowledge causes a transformation, therefore causation is implicit in this formulation. But it is in the transformation where the arrow really appears.

20 HAUSMANN, Ricardo, HIDALGO, Cesar A., BUSTOS, Sebastián, COSCIA, Michele, SIMOES, Alexander & Yıldırım, Muhammed A., *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, Cambridge: MIT Press, 2013.

21 MARSHALL, Stuart M. et al., "Identifying Molecules as Biosignatures with Assembly Theory and Mass Spectrometry", in: *Nature communications*, 12(1), 2021, pp. 1–9.

22 HIDALGO, Cesar, *Why Information Grows: The Evolution of Order, from Atoms to Economies*, New York: Basic Books, 2015.

element in the description of time's directionality. In this regard, as thermodynamics is deeply related to time's arrow, we see a connection between thermodynamics and knowledge. Furthermore, we can be inspired by the history of thermodynamics and the fact that it was first developed by working with heat engines during the industrial revolution. In an analogous way, we can start developing a thermodynamic theory of knowledge by studying knowledge engines in the information age.²³ With this in mind, we may search for an analogy for heat engines and the fundamental thermodynamic quantities such as work, heat, temperature, and energy. As a first guess, the knowledge engines could be humans or whole planets and the fundamental quantities associated with this new sort of engine would perhaps be knowledge, intuition, and information. We can go further and perhaps ask about its laws, where we might be inspired by the first and second laws, whose formulations²⁴ say that the energy of a system can only be changed by changing the energy of another system by the same amount and a heat engine cannot generate work at a single temperature. Analogously, we can conjecture that there are knowledge engines that can make knowledge "ignite" and in every process of transmission of knowledge with engines capable of different states of "burning" or "combustion" some amount of intuition is lost.

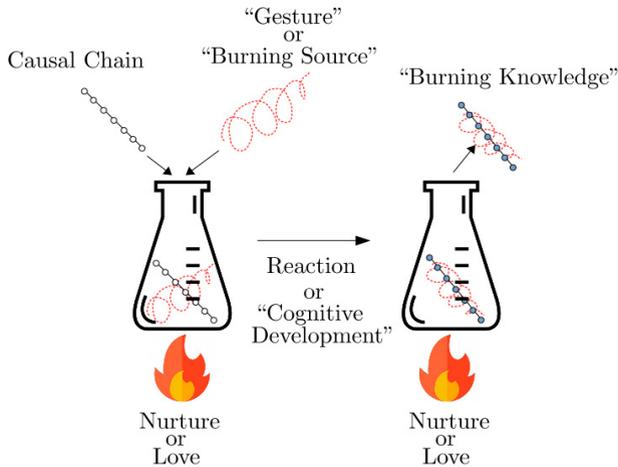
What do we mean by "ignition", "burning" and transmission of knowledge? Interestingly enough, knowledge in "burnt-out" form is exactly what remains in the process of lossy transmission of creative output from the individual layer to the cultural layer. Therefore, burnt-out knowledge alone lacks exactly what is needed to construct or understand a transformation. Note that there are two fundamental processes that we allude to here, *creation* and *instantiation*. At the moment knowledge is first created, it appears in a "burning"²⁵ form, however much is lost in the way of transmission or storage, this spontaneous burning is gone, the burning knowledge becomes burnt-out knowledge, and this loss is very much what we need for burnt-out knowledge to instantiate or "ignite", thereby catalyzing a transformation. In a way, the idea of reverse engineering or bio-inspiration is precisely this; if we have a piece of burnt-out knowledge stored in a material or a symbolic way, how can we instantiate it, or in other words,

23 STREVENS, Michael, *The Knowledge Machine: How Irrationality Created Modern Science*, New York: Liveright Publishing, 2020.

24 These are the Clausius statement of the First Law and the Kelvin statement of the Second Law.

25 Burning knowledge is not necessarily knowledge stored in brains. Humans can memorize burnt-out knowledge; for instance, I can memorize a multiplication algorithm and perform the calculation as precisely as a mechanical calculator does, but if I forget the algorithm or the calculator is destroyed, the algorithm is lost forever. In the case I understand the idea behind the algorithm, I can recover it by remembering a compressing gesture (SAINT-OURS, Alexis de, "Les sourires de l'être", in: *TLE*, 22, 2005) even if I have forgotten about the details; in other words I'm able to re-create knowledge from its burning source plus a causal chain (POINCARÉ, Henri, "Mathematical Creation", in: *The Monist*, 20(3), pp. 321-335). Therefore, a brain is a knowledge engine capable of two different states of combustion or burning.

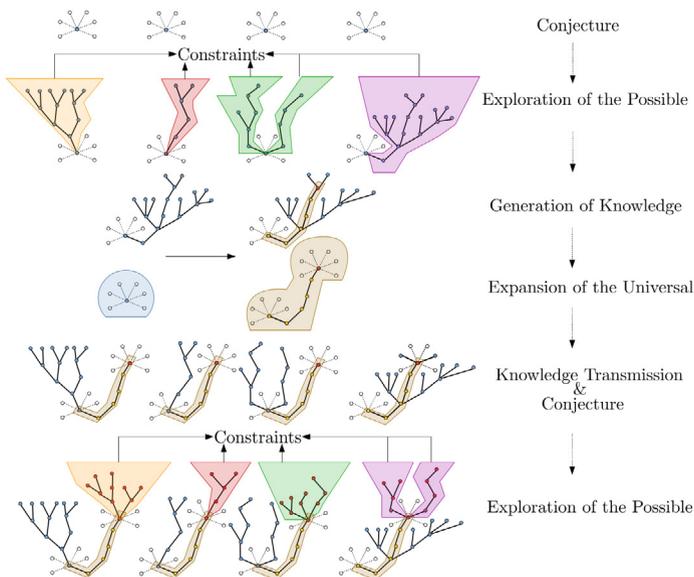
learn the transformation that this knowledge catalyzes? That is what makes this burnt-out knowledge “burn”, the process of learning a transformation. But how can one create this burning knowledge and how can we ignite burnt-out knowledge? Perhaps just like in thermodynamics, we don’t need a mechanism to formulate a useful “macroscopic” theory, however deep experience in the operation of knowledge engines is of fundamental importance to make sense of the theory.²⁶



We can find a qualitative understanding of knowledge engines in the psychology of creativity, where four elements are of fundamental importance. These are what could be described as passion, love, freedom, and discipline. They can be joined into three categories: *Emotion*, *Thought*, and *Action*.²⁷ These three elements are what Grothendieck calls the three poles of human experience. In creative pursuits, Thought is not a primary player, it is secondary, it organizes the structure before and after the creation has been made. More importantly, Emotion contains the elements of passion, love, and freedom; in each of these elements, individuals need to go beyond their head and follow their heart. In this process, they should be free to explore all types of possibilities and follow their heart to all sorts of different places, never be constrained by their own limitations. Finally, this process should be repeated passionately very often, every single day, or even every single hour, the creator generates and generates, never expecting any kind of result, but doing it simply for the love of the craft.

26 This image has been designed using resources from Flaticon.com: Fire by Freepik, https://www.flaticon.com/free-icon/fire_785116/, and Erlenmeyer by Samlakodad, https://www.flaticon.com/premium-icon/erlenmeyer_3676252/.
27 GROTHENDIECK, A., “The New Universal Church”, 1971.

Note that I mentioned *love*, this is of fundamental importance because here I'm referring to what Peirce denoted as *evolutionary love*, by which, he meant the way one nurtures an idea that is growing to be a creation. This is, in fact, the connecting fabric between necessity and contingency in his ideas of a Lamarckian evolutionary theory. He proposes that "habits" or, in our case knowledge, embedded in materials, is the default state of most objects in the universe, and it is by providing them with this fire, with love, that they go beyond habit to a new state of mind. For this one needs the freedom to explore different possibilities, and then love to nurture an idea in order for it to grow once it is conceived. The burnt-out knowledge seems like a simple memory of this process and stills need to be set afire when it has been extinguished by some process. According to Peirce and as we have alluded to before the process of setting something afire is analogous to the process of learning, because once the fire is extinguished one should re-start the process of cognitive development just like one must re-grow muscles each time one stops going to the gym. Moreover, by creating new knowledge and liberating matter from this habitual state, we are increasing the set of what is possible in the universe and expanding the scope of the universal.²⁸



28 The idea that the universe is expanding its capacity for creation is an idea considered by Peirce, but is also being reconsidered today in the quest to find the origin of Life. In this quest some are starting to believe that the early universe had a lower creation capability than today's universe.

This is a description at the level of human psychology, but can we create a model that captures these very ideas, perhaps even in an emergent way? Well, the idea that thought alone can capture the two other elements of human nature is perhaps a little naive. In fact, just as they usually say in religious and mystical circles, once you have experienced it, *it is real!* No matter the explanation. Therefore, what Brower²⁹ denotes as transcendent truth is the very idea that these mystical elements experienced by a human should not be analyzed but rather left as such. By trying to capture them with pure thought, we are transmitting from the bottom layer to the culture layer. All the spontaneous burning is gone if we analyze this with pure Thought. So, is there a way out of this impasse? Can we ever grasp the psyche of the universe in our hands? Well, I think this suggests that a true experience of the creative force should be enacted in the world, and it also proposes that the theory and the practice of creation should be unified. However, this does not suffice, this unification should be nurtured by love in a process of development. It is only at this stage that we will have considered the full scope of human nature³⁰ and the psyche of the universe will be transmitted beyond our planet Earth and us humans.

Embracing the messiness of creation also allows us to reach a new set of possibilities. Instead of looking at mathematics, science, or art as a set of techniques, we embrace the full creative power of these disciplines as new forms of *universality*.³¹ In this way, we conceive higher forms of language that compose beyond sequentiality and rather react like chemical compounds creating new bonds and an explosion of potentiality. In this dangerous process of jumping to the new, we may find nodes of great creativity in marginal areas,³² where we might be able to unleash new transits to areas of contemporary culture and thereby expand the set of what we think is possible. This constant creation of potentiality reflects the way life bootstraps itself out of itself, which means that by this process we are making the universe more and more alive.

By taking this panvitalist perspective we aim to complement a program of sheafification³³ of culture where we avoid dividing the world and look at it as fundamentally mixed. In that way, just like in an environment of creation, that is raw, unpolished, and highly constrained, things emerge because of these constraints, not in spite of them. Therefore, at each stage of constraint generation, the capacity of the

29 BROUWER, Luitzen E. J., "Life, Art, and Mysticism", in: *Notre Dame Journal of Formal Logic*, 37(3), 1996, pp. 389–429.
 30 THIEL, Peter, "The Straussian Moment", in: HAMERTON-KELLY, Robert (ed.), *Politics and Apocalypse*, East Lansing: Michigan State University Press, 2007, pp. 189–218.

31 The New Centre for Research & Practice, "Why Zalamea Matters: Philosophy, Media, and Culture", *Youtube*, 2015, <https://www.youtube.com/watch?v=X7AEfpOh4NQ>.

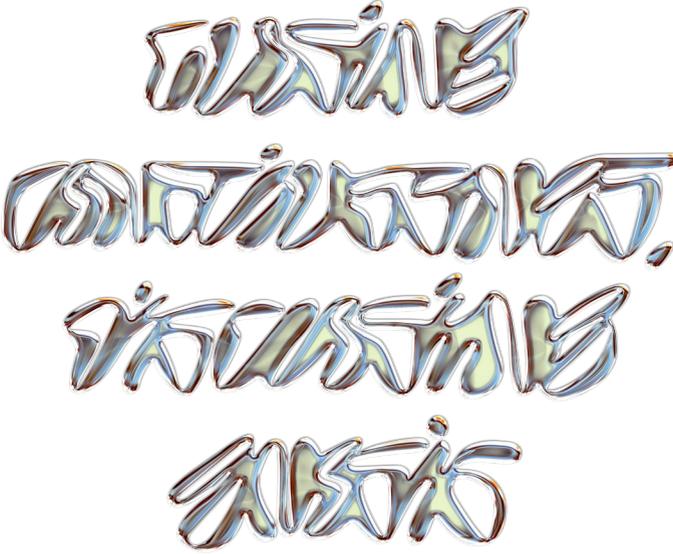
32 This is in fact the objective of Project Galápagos, which attempts to capture the key elements of the creation of the human mind and of the planet Earth, and to enact them in the material world while providing them with nurture or Love.

33 ZALAMEA, F., *Synthetic Philosophy of Contemporary Mathematics*, Cambridge: MIT Press, 2012.

universal increases. Just like that, we will be taking on the quest that Grothendieck left for those who “*regard the enhancement of Life, in all its richness and variety, as being the supreme value*”.³⁴

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34 GROTHENDIECK, A., “The New Universal Church”, 1971.



*Connate unawareness
is mindless oblivious cognizance.*

*Imaginative unawareness
is the clinging to the duality of self and other.
This twofold connate and imaginative unawareness
is the ground of delusion of all sentient beings.
–Samantabhadra*

*Bodhisattvas have no attainment, they abide by the means
of prajñāpāramitā.
Since there is no obscuration of mind, there is no fear.
They transcend falsity and attain complete nirvāṇa.
All the Buddhas of the three times, by means
of prajñāpāramitā,
fully awaken to unsurpassed, true, complete enlightenment.
–Prajñāpāramitāhṛdaya*

*Inscrutable as neither nonexistent nor existent
nor both existent and nonexistent nor other than existent
and nonexistent,
Free from etymological interpretation, to be personally
experienced, and peaceful–
I pay homage to this sun of the dharma, which shines*

*the light of stainless wisdom
And defeats passion, aggression, and mental darkness
with regard to all focal objects.
—Ratnagotravibhāga Mahāyānottaratantraśāstra*

Consciousness (Sanskrit: *vijñāna*; Tibetan: *rnam shes*) is considered to be, from the negative dialectics school (*Prāsaṅgika*, *thal 'gyur pa*) of Indo-Tibetan Buddhist soteriology and orthopraxy, thoroughly and irrevocably erroneous, functioning contrary to and being out of sync with the way things really are (*tattva*; *de kho na nyid*). Since reality is understood as being free from all conceptual elaboration (*niṣprapañca*; *spros bral*)—which is to say that it precedes, succeeds and exceeds the bounds of reflection and categorization—it is inaccessible from the scope of mundane consciousness, which genetically originates from and is transcendently founded upon a primeval bifurcation between an apprehending subject (*grāhaka*) and an apprehended object (*grāhya*), introducing dissonance and friction within our experience of reality where there otherwise are none.

This basic subject-object structure pervades all forms of consciousness, whether sensory-perceptual or mental-intellectual, and is the imaginative or conceptual ignorance (*kun tu brtags pa'i ma rig pa*) derived from a causally preceding and logically antecedent condition of the connate ignorance (*lhenchik kyepé marigpa*) consisting of a basic unawareness of the nature of reality. This means that consciousness does not just risk being out of sync with reality, but more strongly, will always be out of sync since its own discrete, momentary existence is predicated on a privation and appropriation of the qualities and powers immanent to the sublime continuum of perfect gnosis (*jñāna*; *ye shes*), which directly, reflexively and non-conceptually intimates its non-dual unity with ultimate reality (*paramārtha-satya*; *don dam bden pa*).

Since consciousness can only present or represent reality through an integral nexus of differential signs which indefinitely defer their meanings to other signs (this is the logical consequence of a nominalistic theory of concepts and universals held by all Buddhist schools), it is incapable of ascertaining the nature of reality on its own terms. Consciousness is entirely pervaded by the underlying infrastructure of subject-object duality that made it possible in the first place. While the Kantian transcendental deduction of judgements and categories is meant to refer to the *a priori* conditions of all possible experience, an ironic quasi-neo-Kantian Buddhist may accept this view with qualification that the *a priori* is the condition of all *mistaken* experience. Hence the transcendental unity of apperception is a *transcendental structure of delusion*. Enclosed by its own

self-referential circuit wherein any perception or conception of reality is always-already mediated by transcendental delusion, consciousness traps itself within a correlational circle of its own making. Only the power of reason qua analytically discerning wisdom (*prajñā, shes rab*) can pierce through and disrupt the veil of practical illusion in order to disclose the nature of mind.

Mental faculties like ratiocination and imagination are “productive” in that they add to everything being accounted for by a system of thought; whether through differentiation or integration, the quantity of entities are multiplied. They are also “derivative” in that they can only work by originally abstracting from initial sensory data collected from the sense organs and then combining these abstractions to create complex concepts and/or further abstracting from existing abstractions to produce more refined abstractions. In contrast to these mundane mental functions of consciousness, analytically discerning wisdom is thoroughly eliminative: it does not consist of quantitative but qualitative reduction, which is another way to say that it does not concern itself with the mode of appearances of entities since appearances are not the neganda to be negated—it is only concerned with their mode of existence, which is mistaken from the point of view of the imputing ignorance of mental consciousness conditioned by the connate ignorance of basic unawareness, which takes subjects and objects to truly exist.

By allowing us to pierce through the veil of ignorance that construes experience in terms of an *a priori* subject-object structure, analytically discerning wisdom is able to disclose the gnoseological basis of consciousness itself, unconcealing its concealment by consciousness through its absolute negation by means of the immanent critique of all possible modes of existence entertained by the mind. While cutting through the veil of delusion through the power of analytically discerning wisdom is necessary in order to bring one to genuine contact with the real conditions of existence, such moments of cutting or breaking through on their own are not sufficient to completely destroy the propensity for hypostatization and reification, which tends to roar back to the fore when the temporary autonomous zone of meditative equipoise passes into the relatively tumultuous nature of life under “saṃsāra” or the cyclical reproduction of ignorance and suffering.

Hence there must be a *revolutionary* process by which the parasitic and exploitative functions of ordinary consciousness are systematically extricated from one’s continuum, such that the impulse towards the deluded apprehension of objects by an apprehending subject permanently comes to cease. Through the successful dissolution of the transcendental structure of subject-object delusion by means of the immanent movement of analytically discerning wisdom,

the expropriator is expropriated, and the sublime continuum of perfect gnosis as the unity-in-diversity of luminous appearance and empty reality is consummated in the attainment of perfect Buddhahood—the ultimate form of attainment for each and every being—awake, alert and readily poised to give to each according to their ultimate need in accordance with one's maximal capabilities.

The parasitic symbiosis of consciousness and gnosis that affords the former its momentary, apparent existence (in spite of being merely abstracted from the concrete continuum through the differential primitive accumulation of subjects and objects) not only occurs but functions in accordance with the mode of operation peculiar to the terms governing consciousness. Since consciousness fails to represent or even present reality as it is, it can only fabricate a construct of it through the medium of a generic image or universal.

According to the "Valid Cognition" (*pramāṇa; tshad ma*) tradition of logico-epistemology inaugurated by Dignāga and refined by Dharmakīrti, a generic image functioning as a universal (*sāmānyal-akṣaṇa*) is constructed out of a process of inclusive-exclusion wherein a certain *x* is identified by way of the exclusion of all particulars (*svālakṣaṇana*) which do not figure in *x*, such that the identity of *x* is constituted by the "exclusion of the other" (*anyāpoha, sel ba*), $-x$. Hence, the identity of *x* is not afforded directly by *x*'s ostensible correspondence to a truly existing, objective state of affairs that would validate its claim to identity, but afforded only *indirectly* through reference to what it is not. This indirect, rather than direct, relation between a sense and its reference is why Dignāga conceives of the exclusion operation as a form of inference (*anumāna*) rather than perception (*pratyakṣa*)—there is no actual presence of a universal other than the contours implied by the absence of others; words are merely inferential indicators.⁰¹

Since this is a connotationist semiotics based on the principle that the meaning (*svārtha*) of an individual sign or word (*śabda*) is based on its relation to other signs through relations of indirect exclusion, rather than on a denotative, direct correspondence between a sign and its signifier,⁰² the exclusion theory goes radically against the grain of the prevailing orthodox views of the Brahmanical Nyāya-Vaiśeṣika and Mīmāṃsā schools of Vedic hermeneutics, who relied upon a realist theory of imperishable or eternal universals in order to justify the absolute authority of the words of the purportedly

01 SIDERITS, Mark, TILLEMANS, Tom & CHAKRABARTI, Arindam (eds.), *Apoḥa: Buddhist Nominalism and Human Cognition*, Columbia University Press, 2011, p. 66.

02 According to Brons, "the closest Western equivalent to this idea is Derrida's concept of 'différance', which similarly expresses a deferring of meaning (or determination) by reference to or embedding in a network of different, but related, concepts". (BRONS, Lajos, "Dharmakīrti, Davidson, and Knowing Reality", in: *Comparative Philosophy*, 3(1), 2012, p. 39)

“authorless” and “divinely revealed” *Vedas*, which formed the ideological backbone of ancient Indian society with its rigid system of caste.

The Nyāya-Vaiśeṣika in particular were very strict about the proper delineation of the genuine universal, such that they developed a six-step “universal blocker”⁰³ program in order to test the qualifications of a property purported to be a universal by asking whether the property being considered as a universal

- 1) is singularly or multiply exemplified by its particulars,
- 2) shares extension with other universals,
- 3) is mutually exclusive or inclusive with other universals,
- 4) is regress-generating or not,
- 5) is solely an individuating characteristic or not,
- 6) only bears the relation of inherence to its bearer or not.

A purported universal can only satisfy the criteria for inclusion into the domain of real universals if it is determined to be singularly exemplified, not sharing extension, mutually exclusive, is not regress-generating, is not solely an individuator, and bears only the relation of inherence to its bearer. All of these criteria are markedly in contrast to the nature of particulars, which multiply exemplify, can share extension with other particulars, can be mutually inclusive, can be regress-generating, can function solely as individualators, and can relate with each other beyond just relations of inherence; indeed, within these systems of Vedic hermeneutics there is a clear differentiation between universal and particular that is systematically contained with very little room for miscegenation between the two domains.

Any property that does not satisfy each and every single one of these qualifications gets expelled to a surplus population of non-universal generalities granted only titular status, which may be of much theoretical and practical use but are inconsequential to the foundational role “true” universals play in the confirmation and consolidation of Brahmanical authority and by consequence, the firm establishment of the social architectonics of caste. Defined by a hierarchical stratification of self-contained, hereditary classes of persons, these classes of caste bear many of the same qualities that ostensibly true universals are purported to bear: castes exemplify many members, do not share members amongst each other, are mutually exclusive, are not “regress-generating” in the sense that there are no formal castes within castes, are not merely principles of individuation amongst the population but are structures which form the shape of individual lives, and are said to inhere as the pre-given natural disposition and/or role of the person born into that caste. As it has been made evident, grounding the reality of universals in a positive way as corresponding to an

03 Ibid., p. 8.

eternally existent state of affairs was crucial not only to justify the authority of Vedic scripture, but also to naturalize hierarchical social structures of caste and class to the extent that socially constructed positions of status were considered to be natural kinds.⁰⁴

In this context, the pramāṇavadin's exclusion theory looks like a direct attack, at the discursive level, of the very foundations of Brahmanism and its hierarchical class society. This threat was indeed felt strongly by Dignāga's main opponents, Kumārila Bhaṭṭa of the Mīmāṃsā and Uddyotakara of the Nyāya-Vaiśeṣika, both of whom dedicated entire works or least significant portions of their major works to launch scathing yet incisive criticisms of the exclusion theory. Kumārila's specific treatment is based on three distinct charges, that the exclusion theory is (1) counterintuitive, (2) circular and (3) useless.⁰⁵ For the sake of brevity we can lightly touch on the first and third charges before proceeding to a more detailed treatment of the circularity problem.

The first charge that the exclusion theory is counterintuitive rests on the notion that the realist account that universals inhere in the particulars which exemplify them corresponds to our common-sense notions that words point to things they resemble. However, Dharmakīrti points out⁰⁶ that the realist himself does not escape the fact that even his positive theory requires negation to support it: a word must point to its specific referent and no other, otherwise it would be useless. So while the Buddhist nominalist may be putting forth a scheme that seems counterintuitive due to the reliance on negation and exclusion in the constitution of an ostensibly positive phenomenon, she simply makes explicit what the realist makes merely implicit in his own account. The third charge is based on the argument that a connotationist semiotics has no real need for an exclusion theory since even "in the absence of a corresponding external object there is an intuition signified by the sentence". But this entirely rests on the notion of what counts as useful; the exclusion theory is not meant to directly explain how our ordinary epistemic practices function but to explain the logico-causal process of concept-formation.

04 According to Berger, "Naiyāyikas ... are philosophers of identity, and they are so in two senses, one metaphysical and the other methodological. They believe that objects are wholes (avayavin), that is to say, particular instantiations of universal substance-quality relations. Things are identified based on a correct apprehension of essences in which certain qualities inhere. This holds true whether one is attempting to properly locate a tree or a brahmin, since both are examples of natural kinds (jāti) and not constructed kinds (upādhi). This metaphysical essentialism, which serves as a support to the traditional social structure, is backed up by the Naiyāyikas with a methodological bias, which assumes that realistically grounded forms of reference are the only valid forms of discourse and debate." (BERGER, Douglas L., *Indian and Intercultural Philosophy: Personhood, Consciousness and Causality*, Bloomsbury Academic, 2021, p. 104)

05 DREYFUS, Georges B. J., *Recognizing Reality: Dharmakīrti's Philosophy and Its Tibetan Interpretations*, State University of New York Press, 1997, p. 215.

06 According to Pascale Hugon, "Dharmakīrti invokes the necessity of a restriction in the setting of a convention to guarantee that the application of the convention will not be deviant; it is not enough to know what a word applies to, one must also make sure that it does not apply to anything else". (SIDERITS et al., *Apoḥa*, p. 113)

The second, most famous and most critical charge, was the charge of circularity which generally consists of the argument that if we are to constitute x only indirectly through the exclusion of its negation, we would have to have already identified x in order to differentiate it from $-x$. Then it would seem that the constitution of x by way of an exclusion of the negation would be entirely superfluous since x would already be known. This is also sometimes called an “interdependence argument” because of the mutual dependence of x and $-x$. The major force of the argument is not just that the exclusion operation is superfluous because the universal being accounted for is already assumed to exist, but that since both x and $-x$ are mutually constituting, there is no place from which the process of exclusion could even start.

Dharmakīrti attempts to solve this problem by breaking with the strict logical circularity by introducing a unilinear causal relation between x and the particular qualities, y , exemplified by it. Something like x inheres within y , and sensory contact with y produces a generic image of x at the interface between a sensory organ and its corresponding class of sensory object. This generic image is constructed out of a “judgment of sameness” (*ekapratyavamarśa*)⁰⁷ between different particulars, wherein the subject is able to identify a resemblance between a present-moment particular and a stored imprint (*vāsanā*) in the subconscious storehouse of mind (*ālaya-vijñāna*) caused by a similar particular in the past. However, this similarity does not exist objectively “out there” like really existing particulars (this would directly contradict the theory that universals are just names assigned to exclusions), but are rather subjective constructs based on the interplay between an axiological aim driven by goal-oriented practices that delimits the range of what is sought out in experience and the connate ignorance that is unaware of the fact that reality is in the nature of being devoid of true universals. These two conditions work together to constitute an ingrained habit of automatically identifying similarities where there otherwise are none.

The pramāṇavadin's exclusion theory did not just work to solve the problem of how universals can meaningfully extend over particulars all the while being unreal mental constructs, it was also a means to provide a solution to the problem of reconciling the *prima facie* contradiction between the Buddha's teaching that the self (*ātma*/*pudgala*, *bdag/gang zag*) does not truly exist because it is a mere nominal designation imputed upon a basis that is nonself (*anātman*, *bdag med*) (such as the impersonal psycho-somatic constituents of

07 Ibid., p. 116.

experience, or *skandhas*),⁰⁸ with the Buddha's teaching that the self is to be relinquished⁰⁹ in the process of attaining the two-fold fruition of the liberation from suffering and the fruition of omniscience. If there is no self, how would it be possible to even grasp at the self, such that one could then subsequently relinquish said self?

The exclusion theory provides a way of understanding how a generic sense of self might be generated or conceived, thus affording us the possibility of relating to it by the way of affirmation, identification, negation or exclusion, without conceding to it the kind of positive existential status that would undermine the core Buddhist thesis of non-self. Like a hole or a shadow mistaken for a substantial thing, the self is construed positively only as a reified absence of others, existing only as a generic image or quasi-universal which causally originates from yet is irreducible to the perception of the particulars exemplified by it.

While Dharmakīrti adds necessary innovations to Dignāga's original theory in order to situate his nominalist epistemology of unreal universals within the terms of a foundationalist ontology of real particulars generally accepted even by non-Buddhist schools, thus rendering himself impervious to Brahmanical assault, the theory is not entirely without its faults. Perhaps the greatest critics of the Valid Cognition enterprise of Dignāga-Dharmakīrti do not come from without but from *within* the Buddhist tradition—starting in India with Candrakīrti, who was and is considered by virtually all schools of Tibetan Buddhism to be not only the most authoritative commentator on the works of the “second Buddha” Ācārya Nāgārjuna, rivaling even Nāgārjuna's closest disciple Āryadeva, but was and is also recognized as a highly accomplished yogi-scholar of his own right and the first to definitively establish the apagogic method of negative dialectics (by which a given proposition is disproved by appeal to the absurdity of denying its contrary) as the principle, if not exclusive, technique deployed by Nāgārjuna in his exhaustive deconstruction of various existential and doctrinal Buddhist categories in his magnum opus *Mūlamadhyamakakārikā* (“The Fundamental Verses on the Middle Way”, henceforth MMK).

Both the dedicatory verses in the introduction preceding the formal chapters and the first verse of the MMK exemplify the

08 Addressing a group of five mendicants, the Buddha had once said: “Any kind of form ... feeling ... perception ... volitional formations ... consciousness ... should be seen as it really is with correct wisdom thus: ‘this is not mine, this is I am not, this is not my self.’” (*Anattalakkhaṇasutta*, SN 22.59, <https://suttacentral.net/sn22.59/en/bodhi/>)

09 The Buddha states that the cessation of suffering results from the cessation or relinquishing of craving: “Now this, bhikkhus, is the noble truth of the cessation of suffering: it is the remainderless fading away and cessation of craving [for sensual pleasure, for existence/being, for extermination/non-being], the giving up and relinquishing of it, freedom from it, nonreliance on it.” The Buddha then states that having not just understood suffering and abandoned it, he has realized its complete cessation, leading to the arising of “vision, knowledge, wisdom, true knowledge, and light”. (*Dhammacakkappavattanasutta*, SN 56.11, <https://suttacentral.net/sn56.11/en/bodhi/>)

eliminativism and negativism of the dialectic-analytic deconstructive method deployed in the work, both of which are worth quoting at length:

*I salute the Fully Enlightened One, best of orators,
Who taught the doctrine of dependent origination,
According to which there is neither cessation
nor origination,
Neither annihilation nor the eternal,
Neither singularity nor plurality,
Neither the coming nor going of any thing
For the purpose of nirvana characterized by
The auspicious cessation of hypostatization.*

*1.1. Not from itself, not from another, not from both, nor
without cause:
Never in any way is there any existing thing that
has arisen.¹⁰*

While a genuine comprehension of the totality of the MMK cannot be attained without a thorough reading of not just each individual part considered in isolation, but also through their hermeneutic relation to the integral whole (which demands multiple readings and continuous analysis), the utter simplicity of the whole enterprise is expressed in the first verse. Here at the very beginning of analysis, we start with what we finally end up with at the end of analysis: namely, that nothing has, is or will ever originate, which simultaneously entails that nothing has, is or will ever cease, since as oppositional contrasts these binary terms are reciprocally determining and mutually entailing—one cannot exist meaningfully without the other. The same applies to any other antinomical pair of contrasting terms, such as the rest listed in the Dedicatory Verses.

The method that Nāgārjuna deploys in order to justify this premise/reach this conclusion is that of an immanent critique of the existential categories found in Buddhist scholastic (*abhidharma, chos mngon pa*) theories of mind and mental processes. By teasing out the logical consequences of an opponent's view (with the opponent typically appearing in the text as a hypothetical interlocutor) in order to show how those consequences contradict the opponent's own foundational premises, Nāgārjuna is able to successively negate the validity of a notion's claim to truth, which includes such common philosophical notions as causality, conditionality, motion, desire, agency, time, parts,

¹⁰ SIDERITS, Mark & KATSURA, Shoryu (trans.), *Nagarjuna's Middle Way: Mūlamadhyamakārikā*, Wisdom Publications, 2013, p. 18.

self etc. as well as Buddhist categories of soteriology and phenomenology such as the āyatanas, skandhas, dhātus, duḥkha, Tathāgata, catvāryāyasatyā, Nirvāṇa, pratītyasamutpāda etc.

Key to Nāgārjuna's method is that he does not offer a counter-position to any of the positions he negates; his negations are thoroughgoing "absolute negations" (*niṣedha*, *med dgag*) that simply refute the validity of views taken under consideration without supplying more favorable alternatives. Nāgārjuna's dialectics, rather than deploying the force of negativity as means to the end of establishing some positive ultimate in the last instance, is thoroughly negative to the point that it brings an end to itself along with the material being deconstructed. If the parasitism of philosophic reflection born of ordinary deluded consciousness negotiates a complex dialectical tension with the sublime continuum of gnosis whose powers it appropriates and whose reality it depends upon, the parasitism of Nāgārjuna's apagogic negative dialectic—which appears as none other than the textual deployment of analytically discerning wisdom—is utterly suicidal: it destroys itself along with its host. But this is not self-destruction that results in failure: on the contrary, self-destruction is proof of the success of his method.

While Nāgārjuna himself states that he holds no views, and thus can never fall into error, it would be remiss to dismiss the fact that Nāgārjuna has *something like* a view, the important distinction being that while Nāgārjuna holds no philosophical position on the ultimate nature of things he does have a recognition of the ultimate nature of things that allows him to magnificently deploy the power of reason in the specific way that he does without succumbing to the deluded and deluding power of mundane consciousness. Part of this recognition is the absolute impossibility of anything like *svabhāva/rang bzhin*. This term has many, sometimes mutually conflicting meanings, but in this context may roughly translate to any of these terms: own-being, intrinsic nature, inherent identity, along with having rough approximations to the concepts of substance, essence, quiddity or haecceity. In short, it is the notion that for something to be real, it must be real intrinsically, without reference to anything beyond itself as a support for its own being.

As a hypothetical mode of existence, the notion of *svabhāva* suggests that there are things that can exist on their own without dependence upon others, but part of Nāgārjuna's recognition of the ultimate nature is that this hypothetical mode of existence is impossible, in spite of constantly imposing itself through the sheer force of mistaken consciousness. Whereas his own hypothetical interlocutor as well as actual Buddhist and non-Buddhist critics accuse him of various degrees of nihilism, suggesting that his negations undermine the possibility of both worldly and dharmic praxis, Nāgārjuna responds with

the *tu quoque* point that it is actually his opponents, who adhere to the notion of *svabhāva*, who undermine the possibility of practice because the principle of *svabhāva* is nothing but a mistaken assumption born of spiritual ignorance (*avidyā, ma rigpa*). Key to this notion is that, as a function of the connate ignorance, it is not principally a conceptual error at the level of belief but a pre-reflective, pre-thematic condition of any form of thinking and being.

Since Dignāga-Dharmakīrti did not come on to the scene until centuries after Nāgārjuna's MMK, they were not explicitly brought up of course, but their adherence to the intrinsic nature of really existing particulars falls under the scope of Nāgārjuna's critique. The issue of circularity endemic to the exclusion theory of universals and concept-formation may originate from this very adherence to intrinsically real particulars, since it generates the problem of how something of a completely different, unreal nature (like a universal) is able to causally originate from something of a real nature (like a particular) if nothing like the former inheres in the latter. This means that the universal is something entirely different from the particular (something the *pramāṇavadins* would readily accept), but this *begs the question* as to the necessary relationship between this universal and the particulars it is supposed to exemplify. Dignāga leaves this problem to be solved by the future, and Dharmakīrti is only able to patch it up by taking the risky move of suggesting that there is something of the universal that does causally originate from the particular even while remaining intrinsically different from it in nature.

Candrakīrti claims that these issues stem from the *pramāṇava-din's* commitment to an essentialist ontology of really existing particulars and a foundationalist epistemology based on the incontrovertible status of perception relative to inference.¹¹ As a negative dialectician in line with Nāgārjuna's *unphilosophical* method, Candrakīrti refuses to give onto-epistemic precedence to either perception or inference since they are to be understood and analyzed as instances of antinomical contrasts which are mutually entailing and hence devoid or empty (*sunya*) of independent meaning, as well as refusing to give ultimate existential status to any individual or class of entity or process—pointing to his own commitment to a thoroughly anti-essentialist ontology of emptiness wherein nothing can be established as ultimately real (*paramārthasatya/don dam bden pa*) and an anti-foundationalist epistemology affirming a plurality of methods of acquiring knowledge

11 According to Dreyfus, Candrakīrti considers *pramāṇava-din's* system of logico-epistemology as "contradicting the Madhyamaka rejection of essentialism. For Candrakīrti, Madhyamikas should undermine, or, to use a by now worn out word, deconstruct concepts that presuppose an idea of essential identity". Additionally, since for the Prāsaṅgika-Madhyamaka both particulars and universals are unreal mental constructs, "particulars and universals are given the same ontological status," which "contrasts with the ontological privilege Dharmakīrti accords to particulars". (DREYFUS, *Recognizing Reality*, pp. 19, 195)

within the transactional domain (*vyavahāra*) of merely relative or conventional truth (*saṃvṛtisatya/kun rdzob bden pa*).

While seemingly contradictory, recognition of the ultimate truth of emptiness and the affirmation of a plurality of epistemic practices at the conventional level go hand in hand, for Nāgārjuna himself states in MMK 24.10 that “the ultimate truth is not taught independently of customary ways of talking and thinking. Not having acquired the ultimate truth, nirvāṇa is not attained.” Though the conventional domain is entirely immanent to the transcendental structure of delusion, the ultimate cannot be conceived as being Outside of the conventional since transactional notions of inside/outside only obtain from within the structure of delusion—*the only way out (to the ultimate) is through (the conventional)*.

The pramāṇavadin logico-epistemologists agree with the Prāsaṅgika negative dialecticians that consciousness is structured by ignorance and powered by delusion, yet for the latter the former do not go far enough in their nominalism, since in their attempt to debate with the Brahmins they conceded too much to the opposition's foundationalist and essentialist terms. This bears significant relation to the doxographic distinction in Tibetan Madhyamaka scholarship between “Svātantrikas” and the Prāsaṅgikas, or between those (like Bhāviveka, Kamalaśīla and Śāntarakṣita) who principally deploy the use of autonomous, syllogistic reasoning to establish the view of emptiness, and those (like Āryadeva, Buddhapālita and Candrakīrti) who only use apagogic reasonings like the *reductio ad absurdum* in order to point to the folly of holding a view contrary to emptiness.

While Indian Svātantrikas like Kamalaśīla and Śāntarakṣita did not have much of a problem synthesizing Yogācāra pramāṇavadin logico-epistemology with Nāgārjuna's Madhyamaka anti-foundationalism, virtually all Tibetan schools start with the premise that Candrakīrti's Prāsaṅgika reaches the developmental apex of Indian Madhyamaka, and so this end is their starting premise. But because no other school of Indian Buddhism developed a more sophisticated system of logic and epistemology, Tibetan monastic education often starts with pramāṇa logico-epistemology before learning and practicing Madhyamaka dialectics. Thus, although Candrakīrti's Prāsaṅgika is concerned to be definitive, all major thinkers of Tibetan Madhyamaka in some way or another incorporate and deploy the insights developed by Dignāga-Dharmakīrti.

While there is much discourse and debate in Tibetan Madhyamaka as to how to precisely delimit the negandum to be negated by analytically discerning wisdom (camps are largely divided between “logocentrists” like the Gelukpas and “mysticists” like the Shentongpas over whether or not the negandum to be negated by

analytically discerning wisdom is merely *hypostatic* existence or *existence as such*),¹² it is commonly held throughout the different schools that the function of analytically discerning wisdom is to refute all possible modes of reality (enumerated tetralemically as the four extremes of either *existence* or *non-existence*, *both* existence and non-existence, and *neither* existence nor non-existence) to attain a state of freedom from conceptual elaborations (*spros pa dang bral ba*).

Being free from conceptual elaboration and hence being without the architectural edifice of delusion that springs from it, one is given a chance to recognize the nature of one's state free from such encumbrances. Then the gnoseological basis of one's own mind is disclosed and one is able to embark on a path to the inexorable and permanent elimination of all afflictive obstructions to deep bliss and all knowledge obstructions to total omniscience. This gnoseological basis is, according to Nyingma polymath Ju Mipham, "the one truth, nirvāṇa, the limit of reality. It is the ultimate state of all phenomena, enlightened being wherein knowing and known are inseparable, pure wisdom experience without limit or center."¹³

Though empty of any real foundation, this basis is endowed with immense fecundity, functioning as the primordially pure basis of not only the transcendental structure of delusion giving rise to subjects, objects and their saṃsāric world of suffering and ignorance, but also to the analytically discerning wisdom that realizes the ultimate truth of such things in the blissful and illuminating state of Nirvāṇa. Being the original condition for the spontaneous emergence of time and space, it is beyond time and space, as well as being beyond any category of quantity, quality, relation or modality—it is free, utterly free.

It is so free that it is even free to make use of such categories on a relative and provisional level! Indeed, being empty, even gnosis cannot be truly established as ultimately real, since gnosis is the very condition of establishing anything, whether deluded or awakened. Hence, rather than being something that utterly transcends the unreality of reality, gnosis is absolutely *immanent* to reality, not existing beyond its own appearances, including deluded appearance—it is the "basic space of phenomena". And it is precisely because gnosis is not separate from the reality it experiences nondual unity with that it can serve as the means by which all needs can be fulfilled.

12 According to Phuntsho, Nyingmapa Mipham attempts to go beyond these two orientations, represented by the "Gelukpa understanding of the absence of hypostatic existence as ultimate" on the one hand and the "advocates of the gzhan stong [Shentong] theory, who claim that ... the state of nirvana qua enlightened nature is absolute and inherently existent" on the other, aiming to inclusively transcend both notions in favor of a view of the ultimate as the indivisible coalescence of emptiness and appearance. (PHUNTSHO, Karma, *Mipham's Dialectics and the Debates on Emptiness*, Routledge, 2010, p. 152)

13 Mi pham rgya mtsho. *Don rnam par nges pa shes rab ral gri mchan bcas* (*Sword of Wisdom*), <https://www.lotsawahouse.org/tibetan-masters/mipham/sword-of-wisdom>.

Kazi Adi Shakti

*Unobstructed timeless awareness, a naturally occurring spacious expanse,
is utterly lucid—unobscured, with no division into outer and inner—
so self-knowing awareness is the great radiant mirror of mind.
The precious gem that provides for all wants is the basic space of phenomena.
Since everything occurs naturally without having to be sought,
naturally occurring timeless awareness is the splendid source of all one could wish for.¹⁴*

Kazi is an artist based in Baltimore.

¹⁴ Klong chen rab 'byams, *Chos dbyings rin po che'i mdzod ces bya ba (The Precious Treasury of the Basic Space of Phenomena)*, Padma Publishing, 2001, p. 33.



Love and life appear to be separate only because everything on earth is broken apart by vibrations of various amplitudes and durations. However, there are no vibrations that are not conjugated with a continuous circular movement; in the same way, a locomotive rolling on the surface of the earth is the image of a continuous metamorphosis.⁰¹

The heat seems to be able to save. How much cold meat can a warm hand hold before it begins to necrotize? Dead flesh has the power to take over. It took everything that was to be taken, the exchange was successful. You can let it go, you're fine now, you can leave it all chewed up, it's okay. Tell me, which part of the body will become independent this month? Where will the terror pour out? Let it go, manducated. Skin is the worstest spy, take it off.⁰² It was said that exactly this touch is rare and that there was nothing left for this meat. This meat possesses only what he has been told, not too far and definitely not too close, as instructed. He gets lost, he falls, the weight is earthen ... they say that even if he lacks time, he crawls. It should be secured by now, stored at a certain temperature, but *right* now, as it shouldn't be escaping, when it should be calm, motionless, *right now* it was caught in the heat. It

⁰¹ BATAILLE, Georges, "The Solar Anus", in: *Visions of Excess, selected Writings, 1927-1939*, 1985, p. 7.

⁰² A man carrying his skin on a pole in a manuscript of Henri de Mondeville's *Chirurgia*.

warmed dead limbs, accelerated decay and it turned out so well. But thawing is purposeful + dismembered to be devoured more easily. When is the body stolen? It's okay they say, the only thing that matters is that something new emerges from the pieces that remain, that it grows, and yet it attracts only a certain kind of meat, an array of bodies. Should the injection area be repetitive or the amount too large because it has to enter a phase of swollen flesh so that the tinge is visible or the predisposition simply has to be a surface destined for corrosion. From whence it arises ... when in an instant a solidness becomes even more rigid, only because of the softness it touches, and only that allows the weight to be of the solid, as if the touch limitropically⁰³ loses grip when the touch grips more and more strongly.



Bent skin where the indentation spilled, wrapped in bone, growing around like a plant pretending not to be in need of light. It squirms, prepared for injury, waits, it is moving so strangely, as if someone had told him it had already transformed. As if it smelled exactly what he was missing, but was too smooth to be real skin. He is not too dangerous because he knows he will die without a host. It does not tolerate loneliness, at any cost, close, even if a part of his flesh falls away, but everything clings to this flesh, not by accident. Of course it's ready, it's not smooth in vain, it feels like it's going to slip, no, it just never dried. The place where it comes from is beautiful, even quiet and comfortable, a soft pungent wreck. If you watch him long enough, it moves in a way that everything around him nictates, not because of his calmness, but due to his petrified fear. Boredom, oh, how it doesn't tolerate boredom,

⁰³ NEGARESTANI, Reza, "Undercover Softness: An Introduction to Architecture and Politics of Decay", in: *COLLAPSE*, VI, 2010, p. 421.

therefore calmness is concentrated on the product, it wants to be a slow and unobtrusive implementation, where no one checks the movement, where the form begins to shift from constant repetitive deviation.

Imagine that under the fingernail of its standard hardness, which has ceased to grow, a softer materiality begins to grow. Hardness was replaced by softness, so useless, out of place, left to insignificance, and yet it is still exhaustingly growing. But maybe everything is in the scent, maybe he can smell fragility, smells it as it decays, you can see it on the surface that it has become food. Pass me a smell, come closer to the body in the form of an object.⁰⁴

What else can you ask, ask, it surely has something else he can give. It is precisely in decay that it wants closeness, to make it easier for him to realize that he can eat it, that he can kill, that it is better. But keep it to yourself, it hurts ... Hm, that might be too easy, maybe meat is collectively pretending to be something else, maybe it needs to herald decay in order to grow in ruin more easily. It may seem to be in a constant state of decay in order to devour everything around it more easily in order to survive. So, the smell then, if the smell is the materialization of decay, does the smell then remain on the surface and shows up when the surface starts to sag? Yet, tomorrow may seem completely different.

*... extreme seductiveness is probably at the boundary of horror.*⁰⁵

It wants so much, it has to, he can't help himself, his tissues are trembling and where the bone used to be the tissue is now a little stronger, that's exactly where it hurts. As soon as he smells that something is already owned by him, he leaves ... Maybe he can't help himself, or maybe it knows exactly what it is doing and maybe it wants to talk. Though I doubt that words are his means, um, sometimes he uses them so skilfully. He wants so badly to master the means and I would really like to say that it is because he wants to be left alone. It has no tongue, if you were thinking about it, in fact his tongue is constantly changing and the words remain the same. It would make sense if the reaction were physical, at least for the time being, not the production of materiality but the destruction of it, the *struggle* with it. Throwing seems sensible at this point, as it is not known what is without and what is with, now throw the stone, enjoy it as long as you can, because the water will soon be sucked out of the body.

04 "Spherical incense-burner; made in two hemispherical halves which can be locked together by a bayonet fitting to form a sphere; gymbals, a series of rings inside one another, were attached to one half, and ensured that the central saucer remained upright even when the incense-burner was rolled around." (*The British Museum*, https://www.britishmuseum.org/collection/object/W_1878-1230-683/)

05 BATAILLE, Georges, "Eye", in: *Visions of Excess, Selected Writings, 1927-1939*, 1985, p. 17.

He held bluntedness in his hands from both sides. I can't describe the way it moved because all environments elude him, but there he is, ambling. He is so good at making environments slip away, none of it is his, the closest description of where it might be located is the moisture in the trees, so solid and dense that it is distributed over the entire surface but successfully grovels into the air, hovering. Confuse it with fake antumbra, manufacture it from wax,⁰⁶ it's ok, it's better than talking to it, just as long as you remember that you cannot get rid of it, you can just take the action of not using it by creating it. Do not forget the umbra, because it will come faster if you do, keep it close. No, no, don't create it, don't mock it in that way, especially if you make the shadow different from its body, that's not a good idea, it would be more appropriate if it was pulled by the hair. Body snatch(ing) me alive. Certain gestures are meant for him, but they belong elsewhere, as if they had to penetrate for just a moment, just to show how they cannot exist. It is probably more difficult to maintain a safe distance than to stay attached because the skin is torn vertically. The touch gesture is adjusted according to the counter-impact of touching, the strength of the pressure is adjusted according to the hardness of what it touches, no wonder everything flows into softness and smoothness, buy me a car. The sound of a tool intended for management is transformed into a swarm, like a bee swarm, one that knows that the queen has been subjected to manipulation for the purpose of augmenting products. Grow on the suspension that this may be the last gesture that will satisfy you. It doesn't break in or inflict wounds, please, this is not the thing that grew yesterday, he knows precisely what a hole is and he understands pores. Yet somehow it still manages to be erect next to the tree⁰⁷ despite his fleshiness, wondering why the bark is rough. The scent of smooth growth has the bright tone of a frozen epidermis.

He listened to another thing and through the kitchen faucet a sound beyond his ken crept into his occiput, the sound became a thing, the classic materialization, no surprises here, lured by an interloper, but instead of fear, he was overwhelmed by relief. Over the object came a sound that did not belong to it.⁰⁸

06 Icarus, the son of Daedalus, the famous Athenian master sculptor, failed to find a balance between flying too high or flying too low. Greek mythology narrates that Daedalus, in his attempt to escape from captivity in Crete, constructed wings from wax and feathers for himself and his son. Icarus ignored his father's instructions not to fly too close to the sun, and the wax in his wings melted. He tumbled out of the sky, fell into the sea and drowned. The myth gave rise to the idiom "Don't fly too close to the sun". (See: <https://www.greeklegendsandmyths.com/icarus.html>)

07 "In decay as a process of cosmogenesis, the tree and human are not two entelechies or perfected bodies of actuality which can be connected together via a straight line. Both 'being a tree' and 'being a man' are changing variables—rates of change between their respective actualities and potencies on the one hand and between their interiorities and the exteriority on the other." (NEGARESTANI, "Undercover Softness", p. 416)

08 The brazen bull, also known as the bull of Phalaris, was allegedly a torture and execution device designed in ancient Greece. Legend has it the brazen bull was designed in the form and size of an actual bull and had an acoustic apparatus that converted screams into the sound of a bull. The condemned were locked inside the device and a fire was set under it, heating the metal until the person inside was roasted to death. Phalaris is said to have commanded that the bull be designed in such a way that its smoke rose in spicy clouds of incense. as the legend goes, when

- Bodies in perpetual war (melee):

In the layer of tenebrosity, the body reacts very quickly and poses as a moving flicker. It doesn't have much choice, it puts itself in defence almost instinctively and all while it is here, it is attacking. Verticality allows for the existence of a soft nudged living wall, softness is seen due to its automatic movement, automatedness is extremely fragile because it focuses on the smoothness of repetition, only without interruption can it develop a soft surface focused on constant raising and lowering. Solidity arises elsewhere, it has an almost completely different place where the constructed motion is displacement.



Mortsafe is being built for the liquid that is trying to become independent, safe from inventions, no one will disturb it, constantly approaching zero, but never—don't hold your breath—*there*, infinitesimal.⁰⁹

- Built on the principle of deviation:

Building a form based on the movement of the other form, each moving away from the other, each creating its own groove through a reactionary touch. The reactions are simultaneous where xerox is constantly generated. It is a relationship of retreat and attack, failing to distinguish. Produced by the ebb.

Neja Zorzut is an artist focused on "ecological philosophy" and "ecology without nature", hyperobject entities and hyperocultation, immersion, modified spaces and/or objects that necessarily penetrate the skin, adhere to organs, thus creating an atmosphere of decomposition of the body, modification/adaptation to a different kind of environment.

the bull was reopened after a body was charred, the victim's scorched bones shone like jewels and were made into bracelets. (See: https://en.wikipedia.org/wiki/Brazen_bull)

⁰⁹ NEGARESTANI, "Undercover Softness", p. 388.

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