Architectures of Aliveness: Building Beyond Gravity

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Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Art, Art History and Visual Studies in the Graduate School of Duke University

2015
ABSTRACT

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Abstract

In the context of today’s global mobility, information, bodies and goods are circulating across the globe, and even further into outer space. However, we face a paradox: the more we move, the more we become sedentary. The modes of transportation that enable our global mobility are working against us, insidiously dwindling our psycho-physical mobility. Globalization is thus not the world becoming bigger (or too big), but the world becoming immobile. Taking the body as the central non-place of political space, *Architectures of Aliveness: Building Beyond Gravity* interrogates the possibility of inhabiting circulation as a pragmatic form of resistance to the contemporary immobilization of life. In an era in which bodies and goods are ever more constantly in global circulation, architectures of aliveness ask, what would an experience of weightlessness do for us?

Biotechnology serves as the current dominant model for enlivening architecture and the mobility of its inhabitants. Architectures of aliveness invert the inquiry to look instead at outer space’s modules of inhabitation. In questioning the possibility of making circulation inhabitable—as opposed to only inhabiting what is stationary—architectures of aliveness problematize architecture as a form of biimedia production in order to examine its capacity to impact psychic and bodily modalities toward an intensification of health. Problematized synchretically within life’s mental and physical polarization, health is defined politically as an accretion of our capacity for action instead of essentially as an optimization of the biological body.

The inquiry emerges at the intersection of biotechnology, neurosciences, outer space science and technology, and architecture. The analysis oscillates between historical and contemporary case studies toward an articulation that concentrates on contemporary phenomena while maintaining an historical perspective. The methodology combines archival research, interviews, and artistic and literary analysis to construct an innovative method for thinking about
and acting upon the fields of exchangeability between arts and sciences beyond a critique of instrumentality. The outcomes suggest that architectures of aliveness are architectures that invite modes of inhabitation that deviate from habitualized everyday spatial engagements. It also finds that the feeling of aliveness emerges out of the production of analog or continuous space where the body is in relation with space as opposed to be represented in it. The analysis concludes that the impact of architecture on our sense of wellbeing is conditioned by proprioceptive experiences that are at once between vision and movement and yet at the same time in neither mode, suggesting an aesthetic of inhabitation based on our sense of weightedness and weightlessness.

These outcomes are transduced to the field of media studies to reinvent biomediac inquiry. Proposing a renewed definition of biomaedia that interprets life as a form of aesthetic relation, architectures of aliveness also formulates a critique of the contemporary imperialism of visualization techniques. Architectures of aliveness conclude by questioning the political implications of its own method to suggest opacity and agonistic spaces as biomediac forms of political space.
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Introduction
Architectures of Aliveness: A Non-Progressivist Inquiry

I don’t condemn them to death. I simply assume they’re already dead.¹

In the midst of the recent Ebola crisis, Melissa Gaskill, spokesperson from the International Space Station Program Office with the NASA Johnson Space Center reported, “scary threats to human health dominate the news these days.”² “Space travel,” she added “may help scientists strengthen our bodies’ ability to fight such threats.”³ Her claims resonate with those of Charles Bolden, current Chief Administrator at NASA, who advocates, "in order for humanity to survive into the distant future, we need to visit and learn how to survive on other worlds.”⁴

In the context of global mobility today, information, bodies and goods are circulating across the globe, and even further into outer space. However, we face a paradox: the more we move, the more we become sedentary. The modes of transportation that enable our global mobility are working against us, insidiously dwindling our psycho-physical mobility. The development of mobile architecture (cars, planes and recreational vehicles among others) is mischievously giving rise to a stationary society, meaning a society whose inhabitants travel across the globe only to end up in the stationary and commodified comfort of their beds, couches, cars and airplanes seats. Globalization is thus not the world becoming bigger (or too big), but the world becoming immobile.

¹ Michel Foucault, Speech Begins after Death, ed. Philippe Artières (Minneapolis: Minnesota University Press, 2013), 40-41.
³ Ibid.
Taking the body as the central non-place of political space, Architectures of Aliveness: Building Beyond Gravity interrogates the possibility to inhabit circulation as a pragmatic form of resistance to the contemporary immobilization of life. Through questioning the possibility of making circulation inhabitable —as opposed to only inhabiting what is stationary— architectures of aliveness examine architecture’s capacity to impact psychic and bodily modalities toward an intensification of our health. Problematized syncretically within life’s mental and physical polarization, health is here defined politically as an accretion of our capacity to action instead of essentially as an optimization of the biological body. Departing from the conjecture that unconventional modes of inhabiting circulation are endowed with the power to exult our psycho-physical mobility, reduce the speed of globalization, and intensify our capacity to action, the inquiry emerges at the intersection of architecture, biotechnology, neurosciences, and outer space science and technology. Oscillating between historical and contemporary figure cases, the analysis is informed by science studies, psychology and anthropology. The objective is focused on straddling a wide range of formations, both discursive and non-discursive, in order to capture with exactitude their operative interrelations, and the nascent tendencies they describe. The ultimate objective is to transduce these tendencies into the realm of media studies to reinvent (bio)mediatic inquiry itself.

Biotechnology is the current dominant model that serves as a basis for enlivening architecture and the mobility of its inhabitants. As figured in the messiness of Bruno Latour’s amodern societies where “the horizons, the stakes, the time frames, the actors - none of these is commensurable, yet there they are, caught up in the same story,” biotechnology is characteristic of a intertwined reality that images a confusing interlacing with pharmaceutics, environmental

discourses, war, bioterrorism, health, fuels, agriculture and food production, medicine, genomics, among a much broader variety of fields of application. Today, we are invited to name our own bio-preference, and the range of choices is incommensurable, making biotechnology a commodified and troublesome condition of our contemporary moment.

In the biotech age, life continues to be spectacularized and dramatized. Addressing architecture from a biological angle is thus both an adventure and a risk. It is a risk because the prefix “bio” is everywhere. To paraphrase Isabelle Stengers, it is not only in the mouths of organizations that claim to work on creating a better world; it is also in those of multinational corporations. Urging us to resist the ideology of progress as programmed by a humanist idea of a better world, Stengers persuades us to give “to the situation the power to make us think” and act differently (my emphasis). “We must,” she tells us, “think for the world but not accept it in a passive way.” Here Stengers exhorts us to resist progress because, she reminds us, “operations undertaken in the name of progress and reason, are about power.” Stengers invites us to defy these progressivist conceptions to focus instead on constructing the necessary tools that “make us think and not recognize.” She summons us to develop new forms of interests endowed with the capacity to give to a situation “a power it does not generally possess: the power to cause us to think, feel and wonder, the power to have us wondering how practically to relate to it, how to pose relevant questions about it.” For Stengers, if modern sciences can be said to be adventurous, it is because they thrive on keeping controversies open. In this light, how can the activity of inhabiting circulation insists on adventure and learning rather than authority and

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11 Stengers, Diderot’s Egg: Divorcing Materialism from Eliminativism, 5.
recognition to sustain the controversy of the world’s immobilization? Can inhabitation and dwelling resist the exploitative powers hidden behind the idea of progress associated with biotechnology’s professions to make life?

To inhabit circulation is also a risk; the risk of turning the built environment into a laboratory where efficacy is determined by the ready-made channels of scientific experimentation cautioned by procedures of proof. Starting with a banal question “how can urban and domestic procedures keep the built environment and its inhabitants in a state of wonder and exploration” (as opposed to one of authoritarian recognition), architectures of aliveness seek to elicit the manners in which inhabitation of atypical modes of being can actualize unconventional forms of attachment to the (non-local) movement of life.

Architectures of aliveness are not going on a crusade to reveal the ideal image of a “good” architecture, or for the equally reductive quest of defining life. Neither is it operating as a form of proselytism meant to trick practitioners into an imperialist mode of thinking that prophesizes the promise of an emancipatory liberation. If the pharmaceutical and biomedical industries are today denounced as sites of exploitation, consumerism and capitalist accumulation, there is absolutely no reason to celebrate architecture as a practice bestowed with the power to produce a good model of life that would be capable of escaping these tyrannies. As Eyal Weizman reminds us, “architecture has always been a means to create hierarchies in space, to produce and represent inequality, and to exercise control.”

Instead of naively advertising the release of some sort of freedom, architectures of aliveness look at the enabling constraints

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12 Amelia Smith, “Eyal Weizman on understanding politics through architecture, settlements and refuseniks” *Memo, Middle East Monitor*, https://www.middleeastmonitor.com/resources/interviews/15426-eyal-weizman-on-understanding-politics-through-architecture-settlements-and-refuseniks
endowed with the capacity to make us think, feel and act differently to insist and sustain equivocal possibilities of aliveness.

More than the equivalent of “making life,” aliveness rather echoes José Gil’s “becoming primitive.” To become primitive, he tells us, “is to understand oneself experiencing.”\(^{13}\)

Architectures of aliveness’ focus moves away from what happens to life as a conceptual category when experimentation and fabrication converge in artistic, architectural and scientific studios and laboratories. It rather focuses on what happens to life as an experiential reality when art, design and scientific practices problematize it in terms of aliveness. Architectures of aliveness ask what kind of methods and techniques might generate a quality of life experienced as a knowing-wondering as opposed to being rationally articulated in the form of an objective and authoritarian recognition.

Moving away from a conception of the biotech model as ingrained in (1) the creation of new architectural forms (read non-ideal platonic forms) wrapped around conventional modes of living and; (2) the optimization of the biological body, architectures of aliveness launches its inquiry into outer space. This utilitarian approach to biotechnology has generated an organic mainstream that is seemingly polluting, if not colonizing all spheres of knowledge. Architectures of aliveness seek explore alien ways of problematizing biotechnology by looking instead at life in space modules, and most particularly at life in the International Space Station. This change in focus is not intended to celebrate the triumph of outer space science and technology over biotechnology but rather to explore architecture as a form of biotechnology. Space modules are here understood pragmatically as a form of mobile architecture that obliges its levitating inhabitants to constantly renegotiate their psycho-physical mobility. In an era in which bodies and

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\(^{13}\) José Gil, *Metamorphosis of the Body* (Minneapolis: Minnessota University Press, 1998), ix.
goods are ever more constantly in global circulation, architectures of aliveness ask, what would an experience of weightlessness do for us?

Departing from the apparent impossibility of earth-based levitation, architectures of aliveness look at how life in weightlessness triggers a redistribution of the relationship between mental and physical life to open the question of earthly life to new possibilities of exploration. Imaging a metaphorical launch, I follow Whitehead who beautifully tells us, “it is more important that a proposition be interesting than that it be true.”

On earth, levitation recalls a fantasy or a dream, the ultimate power to sheer the body from its physical materiality. Levitation images “the dream of flight,” “the ultimate intersection between hard scientific reality and humanity’s age-old fantasy.” In stark contrast, or perhaps only toward the other extreme of the continuum, levitation, in the International Space Station, is a dream occurring in a fully awaken state that transforms earth-based dreaming and somnambulism into a pragmatic social form. The weathering of stellar winds and celestial forces proper to weightlessness represents an accepted reality in reduced gravity conditions. In contrast, on earth, it is a category that belongs to the occult, the new age and the esoteric. It is within this ambivalence that architectures of aliveness seek to sustain and cultivate wonder and mystery.

Aiming to destabilize received systems of valuation, architectures of aliveness give the same weight to earthly gravitation and outer space levitation, and problematizes both activities in terms of their effectiveness in creating health oriented conditions. In so doing, architectures of aliveness affirm the double ordering of gravitation and levitation to insist on the possibility of a non-

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16 Ibid.
exclusive and mutual inclusion that unlocks the possibility of conquering space without completely abandoning the earth.

On earth levitation is said to belong to the “non” discipline of parapsychology and it is thus linked to metaphysical frontiers. Following Isabelle Stengers’ approach to hypnosis, architectures of aliveness rather think of levitation as belonging to political frontiers. In a similar line of thought, Nicola Triscott, director of the Arts Catalyst, a London-based platform that commissions art at the intersection of sciences, urges us to resist the weightiness of techno-scientific spin-offs, geopolitical frontiers and their derived narratives associated with the Cold War, insisting instead on weightlessness as a practice endowed with political value. “To defy gravity,” she tells us, “is to defy the accepted, the unquestioned and the status quo.”

Levitation is thus here used as a technique that suspends the normal course of activities, as a pragmatic gesture that frees up “the mind from the clichés of the physical world” to challenge our imagination. Levitation lifts us “out of the bones of gravity,” and discombobulates all of our senses to imagine a subjective verticality problematized as a political inquiry irreducible to a response to an assumed contemporary loss of Being.

The ambivalence between levitation and gravitation raises the question of the fields of exchangeability between arts, social sciences, humanities and “hard” sciences. Architectures of aliveness refuse to reify the antagonism between these heterogeneous practices. Against the malicious tendency to rebuff the validity of sciences by setting up a contending war informed by the nonproductive opposition between quantities and qualities, between objectivity and

20 La Frenais, An Introduction to Vertigo, 9.
subjectivity, between rationality and inspiration, or between conjectures and dreams, what
Whitehead refers to as the bifurcation of nature, architectures of aliveness categorically refuse to
ascribe any value to cultural discourses that act as mere commentaries on what sciences produce.
Put otherwise, architectures of aliveness completely negate arguments that seek to reveal
sciences’ incapacities to account for qualitative forms of attachment to the world. In strong
opposition with such a cursed conception of the sciences, architectures of aliveness aims at
transforming the negative habits that ungracefully succeed at stripping the sciences naked of their
own creativity. This tendency characterizes a number of discourses in the humanities and social
sciences (as well as a number of practices in the visual arts). These discourses mercilessly
condemn the sciences for they constrain them to articulate their humanist, cultural and social
point of view on the world. In so doing, they inhibit their own capacity of exploration, and solely
triumph at producing negative forms of recognition. Instead of inviting the sciences to act as
companions to the creation of new universes, they validate their own reason of existence by
opposing their truths to those produced by sciences. Landing on a distinction that expresses no
pragmatic value, it only reifies the relativity of the truth as opposed to constructing the truth of
the relative.21 Architectures of aliveness insist instead on the different fields of problems
constructed by the arts and sciences to trigger the possibility of exchanges that move beyond a
critique of instrumentality. Thus, to ward off spirituality, wonder, mystery and adventure is here
considered the vulgar equivalent to a transfiguration of the sciences.

Turning instead to a close analysis of what sciences and technologies produce, to how
they work on the world positively, architectures of aliveness avoid a positivist study of sciences
and technology by drawing on and renewing the field of aesthetic analysis to explore how they

130.
work on the senses, on experience. Rather than beginning with received systems of valuation, 
arts, sciences and technology are approached in their own terms and in their own terrain, that is, 
in terms of their effectiveness. Instead of apprehending arts, sciences and technology as 
generating case studies, architectures of aliveness thinks of them as figure cases. Belonging to the 
realm of mathematics, figure cases are not meant to prove anything; their aim is to incite us to 
explore our understanding of telling situations.\textsuperscript{22}

The inquiry starts with a historical figure. In some academic circles, we witness a 
tendency to wash out history as a way of cautioning one’s own discourse. This tendency is 
figured in today’s conceptual landscape where everything is said to be post: post-digital, post-
human, post-natural, etc. Architectures of aliveness express their dubiousness of the “post” 
emphasis for it cautions the negation of history to make us recognize the difference between old 
and new ways of thinking rather than inciting us to explore the present as a productive tension 
and metastable relation between past and future. Architectures of aliveness seek to avoid this 
arrogant tone, and to look instead at how historical practices can force us to explore, question and 
challenge our contemporary assumptions and presuppositions.

In this light, Chapter One opens the exploration with the correalist project and 
bio-technological method of modern artist/architect Frederick J. Kiesler. At the contemporary juncture 
where architecture is turning to a variety of techniques associated with biotechnology and 
neurosciences, Kiesler’s inquiry is particularly relevant and timely for it proposes an innovative 
method of thinking, or rethinking, today’s increasing coincidence between architecture and 
biotechnology. Based on a creative critique that formulates a performative diagnosis of the 
arbitrary abstractions that are informed by scientific knowledge, biotechnique revisits the

\textsuperscript{22} Isabelle Stengers, \textit{The Invention of Modern Sciences}, 17. (Minneapolis: The University of Minnesota 
relationship between vision and forms to render visible the irreducibility of life to space occupied, and objective movement. Insisting instead on life as a polarized occurrence that straddles mentality and physicality, biotechnique vigorously affirms the irreducibility of both poles to speculate on how architecture and technology can induce new forms of confluences between them.

The manner of this relational event will be exacerbated with Whitehead’s distinction between “nature alive” and “nature lifeless.” It will be presented in the manner of Gilbert Simondon’s theory of individuation. Simondon distinguishes five phases of individuation: vital, physical, psychic, collective and transindividual. These different phases do not follow one another in succession; they rather complement or supplement -they complexify- one another. They are not chronological but correlative. Muriel Combes explains that one should not distinguish them substantially, but rather focus on the “rhythm of their becoming,” that is, on the “differences of speed in the process of their formation.” While technical individualization is not a phase of Simondon’s theory of individuation, a key aspect of his thought revolves around the application of the concept of the individual to that of the technical object. Chapter One will focus specifically on the two first phases of individuation to highlight the irreducibility of life to material forms. To avoid a generic take on individuation and to focus on its concrete expressions, architecture will be problematized as a form of biomedia production that has impact on physical, biological and psychological growth. Following Kiesler’s biotechnical project, according to which the fundamental denominator to account for the value of any architectural or urban environment is not the novelty proper to its forms but its capacity to intensify health, Chapter Two will focus the discussion on health.

Chapter Two will look at the scientific status of the concept of health in addition to orchestrating a dialogue between Kiesler’s “architecture of health” and Arakawa and Madeline Gins’ “architectures against death.” Chapter Two concentrates the analysis on the impact of architecture on our sense of wellbeing by considering the aesthetics of inhabitation beyond vision and movement, looking at proprioceptive experiences that are at once between vision and movement and yet neither. It will draw upon Simondon’s psychic individualization to situate this debate in relation to the production of architectural forms. This chapter will seek to respond pragmatically to the impossibility of reducing life to physical materiality by looking at alternative ways of problematizing forms. The analysis will be informed by Raymond Ruyer’s approach to the genesis of forms and their biological finality. The outcomes will suggest that architectures of aliveness are architectures that reorder the sensorium by challenging space orientation.

While, Kiesler and Arakawa and Gins do not directly address the integration of organic materials into architecture’s construction and design processes, both approach actualize a rearrangement of pragmatic techniques that seriously put into question the contemporary fascination with what is commonly referred to as bioarchitecture. To highlight the contrast, Chapter Three will focus specifically on two practices that propose a more literal engagement with biotechnology. Despite Kiesler’s implicit refusal to consider the validity of architecture as determined by the specificity of its medium seemingly initiates a distance with biotechnology, Chapter Three will explore the pragmatic implications of an inquiry based on material considerations in order to situate the debate in the context of to contemporary practices.

In questioning how architecture can intensify health through challenging spatial orientation, both Kiesler and Arakawa and Gins’ architectures focus on our sense of weightedness and weightlessness to metaphorically set us free from the burden of our own weight (both mental and physical) in order speculate on the intensification of our capacity to action. Following this unusual proposition, their architectural projects will be put in relation with the training for life in
weightlessness and the accompanying design strategies developed for the International Space Station. At this juncture, architectures of aliveness will focus on the architectural design of the International Space Station as a large-scale model to further question Kiesler and Arakawa and Gins’ proprioceptive emphasis. The aim of this transposition will be to question how outer space science and technology can inform earth-based architecture in unexpected ways. Drawing upon the biological, physiological, psychological and neurological challenges of life in weightlessness, Chapter Four will interrogate how the integration of gravitational changes in earthly architectural structures can positively influence well-being. The analysis will focus specifically on how experimentation with gravity engages the mental-physical continuum with new aesthetic experiences that open up new modes of looking, comprehending, and attaching ourselves to life.

In this chapter, Kiesler’s project will be revisited, updated and expanded to effect a reactualization of its implications in relation with contemporary architectural and scientific figure cases. While a similar inquiry informs Chapter Three, the practices presented in Chapter Four are more aligned with Kiesler’s practice. The analysis will thus land on much more productive grounds. The inquiry will focus on two neuroscience projects that question space orientation in different gravitational conditions as well as with three architectural projects that will effect a more direct passage from outer space to earth: Paul Virilio and Claude Parent’s Oblique Function (mid 20th Century); Greg Lynn’s RV Prototype (2012) and; Tomas Saraceno’s In Orbit (2012). Each figure cases will be problematized in virtue of their social potential, that is, in their capacity to generate unprecedented forms of perception that give rise to innovative and unexpected modes of inhabitation. The chapter will conclude by analyzing how the new aesthetic forms emerging out of research on gravity produce a pragmatic conceptualization of aliveness.

The last and concluding chapter will focus on how unconventional forms of attachments to the world may be capable of renewing and expanding the field of media studies. Departing from the consideration that outer space is neither a territory out there, nor a window onto another
world, the inquiry will specifically target the “points of view” induced by the analysis produced in the preceding chapters to question how they transform our ways of looking at, of experiencing and of comprehending the world. In close connection with environmentalist discourses, architectures of aliveness will seek to elicit the modalities of the relationships between living beings and their environment and the emerging exploratory forms of knowledge production that arises through their intra-actions.

Today’s humanist and social sciences media landscape is populated by absurd, cynical and dystopian discourses that go as far as to claim we are at war with the planet. These narratives, in appealing to a rhetoric of emergency, reuse the very same rational they are fighting, reinvesting, in a manner that is seemingly unbeknownst to them, “fear and panic” into the density of humanist and social fabric. That is, they only succeed at inverting the idea of progress by insisting on regression and on scenarios that announce the end-of-the-world. Immobilizing thought in the alarmist process of their discursive (de)constructions, these discourses shadow their own form of authoritarianism, which massively hampers effective exchanges between fields of practices. Even if astonished by and bombarded with pseudo-scientific realities, architectural commodification and manufactured sophisticated technology, architectures of aliveness categorically refuse to equate the current status of life with deterrence, unceasingly seeking to create atypical modes of attachment to the non-local movement of life. It also seeks to resist optimistic technological discourses that profess “cutting-edge” technology as intrinsically endowed with the possibility to radically renew the way we live. Assuming a new form of focus, which is here tantamount to the possibility of continuing and sustaining the world as creative
form of experience, architectures of aliveness follow Whitehead for whom creativity and experience are not emergent properties, but rather the very stuff the world is made out of.²⁴

Chapter 1
Correalism and Individuation: Biotechnical Architecture and the Non-Coincidence of Nature and Technology

Frederick Kiesler, Galaxy Maker

A galaxy is a decentralized composition.25

Figure 1: Kiesler in front of a model of the Endless House (1959), © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna (photo: Hans Namuth).

Frederick Kiesler (1890-1965), Austrian-American artist and/or architect, remained a marginal figure in the history of art and architecture. His heterodox approach, combined with his refusal of submission to the dogmatic modernist ideals prevailing at his time, prevented his oeuvre from receiving serious attention. It is only in the last few decades that architects and art historians have commenced to appreciate and valorize its relevance and ingenuity. This late engagement brings to light the enduring social tonality and pioneering character of his work.

25 Frederick, J. Kiesler, Notes on the Galaxies; transcript, Kiesler archive, New York.
Kiesler’s oeuvre is primarily composed of sketches, drawings, writings, scale models, furniture, scenography projects, and temporary installations, some of which were lost when he moved from Europe to the United States in 1926. Fragmentary and prototypical in allure, his production is more than a patchwork, or a miscellany of isolated elements. The continuity between the fragments may have been too elusive for the “simple categories”\textsuperscript{26} of language employed by orthodox art historians.

Activist against borders, moving along disciplines between vision and forms, biology and technology, health and perception, endless and weightless space, Kiesler practiced his own indiscipline: Correalism. Presented in Architectural Record in 1939 under the title “On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design,”\textsuperscript{27} Correalism works as a prism that changes the color beam on a number of philosophical presuppositions that have prevented effective exchanges between the arts and sciences. Prefiguring both bioarchitecture and environmentalism, Correalism is as pragmatic contribution to the manner in which today’s exchanges between architecture, biotechnology and neurosciences can create new problems that go beyond the exploitation of the activity of living beings in new contexts.\textsuperscript{28}

Kiesler’s pieces are dispositives rather than objects. In coordinating discourses, practices and techniques, they embody a processual machinery that moves between and among heterogeneous lineages (technical, discursive, visible, sensitive, disciplinary, etc.). Working with

\textsuperscript{27} Kiesler’s first writings on the concept of correalism were published in Hounds and Horn magazine in March 1934. However, Moholy-Nagy is said to have coined the term in 1920 to describe a formal methodology that applied seven basic elements—the crystal, sphere, cone, plate, strip, rod, and spiral—to shape all forms (industrial, artistic and architectural). See Stephen Phillips, “Toward a Research Practice: Frederick Kiesler’s Design Correlation Laboratory,” in Grey Room, 38 (Boston: MIT Press, Winter 2010), 90-120.
\textsuperscript{28} Here I am paraphrasing Isabelle Stengers: Isabelle Stengers, “God’s Heart and the Stuff of Life” in Pli, 9, (Warwick: The Warwick Journal of Philosophy, 2000), 93.
a variety of concepts issued from heterogeneous disciplines, practices, and techniques, Correalism gives rise to a series of indistinctions. Unpacking Correalism is not an inquiry that seeks to resolve these indistinctions; it rather aims at carefully guiding their “free” deployment. In his dictionary on Whitehead, Didier Debaise reminds us, “concepts are tools or techniques rather than descriptions of states of being.”\(^{29}\) “Words,” he adds, “do not signify, they effect a modification of experience.”\(^{30}\) Doing justice to Kiesler means to carefully approach the modifications of experience produced by the indistinctions that arise from his work. Doing justice to Kiesler is a task that valorizes the rigor of conceptual vagueness\(^ {31}\) to construct pragmatic fields of exchangeability between and among heterogeneous domains (disciplinary, discursive, and sensitive).

**Correalism: Life in the Environmental Order**

Correalism thinks “*par le milieu.*” It looks at environmental orders to activate a redistribution of the relations between nature, living entities and technology. Implicitly refusing “the tacit presupposition of the necessity of static spatio-temporal, and physical forms of order,”\(^ {32}\) it seeks to invent endless space. For Kiesler, the correalist notion of continuity figured in the concept of endlessness is not the vulgar equivalent of a process of homogenization based on a system of equivalences. Endless space is an architectural technique that encompasses discontinuity and continuity, breaks and ruptures. Particularly expressed in two of Kielser’s


\(^{30}\) Ibid., 4.

\(^{31}\) Vagueness images a co-extensive circuit informed by the co-constructive and dynamic individuation of particles that bifurcate and fuse, what Dutch architect Lars Spuybroeck regroups under the terminology “vague structuration.” Lars Spuybroeck, “The Structure of Vagueness” in *Machining Architecture* (Rotterdam: NOX, 2004), 352-359.

projects, the *Space House* and the *Endless House*, Endless space as architectural technique will be addressed in Chapter Four. At this point, the focus is on endless or continuous space as a methodological inquiry that seeks to create fields of exchangeability between disciplines and practices. As Erin Manning and Brian Massumi write “what is at stake is less the equivalence between the objects exchanged than the sustenance of their relational field of exchangeability,”$^{33}$ such that “the value produced is the process: its very qualitative autonomy.”$^{34}$ Even if Kiesler could not foresee the neoliberal prototyping of forms of collaborations that Manning and Massumi are invoking, his focus on processuality enabled him to construct an alternative to exchanges that meet at the level of research results. Focusing its inquiry on physics, evolutionary theory and the life of images, correalism makes the construction of a diplomatic alliance between heterogeneous fields of influence an obligation to the thought-experiment of continuous space.

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$^{34}$ Manning and Massumi, *Thought in the Act. Passages in the Ecology of Experience*, 123
Figure 2: Frederick J. Kiesler, *Man=Heredity + Environment*. “This diagram expresses the continual interaction of both the total environment on man and the continual interaction of its constituent parts on one another.” © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.

The rather complex image of this alliance is ungracefully formalized in a schema whose title is perhaps more inelegant: Man=Heredity+Environment. The tripartite diagram strikes as anthropocentric, celebrating ‘man’ at the center of a “global” or “total” ecology composed of three distinct yet intersecting fields: human, technology and nature. The visual confusion occasioned by the simplicity of the diagram makes us look at one large circle containing three enclosed systems radiating around one main focal point: ‘man.’ Perhaps even more disconcerting, the diagram situates ‘man’ as a distinct sphere at the intersection of three ecologies, one of which
is human. The crude simplicity of the figure formulates a question rather than a statement: how are these different realities held together to characterize them as correal?

Kiesler’s manner of explanation does not proceed with a narrative survey. Jumping from electromagnetism to chemistry, physics to visual arts, tissue culture to social needs, his “science of relations” looks at conceptual and disciplinary indistinctions as forms of process held together ontogenetically. This ontogenetic relatedness is tied to the notion of environmental order and echoes Whitehead’s order of nature. As Debaise explains, Whitehead does not think of a general order but of “a multiplicity of local orders that maintain reciprocal interrelations and that imply or destroy each other and form more or less complex units.”\(^{35}\) Understood in terms of environmental orders, that is, in terms of composing relations that “imply and destroy each other,” the diagram images Correalism as a site of political struggle rather than as the symbol of a peaceful convergence. Here, Kiesler’s Correalism resonates with Stengers’s ecology of practices for ecology is in both instances understood as a “science of constraints rather than definitions,”\(^{36}\) as a form of belonging rather than as an identity.

Taken up in environmental ordering, the diagram’s threefold ecology problematizes human, technology and nature as fields of occurrences ordered by their own principles of composition, and immediately ordered again in a total environment. The arrows that circulate along the three fields indicate their endless correlationality and not their possible retrospective linkage as delimited enclosed spaces. What is innovative about Kiesler’s approach is that it gives equal weight to the effects of all three ecologies on human life. Instead of starting with systems of valuation, it evaluates the fields in terms of their effectiveness, and more precisely in their


\(^{36}\) Isabelle Stengers, “Un engagement pour le possible” in Cosmopolitiques, 1, 2002, 34.
efficacy at intensifying health. Approached from the point of view of their efficacy, the ecological fields are not in causal continuity with one another; neither are they juxtaposed, fused or confused. They are given all at once in their genetic or formative processes. Here, Kiesler’s emphasis on the human is irreducible to a form of anthropocentrism. Belonging to the non-essentialist kind, the human condition is instead used as a detour to access modifications of experience, which are understood in terms of social occurrences.

Kiesler’s emphasis on environmental orders enables him to reconsider what life is. Taking the continuity between the genetic composing forces of the three ecologies as the life form of his correalist project, he thinks of life as a relational form of process linked to the modes of existence of heterogeneous orders. “It is this question about the modalities of existence of order,” writes Debaise, “that determines the scope (…) of the central proposition of Process and Reality:”37 life is a production of novelty. Debaise explains that for Whitehead, novelty is “always relative to an order; it is always a novelty in the interior of a particular order.”38 “No life,” he adds, “is independent of such local situations.”39 Like Whitehead, Kiesler thinks of life and novelty without defining them as such, looking instead at the pragmatics of their relation. Correalism explores this relationship in a variety of orders (physical, chemical, and biological among others) to produce its own method, biotechnique, which looks specifically at the relation between life and technological invention.

Correalism, Kiesler tells us, “expresses the dynamics of continual interaction between man and his natural and technological environments.”40 Its method, biotechnique, “uses scientific means to investigate chances human beings have to influence life by shaping their environment in

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37 Debaise, Life and Orders, 2.
38 Ibid., 5.
39 Ibid.
a certain direction.”\textsuperscript{41} Biotechnique moves beyond a critique of “the atrophy of the gestures induced by the technological externalization of our physical and relational activities”\textsuperscript{42} to look at how heredity and evolution can influence the development of the technological ecology to effect positive impact on the life of its dwellers. Constructed around a series of interrelated problems, the correalist project problematizes reality as a set of interactions between visible and invisible configurations, to develop a regime of visibility that formulates a genetic explication of the segregation of environmental unity into distinct ecologies, toward the construction of a future unity.

\textbf{From the Form of Life to the Life of Forms}

“We assume,” writes Kiesler, “that because an object does not express itself in visible activity, it (...) is dead. (...) Our assumption of what is alive or dead is chiefly the result of optical observation.”\textsuperscript{43} We, he adds, “perceive objects only by coordination of all the experiences. Seeing is therefore a creative ability and does not consist of simple mechanical reproduction.”\textsuperscript{44} We, in Brian Massumi’s words, “perceive more than we see.”\textsuperscript{45} In challenging the common appreciation of the relation between novelty and life as expressed in the correspondence between activity and visibility, Kiesler hinges on two sets of problems: on the one hand, the manner in which visual forms run the risk of reducing life’s dynamic activity to objective movement; and, on the other

\textsuperscript{41} Bogner, Dieter, “Coop Himmelb(l)au,” in Beyond Art: Third Culture: A Comparative Study in Cultures, Art and Science in 20\textsuperscript{th} Century Austria and Hungary, ed. Peter Weibel (Vienna: Springer Verlag), 566.
\textsuperscript{43} Kiesler, \textit{On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design}, 69
hand, how aesthetic experience renders the world a creative subjectivity. From an architectural point of view, what holds these two sets of problems together is the question of form.

Thus far, we have encountered a number of propositions that have already begun to spiral in all directions. To help the navigation, let me unpack some of the thematic drifts. The central proposition of Kiesler’s work is found in an intertwined inquiry that looks as the tension between formal interactions and psycho-physical occurrences on the one hand, and the pragmatics of disciplinary exchanges on the other. Emerging out of his speculative and empirical explorations of the scientific analysis of technological development, Kiesler’s correalist project is based on a multipolar understanding of forms informed by both sciences and arts. Looking at physics and biology, Correalism revisits a number of presuppositions surrounding the pragmatics of the relations between forms, functions, and structures to undo the modernist motto “form follows function” and replace it with “Function follows vision. Vision follows reality.” However, for Kiesler, structural observation of visual forms in objective space-time can only dimly illuminate life’s active manner of becoming. To think of life living, we must segregate it from bare visible activity, from formal expressions in objective space and time. This passage from visible objects to visibility is what Bernard Cache calls “effects without objects.”

With its emphasis on forces (as opposed to objects) and visibility (as opposed to visual forms), Correalism considers physical materiality an experiential abstraction. “For matter is only one of the expressions of Reality, and not reality itself. If matter alone were reality, life would be static.” In brief, Kiesler’s architectures of vision problematize the tension between physicality and mentality by concentrating on the novelty expressed in structural organization and perceptual activity, as two domains that meet without coinciding.

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47 Kiesler, *On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design*, 69. (emphasis in the original)
The speculative engagement with life proper to this combined inquiry, between the structural activity of forms and the experiential tonality proper to forms of vision, resonates with the work of Raymond Ruyer, Alfred North Whitehead and Gilbert Simondon. A common reading of their work activates a more direct engagement with the manner in which technology, physics, and the psyche come into participation with life as domains that impose evolutionary limitations.

Following Simondon’s phases of individuation (vital, physical, psychic, collective and transindividual), I start with the tension found in the interval between vital and physical individuation. While engaging with this tension means acknowledging the psychic phase as felt in incipient form, it is only in the fourth chapter that individuation, and more precisely psychic, collective and transindividual phases will resurface. In the present chapter, I will voluntarily leave psychic individualization in its nascent state to come back to it only after engaging with the regime of abstractions that characterizes the efficacy of the correlationalites between the phases. The initial postulate that conditions the possibility of engaging with technical objects as individuals will also be presented in this chapter.

Before we look more closely at the links between Simondon’s individuation and Correalism, I will introduce a number of preliminary remarks on the correalist field of exchangeability between nature and technology. The analysis of some of the key aspects of the co-relationality of these two domains, as exemplified by the abstractions that characterize their efficacy, will help clarify the singularities proper to Kiesler’s transfers between the two domains, as nuanced with those produced by the functionalist paradigm. It will also prepare grounds for thinking about psychic and technical individuation as phases that complexify the becoming of the bio-physical qualities of individuals. This preliminary engagement will set into motion the possibility to think of architectural constructions in terms of biotechnical individuals, which will come into focus in the last section of this chapter.
On the Non-Coincidence of Nature and Technology

We must start with the event as the ultimate unit of natural occurrence.48

De la nature morte vivante.49

Kiesler is much less interested in the missing link between the living and the non-living or in the level at which life presents itself as an emerging property as he is in constructing a living relation based on a continuity between human beings and technology. He thinks of this continuity within the non-coincidence of humans and nature’s respective manners of building. Kiesler links his biotechnical method to the work of Patrick Geddes and Lewis Mumford for their emphasis on evolution. However, he nuances his association by introducing a pragmatic difference revealed in a terminological distinction between biotechnique and biotechnic. Biomorphic is the common terminology used today in place of biotechnic, the term used by Geddes and Mumford. Biotechnic -or biomorphic architecture- looks at biomimicry as a set of techniques endowed with the capacity to bestow life upon architectural creations. After studying the history and theory of animal and plant morphology, Kiesler remarks that human beings and nature have two distinct ways of building. Biotechnics, he writes, “can be used only in speaking of nature’s method of building, not of man’s.”50 Nature, he clarifies, “builds by cell division with the aim of continuity;”51 whereas “man can only build by joining parts together into a unique structure without continuity.”52 This analytical outcome is actually a warning: there is no possible

51 Ibid.
52 Ibid.
interchange between nature and human’s methods of building.\textsuperscript{53} This insight provides the point of departure for his concept of Endless space.

Moving emphasis from the technological possibility of reproducing natural forms to the guiding principle of mutative continuity that is characteristic of nature, biotechnique defines technology as evolutionary and as co-related with biological systems and organisms. Correalism does not figure the complete merging of technology and biology, or the substitution of nature by technology. Instead of imposing principles from natural evolution to technological design, biotechnique produces biological analysis of technological systems for which “man, his tools and his natural environment are all interacting, each following its own principles of ‘heredity’ and each changing the evolutionary environment for the other.”\textsuperscript{54}

Focusing on heredity and evolution in the natural and biological domains, Kiesler constructs his biotechnical method through an analogical transfer of operational principles from the natural and biological domains to the technological and human ones. Based on a double articulation, biotechnique considers technological systems as developing according to their own “laws of heredity,” and as taken in a conditioning relation with the becoming of living beings at the same time. Kiesler thinks of laws in terms of evolutionary habits rather than static and transcending laws. A more thorough engagement with this Peircean conception of the laws of nature will be discussed in Chapter Four. To illustrate his correalist transfers between nature and technology, Kiesler references tissue culture and germ cells as two figure cases that exacerbate the relational non-coincidence of nature and technology in the conditioning of life’s becoming.

\textsuperscript{53} Ibid.
Taking germ cells as a natural form of order that links biological populations in time, Kiesler makes a connection with the built environment via the concept of continuity (heredity). He defines the technological environment as producer of social continuity, insisting on its power to link ideologies and objects in time. He remarks that humans can only influence the development of germ cells, what he refers to as nature’s sealed order, during their own lifetime, and concludes for social heredity to be “the only tool man can rely upon.”

Kiesler’s biotechnique focuses on heredity as environmental occurrence: biological heredity in the natural environment, and social heredity in the technological one. To emphasize how technology can condition social heredity, he makes a significant reference to the work of surgeon and biologist Alexis Carrel. In 1912, at the Rockefeller Institute in New York, Carrel removed an embryonic chicken heart from a hatching egg and cultured it in vitro for over 30 years (until 1946). For Kiesler, Carrel’s experiment shows that “by changing the physical environment, life may be quickened and increased, retarded or destroyed.” It confirms the pre-active role of the environment in which cells and tissues are cultured. Here “pre” does not connote temporal linearity. It does not bestow any temporal priority to the environment. Rather, “pre” magnifies the fact that the culture cannot exist without the environment. This insight enables Kiesler to move beyond the consideration of living organisms as being ‘in’ a milieu, and to develop an environmental conception of physical forms. For Kiesler, every object is also an environment. Influenced by Carrel’s pioneering tissue culture protocols, Kiesler’s biotechnique considers the notion of milieu as more than a contouring or a framing to show that life can only

56 It is however reported that the culture was actually changed over the years. Personal discussion with Kira O’Reilly.
57 Kiesler, On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design, 66.
be approached on a super-empirical level. Put otherwise, life’s formal expressions are always in relation with an associated milieu or surface of emergence. Milieus and surfaces that tend to vanish when forms reach full concretization. As Kiesler summarizes, “while life comes only from life, it is also dependent on its technological environment.” The notion of milieu will recur at several occasions in the present and upcoming chapters. At this specific juncture, the issue at stake draws focus on the operational transfers between milieus, and more specifically between the chemical milieu that conditions the becoming of a culture and the technological milieu that conditions the becoming of human beings. That is, it forces an engagement with the analogies that enable biotechnique to express the non-coincidence of nature and technology in the transduction of nature’s mutative continuity into an analogous form of technological heredity.

For Kiesler, the abstractions that sustain the (dis)continuity between nature and technology ought to resist the point where the organic and the mechanical become one and the same, the threshold where biology is mechanized, where living organisms are reduced to feedback systems. Biotechnique, he tells us, marks “the collapse of the mechanical and organic analogies in architecture.” Here Kiesler comes into a close encounter with the ideas of Simondon. As Thomas Lamarre writes, referring to Simondon, “rather than blur or collapse the distinction between humans and machines, or for that matter, organism and mechanism, he (Simondon) sustains it yet stubbornly refuses to allow it to take on substantialist weight.” While Kiesler does not reject physical materiality, he also notes that mechanical analogies invariably tend toward substantialism.

58 Ibid.
The Activity of Function: Social Heredity in the Technical Domain

To highlight the generative intensities of experience that emanate from Kiesler’s reworking of mechanical analogies, Kiesler contrasts his approach with the functionalist view that assumed authority at the time. Kiesler sustains architecture’s functional role yet he refuses the modernist idealized standards of beauty, durability, practicability and low cost which, he argues, have been used to excuse and compensate for the absence of one another because they “have never altogether coincided in a single work.”61 Resisting the reification of the oppositional relation between the living and the non-living, he claims, “every object that meets a need is living: it is only dead when it ceases to meet a need or when the need itself disappears.”62 Architectural forms, Kiesler insists, should not emerge out of previous architectural projects. They should instead respond to the needs created by life’s processes. Instead of evaluating the continuity between life and technology with standards based on conservation laws, or with equally reductive standards ingrained in structural equivalences, Kiesler invents the biotechnical minimal standard. Growing out of scientific knowledge, “the biotechnical minimum standard is that technological environment of home, work-place, and their corollaries” meet “the optimum needs of man’s health.”63 Kiesler keeps human needs, on which “functionalist methods are necessarily based”64 and contextualize them in relation to a specific aim (health). In so doing, he seeks to redefine his approach to architectural design in an ongoing manner in terms of health, as an endlessly changing and evolving modulator, as opposed to a fixed ideal in time. The transduction of health as evolutionary human need into an architectural standard will be

62 Ibid., 68
63 Ibid. (emphasis in the original)
http://repository.upenn.edu/cgi/viewcontent.cgi?article=1023&context=arch_papers
addressed in Chapter Two. To set the grounds for Kiesler’s “architecture of health,” let me first engage with how he envisions the evolutionary limitations and modulations that technology imposes on life, by looking more carefully at his critique of functionalism and substantialism.

**Beyond Pseudo-Functionalism: The Need-Morphology of Technological Growth**

“If we could convert,” Kiesler tells us, “our static functions of design into design-flows of life forces and thus replace defunct functional architecture with: Process Architecture (…) we will have conceded our conceit as pseudo-functionalists.”\(^65\) For Kiesler, functional design “derives from the traditional behavior of any tool”\(^66\) to develop objects. Biotechnology comes from the opposite direction: it “derives from the evolutionary potentialities of man”\(^67\) and develops the human being. Functionalism “shifts the strain from the technological tool to the human being: but, here, biotechnology shifts the strain from the human being to the tool.”\(^68\) Imagined via the dynamic character of the human structure, biotechnology works with the notion of function “not as a finite fact or standard, but as a process of continuous transformation,”\(^69\) such that a function is defined as a “specific nucleus to action.”\(^70\) Kiesler vigorously denounces functionalism for its production of new forms “wrapped around conventional ways of living.”\(^71\) Focusing instead on how architectural forms can trigger non-habituated spatial engagements and atypical modes of living, he develops a vision of technology based on the re-conditioning of capacities. Re-

\(^{65}\) Frederick J. Kiesler, “The Electric Switch or the Switch to Process Architecture,” in Selected Writings, ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 118.

\(^{66}\) Kiesler, On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design, 68.

\(^{67}\) Ibid.

\(^{68}\) Ibid., 69.

\(^{69}\) Kiesler, The Electric Switch or the Switch to Process Architecture, 117

\(^{70}\) Kiesler, On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design, 67.

\(^{71}\) Ibid., 66.
conditioning triggers a self-organizing movement as opposed to determining the possibility for action as pre-determined by given parameters. In defining function as a nucleus to action, Kiesler sets into place the possibility for the emergence of a self-organizing movement between technology and living organisms. Functional conditioning, that is, the development of new forms of habituation triggered by technology, is thus the correalist manner to create social heredity.

Experimenting with the habitual activities conditioned by the technological order of the built environment, biotechnique triggers social heredity through its own unnatural means. In emphasizing atypical modes of living, it makes new forms of dwelling the criterion of analysis of the novelty expressed by life in the technological order of the built environment. For Kiesler, engagement with these new modes of inhabitation depends on a study of the morphogenetic processes that occur in the technological environment where modes of inhabitation take precedence over substance. “We have had,” he writes, “numerous accounts of the history of technology but no study of the need-morphology of its growth.”72 Architect Greg Lynn asks also for these issues to be best “raised from within the technological regimes of the tools rather than from within architectural history.”73 Modes of inhabitation will be discussed in Chapter Two in the context of Arakawa and Gins’ architecture but most predominantly in Chapter Four where they will be explored in tandem with the concept of dwelling as linked to procedural techniques of space orientation.

To situate his morphogenetic explorations, Kiesler lists three dominant approaches to the physical reality of the technological environment: (1) functional or synthetic; (2) formal or

72 Kiesler, On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design, 63.
73 Greg Lynn, “Animate Form” in Machining Architecture (Rotterdam: NOX, 2004), 18.
transcendental and; (3) mechanical-materialist disintegrative.”

Dating the latter back to Greek atomism, he notes, “the self-deceiving triumph of mechanistic science in the nineteenth century led many to accept mechanical materialism as the only possible scientific method.” Well aware that architecture, in the forms it produces, runs the risk of looking at the technological environment through the lenses of the mechanical-materialist paradigm, Kiesler wayfaring into the study of technological morphogenesis sets into place the conditions of a new science of technology. This renewed science thinks of the visible and invisible configurations of nature and life as preceding genetic relation to the study of the need-morphology of technological growth. A similar regime of visibility implicitly guides Whitehead’s opposition between the “space of life” proper to scientific materialism, and his own conception of “space alive,” where life is not a form of spatial occupation, but rather a form of organic relation. For Whitehead, as for Kiesler, the world is organic rather than materialist-based, and this distinction is figured in an energetic regime of visibility that renders visible the relation between nature and life. Here, to render visible is understood in sharp opposition with contemporary techniques of visualization.

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75 Ibid.
Against Mechanical Systems Dazed into Becoming Biological

Between the corporeal units there lie the various empty fields of tension that hold the parts together like planets in a void.\(^76\)

There persists (…) throughout the whole period the fixed scientific cosmology which presupposes the ultimate fact of an irreducible brute matter, or material, spread through space in a flux of configurations. In itself such a material is senseless, valueless, purposeless. It just does what it does do, following a fixed routine imposed by external relations which do not spring from the nature of its being. It is this assumption that I call “scientific materialism.”\(^77\)

For Whitehead, life and nature can only be understood if they are fused together as “essential factors in the composition of “really real” things.”\(^78\) In *Modes of Thought*, he makes the point that matter in simple location, or space occupied, is synonymous with a lifeless conception of nature. Matter in simple location is an example of Kiesler’s mechanical materialism. In Whitehead’s words, simple location is the reality of bare activity without content; “activity in which nothing is effected.”\(^79\) Matter in simple location images the reality of material bodies interpreted in the contiguity of their external relationships. The argument here is straightforward: the relation between life and novelty cannot be reduced to the space occupied by forms. In contrast, nature alive is concerned with the “study of the internal relations within a complex state of activity.”\(^80\) For nature to be alive Whitehead goes on to say, life ought to be interpreted as a characteristic of empty space. While empty space is commonly reduced to vacuity, Whitehead inverts the reduction: empty space is not tantamount to passivity but to activity; it is the dynamic betweenness, the relational co-reality that renders life a creative and evolutionary process. That is, when nature is lifeless, empty space is “the substratum for passive geometrical relationships

\(^80\) Ibid., 140.
between material bodies;" when nature is alive, “space apparently empty is the theatre of activities which we do not directly perceive.” Whitehead resumes the spatial reality in a simple yet evocative sentence: “life lurks in the interstices.” Steve Goodman’s vibrational ontology rephrases this imperceptibility of life, rendering Whitehead’s empty space more tangible. “If we subtract human perception,” he writes, “everything moves. Anything static is only at the level of perceptibility.” Here Goodman renders visible one of the central postulates of Whitehead’s philosophy: relations precede sensation and perception.

For Whitehead, nature lifeless is matter segregated from life and mental activity. To think of nature alive, he writes, we ought to include “mental operations as among the factors which make up the constitution of nature.” Whitehead furthers his explication of mentality by proposing another definition of life as “the coordination of mental spontaneities throughout the occasions of a society.” Life, he goes on to say, is a “passage from physical order to pure mental originality, and from pure mental originality to canalized mental originality.” Mentality is however not substantially different from physicality. Mental activity aims at originality in that it bestows entities with the capacity to connect with their own potentialities and to act creatively. For Whitehead, mentality is present in all forms of relations as a mode of dynamic efficiency endowed with the power to bring contextual conditions to new possibilities. Mentality is non-spatial, yet it is always a “reaction from and integration with physical experience, which is spatial.” Reactions, however, “are inexplicable by any tradition of pure physical inheritance.”

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81 Ibid., 139.
82 Ibid., 133-134.
85 Whitehead, Modes of Thought, 156.
88 Ibid., 108.
David Ray Griffin’s reading of Whitehead helps to clarify the correlationalities proper to the mental-physical continuum. An event’s physical pole, he writes, “is incorporation of influences from previous events;” “it is physical insofar as it simply repeats past forms of creative experience. Whereas an event’s mental pole is its self-determination.” 90 Griffin adds that for Whitehead, novelty always originates in the mental pole. “Efficient causation,” he tells us, “is always exerted by an actual occasion as a whole, not simply by one of its poles.” 91 A pole, Griffin goes on to say, “is an abstraction and as such cannot act.” 92 Put otherwise, “there is no purely mental efficient causation, in the Cartesian sense of a purely mental substance exerting causality in the physical world.” 93 To highlight the pragmatic implication of life’s polarization, Griffin explains that Whitehead draws a distinction between pure physical causation and hybrid physical causation. “It is pure physical causation insofar as the in-formed creativity transmitted from the cause to the effect(s) arose in the physical pole of the cause. It is hybrid physical causation insofar as this creativity first arose in the mental pole of the cause.” 94 In brief, for Whitehead, thought is not in opposition with physicality. The mental and the physical work like a key and its lock. Meaningless in their solitude, their co-participation creates signification that does not figure a reduction or elimination of their heterogeneity.

From a Whiteheadian point of view, life is a non-localizable occurrence, which travels along the indivisible continuum between mentality and physicality. Life is a non-dividable polarization that is immediately mental and physical, spatial and non-spatial, yet durational,

91 Ibid.
92 Ibid.
93 Ibid.
94 Ibid.
meaning that its reality is the reality of change. More than a (non)spatial “category,” life is also
temporal, that is, the interstices, or the passages between physicality and mentality, are durational.
Life can thus be vaguely described as that which cuts across, streams through, or moves along the
mental-physical continuum in such a way that the novelty or originality it produces cannot be
localized. Life is an abstraction -singularization- that produces polarized contrasts on a cross-
referencing continuum.

Life living is a mode of activity. Being alive is tantamount to being active. “Each actual
occasion is in truth a process of activity.”95 Instead of objectifying life through localizing its
modalities, Whitehead’s process philosophy invites us to produce abstractions that figure non-
localizable modes of activity. Whitehead denounces abstractions based on simple location for
they figure what he calls the “fallacy of misplaced concreteness.” These abstractions, because
they lack violence in the process of their abstraction, run the risk of accounting for entities
emerging out of a reification of abstractions, that is, of producing mechanical systems
biologically dazed.

Against misplaced concretion, Whitehead’s abstractions are not in opposition with the
concrete reality of occasions. For Whitehead, an abstraction is a process of singularization on the
immediate flux of life, and not the intensification of any kind of freedom from concreteness. To
be abstract, he tells us, is to “transcend particular concrete occasions of actual happening. But
transcend does not mean being disconnected from it.”96 Abstractions do not produce generality;
they express a singularity. A singularity, Debaise explains, performs a function: it breaks
equilibriums and “creates a transformation.”97 In Prigogine's terms, a singularity is a form of

95 Whitehead, Adventures of Ideas, 254.
http://www.senselab.ca/inflexions/n5_debaisehtml.html.
instability that triggers a bifurcation or phase shift, expressed in far from equilibrium structures that manifest intrinsic differentiation.\(^{98}\) Thus, to abstract is to give expression to the singularity of the transformative powers that hold the potential to activate new forms of equilibriums (and here, in the light of Kiesler and Whitehead’s work, to trigger new forms of confluences between mentality and physicality, which give rise to new modes of inhabitation and becoming).

Once again, mentality -or psychic activity- forces its way into the possibility of knowing the reality of bio-physical individuals. However, it is now time to clarify the pragmatic implications of the analogy. Even if Correalism refuses to entertain a correspondence between human beings and nature’s modes of building, it does not construct its concept of continuous space through external relations between constituted forms (lifeless nature) but through ontogenetic relations between processual modes of activity (nature as being alive). Kiesler’s Correalism produces systems of abstractions that re-condition the manner in which we know and attach ourselves to life, abstractions whose pragmatic implications are sharpened when problematized in the light of Simondon’s allagmatic theory.

Analogical Abstractions: From Structure to Operation

Philosophy is the critic of abstractions.\(^9\)

Analogy starts with science.\(^1\)

For Simondon an analogy is not a simple association of ideas. An analogy is a “relation between two operations,”\(^1\) which establishes an “identity of operational relations.”\(^2\) Jean-Hugues Bathélémy explains that Simondon’s analogy affirms both the epistemological and ontological value of the analogy. On the one hand, it attests its epistemological value through the operation of thought that produces an identity of relations, and, on other, it asserts the ontological value of the transductive operation. Muriel Combes clarifies: the epistemological value of the analogy is “maintained only if the transfer of an operational logic is the transfer of an operation that reproduces the operational scheme of the known being.”\(^3\) “Suppose,” she adds, “an analogy between, on the one hand, the operations of each known being and, on the other hand, the operations of thought,”\(^4\) where thought is defined pragmatically as an act of invention. For Combes, the central issue here is that thought is a possible that does not exceed reality, “immediately restituting the movement of Being.”\(^5\) She adds that Simondon substitutes the problem of individuation of knowledge to that of the possibilities of knowledge,\(^6\) ceasing “to

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101 Ibid.
102 Ibid.
105 Ibid.
106 Ibid., 9.
objectify the real so as to set free the processes of genesis.”¹⁰⁷ That is, to affirm the “non-objectifying reflexivity of philosophical knowledge.”¹⁰⁸

Simondon’s analogy addresses both the genesis of beings and the genesis of thought such that transduction is the name of “the geneses that is also a process of genesis itself.”¹⁰⁹

Transduction, he explains, is ultimately a mental process: “the course taken by the mind on its journey of discovery.”¹¹⁰ Simondon’s concept of transduction is key to understanding the pragmatics of his conception of analogy. Transduction, he writes:

> does not seek an external principle to resolve a problem: it gets its resolving structure within the tensions of this domain, similar to a saturated solution that crystalizes from its own potentials according to the kind of chemicals it holds, and not in relation of any external form.¹¹¹

Simondon adds an important specification: transduction is a method that knows structures by the operations that dynamize them instead of by the structures in between which they exert themselves.¹¹² The ontological value of analogies is bound to an “identity of relations” and not to a “relation of identities,”¹¹³ meaning that Simondon’s notion of analogy affirms the autonomy of operations in relation to their terms. “Intrinsic characteristics of terms,” he explains, “are out of cause in the analogical act.”¹¹⁴ The terms of the relation do not have to share a common ontological terrain for the transductive transfer of operations to be effected (and effective). What is transferred is not an operation of measure. What is produced is not a structural, mechanical, or metaphorical resemblance. Analogies based on operational relations do not figure a

¹⁰⁸ Ibid.
¹⁰⁹ Ibid.
¹¹⁰ Ibid., 564.
¹¹² Simondon, *L’individu à la lumière des notions de forme et d’information*, 34.
¹¹³ Ibid., 563.
¹¹⁴ Ibid., 562.

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proportionality of forms to connote a resemblance in structure; “structural results”, Simondon tells us, “may be different.” An identity of relations generates an operational relation as opposed to a structuring one. For Simondon, this distinction marks the difference between a resemblance and an analogy. Pseudo-scientific thought, he writes, “exercises resemblance at large, and even resemblance of vocabulary, but it does not exercise analogy.” Resemblance of vocabulary “entails confusing images barely capable of ensuring an affective resemblance.” For a resemblance supposes a structural resemblance (or visual similarity) while an analogy expresses an affective relation. In brief, Simondon distinguishes two forms of analogy: (1) structural analogy, which only succeeds at producing resemblance and; (2) operational analogy as the reality of a co-constitutive individuations, which produces affective relations. The value of an analogy is thus more than heuristic; it is both constructive and performative. That is, operations imply the extrication of “futuristic” and “constructivist” fields of virtuality that are not tantamount to an assumed scientific neutrality.

Even if analogies do not produce an excess over reality, they do produce excess in the field of problematization within which they are effective. It is in this very excess that Correalism succeeds at sustaining the fields of exchangeability between its ecologies. By creating excess in their respective fields of problematization, analogies produce innovations and not mere extrapolations. In Imagination and Invention, Simondon explains that extrapolation fails at exceeding the initial conditions of a problem and that it creates closed problems that are blind to the production of difference. In contrast, innovation enables the construction of problems that reinvent themselves in the course of their becoming. When a problem produces an excess over itself, the produced excess triggers changes in the problem’s initial conditions, unlocking the

115 Ibid., 563.
116 Ibid.
117 Ibid., 562.
potential of its own reinvention. Here excess should not be confused with surplus value. Value is
the qualitative autonomy of the process, whose excess creates (dis)continuity between ecologies
to enable the sustenance of their field of exchangeability. An analogical abstraction can thus be
defined as an innovation whose field of problems is an open-ended enveloping endowed with
both the regenerative power of reinvention and the generative power to create values. Referencing
speculative and constructive problems, Stengers eloquently summarizes the power of invention.
Even if a problem could be perceived as a diagnosis, she writes, it would be a diagnosis in the
Nietzschean sense, meaning, a diagnosis endowed with “the power of the performative.” 118 That
is, not simply an explicative diagnosis, but one that generates change. By this account, both
Kiesler’s design approach and Simondon’s analogical method are allied to Bergson’s intuitive
method. “The truth” writes Bergson in Creative Evolution, “is that in philosophy and even
elsewhere it is a question of finding the problem and hence of posing it even more than of solving
it. For a speculative problem is solved as soon as it is well posed.” 119 In Bergsonism, Deleuze
clarifies, “problems are shadows of pre-existing solutions.” 120 “Stating the problem” Bergson
goes on to say, “is not simply uncovering, it is inventing.” 121 Posing a speculative problem, or
constructing its solution, is thus a task that enlivens inquiry itself.

In problematizing systems in virtue of their operational relations, Simondon’s analogical
method looks at operational relations to define beings by their doings rather than their beings, as
“structures of evolving processes.” 122 In so doing, he poses the problem of simple location as
allied to the problem of the correspondence between forms, functions, structures, and functioning.
For an analogical act to express innovation, and to free itself from the burden of simple location,

118 Isabelle Stengers, Cosmopolitics I, (Minneapolis: Minessota University Press, 2010), 12.
121 Bergson, L’Intuition philosophique, 51.
it must resist common appreciations between morphogenesis and morphology. Now that the manner of the correalist transfers between ecologies has been explained, let me now look at how the distinction between operation and structures informs the need-morphology of the technological growth of biotechnical individuals.

Violence Recalled: Morphogenetic Occurrences in the Technological Ecology

In architecture the organic and the geometric (...) may run parallel to one another but they never meet.  

Some architects have confused geometric forms with abstraction, have taken simplicity (or planimetry) for functionalism, and called it organic architecture. It was a stroke of luck that ‘abstract’ simplicity fitted the principles of hygiene, fostered at that time by industry and labor.”

In the correalist speculations, life and technical invention are said to depend upon the study of the need-morphology of technical growth. It is useful here to restrict the term need to a morphological gesture that, in Isabelle Stengers’s terms, “is not justified by, but both producing and produced by, the relationship of relevance between the situation and the tool.” The evolution of needs is not based on “a judgment on the situation as justifying” the tool’s use. The need-morphology of technological growth is a “decision without a decision-maker which is making the maker.” The relevance between the situation and the tool is not found in the essence or individuality of the related terms (humans and tools) but in the manner of the situation, that is, in the tonality of the event that relates the terms and that creates them as relations.

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124 Frederick J. Kiesler, “The Electric Switch or the Switch to Process Architecture” in *Selected Writings* ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 117.
126 Ibid.
127 Ibid.
selective character of the decision is an occurrence rather than a subjective choice. Beyond stimuli reaction and below consciousness, the situational modalities of the relationship between tools and humans as expressed in needs obliges to look more closely at the morphogenesis of biophysical individuals.

Resonating with Whitehead’s critique of simple location as misplaced concretion, and with Simondon’s analogical theory, Kiesler’s morphological explorations into technological invention are informed by the transduction of nature’s mutative continuity into the technological domain. Now, if morphogenetic occurrences in the technological domain cannot be explained mechanically in the contiguity of their formal and structural correspondence with living organisms, and if analogical thought is an act of invention, what is the pragmatic of invention emerging out of the analogical correlation between life and technical forms as taken in their internal structures of activity?

**Impossible Isomorphisms**

Life is formation of forms; knowledge is the analysis of in-formed matter. It is normal that an analysis could never explain a formation and that one loses sight of the originality of forms when one sees them only as results whose causes or components are to be determined.  

Raymond Ruyer provides here a term of passage. Attributing the possibility of knowing invention to analogical transfers of knowledge between similar phenomena, he looks at technical and biological invention to conclude on the impossible correspondences between forms and functioning. Ruyer’s most central, and perhaps simplest argument, advocates that life is a process of formation, and not simply a functioning. For functioning alone substantializes the analogy between mechanic and organic systems. Moving along the same tendency of thought as

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Simondon and Whitehead, looking specifically at the development of cybernetics, Ruyer links invention, whether organic or technical, to formation. Creativity and invention, he insists, cannot be substituted by mechanical links. They can only be captured in their process of formation.

“‘There cannot be isomorphism,’” he tells us, “‘between a form and a formation, but only between form and form, or between formation and formation.’”129 Departing from a genetic account that considers life a complex block of becoming, which cannot be divided in functional parts whose togetherness would make it explicable in terms of a functioning, Ruyer presents the distinction between form and formation as revolving around two interrelated problems: (1) the misplaced correspondence between formation and functioning in the study of structures and; (2) finalist activity in the ontogeny of life forms.

Ruyer relates functioning to verticality, structures, anatomy and physiology. Functioning, he explains, is a reality observable in the spatio-temporality of formed structures, which can be deduced from considered structures. That is, structures illustrate a closed set of possible in mathematics and in biology. Insisting instead on the possibility of a unity of plan irreducible to geometrical analysis, Ruyer performs a perpendicular gesture and relates formation to horizontality, development, and embryogenesis. Formation, unlike functioning, is linked to the emergence of new forms that cannot be deduced from given forms. With this distinction, Ruyer argues that a process of formation is irreducible to a functioning for functioning is an effect rather than a correspondence or an explanation.

Organic formation, Ruyer insists, does not only actualize a passage from the absence to the presence of a structure, from iso-amorphism to iso-morphism, it also performs a change in the initial form. Along these changes, the form increases its qualitative complexity, expressing its

power to serve as basis for another formation.\textsuperscript{130} This nuance between morphology and morphogenesis, which conditions the possibility of knowing the relation between the vital and the physical, is based on a reworking of biological finality. Put otherwise, for Ruyer, the problem of the invention of forms cannot be thought of without addressing at the same time the problem of biological finality in formative processes.

Ruyer explains that the relation of correspondence between functions and spatial structures that assumes authority in the mechanical transfer from nature to technology substantializes the economy of the relation because it overlooks the duality of the nervous system. Referencing cybernetics, he argues for the conception of finality as ingrained in notions of information, retroaction, as well as on attempts to explain learning processes through mechanical principles of inscription, to leave behind nervous activity. Put otherwise, a living organism is more than the rational, or at least objective result of a psychico-chemical functioning.

Ruyer describes the nervous system’s duality in terms of an alliance between, on the one hand, a machinery that acts as both receptor and effector (machinery figured in anatomy and physiology) and, on the other hand, as living equipotential tissue (equipotentiality imaged in the transtemporal and transspatial domain of the senses). Departing from the postulate that equipotentiality cannot be explained causally, Ruyer’s renewed notion of biological finality is based on the impossibility of knowing invention functionally. If the functioning of a living being could be explained by assembled connections, he wisely remarks, consciousness would be worthless. Here Ruyer shows that finality is non-neutral in relation to the production of value and that it cannot be thought of outside of the realm of memory. Refusing to celebrate ‘emergence’ as the final aim of a process, he reworks the reductive relation between finalism and mechanism by linking finality to axiology.

\textsuperscript{130} Ibid.,13
Axiological finalist activities produce, and are produced, by themes. A machine, in itself, functions. In contrast, “a machine brought back to a theme or an intention of use, has a role, it behaves.” In relating invention in the evolution of forms to developing themes, Ruyer defines mental activity as an organic process. Psychic individualization fights again for dominion. Let it clamour to become visible a little longer. Further specifications on the co-relation of the physical and biological domains will enable a more graceful entering into the rhythm of Simondon’s phases of individuation.

The postulate of physiology and cybernetics, which attests the equivalences between structures and functioning, lurks as a guiding principle in today’s discourses on bioarchitecture. With emphasis on emergence and systems theory, bioarchitecture “dazes” mechanical transfers in an analogical manner. It is commonplace to say that buildings are alive when their forms resemble or function like living organisms. This architectural wisdom entails a misplaced isomorphism that reduces life to a set of functions whose expressions are assumed to be localizable in objective space. Instead on celebrating structural correspondences, Kiesler biotechnique proposes a different economical rapport between forms and functions in architectural structures. Read in companionship with Ruyer’s neofinalism, this new qualitative economy moves beyond the critique of “pseudo-functionalist architecture,” as read via “pseudo-scientific thought,” to look instead at life’s activity as a form of aesthetic relation. Now, to fully capture how biotechnique produces analogical abstractions endowed with affective tonality, and to further investigate the relation between life and technological invention as a reworking of the relation between form, function and structures, let me introduce one of Kiesler’s piece *City in Space.*

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City in Space. Don’t Daze. Disorient.

Mixing sharp angles and primary colors, transversal wood girders, horizontal and vertical plywood projection boards, explicative texts and drawings, City in Space is a three dimensional structure, freed of the determining constraints of the ground. Holding together white and colored (blue, red and yellow) plain surfaces suspended and stretched across the space of the installation it allures a three-dimensional version of a De Stijl painting. It also bears resemblance to Theo van Doesburg’s Maison Particulière (1923). City in Space is a speculative urban prototype that coordinates architecture, painting and sculpture into “galaxies.”\textsuperscript{132} Kiesler, like Deleuze’s baroque painter, has become urbanist.\textsuperscript{133} First exhibited in Paris at the Exposition Internationale des Arts Décoratifs et Industriels Modernes in 1925, it was presented again in the same city at the Mondrian/De Stijl exhibition held at the Pompidou Centre in 2010-2011. The Austrian pavilion also featured a recreation of the installation at the Venice Biennale in 2006.

\textsuperscript{132} Frederick J. Kiesler, “A Note on the Exhibition [1961]” in Selected Writings ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 108
\textsuperscript{133} Gilles Deleuze, “Un critère pour le baroque” in Revue Chimeres, http://www.revue-chimeres.fr/drupal_chimeres/files/05chi01.pdf
Figure 3: Frederick J. Kiesler, *City in Space (1925)*, Exposition Internationale des Arts Décoratifs et Industriels Modernes © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.
Figure 4: Frederick J. Kiesler, *City in Space*, Maquette © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.
Figure 5: Theo van Doesburg and Cornelis van Eesteren, *Model Maison d'Artiste*, (1923; reconstructed 1982)
Figure 6: Frederick, J. Kiesler, *City in Space* (1925), Exposition Internationale des Arts Décoratifs et Industriels Modernes © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.

Scenography dispositive at the intersection of theater and curatorial activity, bringing painting, sculpture and architecture into a unity of arts as correalist performance, the stretched
and floating installation is a form of structuration rather than a model of the natural type. Floating structure without walls - where walls become cyma- system of rails, *City in Space* makes tangible a paradoxical conception of space as both structural and constructive (read formative). Rather than a small-scale model that figures a utopian city, *City in Space* is the image of a determinable structure in formation, a social enfolding in a state of involution. Frederic Migayrou, curator of the De Stijl section of the Pompidou’s exhibition, describes the piece as a dispositive that introduces an architectural difference between structure and plan. Linking suspension and structuration, he explains that the levitating city is problematized in relation to its structure rather than its plan.  

The traditional end product of architecture, the structure and behaviour of a building is no longer deduced from a pre-existing plan or program. The ambiguity might be complex to grasp since the tension between suspension, levitation, structuration and construction is based on a pragmatic reworking of the relation between form, function and structure.

For Kiesler, the problem of the relation between form and function cannot be thought of without at the same time addressing the problem of structure. His emphasis on structures is made explicit in the visual proportions of the installation: the structure is bigger in size than the spaces of the surfaces of projection. Genetically, he writes, form, function and structure are all “contained within the protoplasm of thought.” Instead of defining structures in terms of a closed set of operations, Kiesler sees in them the possibility to enliven the relation between forms and functions. He proposes a new economy of their interactions based on their progression from structure, to function, to form. “All functions and all forms,” he declares, “are contained in the

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134 Migayrou, Frederic. Centre Pompidou, 2010. [http://www.dailymotion.com/playlist/x1hhgh_centrepompidou_mondrian-de-stijl/1#video=xg4gnj](http://www.dailymotion.com/playlist/x1hhgh_centrepompidou_mondrian-de-stijl/1#video=xg4gnj)

structure.” Since Kiesler defines functions as a nucleus to action, forms are by this account understood as emerging out of modes of inhabitation.

Considering its inhabitants as taken up in the totality of a ubiquitous structure, *City in Space* coincides with the modes of activity that maintain, sustain and extend its existence. Neither the representation of an organic city, nor a static spatial localization that represents a new form of social organization, it proposes a new synthesis between form and structure that is not revealed in the discrete form of the installation. Emphasizing the nuclear character of structures, Kiesler’s thinks of them as dynamic forms of activity that express an organic relationship, which can only be partially known physically. Much less about the visual convergence of life and architectural forms than about the exploration of the way an architectural structures connote innovation as the production of social difference, *City in Space* is an organic functioning that moves beyond the production of a system of equivalences that bears connection to a prototype of the natural kind. *City in Space* is a snapshot of an intensive and ongoing process of urban concretization.

With its emphasis on architecture as producer of social difference, *City in Space* prefigures ‘megastructures,’ an architectural concept popularized in the 60’s, notably by the Archigram’s *Fun Palace*. Megastructures are urban monads that aim at capturing the entire reality of a city. They are constructions whose architectural “un-program” is dynamically configured around a variety of elements that compose daily urban life. Megastructures are designed to activate the composition of urban subjectivity by defining its spatiality as a locus of encounter between activities, things, people and information. Combining transportation systems, restaurants, shops, offices, unions, clubs, etc.- megastructures create possibilities of encounters between the a wide range of economical, social and cultural identities that give cities their heterogeneity - stripers, lawyers, professors, musicians, homeless, students, babies, teenagers, elderly, etc.

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136 Ibid., p.67.
Megastructures are complex systems that spontaneously take a life of their own in virtue of the way in which the elements of their context combine and recombine. Every element is not apprehended as the exclusive expression of a function but as a nucleus of possible from which the coordination with other elements develops.\textsuperscript{137}

With his megacity, Kiesler develops a conception of architectural structures that emerges out of a series of conditioning connections between and among heterogeneous elements. Endowed with social agency, these connections hold the potential to reinvent the structure anew. Looking at urbanity in a synchretic manner, as the reality of an improvised choreographed activity, biotechnique seeks to create variability in architecture by avoiding freezing buildings in specific functions.\textsuperscript{138} Architectural structures, by this account, are no longer the “conglomeration of steel, wood, glass, concrete”, or “any excrement of industry.”\textsuperscript{139} A structure is formative rather than functioning and its formative equilibrium is conditioned by heterogeneous and evolving modes of inhabitation. Structures can thus be described as dynamic forms endowed with the power of the regenerative; as the symbol of a diversity maintaining itself in an evolving unity in movement. Here City in Space generates an incipient linkage to Kiesler’s goal of health.

Instead of distinguishing forms and structures dialectically, formally or substantially, Kiesler insists on behavior as the witness of the effectivity of their co-relationality. Behavior is an act, or, in Simondon’s words, that which “contains both structure and operation.”\textsuperscript{140} Focusing on behavior as a form of activity, Kiesler refuses to reduce structures to realities explicable in their observable forms, insisting instead on urban behaviour as an activity to which nothing visible corresponds as such. Warding off false resemblances and correspondences, City in Space

\textsuperscript{137} “La Space House et la psychée de la construction” in Frederick Kiesler. Artiste-architecte (Paris: Centre Georges Pompidou, 1999), 67.
\textsuperscript{138} Kiesler, The Electric Switch or the Switch to Process Architecture, 110.
\textsuperscript{139} Ibid., 114
\textsuperscript{140} Simondon, L’individu à la lumière des notions de forme et d’information, 561.
considers urban behaviour as the generic criterion of his biotechnical minimum standard, as the
tool of analysis of the need-morphology of its technological growth. That is, behaviour is what
maintains the dynamic activity of the installation. One experiences this levitating structure from
multiple vantage points, as well as from the positioning of a new grand form of architectonic
“aesthetic” experience.

Here one has to force a constraint: while life might not be explicable by the actuality of
its spatial modalities; it cannot be completely segregated from physicality. As Ruyer explains, we
should not fool ourselves into thinking of “the constitution of an organ, and its functioning, as
two clearly distinguished successive phases.”141 “Functioning does not wait for the organ to be
fully constituted.”142

Kiesler’s emphasis on behaviour as dynamic unit of analysis of the relations between
structures, functions and forms introduces the architectural possibility of relating formation and
functioning. However, as we will see in the Chapter Four, Kiesler emphasis on behaviour does
not authorize a correspondence with behaviourist psychology.

Concluding on the impossibility of entertaining a clear distinction between behavior and
morphogenesis, Ruyer also defines behavior as linking formation and functioning. There is, he
writes, “formation in all behaviour and behavior is principle of formation.”143 Behavior, he goes
on to say, is “synthesis of functioning and formation,” “improvisation of a structure,”144
anticipation of a possible functioning according to a theme that is not pre-given.145 Ruyer
clarifies, formation and improvisation are intimately mixed with functioning; for behavior and
development to occur, function has to partially anticipate on the possible functioning otherwise

141 Ruyer, La genèse des formes vivantes, 23.
142 Ibid.
143 Ibid., 17.
144 Ruyer, La genèse des formes vivantes, 20.
145 Ibid., 21.
the structural basis would be immutable.\textsuperscript{146} What determines an action in relation to finality is not a future event but the anticipation of a future event.\textsuperscript{147} Here behavior marks the advent of an open-ended process. It synthesizes, improvises and anticipates through linking themes that are not spatially pre-given. Signifying themes are immanent to the becoming of forms; they dominate visible structural transformations yet they are not localizable in space and time.\textsuperscript{148}

Ruyer’s exploration into the genesis of forms suggests a difference between two forms of continuity as figured in the difference between formation and functioning. Morphogenesis is thematic continuity while functioning is positional continuity.\textsuperscript{149} This distinction echoes Kiesler’s spatial difference between biotechnic and biotechnique, and Whitehead’s distinction between nature lifeless and nature alive. In explaining structures as figuring metastable forms of equilibrium conditioned by modes of inhabitation, Kiesler renders visible incipient organic themes in technological development.

*City in Space* is a behavior of structuration and not simply a structure. Imaging an ordered grouping bounded in pragmatic social effects, it works as a social dispositive more than as a formal plastic identity. Conditioned by urban life rather than by joined architectural elements, it articulates a process to modulate rather than an ideal to attain (ideal form). In this light, biotechnique is understood as the construction of a political alliance between thematic and positional continuity, where politics is described as the problematization of the relationship between perception and action.

At this point, we are ready to engage with Simondon’s theory of individuation. Bringing Correalism in greater intimacy with the transductive operations that sustain the fields of

\textsuperscript{146} Ibid., 20-21
\textsuperscript{149} Ruyer, *La genèse des formes vivantes*, 23.
exchangeability between nature and technology, Simondon’s philosophy prolongs Kiesler’s inquiry by offering the necessary conceptual tools to capture the pragmatic of his experimentation through psychic individualization. Now that we have covered Kiesler’s exploration of physics and evolutionary theory, emphasized how material scientism and misplaced isomorphism inform the substantialization of organic analogies, we can extract the maximum of potential from Simondon’s phases of individuation to then capture (in Chapter Two) the implications of the biotechnical minimum standard (health) as tied to the biotechnical reality of psychic individualization.

**Biotechnical Individuation: From the Physical to the Incipiency of the Psychic**

Kiesler’s biotechnique, and contemporary discourses on biotechnology in a more general way, combines the two principal themes of Simondon’s work: the modes of existence of technical objects and the concept of individuation. Simondon’s thematic combination looks at biotechnical individuals as a class of social beings with a particular emphasis on the political relations entailed in the co-modulation of life and technology. Though some of Simondon’s ideas will not appear as fundamentally new, a combined reading of the two themes that animate his thought has yet to be fully actualized. The understanding of technical objects as activators of individuation has already been addressed although the application of the concept of the individual to technical objects has not been emphasized, remaining open to additional specifications.

Echoing Kiesler’s correalist approach, Simondon's theory of individuation cannot be thought of outside the relationship between the individual’s ontogenesis and its milieu, which in turn are also related to a generative field of emergence Simondon calls pre-individual nature. The correalist notion of environmental order, whichprehends man’s total environment as dynamic unity in movement resonates with Simondon’s phases of individuation in that it generates an
image of a rhythm of forms as co-related in the process of their formation. Based on this consideration, biotechnical becoming, as the dynamic reality of Kiesler’s technological ecology, invariably defines a rhythm for the speed of individuation.

For Simondon, individuation is an analogical occurrence that can only be known analogically. His analogical method explains the individuation of knowledge as a relation arising between two relations,\textsuperscript{150} such that the postulate of his theory of individuation “is that the relation between two relations is itself a relation.”\textsuperscript{151} A relation, Simondon is quick to specify, does not link two pre-existing terms. Rather, it emerges through constituting the terms as relations. In Massumi’s own terms, a relation “is a suspension of the particular definitions of the terms in relation.”\textsuperscript{152} A relation is thus tributary of a process. For Simondon, a relation constitutes Being’s modalities and is simultaneous to the terms to which it provides existence. It “does not emerge between two individuated terms; it is rather an aspect of the internal resonance of a system of individuation.”\textsuperscript{153} Internal resonance qualifies the reality of a system in tension, which is one operational condition to trigger the process of individuation. Operations, Simondon tells us, are the principle of a system of individuation. From this postulate, the pragmatic implications of resonance, understood as the reverberating action of what happens in one place as well as in all places over time, is revealed in the equipotentiality of the operation in the metastable system of individuation.

Simondon’s theory of individuation bestows primacy to Being over the individual, considering the individual a “relative reality,” “a phase of being.” It looks at Being’s constitutive relations (Being-in-relation) rather than at constituted Beings (or Being’s existing conditions).

\textsuperscript{150} Simondon, \textit{L’individu à la lumière des notions de forme et d’information}, 83.
\textsuperscript{151} Ibid.
\textsuperscript{153} Ibid., 29.
Being-in-relation is not reducible to a constituted individual who would exhaust his own potentialities. It is therefore the process of individuation, which has to be explained, rather than Being that allows the explanation to be found. “Individuation is thus considered alone as ontogenetic, as the operation of the complete Being.” In other words, Simondon’s ontogenetic approach takes into account both the genesis and becoming of Being.

Being-in-relation is a multiplicity, a “non-un” (not one), which can be seized in the reality of a genetic field of emergence Simondon terms pre-individual nature. The pre-individual nature is “as a reality charged with potentials actually existing as potentials, as the energy of a metastable system.” Nature, in this light, is source of generation: a reality carried by the individual, one that is not “man’s opposite but the first phase of Being, the second phase being the opposition between the individual and the environment.” Here the act of carrying generates a confusion of sense. Carrying a charge does not mean that the individual contains the potential of his own becoming. This confusion can be unpacked by paraphrasing Brian Massumi on the virtual: the pre-individual nature “is not contained in any actual form assumed by things [here the individual];” it “runs in the transition from one form to the other.” Simondon’s pre-individual nature is a ubiquitous zone of indetermination charged with the individual’s potentials, one that runs equipotentially in the transitions from one phase of individuation to the other. The pre-individual nature can thus be interpreted as a situated, yet non-local character of individuation—engendered through an ongoing relation to the current situation.

Simondon’s individuation considers the becoming of Being as more than the relation between the individual and the pre-individual nature. The individual is always coupled with an

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154 Ibid., 25. (emphasis in the original)
155 Ibid., 313.
156 Ibid., 305
associated milieu, which acts as his complement. That is, individuation is an occurrence triggered by a system of relations between three terms: the individual, the associated milieu and the pre-individual nature, which bridges the former two without however synthesizing them. Simondon specifies their interactions: the pre-individual nature is a primitive unity from which both the individual and the associated milieu are split (dédoublés); as such, the individual is in relation with the pre-individual nature only through its associated milieu. The fact that Being is a multiplicity, a “non-un,” comes into clearer focus: Being is both the individual and its associated milieu. This relationality is reticulated by and through the pre-individual nature.

The same relational logic informs Simondon’s exploration into the modes of existence of technical objects. Technical evolution, he explains, is a passage from an abstract to a concrete form, where concretization is the name of the in-formative process that takes place in between both forms. The passage from the abstract to the concrete is determined by singular points that contain numerous variations: the concrete form is therefore not directly linked to the abstract one. The “form” generated, whether concretized or individuated, is not static, meaning constituted, complete and stable. It is a dynamic form or a metastable individual. For Simondon, equilibrium can only be metastable. The individual can achieve a structure but since it is always coupled with an associated milieu and pre-individual nature, the structure can never be considered stable. Through processes of internal development and progressive saturation, i.e. by conservation of primary tensions, technical individuals produce structures. Biotechnical individuals, by this account, can be said to emerge out of a process of “resolution of primary tensions and a preservation of these tensions in the form of structure.” However, “the discovery of a structure is indeed the resolution, at least provisory, of the incompatibilities, but it does not destroy the
potentials; the system remains tense and able to modify itself.”\(^{158}\) For Simondon, technological lineages develop as stability plateaus emerge within the technical environment. Once they have reached a particular saturation point in their evolution, i.e. after having accumulated various micro-changes saturating their technical environment, reconfigurations occur in order to allow new exploitations and new expansions into the environment itself. Concretization is a process that forms the image of the creative difference of biotechnical becoming, that is, novelty in the technological domain. Simondon does not locate novelty in the ideal functioning of an object. Concretization rather operates within incompatibilities that force technical objects to perform compromises between requirements in conflict. In the realm of technical evolution, incompatibilities are means for realization rather than obstacles. Technical objects, Simondon adds, “evolve through internal redistribution of functions between compatible units […] specialization does not occur function by function but rather synergy by synergy.”\(^{159}\)

Simondon’s concrete form is not in a relation of direct correspondence with an abstract form since an abstract form is not a model to copy. A concrete form produces an affective relation analogically, as opposed to a non-pragmatic resemblance. A more concrete engagement with the activity of imitation as concretized in affective relation will be addressed in chapter three when we will re-engage with psychic individualization and Ruyer’s equipotential domain of thematic continuity. In the current stream of ideas, we can think of technical evolution and psychic individualization as analogical occurrences since, among other pragmatic links, they both actualize, and are actualized, through an affective relation with their milieu.

For Simondon, the psychic phase emerges when the structure between an individual and its environment is broken up, when the equilibrium of a bio-physical individual is saturated and

\(^{158}\) Simondon, *Du mode d’existence des objets techniques*, 163

\(^{159}\) Ibid., p.34.
calls upon the invention of a new equilibrium. Psychic individualization occurs when biophysical individuals face “environmental” conflicts -problematic or yet to be resolved relationships with their milieu. Psychic individualization is synonymous with a creative response to “ecological” tensions. The response is creative in the Whiteheadian sense of mentality, that is, only if it actualizes a re-activation of bio-physical individuals’ potentialities to trigger individuation processes that reach new levels of magnitude. Considering technical individuation to psychic individualization is a refusal to understand the needs that condition the morphology of technical growth on the basis of individuals needs. As Simondon explains, the re-activation of the bio-physical individual's charge of potentialities, which is initiated psychically, is also conditioned by the individual’s coming into a collective. The emergence of collective individuation triggers the actualization of these potentialities, which would otherwise not achieve full expression/signification. As it will be discussed in the chapter four, the coming into a collective introduces the possibility for an amplification of the potentials of the bio-physical individual, for a coupling that reaches another level of magnitude and that goes beyond the individuals' already constituted individualities. Hence, the couplings that result from the amplification of bio-physical potentials unlocks the likelihood for new actions to emerge. It is also within this transductive and amplifying operation that Kiesler situates the correlationality between human beings and technical individuals.

Simondon reserves the term individualization to define the psychic phase of individuation. The rational for this distinction is based on the rhythm of the phases: the psychic phase does not give rise to a novel individual; it rather complexifies an already existing individual. While both physical and biological individuation give rise to an individual, psychic individualization is the individuation of an already individuating individual. Even if an analogical relation between psychic and technical doings has been suggested, the term individualization will be used here only to refer to psychic occurrences. While technical objects participate in the
psychic individualization of bio-physical individuals, they at the same time individuate in virtue of their own dynamic principles of concretization as biotechnical individuals. While biotechnical individuals may reach levels of psychic individualization, the inquiry here does not lure biotechnique into a kind of artificial intelligence. It seeks to sustain its metastable transposition in the “milieu” that ensures the corelationality between living organisms and the technical ecology (*milieu* is here employed in its French meaning as prefiguring both “middle and “environment). Architectures of aliveness do not focus on the individuality of technical objects but rather on their correlative field of exchangeability with living beings. That is, psychic individualization is linked to the co-individuation of technical objects and living beings as opposed to affirming the sovereignty of one individual reality over the other.

We are now landing into pure irony: the analogous relationships between technical concretization and individuation force an engagement with the problem of the passage from physical to biological individuation. Kiesler’s correalist architectural navigations may have induced a feeling of disorientation. A closer look at the vital and physical phase will transform this feeling into an ordered rhythm of individuation.
Chrono-Topologies: Life as Mode of Relation

The true principle of individuation can neither be sought in what exists before individuation occurs, nor in what remains after individuation is accomplished; it is the system of energy that is individuating insofar as it realizes in the individual this internal resonance of the matter taking form and a mediation between orders of magnitude. The principle of individuation is the single way in which the internal resonance of this matter is established taking this form. With the result that a being is itself, different from all the others; it is neither its matter nor its form, but it is the operation by which its matter took form in a certain system of internal resonance.  

Simondon constructs the operational identity of his physical phase by looking at the relationship between matter and form. Allied to Kiesler, he focuses on energy as opposed to substances, looking at physical individuation as a set of energetic exchanges transduced in the biological phase of individuation. Thomas LaMarre explains that Simondon emphasizes systems of energy to reject “the hylomorphic schema in which form is imposed upon matter on the one hand, in which matter is figured as a passive recipient for the active imposition of structure or form, for such a schema implies dualism and substantialism from the outset.”

As Muriel Combes notes in her excellent book on Simondon “the difference that exists between the physical and the biological domains is the one which distinguishes a primary individuation of inert systems and a secondary individuation of living systems.” She adds that it is necessary to “conceive biological individuation not as something that accelerates the determinations proper to an already individuated being, but rather as a process that slows down physical individuation.” Defined as an operative process that reduces the speed of physical individuation, Simondon’s vital individuation echoes Kiesler’s energetic approach to forms.

160 Simondon, L’individu à la lumière des notions de forme et d’information, 48.
162 Muriel Combes, Simondon: Individu et Collectivité, 41.
163 Ibid.
“What appears, in art and in life, to be a standstill of plastic forms,” Kiesler tells us, “is actually only a slowdown in the creative evolution of space-time.”\textsuperscript{164}

For Simondon, bio-physical individuation is not a synthesis but a transductive slowing down based on energetic operatory connections. While he does not frontally oppose the vital and the physical, he does not collapse their onto-epistemological differences. Departing from their spatial difference, he qualifies the living as an interior “theater of individuation” coupled with a physical exteriority and argues for the space of interiority to constitute the living being’s difference.

The physical individual, perpetually de-centered, perpetually peripheral to itself, active at the limit of its domain, does not have a veritable interiority; the living individual, on the contrary, does have a veritable interiority because individuation carries itself out within the individual; the interior is constitutive in the living individual, whereas in the physical individual, only the limit is constitutive (…) Within itself, the living is a nexus of informative communication; it is a system within a system, containing \textit{within itself} a mediation between two orders of magnitude.\textsuperscript{165}

Life's topological configuration gives rise to a space of interiority that allows it to perform its own limitations and its own organization when it experiences in-formation. In contrast, inert matter is not endowed with the capacity of structural ontogenesis.\textsuperscript{166} The membrane is for Simondon life's most important mediating element. Pointing to the polarized and asymmetrical character of cellular permeability as the basis of every function, he describes the membrane as a \textit{sine qua non} condition of the living. In addition to being alive, the membrane maintains the milieu of interiority in relation to the milieu of exteriority, acting as force of connection, as a link, as a nexus.

\textsuperscript{164} Frederick J. Kiesler in \textit{Selected Writings}, ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966).


\textsuperscript{166} Simondon, \textit{L’individu à la lumière des notions de forme et d’information}, 131.
Instead of searching for substantial instances of membranes that would be reserved to living entities, Simondon proposes to approach the inherent duality between the living and the non-living via the production of a topology of the living, that is, through an analysis of the mediating relations between milieus of interiority and milieus of exteriority. However, he warns us, such an analysis should not frontally differentiate spaces of interiority and exteriority, but amount to their coming together, to their common connective energy (which is tantamount to a valorization of their heterogeneity).

Simondon defines life as a mode of relation conditioned by its capacity to maintain a topological structure. Life’s space of interiority is active, acting as a relational milieu *carried* by the individual. It is a space of reconfiguration of the membrane that holds the potential to activate a change in the relational system by passing again through the membrane to exteriorize itself another time. Here exteriority is an occasion rather than a cause.\(^{167}\) At stake is how the space of interiority is actively presented to the exterior at the limit of the living. Simondon adds that topological mediation is not sovereign: life is also temporal. Every topological character, he tells us, has an historical element in its genesis; every topological character has a chronological correlative, and vice versa. Life’s definition gains here a new level of complexity that echoes Whitehead’s emphasis on time when he defines life as a polarized and durational occurrence in empty space. Simondon also thinks of life as a theatre of confrontation between an interior past and an exterior future, and not solely as a topological membrane. Chronology alone implies linearity whereas the relationship between the interior past and the exterior future is non-linear. Topological individuals are also chronological because time breaks their spatial coherence. When the interior opens itself to the outside, it opens itself to the indeterminate, to a futurity, to a changing potential making life the chrono-topological structure life’s relational mode of being.

\(^{167}\) Canguilhem, *The Knowledge of Life*, 12.
As Massumi explains, “because of its vectorial nature the topological super figure cannot be separated from its duration.”\textsuperscript{168} It “cannot be separated from its duration due to a transitional excess of movement.”\textsuperscript{169} It would be correct to say that life emerges from within, but is always played out in between.

Simondon's conception of life incorporates exterior/interior and past/future dynamical flows that ultimately makes no substantial difference between living and non-living. The difference is rather relative. It distinguishes the living individual according to its potential to fold the exteriority inside, to exteriorize it again, and to effect changes in the overall system of relations. These processes take place by and through the membrane, which acts as the mediator - or connector - of both spaces in virtue of a chrono-topological structure. In a physical system the interior is a past that cannot exteriorize, that cannot individuate again. It has become inert and cannot cross the membrane again. In his famous example of the crystal, Simondon explains that matter within the crystal is inert but that it holds the potential to individuate again once it is in contact with its solution. Here the solution has become the interior past but it is also exterior to the crystal's space of interiority; it presents itself as the crystal's futurity.

For Simondon, the connections between milieus of interiority and milieus of exteriority, between past and future, are transductive. However, the transductive power of relational connection is not contained within the interior or the exterior, within the past or the future. It rather acts as an incorporeal cause that activates the coming together of these heterogeneous planes of operation according to what Simondon calls a process of disparation. Transduction is a mode of dynamic efficiency that generates the possibilities for emergence by opening a gap between the result and the conditions of a situation, between its causes and finalities.

\textsuperscript{169} Ibid.
Transduction is a dynamic relation that breaks with linear causality, a mode of relation that effects modifications or modulations by virtue of how elements hold-together or come–together; and that bears on all the elements at once. It acts as an incorporeal cause that activates the coming together of heterogeneous planes of operation. Transduction is not a linear causality but a quasi-cause. As Massumi explains, a quasi-cause is a cause that acts as a “formative participation of the future (…) because [it is] more like an attractor in chaos theory than an efficient material cause.”\(^{170}\) From this perspective, in the realm of transductive operations, it is the future that causes a change in the present.\(^{171}\) A future cause however “is not actually a cause; it is a virtual cause, or quasicause.”\(^{172}\)

Taken in its transductive ontogeny, a living bio-physical operates in companionship with an oriented memory -a memory that combines past and future to enable new forms of actions. The individual’s space of interiority is defined as an enveloping of potentialities rather than as a substance. The space of interiority carries tendencies and tropisms that orient without dictating a pre-given final form, echoing Ruyer’s notion of thematic continuity. Chrono-topological structures connect physical and mental poles, opening the gap between causes and finalities, maintaining the individual in metastable relation, one that constantly links it to its associated milieu and pre-individual nature.

In the realm of ontogenetic individuation, where technical objects become biotechnical individuals, there is no claim to an essentialist or substantivist understanding of life. Whether biotechnical individuals are “truly” alive is not the point. At stake is whether or not their


\(^{172}\) Ibid.
becoming is analogous to that of living systems, that is, whether they perform life's relational form of process, whether their becoming is that of a chrono-topological structure whose transductions convoke the psychic phase in such a way that new forms of action emerge. Biotechnical individuals can be said to be inventive when their becoming is transductive, that is, when they aim toward a socially open-ended finality. Their doings must invent new connective structures that link them to themselves and to their environment in unexpected ways. They ought to perform new forms of relationalities.

It may now be clear that the individuation of biotechnical individuals is not mechanical. It is worth adding that no particular forces condition this process as a whole, meaning that individuation is neither tantamount to substantialism, nor to vitalism. In resume, for Simondon, life is not the form of individuation, nor is it a vital substance opposed to a physical one. Life is a mode of aesthetic relation, a dynamic form, a form of process, a mode of relation that figures a tension in an interval.

To prevent collapsing under the theoretical load of biotechnical individuation, and to avoid imploding under the pressure of psychic individualization, let me suspend the actual rhythm of events to look at Kiesler’s health project. Health as the pragmatic expression of his biotechnical minimal standard will guide our wayfaring into biotechnical individuation by densifying the environmental conditions endowed with the potential to bring bio-physical individuals into psychic individualization. Before moving to the next chapter, let me first recapitulate the main tendencies that characterize this first chapter.

This chapter introduced Correalism as a form of resistance to the mechanical biologization of life, and more particularly as an investigation into the relationship between life and invention in the technological order, as conditioned by analogies that are played out between nature, technology, and humans. Analogical transfers between fields were introduced as a system of relations rather than as a set of pre-given identities. They were introduced as belonging to a
practice, meaning as a form or process that figures a doing, which is irreducible to an opposition with theoretical reflection.\textsuperscript{173}

The central postulate of Kiesler’s correalist project is that nature and technology are non-coinciding fields of occurrences. Correalism, however, does not claim to resolve this opposition. It rather seeks to produce analogical abstractions whose efficacy is evaluated in affective processes as opposed to structural resemblance. By actualizing a rearrangement of pragmatic techniques that transduce nature’s mutative continuity into the technological domain Correalism articulates the reality of a multiplicity of elements that come together to create a unity that does not erase diversity. In brief, Kiesler’s correalist project imposes the necessity to think of the co-individuation of living beings and technical objects as a generative distribution that refuses mechanization, biologization, and substantialization. Moving beyond scientific materialism as the only scientific approach to technological development, Kiesler’s approach reveals the equipotentiality of organic themes in technical development. By this account, materiality is said to never simply be located in the static life of materials.

Kiesler’s refusal to think of the link between humans and technology as based on functioning relations cannot be fully captured without a reference to his Vision Machine piece, which looks at the second part of his aphorism, “Form does not follow function, it follows vision and vision follow reality.” It is perhaps with this piece that Kiesler succeeds the most at defining the world as organic rather than materially-based. Suggesting an invisible but dynamic regime of energetic exchanges that merits more attention, let us now move to Chapter Two. In the economy of visibility, to say that life and novelty are not capturable in the objectivity of their structures is thus a question rather than a conclusion. Let me now attempt to invent the performative diagnosis of this seemingly impossible enterprise.

Chapter 2
Health Aloud: From Visible Forms to Forms of Vision

Every time that the biological reference prevails, thinking becomes the enemy, the poison for a sane society, for it scrambles the scales.\textsuperscript{174}

In the introduction, the concept of life was presented as both an adventure and a risk. It was said to be a risk because life is today a terminological commodity that travels across all imaginable scales. Unskillfully used in a variety of contexts to argue for the open-ended character of finality, the concept of life regularly acts as a hindrance that blocks the movement of thought. Lost in its own mesmerizing effects, life is celebrated as a quality, which in itself is assumed to account for the pragmatic efficacy of a relation, a system, or an organization, whether disciplinary, discursive, social, technical, sensitive, etc.. Today, the prefix “bio” seems to be conventionally —if not blindly— accepted as invariably bestowing social value to what it precedes or accompanies. Chapter One traced a variety of risks entailed with this association, offering incipient techniques to transform them into generative processes. This chapter will start by repeating a risk introduced in the first chapter to initiate a more direct passage from risk to adventure, a passage which will reach a higher level of density in the fourth chapter. Despite the progressivist attempts to make life an absolute value, this chapter chooses to gamble on the attempt, risking the pitfalls presented in the first chapter, in a categorical attempt to refuse equating life with a form of progress.

Let’s start with the risk, the risk of defining life. To define life is an undertaking that can quickly curd into a non-sense. Any attempts to capture life’s modalities will necessarily have to take into account the missed, overlooked and slipping potentials that make life an evolutionary reality. Because life resists conceptual unity, it cannot be articulated as an identity tied to

essentialist modalities. Defining life is thus a precarious task that comes with the obligation to engage with the plurality it offers to experience. In defining life as a form of aesthetic relation, Kiesler took this task seriously.

For Kiesler, the Scholastic manner of addressing the relation between form and function, which characterized functional design in the early Twenties, failed at generating unconventional modes of living because it failed at inventing new functions. Here Kiesler is unequivocal: to set atypical modes of living in motion, new functions have to be invented. Function and efficacy, he is quick to add, are not sufficient to create art works. Functions, he specifies, ought to trigger action by “dedication to extra-functional perception.” Kiesler does not pretend to fully escape the conventions of his practice. Reifying the dialectics of technological finality as ingrained in a bipolar frame of reference between alienation and liberation, he writes, “to choose your own freedom is to choose your own slavery.”

Left aside his reaction to industrialization (which I choose not to historicize), and the reduction of his proposition to a mere deterministic or relativist point of view (between freedom and slavery), his consideration of extra-functional perception as an activity conditioned by proprio-spatial dynamics introduces a new realm of functions that overspills the structural model presented in Chapter One. ‘Psycho-function’ is Kiesler’s own term for this new type of function, which he describes as “that ‘surplus’ above efficiency which may turn a functional solution into art.” Psycho-functions picture the reality of an “Organic force as it relates to the dynamic equilibrium of body-motion within encompassed space.”

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175 Frederick J. Kiesler, “The Electric Switch or the Switch to Process Architecture,” in Selected Writings, ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 114.
176 Ibid.
177 Frederick J. Kiesler, Contemporary Art Applied to the Store and Its Display (New York: Brentano’s, 1930), 87.
Rather than exploring the pragmatics of psycho-functions by addressing sensation and perception as generic processes, Kiesler looks at both as domains of activity endowed with the capacity to intensify health. In making the intensification of health the dynamic and evolutionary qualitative unit of measurement of his biotechnical minimum standard, Kiesler links the pragmatic efficacy of psycho-functions to health and, in the same stroke, defines health as proprio-spatial dynamic. Addressing the concept of health is also a risk, the risk of falling into moralist and essentialist interpretations. Focusing specifically on how psycho-functions reconfigure the sensorium to recalibrate its modes of sensing and perceiving toward an intensification of health, Kiesler sets into place the conditions to resist these pitfalls. Since Kiesler is particularly concerned with the genetic role of science in the elaboration of his biotechnical minimal standard, let me look at the scientific status of the concept of health before engaging further with its architectural, correalist, and biotechnical mode of existence.

Health: From Mechanical Division to Experiential Vision

In “Health: Crude Concept and Philosophical Question,” a conference Canguilhem gave in Strasbourg in 1988, the physician and philosopher of sciences opens his talk with a reference to Epictetus who, in his lectures, “explains and dissolves the popular belief in the existence of an a priori notion of health and the healthy — whose relation to objects and behaviors is said, moreover, to be uncertain.” In response to the absence of explicit knowledge on the concept of health, Canguilhem constructs a genealogy of the concept, starting with a famous quote by surgeon René Leriche, “health is life lived in the silence of its organs.” For Canguilhem, Leriche’s emphasis on silence echoes Faremberg who, in 1865, writes, “in health, one does not

180 René Leriche quoted by Canguilhem in Canguilhem, Health: Crude Concept, 467.
feel the movements of life; all functions are accomplished in silence.”¹⁸¹ It also resonates with Paul Valéry, one of Leriche’s contemporary. Health, Valéry tells us, “is the state in which necessary functions are achieved imperceptibly or with pleasure.”¹⁸² Canguilhem adds that Henri Michaux further problematized the link between health and silence by rendering visible the logic of their analytics: if health is understood as something that “goes all by itself,” Michaux explains, the body cannot be described vigorously “by the prowess of the strong.”¹⁸³ In contrast, it can only be defined through “the disorder of the patients, of the weak of the infirm, and of the wounded” such that, Michaux concludes, “it is the disturbance of the spirit, its dysfunctions, that will be my teachers.”¹⁸⁴ Illness as health’s counter-value informed Canguilhems’s problematization of the relation between vitalism and life, and particularly his approach to the axiological power of life in The Normal and the Pathological and The Knowledge of Life, bringing him to define, and here I am paraphrasing Foucault, the problem of illness as irreducible to the problem of a science of life.¹⁸⁵ Relating the medical definition of normality to physiology, Canguilhem refuses to entertain a sharp opposition between the normal and the pathological, between health and illness, seeing in both pathology and illness the possibility of new forms of life. For Canguilhem, these apparent dualisms are secondary to life as a mode of existence since life is endowed with the potential to land into both forms. Here Canguilhem affirms vital individuation as a reality that precedes physical individuation.

Looking specifically at the Classical age and the Enlightenment, two periods marked by a strong incitement in the concept of health, Canguilhem remarks that health is predominantly

¹⁸¹ Charles Daremberg quoted by Canguilhem in Canguilhem, Health: Crude Concept, 468.
¹⁸² René Leriche quoted by Canguilhem in Canguilhem, Health: Crude Concept, 467.
¹⁸³ Canguilhem, Health: Crude Concept and Scientific Question, p. 468.
¹⁸⁴ Ibid.
presented in opposition with disease. For Canguilhem, to hold the absence of illness as the
equivalent of health, that is, to define health as that which is not ill, or, in the “apparent
simplicity” of Kant’s remarks, “he can feel well (…) but he can never know that he is healthy,”186
makes health a crude concept because it makes “health an object outside of knowledge.”187
“There is no science of health,” writes Kant. Accepting Kant’s statement transiently, Canguilhem
declares health a crude concept as opposed to a scientific one, positing it as “rough and inexact”
as opposed to “trivial or out of reach.”188

**Health as Truth of the Body**

Even if the philosopher of sciences names Descartes the inventor of the mechanist
conception of organic functions, he sees a potential inversion of the relation Descartes establishes
between truth, soul and the silence of health. Canguilhem asks, if for Descartes “the knowledge of
truth is like the health of the soul,”189 “how is it that no one ever wondered whether health were
the truth of the body?”190 Refusing to reduce truth to the exercise of judgment, Canguilhem
reserves the term for the “quality by which things appear such that they are.”191 Implicitly
defending his normative approach to life, he clarifies his definition of truth by looking at the
Latin word *verus*, the etymology of “true” [vrai] as used in the senses of “real,” “regular” and
“correct.” He also references Brissaud’s figure of the athlete, for whom the truth of health is the
“maximum possession of physical means.”192 Even if the truth of health appears to share intimate
relations with the physicality of the body, Canguilhem traces the inexistence of the concept of

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186 Emmanuel Kant quoted by Canguilhem in Canguilhem, *Health: Crude Concept*, 469.
187 Canguilhem, *Health: Crude Concept and Scientific Question*, 469.
188 Ibid.
189 Rene Descartes quoted by Canguilhem in Canguilhem, *Health: Crude Concept*, 469.
190 Canguilhem, *Health: Crude Concept and Scientific Question*, p. 469.
191 Ibid.
192 Ibid., 470
health in the index of physiology treatises, and the paradoxical presence of concepts such as homeostasis, regulation and stress. Inducing wonder in the possibility of knowing health as the truth of the body, Canguilhem asks, “should we see here a new argument for refusing the concept of health any scientific status?” In questioning whether the possibility to know health scientifically is equivalent to knowing health via the functioning of a physical organism, Canguilhem opens the problem of the scientific value of health. Since the sciences provide us with norms of health – e.g. blood pressure ranges, body temperature, white cell count etc., we are once again facing the problem of the mode of exercise of organic function.

Canguilhem’s focus on the body, as exemplified by his reading of Nietzsche for whom “more honestly and more purely speaks the healthy body,” enables him to categorically refuse health as “a necessary effect of the mechanical type.” This time, the effective capacity for the concept of health to resist pseudo-scientific thought moves beyond the critique of the substantialization of mechanical and organic analogies to address those produced by contemporary complexity and systems theory. Warning us against the effervescence associated with complex systems (and with complicated systems unrightfully named complex), Stengers urges us to refuse the argument according to which a system said complex is a system that unfailingly produces novelty. In a talk she gave in Paris, in the context of gatherings focused around urban reinvention, Stengers draws a pragmatic distinction between a complex and a complicated city. Picking up on a series of analogies between cities and living organisms — a recurrent metaphorical theme in urbanism and architecture — her distinction is specifically informed by health as a mode of existence. Stengers starts by differentiating complex systems de facto and situations in which the difference between complex and complicated is a contrast linked

193 Ibid., 471
194 Ibid., 470
195 Ibid., 470
to a practical choice. Refusing to think of complex systems as invariably innovative, and as
invariably linked to discovery, she insists on the most basic postulate of complexity theory:
complex entities cannot be decomposed into simple sub-entities.\textsuperscript{196} That is, the choice of
complexity means: functions cannot be discovered by decomposing organisms into parts.

\textbf{The Silence of Health as the Silence of Mechano-Functionalism}

For Stengers, relating health to the silence of organs generates “the possibility to describe
every organ, and every biochemical interaction, as fulfilling a function;”\textsuperscript{197} as if, in Canguilhem’s
words, the body was lived as “a battery of organs.”\textsuperscript{198} However, Stengers tells us, as soon as the
body becomes sick, as soon as disorder emerges, we no longer know how to describe. Illness, she
adds, makes us realize that “the possibility to describe is linked to the possibility of attributing
functions,”\textsuperscript{199} and that the possibility of attributing functions is itself linked to the difference
between complex and complicated.\textsuperscript{200} Stengers vigorously insists on the contrast that a practical
choice triggers, that is, on the manner in which the set of descriptions we rely on to define
biological functions is not neutral in relation to the production of value. “An organism in good
health,” she writes, “is one where every function, well separated, is linked to the others by
circulatory mechanisms without accidents nor turbulence.”\textsuperscript{201} Stengers clarifies the non-neutrality
of the axiological underpinnings that support this conception of a healthy organism: the

\textsuperscript{197} Ibid.
\textsuperscript{198} Canguilhem, Health: Crude Concept and Scientific Question, p. 476.
\textsuperscript{199} Isabelle Stengers, Réinventer la ville ? Le choix de la complexité.
\textsuperscript{200} Ibid.
\textsuperscript{201} Ibid.
description of health’s functions is the celebration the body’s success to “hold together.” Here complexity is a choice rather than a fact. That is, to comprehend health as holistic functioning, as a “holding together,” is tantamount to “the possibility to bring a body to a complicated state of being, one that would be interpretable economically, that is, one where each segment plays a relatively well determined and functionally intelligible role.” Stengers brilliantly concludes, the “contrast between the functional logic of a body in good health and the terrifying entanglement of the relations that characterize a sick body does not designate our possibilities of knowing in the first place.” It rather designates the body in its capacity to stay alive.

Canguilhem further relates the division of the body in a battery of organs to the specialization of medicine, insisting on life as a crude concept that cannot become “an object for those who believe themselves its specialists.” Canguilhem’s notion of health is perhaps existential before being scientific: it evades measuring apparatuses to remain a crude concept. Appreciative rather than descriptive, this “free, unconditioned, [and] unaccountable” conception of health demands a philosophy that is not a philosophy of medical science, that is, a philosophy whose existential techniques are non-medical. Here architectures of aliveness are taking a path of their own, following Stengers work on non-medical knowledge instead of emphasizing the medical sciences.

Medicine works with a pre-condition of the body that preempts its mode of existence as negatively revealed in incapacities. Medicine departs from a negative conception of the body, understood in terms of what it cannot do, or should not be doing. Instead of simply denouncing

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202 Ibid.
203 Ibid.
204 Ibid.
205 Ibid.
206 Canguilhem, *Health: Crude Concept and Scientific Question*, 474.
207 Ibid.
the medical body, as a rational bringing us closer and closer to a collective neurosis, Canguilhem focuses on health as expressing the “quality of the forces that constitute” the body. For Canguilhem, while there can only be concrete or scientific consciousness of life through illness, life can be defined in a non-oppositional way as “a dynamic force of transcendence.” Here we will follow the non-oppositional part of the proposition. The choice of the terminology transcendence to translate “dépassement,” the term chosen by Canguilhem’s in the French version of *The Normal and the Pathological* generates a confusion of sense. Architectures of aliveness prefer to use and abuse the term supersede instead of the overly connoted term “transcendence” to avoid the metaphysical powers entailed in the concept of transcendence and to better insist on the modification of experience triggered by the energetic modalities suggested by the French word *dépassement*. Instead of thinking of architecture’s incapacity to recalibrate proprio-spatial dynamics and trigger new psycho-functions as figuring signs of disease, *Architectures of Aliveness* ask how architecture can force its inhabitants to supersede themselves, insisting on the prowess and vigor of the strong rather than on the dysfunctions and incapacities of the weak.

For both Stengers and Canguilhem, health is not a mode of relation of the mechanical type, whether claimed explicitly, or disguised under the mask of functionalism, substantialism or complexity theory. “There is no health of a mechanism,” writes Canguilhem; or, in Ruyer’s words, “natural regulation can only be (...) a self-regulation without machine.” “For a machine,” Canguilhem explains, “the operative state is not health and disorder is not a disease.” That is, there can be no death of a machine. As Foucault explains, for Canguilhem, “life and death are never in themselves problems of physics, although in his work even the

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208 Canguilhem, *Health: Crude Concept and Scientific Question*, 472.
210 Canguilhem, *Health: Crude Concept and Scientific Question*, 472.
211 Ibid.
physicist risks his own life or that of others; for him these are questions of morals or politics, not of science.\textsuperscript{212}

The singularity proper to the living body, in contrast with the reality of machines, is that “it must live exposed to an environment that it does not initially choose.”\textsuperscript{213} Canguilhem’s focus on the political struggles between the living body and the environment enables him to define health as a form of aesthetic relation, or, in his own words, as “the feeling of a capacity to go beyond initial capacities, a capacity to make the body do what it did not initially seem to promise.”\textsuperscript{214} Even if exposed biologically and medically in progressively verified knowledge,\textsuperscript{215} the body is for Canguilhem not “visible or readable.”\textsuperscript{216} Refusing the scientific segmentarization of the body effected by the specialisation of medical sciences, he concludes, the “truth to my body is not an idea susceptible to representation;”\textsuperscript{217} “the living body is not an object.”\textsuperscript{218}

In making a crude concept the qualitative form of measurement of his biotechnical method, Kiesler produces more than a simple cultural commentary on the status of science. Instead, he carefully shows that the field of exchangeability between arts and sciences is based on the non-correspondence between each field’s measuring apparatuses. Biotechnique does not borrow its measuring techniques from science. Instead of denouncing scientific forms of measurement, it develops its own. As such, techniques of measurement do not sustain the field of exchangeability between the arts and sciences. Its maintenance depends on the problems created, staged, and explored in the activity of measurement (whether quantitative or qualitative).

\textsuperscript{212} Michel Foucault, \textit{Introduction}, 20.  
\textsuperscript{213} Canguilhem, \textit{Health: Crude Concept and Scientific Question}, 472.  
\textsuperscript{214} Ibid., 474.  
\textsuperscript{215} Ibid., 475.  
\textsuperscript{216} Ibid., 475.  
\textsuperscript{217} Ibid.  
\textsuperscript{218} Ibid., 477.
Taking health as non-scientific concept, meaning as the qualitative form of measurement of his scientific technique, Kiesler avoids analogies based on complexity theory, mechanism, and functionalism to actively resist the body’s division. Reworking the concept of health by linking it to the activity of vision as non-observation, Kiesler, like Canguilhem, thinks of health as non-susceptible to representation, that is, as a vision, and not as a division. “Living forms,” Canguilhem tells us, are totalities that “can be grasped in a vision, never by a division.” To divide, he adds, “is to make a void [vide], whereas a form existing only as a whole could not be voided of anything.” Here Canguilhem clarifies Whitehead’s space apparently empty as the reality of a “theater of activities which we do not directly perceive.” He shows how life lurking in empty space cannot be voided of its own dynamism even when if its activity cannot be seen (or read), that is, divided. Now, if health and the body can only be known as visions, and not by division, if they cannot be observed or represented in space, what are the non-numerical modalities that inform the minimum biotechnical standard as validating the efficacy of architectural forms?

### From Division to Vision

In *Le vivant post-génomique*, biophysicist Henri Atlan attributes the subsistence of the division of life into functioning parts in today’s discourses on life (targeting specifically the genetic program and the genohype) to the transformation of biology into biotechnology. No longer a science that considers life a phenomenon to observe, biotechnology looks at life as a set of mechanisms to reconfigure and transform. This shift in focus, Atlan tells us, replaced life as the object of an investigation revealed in observation, with a conception of life at the intersection

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219 Canguilhem, *The Knowledge of Life*, xix.
220 Ibid., xix.
of experimentation and engineering. Moving from observation to fabrication, biotechnology’s unpublished works become more susceptible to the oppositions between scientific statements and fictions, facts and fetishes, rationality and inspiration. That is, the collapse of observation, and its affiliated recombination of experimental conditions, introduces the mixed problem of imagination and observation. Refusing to entertain a negative relation between inspiration and rationality, focusing on the experiential modalities of engineered experimentation, Kiesler develops Vision Machine, an installation that problematizes the relationship between fact and vision to speculate on the proprio-spatial dynamics that make health a condition which arises in relation to a form of vision.

**Vision Machine**

In 1937, Kiesler opens the *Laboratory for Design Correlation* in the School of Architecture at Columbia University, where he continues to work on his biotechnical method. Starting with a specific focus on the life of images, he develops *Vision Machine* the first year of operation of the laboratory. In 1939, in a correspondence with the Dean of Architecture, he describes the piece as a “theoretical study on aesthetics, with special reference to the human eye as medium of perception” and as “a machine for practical demonstration of optical perception, showing the correlative forces of vision.” The laboratory closed in 1941.

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222 “Chronology,” *Austrian Frederick and Lillian Kiesler Private Foundation.*


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No visual evidence seems to circulate, but the piece was apparently exhibited at *Art of this Century*, a gallery designed by Kiesler and opened by Peggy Guggenheim in New York in 1942. However, the Kiesler Foundation explains that the piece was never built and that it only exists at the level of a sketch. *Vision Machine* is an artistic contribution to the scientific study of vision.²²³ It experiments with visual effects to speculate on the mental and physical processes proper to the visual arts, with special emphasis on sculptural arts. According to Bogner, two essential factors characterize the piece: (1) “the multimedia apparatus that represents the process

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²²³ Bogner, *Frederick Kiesler a la Vision Machine*, 144.
of visual perception” and; (2) “the translation of the relations between vision’s physiological conditions and the evolution of plastic arts into spatial modelisation.”

Influenced by the development of cathode tubes and x-ray machines, *Vision Machine* brings fragmented images into continuity. Activated by an electric button, which sets the process into motion, the machine combines “electrostat, brass balls, blown glass tubes, colored gases, and electric wires” to create a system that reflects light “off an object, for example—an apple, which [is] then drawn into focus by an ocular aperture.” Once the object has been lit off, the light is then:

projected onto an apparatus that stimulate[s] the flow of bubbles and gases through a network of tubes representing nerves and bodily systems. An excess of images theoretically stream[s] forth from within the machine through the use of animation film technology (…). The images provide a visual depository of allied mental processes that simulate recognition, subconscious conflicts, and associate prejudice, and previous experiences. Selection then occur[s] from the array of images presented in accord with bodily affect and environmental conditions to create a unified image that [is] then reflected back onto the initial object—the apple.

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224 Ibid.
226 Ibid., 148
Figure 8: Frederick J. Kiesler, *Vision Machine*, © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.

*Vision Machine* perturbs and suspends the too stable relation between vision and fact to insist on the active role of memory, virtual imagery and/or visionary images, and how they impact human behavior.\(^{228}\) By taking snapshots of subconscious perception, or, in Kiesler’s words, “direct records of dream images,”\(^{229}\) the work highlights the “transformation of images into eidetic visions,”\(^{230}\) to suggest, if not to confirm, “a visual perception is a correlation of

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\(^{230}\) Ibid., 171.
forces.”

The link between virtual imagery and the activity of vision as taken in a correlation of forces echoes Deleuze on perception. In virtue of the dramatic identity of dynamics, he writes, “a perception resemble a particle: an actual perception surrounds itself with a cloud of virtual images, distributed on increasingly remote, increasingly large, moving circuits, which both make and unmake each other.” Deleuze clarifies, even if virtual images belong to the domain of memory, they “are still called virtual images in that their speed or brevity subjects them too to a principle of the unconscious.” In emphasizing the role of memory to interrogate the correlation between and among physical and mental processes at the origin of plastic arts, Vision Machine is an installation that experiments with the creative cycle of imagination.

Moving emphasis from the autonomy of elements to the “tension in the interval,” Vision Machine shows that experience exceeds the spatio-temporal objectivity of forms. In the correalist domain, “neither light, nor eye, nor brain, alone or together can see.” The stimulus,” Kiesler tells us, “is transformed into a force that expands the original path of light into the internal structure of the human body,” such that, he concludes, “it is our own conceived image and not really the actual object which we perceive.” Here Kiesler’s remark should not misguide us to think of Vision Machine as a machine meant to reveal the intricacies of individual perception. As we will see in the next chapter, sensation and perception are psychic occurrences that link individuals to themselves and to the world in virtue of a bipolar frame of reference between affectivity and emotivity. Vision Machine emphasizes affectivity over emotivity. That is, its focus

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231 Bogner, Frederick Kiesler a la Vision Machine, 138.
233 Ibid.
235 Bogner, Dieter, Coop Himmelb(l)au, 103.
236 Ibid.
on how affection resolves sensory contradictions subtly undermines how emotivity links individuals to the world. Notwithstanding it also lays foundation to think of subjective creativity as giving rise to collectives. When Kiesler refers to “our own image,” he does not strictly address an individual or a personal surrealist perception. He rather sets into place the conditions of a revolutionary act of collective individuation.

Even if Vision Machine recalls dated historical technologies like the camera obscura, the pragmatics of its functioning are timely because they pin down the contemporary obsession with organic formalism and visualisation, which implicitly suggests that life’s dynamic activity is in direct correspondence with the visual forms through which it passes. Instead of converting descriptive concepts issued from the life sciences into architectural ideals, that is, instead of putting emphasis on formal equivalences between architectural and organic forms, Vision Machine renders visible the total coordination of experiences, the relational politics and poetics of perceptual occurrence. It shows that “what we experience is less our object's confirmed definitions, or our own subjectivity, than their going-on together.”

Through problematizing vision in virtue of a regime of visibility, which apprehends vision in the durational and choreographed relation between mind, eye, body, and the environment (natural and technological) Kiesler does not simply warn us once again against the pitfalls of attributing the concurrence of architecture and the life sciences to observable forms. He also reinvents the architectural possibility of attuning ourselves to life by moving the inquiry from the physical materiality of visual forms to the psycho-physical energetics of visibility (which also strives for invisibility).

Opening up architecture to a set of techniques that can modulate and also be attacked by sensation and perception, Kiesler defines vision as the reality of heterogeneous forces correlated

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in thought and not in facts, in action and not in results. Put otherwise, *Vision Machine* posits health as thought in action, as a proprio-spatial dynamic that invites actions and that emerges out of the interplay between the physicality of objects, the act of seeing and the creative cycle of imagination. For Kiesler, health is not only a physical reality; it also belongs to the domain of mentality (more than to the one of psychology, as we will see in the next chapter). Now, if health is a vision taken in the total coordination of experiences, how can the non-representable reality of health be figured in the need-morphology of technological growth?

**Biotechnical (meta)standard**

![Figure 9: Biohazard Symbol.](image)

The visual similarity between the correalist diagram presented in chapter one and the biohazard symbol developed nearly 30 years later, in 1966, by environmental-health engineer Charles Baldwin, is striking. Used to label biological substances that carry significant health risk,
the biohazard symbol is also composed of three intertwined rings circling a central sphere. While Kiesler’s figure does not image Correalism as potentially hazardous, it shares more than a visual coincidence with Baldwin’s symbol: in addition to showing that life is capable of creating hazardous environment that can become threats to its own survival, it reiterates the pre-active role of the environment, that is, the mutual presupposition, and co-ordination of life and its surroundings.

It is difficult to clearly define the contribution of health to the biotechnical standard because Kiesler uses the knife to explain the evolutionary character of the need-morphology of technical growth. Unless it is used to excise a cancer or related malignancy, a knife seemingly bears no direct connection with health. Kiesler’s evolutionary, sui generis, non-hierarchical and non-comparative standardization starts with the standard type, which is said to meet a need. Variations from the standard are actualized in two instances, either because they meet a new need, thus creating a new standard; or because they become simulated artefacts, meaning inefficient and insignificant deviations from the standard.239 Henning Schmidgen explains that Kiesler’s chart is a Darwinian bifurcation diagram that images the evolution of technical objects as showing “authentic discontinuities.”240 Looking at the saturation of the knife’s environment, Kiesler explains the biotechnical standard as capable of energizing its own modalities. Rather than imaging eternal, universal, and conservative laws, the biotechnical standard follows processes of individuation to escape the readymade solutions of existing standards. It is perhaps not necessary to dwell on standards, whether they completely rework the common meaning of what a standard is, or whether they claim themselves non-standards. Kiesler’s notion of standard

avoids getting lost in modernist jargon when understood as a metastable technique in a process of concretization, that is, as an innovative technique that can reinvent itself in the course of its own concretization. This drift also enables the biotechnical standard to move beyond a normative analysis of ontogeny, which describe life forms as morphological solutions to given milieus. That is, the biotechnical standard can be said to image the micro-changes that progressively saturate the technological environment and that enable the emergence of new configurations. At stake here is how the need-morphology of technical growth is linked to extra-functional perception, as a domain of activity that modulates the polarization of physicality and mentality.

For Kiesler, architecture “can only be judged by its power to maintain and enhance man’s well-being, physical and mental.” Architecture’s efficacy is thus defined in its capacity to provide humans with a space that protects them from fatigue. “Man’s health,” Kiesler writes, “declines in a progression from fatigue to death.” Instead of landing on a deadlock by attempting to finally bestow life with scientific value, Kiesler defines it as an embodied experiential reality that results from a complex alliance between mental and physical poles of activity as correlated with their natural and technological environment. In contrast with the functionalist health project of the modern style, Kiesler’s “architecture of health” is political rather than hygienic. His biotechnical project does not question how architecture can act as a milieu capable of dictating a model of good behavior that would stimulate good health.

Considering biotechnique as “the interrelation of a body to its environment: spiritual, physical, social [and] mechanical,” Kiesler’s approach to health questions the level of physical and

242 Ibid., 64.
mental energy needed for individuals to individuate creatively and to reach greater levels of a health oriented magnitude in relation to their technological and natural environment.

This ecology of health is more than the synthesis of heterogeneous forces; its manner of being is synchretic, that is, it recognizes differences between and among forces, while valorizing their co-participation without resolving them as sets of contraries. In defining health synchretically, as a dynamic co-becoming, Kiesler makes a persuasive intervention into our understanding of the crude concept by defining it as a form of aesthetic relation. For Kiesler, to intensify health is not to identify a problem to be solved. It is to develop techniques that work within and among the heterogeneous forces that condition its synchretic individuation. Kiesler’s goal is to trigger the creative expression of humans’s potentials toward an intensification of their capacity to action. In the light of his oeuvre, contemporary biotechnology is no longer rooted in a curative regime. Nor is it promising anything. It is taking off to reach synchretic expression through aesthetic/psychological relationalities to environment.

Kiesler does not approach health through the lenses of a paradigm ingrained in the technological optimization and enhancement of the biological body. Neither does he define architecture as a technology of subjugation, which, in a biopolitical regime populated with bodies exploitable and controllable by means of biotechnological optimization, could serve to visualize (bio)power’s *modus operandi*. Rather, he experimented with the ecological and ethological obligations and requirements proper to techniques of exhilaration and aesthetic resonance. Here, Kiesler does not dazzle us into an architectural dreamland, or push us into a floating atmosphere enjoying a privilege position outside the grid of capitalist production. Kiesler is well aware that architecture is fundamentally tied to an economic market itself engaged in an intimate relation with capitalism. Implicitly attributing the relation between capitalism and architecture to the
study of historical forms, which provokes their transformation into commodities, he explains his method as employing “the study of general physiotechnics”\(^\text{244}\) instead of departing from prevailing commodities. Design, by this account, is “not the circumscription of a solid but a deliberate polarization of natural forces towards a specific human purpose.”\(^\text{245}\) Now, if life and health are chrono-topological structures that cannot be represented, and if the living’s difference is its space of interiority, what kind of forms emerge out of life’s polarized processes? More precisely, how does architecture transform the vision of health into forms of inhabitation?

Kiesler’s biotechnique is based on a notion of space that does not image the absence of form. Biotechnical forms are non-formalist without being formless. Against abstractions that negate place and body, Kiesler refuses to think of his architecture as “amorphous,” or “free-for-all form.”\(^\text{246}\) “On the contrary,” he writes, “its construction has strict boundaries according to the scale of your living.”\(^\text{247}\) While Kiesler’s prototypical production does not enable us to fully capture the choreography of his improvised sculptural approach, the architecture of Arakawa and Gins brings his project into a more direct engagement with the study of physiotechnics, rendering visible the choreographic aspects proper to a metastable technique in a process of concretization.

\(^{244}\) Kiesler, *On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design*, 69.

\(^{245}\) Ibid., 67.

\(^{246}\) Frederick J. Kiesler “The ‘Endless House’: A Man-Built Cosmos,” in *Selected Writings*, ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 126.

\(^{247}\) Ibid.
Architecture against Death: Making Dying Illegal

Figure 10: Arakawa + Gins, Portrait of Arakawa and Madeline Gins, 2008 (Photo: Dimitris Yeros)
“We have decided not to die,” write artists, poets, designers and architects Arakawa and Madeline Gins (A+G hereafter). Actively participating in life and death matters, their Foundation, the Reversible Destiny, is for them a “first step into a crisis of ethics.” A crisis, because, they argue: it is illogical, if not unethical, to include mortality into a system that values life. Reversible Destiny focuses on the impossibility of not dying to rethink what living might mean. “We believe,” A+G write, “that people closely and complexly allied with their architectural surround can succeed in outliving their (seemingly inevitable) death sentence.” At the service of the body, their Architecture against Death, and their desire of Making Dying Illegal are non-legislative and non-medical techniques meant bring to life, meaning that their aim is to intensify the capacities of life living. They are techniques that reorder the body’s sensorium as it enters in relation with its environment. Instead of seeking to cure the body (or the environment), they are techniques that explore a modality of the body’s becoming as opposed to exposing it as a problem to be solved. A+G have developed several housing projects based on these techniques. The focus here is on their Bioscleave House.

Located in East Hamptons, Long Island, NY, the Bioscleave House, or Life Expanding Villa, comprises multi-colored sharp-angled modules vertically superposed and horizontally distributed in four locations around one central spheroid-like module (this excludes the module that serves as vestibule). The commotion of colors (blue, pink, yellow, red, green, purple, orange, turquoise...) makes the house look like an amusement park. It could hardly get more ironic since

249 Description of Arakawa and Gin’s work proposed by Jondi Keane at a Sense Lab Event, Generating the Impossible, June 2011.
250 Arakawa and Gins, The Architectural Body, xvi.
251 Ibid., xi.
shallow critiques often denounce the house as potentially unsafe for children. If you have children, you may very well find yourself in a brief moment of hesitation, wondering whether you made it to the playground instead of the *Bioscleave House*. And you do not know it yet, but you may need the same amount of energy to navigate your way in the house, as you would need to handle children in an amusement park on a sunny Saturday afternoon of summer. Children aside, you may respond by asking clumsily if in an unexpected turn of events, a color-blind person has been designated to choose the colors for this house.

Figure 11: Arakawa + Gins, *Bioscleave House (Lifespan Extending Villa)* Exterior, North East Elevation, 2008 (Photo: Dimitris Yeros)

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252 This is a recurring argument in popular media. See: http://www.6sqft.com/bioscleave-house-uses-architecture-to-extend-lifespans-and-strengthen-immune-systems/
Figure 13: Arakawa + Gins, *Bioscleave House (Lifespan Extending Villa)* Interior views, 2004, Computer Rendering
Figure 14: Arakawa + Gins, *Bioscleeve House (Lifespan Extending Villa) Set of Shape Defining Elements*, Plan, 2006
Figure 15: Arakawa + Gins, *Bioscleave House (Lifespan Extending Villa)* Interior, Living Area, Kitchen, Study, Bedroom 1, 2008 (Photo: Dimitris Yeros)
Figure 16: Arakawa + Gins, *Bioscleave House (Lifespan Extending Villa)* Exterior, South West Elevation, 2008 (Photo: Dimitris Yeros)
Figure 17: Arakawa + Gins, *Bioscleave House (Lifespan Extending Villa) Interior, Bedroom 2, 2008* (Photo: Dimitris Yeros)
Figure 18: Arakawa + Gins, *Bioscleave House (Lifespan Extending Villa)* Interior, Living Area, Kitchen, Bedroom 2, Study, 2008 (Photo: Dimitris Yeros)
Figure 19: Arakawa + Gins, *Bioscleave House (Lifespan Extending Villa)* Interior, Living Area, Kitchen, Bedroom 2, Study, 2008 (Photo: Dimitris Yeros)
Figure 20: Arakawa + Gins, *Bioscleeve House (Lifespan Extending Villa)* Interior, Living Area, Kitchen, Bedroom 2, Study, 2008 (Photo: Jose Luis Perez-Griffo Viquera)

Figure 21: Arakawa + Gins, *Bioscleeve House (Lifespan Extending Villa)* Interior, Living Area, Kitchen, Bedroom 2, Study, 2008 (Photo: Dimitris Yeros)
Figure 22: Arakawa + Gins, Bioscleave House (Lifespan Extending Villa) Interior, Living Area, Kitchen, Bedroom 1, 2008, photo: Jose Luis Perez-Griffo Viquera

Figure 23: Arakawa + Gins, Bioscleave House (Lifespan Extending Villa) Landscape at North East side, 2008, Computer Rendering
Once inside, the colorful world of A+G strikes again as disorienting and aesthetically puzzling. Amid the vivid colors and uneven geometries, you did not have time to realize that your sensorium is being discombobulated and that you are on the edge feeling dizzy; you are already taken all at once in rippling floors that meet at odd angles. Searching for a panoramic view that would make you dominate the space with a globalizing gaze, your encounter windows that deconstruct your habitus of a horizon because they are placed at different heights. If you don’t act fast enough to recalibrate your tilted and precarious equilibrium, you will be left with a series of unevenly distributed poles as potential land marks to grab and hold onto in case your balance goes off—perhaps you are late to meet with your center of gravity. A+G want you to understand something: without touching, you cannot feel your architectural position; you cannot feel your ongoing co-orderination with your surrounding. Here, the functional ideals of organic architecture, Dawans and Delville explain, are replaced with an emphasis on the “necessary interaction between senses of sight and touch in the process of apprehending external objects, and more particularly the perception of distance, depth and relief.”

This emphasis on sight and touch is however not reserved to the “apprehension of external objects.” You do not have to seek for objects; you are already touching and seeing because the humped and tilted floor is already making the proprioceptive receptors in your calves recalibrate the way you are seeing.

Refusing functionalism as analytical logic of the body/environment relation, A+G, like Kiesler, propose to think of architecture as a form of environmental ordering. Also putting emphasis on the body as opposed to insisting on the history of architectural forms, A+G invite us

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to person the world. Their focus on persons, as “transitory outcomes of coordinated forming” enables us to replace “man” by “organisms that person” in Kiesler’s correalist chart. Perhaps then it can be disassociated from the anthropocentric drama it prefigures, meaning from the image of the human as a figure in the foreground who is pursuing his self-interests against the background of natural and technological domains understood as exploitable fields. “Person-formation,” A+G tell us “depends on how it positions its body.” The body may resonate, clash, merge, combat, suffer, resist, fall or rise in love with the environment, whatever the mode of relation, the body and the environment are inseparable. This inseparability serves as the most generic proposition of the Reversible Destiny project. “A person and her surrounding,” A+G write, “need to be weighed in together as an architectural body, or, put more directly, the inextricability of person and bioseleave must at all costs be respected.” A+G’s architectonic conceptual poetry can rapidly make you feel “cleaved” from the Bioscleave project. What could you touch to feel your own positioning in the rippling effects beneath your feet, and within your thoughts?

Working with terminologies such as organism, person, and site, which have been weighed down in biology, psychology and architecture, A+G use lifted up versions like environment, body, and world, to create terminological associations endowed with pragmatic social and poetic meaning: organism that persons, architectural body, architectural surround, landing site, and bioscleave. Let me attempt to unfold the poetics of some of theses concepts.

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256 Ibid., 95
**To Person the World**

Whoever occupies it seems to take control of the air of the room almost automatically.\(^{257}\)

Organisms person the world by holding it, which amounts to a landing site configuration. That is, “organisms hold the world through configuring landing sites.”\(^{259}\) A landing is not the equivalent of a place that can be localized in space. It is rather a process that “involves being cognizant of sites.”\(^{259}\) It does not oppose itself to launching, and does not uphold the distinction between falling and rising. A landing site is a site where life happens; “a ‘neutral zone of emphasis’ that by-passes subject-object distinctions;”\(^{260}\) a “perceptual point of impact, which constitutes an immediate and undifferentiated experience.”\(^{261}\) Taken up in its architectural surrounds, as opposed to be displayed in space or portrayed in the object/subject dualism, A+G’s architecture is an invitation to action. Architectural surrounds “guide skilful coordination of bodily actions defined together with that within which it moves.”\(^{262}\) Architectural surrounds “stand as shaping molds for the *What happens next?* of life.”\(^{263}\) They “invite, provoke, and entice persons to perform actions and the enacting motions of these actions (…) shift sense organs about.”\(^{264}\) Organisms person the world by becoming cognizant of sites and that process is conditioned by and through the landing process. The cognizance of landing sites is thus in a relation of co-conditioning with the architectural surroundings, imaging the reality of a nucleus to action. The nuclear quality of the architectural surround aims at provoking activity to recalibrate

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\(^{259}\) Arakawa and Gins, *The Architectural Body*, 5.


\(^{261}\) Dawans and Delville, *Corps architectural et poétique de l’organique : le rêve de l’escargot*, 236.


\(^{263}\) Ibid., 43.

\(^{264}\) Ibid., 2.
the sensorium. Architectural surrounds are not tantamount to interactive architecture. Your surrounds do not wait for you to take action. Here the environment is not a structural extension, that is, a space where the body can be represented; the environment is inseparable from the body and both are intimately related in the intricacies of sensuous and non-sensuous perception enfolded over time.

To figure ourselves out, A+G tell us, to “find out the operative basis of what moves as us,” we must determine “what coheres as sentience.” Sentience, they add, “assembles its swerving suite of cognizing stances depending on how the body disports itself.” Architecture as world-composition can thus be an aesthetic gesture rather than a functional one. Not oriented towards functionality, because functionality entails another kind of operation, A+G propose procedure, or proceduralism, to thwart both architectural formalism and functionalism and to insist instead on the ontogeny of forms. Allied to Kiesler’s Correalism, proceduralism refuses to withstand the distinctions between theory and practice, thought and building, disciplines and practices. Whereas formalism involves an identity loop of the form upon itself (or upon its disciplinary identity), proceduralism expresses the recursivity of the event. A procedure is what persists, or resists, the composition and recomposition of architectural forms. To paraphrase Brian Massumi quoting Michotte, proceduralism images a movement that “has the uncanny ability to survive the removal of its object.” A procedure is thus a subjectless energy that cuts across forms and that renders their tendencies visible. In bringing forms back into their field of emergence, a procedure convokes and evokes the network of relations that animates them. Proceduralism thus creates forms whose initial conditions can be dramatically transformed in the

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265 Ibid., xii
266 Ibid., xii
267 Ibid., xxi
process of inhabitation. With proceduralism “you are not given a finished house.” Here A+G are not fooling you: you have to “form it through your movements and through those of whoever else is in there with you.”

Proceduralism is a set of invitations to action; or, in Kiesler’s words, a nucleus to actions. Like Kiesler, A+G contrast their method with functionalism: “a functional tool,” they write, “whether it be a hammer, a telephone, or a telescope, extends the senses, but a procedural tool examines and reorders the sensorium.” Procedural tools resonate with Simondon who argues for technical objects to be beautiful only when they are taken up in their relational activities. A dagger, he writes, “is only truly beautiful in the hand that holds it; similarly, a tool, a machine or a set of techniques are beautiful when inserted in a human world that they recover through expressing it.”

Proceduralism does not completely reject formalism; it only accepts “tentative forms.” Tentativeness is a constructing “toward a holding in place.” Proceduralism also has its own technique: biotopology. Not to be confused with biotypology, which produces correspondences between psychological traits and organic characteristics, biotopology is a procedural technique that diagrams the process of holding in place. A diagram is a “mixing of non-formalized pure functions and unformed matter” that escapes the merely graphic or visual to figure a “physics of abstract actions.” The diagrammatic, Deleuze tells us, “passes not so much through forms as through points which on each occasion mark the application of a force, the action or reaction of a force in relation to others.” In diagramming actions, that is, forces rather than forms, the

269 Ibid., 28
270 Ibid., 30
271 Simondon, *Du mode d’existence des objets techniques*, 186.
272 Gilles Deleuze, *Foucault* (Minneapolis: University of Minnesota Press, 1988), 73.
273 Gilles Deleuze, *Foucault*, 72.
diagram is a generative “physics of abstract actions” that act as a “technique of bringing to new existence.”

In this context the diagramming of actions, as opposed to that of forms, makes the corrective gesture actualized in the retrospective usage of topology impossible. In A+G’s own term, the diagram produces “approximate rigorous abstractions,” which figure life’s reality as bioscleaved, that is, as a series of attachments and separations. “Whereas regular topology looks at similarities between boundary conditions, biotopology does away with the discrete object, and thus with boundary conditions altogether.” For A+G, “cleaving” images the capacity of giving and holding and functioning as life forms. Here A+G’s cleaving resonates with Simondon’s chorno-topological structures as they both emphasize life as a process of relational activity that makes relative the boundaries proper to discrete objects. In scientific language, biotopology is another word for metabolism: it refers to the biological structure or physiological functions as organized in metabolic pathways. In bold terms, biotopology stands for the topology of the chemical reactions that maintain an organism in a state of operational becoming—a relation to energy production that is employed as part of mentation, sensing and transduction. Biotopology as applied to architecture figures a biotechnical standard based on the time-space operations of organisms that persons the world. Biotopology, write A+G, introduces a world of approximative measurement whose basic measure is the architectural body, which, by definition, and in actuality, is approximative. Approximative measurement enables us to understand Kiesler’s biotechnical minimum standard not only as rough and inexact, but also, and perhaps most importantly, as metastable.

275 Massumi, Semblance and Event: Activist Philosophy and the Occurrent Arts, 100.
277 Ibid.
Constructing as a Form of Thought

Taking architecture as a biotopological figure case, the *Reversible Destiny* project takes upon the impossible task of eliciting “what makes the world tick.”\(^{279}\) Not through an explanation of functions but by throwing bodies into action, forcing them to determine “what coheres as sentience;”\(^ {280}\) and, in the same stoke, inviting them to invent themselves as “a holding in place.” “How the body moves,” A+G tell us, “determines what turns out to hold together as architecture for it.”\(^ {281}\) Here, the architectural forms are apprehended as emerging out of patterns of habitual activity, echoing Kiesler’s proprio-spatial dynamics.

Architect Leopold Lambert explains, “what Arakawa and Gins call *Reversible Destiny* is an absolute refusal of modernist comfort that triggers a process of weakening of the body and decreases its power.”\(^ {282}\) In the *Bioscleave House* “comfort is rife with anxiety,” “everyday you are practicing how not to die.”\(^ {283}\) Its inhabitants are asked “to examine minutely the actions they take (…) and recalibrate their equanimity and self-possession, causing them to doubt themselves long enough to find a way to reinvent themselves.”\(^ {284}\) For A+G procedures brings inhabitant back into their generative or genetic level of existence. Procedural knowing reconfigures habitual patterns of activity. It makes persons able to supersede themselves. It bestows them with the capacity to reach greater levels of conceptual and sensuous magnitude with their surroundings.

Procedural architecture and its tentative forms serve to further develop Kiesler’s need-morphology of technical growth. *Reversible Destiny* thinks of this need as conditioned by the

\(^{279}\) Arakawa and Gins, *The Architectural Body*, xii.
\(^{280}\) Ibid.
\(^{281}\) Arakawa and Gins, *The Architectural Body*, 50.
sensorial re-orderings actualized in the moving activity of the body-in-action as a “holding in place,” effecting a metastable balancing over time and across space. To hold in place is to move because for A+G, an organism that persons does not move in localizable space but “within and in between its own modes of sensing”\textsuperscript{285}

Looking specifically at movements between modes of sensing, A+G ask, can architecture “construct awareness on a new basis?”\textsuperscript{286} To explore the possibility, they risk the adventure of constructing a method for which to think and to construct cannot be segregated. However, A+G do not synthesize thought and construction; they rather think of them synchretically as the form of an emergent contextual reality. To hold in place, to use your body to give form to your house, to move between your own modes of sensing, to become aware or attuned, to person the world is a thinking-constructing.

It was previously said that Dawans and Delville argue for Arakawa and Gins’s emphasis on sight and touch to effect a complete reworking of the functional ideals that characterize the organic paradigm. They add that A+G formulate another major proposition by proposing to think of persons as bodies rather than as models of interiority.\textsuperscript{287} For Dawans and Delville, with A+G, you are invited to learn to construct rather than to come to know yourself for to know yourself is also to create it. Echoing Paul Valéry’s famous poem, \textit{Man and the Seashell}, and Gaston Bachelard’s phenomenological reading, A+G, like Valéry, return to the “mystery of form-giving life, the mystery of slow, continuous formation.”\textsuperscript{288} Bachelard looks at the mollusk’s shell in a way that echoes Simondon’s definition of the membrane for they both think of the polarized and asymmetrical character of the shell as constituting the basis of life’s operations. “Everything that

\textsuperscript{285} Ibid., 58
\textsuperscript{286} Ibid., 56
\textsuperscript{287} Dawans and Delville, Dawans and Delville, \textit{Corps architectural et poétique de l'organique : le rêve de l'escargot.}
\textsuperscript{288} Gaston Bachelard, \textit{The Poetics of Space} (Boston: Beacon Press, 1994), 106.
has form,” Bachelard tells us, “has a shell ontogenesis.”\textsuperscript{289} Life’s principal effort, he goes on to say “is to make shells.”\textsuperscript{290} However, and in a manner that resonates with Kiesler, Bachelard remarks that the mollusk’s \textit{motto} in Valery’s poem, “one must live to build one's house, and not build one's house to live in”\textsuperscript{291} can hardly be translated into the technological environment for human shells can only be built from the outside.

Once again, “it is the formation, not the form, that remains mysterious.”\textsuperscript{292} We will come back to dwelling as allied to unconventional modes of living in Chapter Four. Before attaining a higher level of synchretism between vision, health, architecture and unconventional modes of living, let me first engage further with how biotopology rethinks the topological logic of the living by replacing the notion of boundary with that of ubiquity (what will also be referred to as transpositionality). If, as suggested by Kiesler, human beings can only build structures without continuity, how can topology be something else than a mere retrospective corrective gesture?

Against the dogmatic ideals of perfection and protection that characterize the shell, the tentative forms of A+G’s procedural architecture maintain the physical intimacy expressed in the shell’s activity. However, A+G refuse to think of shells as related to notions of ego, consciousness and the psyche. These notions, they argue, negate the body’s atmospheres. Inverting the relation of intimacy as problematized through the relation between spaces of interiority and spaces of exteriority, A+G look instead at biotopology to completely reconfigure the modes of cleaving, that is, the modes of giving and holding that qualify the inseparability of the architectural body and its architectural surround.

\textsuperscript{289} Ibid., 112.
\textsuperscript{290} Ibid.
\textsuperscript{291} Ibid., 106
\textsuperscript{292} Bachelard, \textit{The Poetics of Space}, 106.
Biotopology, A+G tell us, refuses to accept the traditional view that the epidermis of an organism that persons constitutes its boundary with the world.\textsuperscript{293} Surroundings, they add, “are for a person what comes of her ubiquitous sitting (…) leaving no square nanometer uncovered.”\textsuperscript{294} A procedural giving and holding is thus of the ubiquitous kind. A+G explain that being cognizant of your landing site as your immediate surrounding means that you are non-locally cognizant of your total surround because your architectural surround is the “everywhere you have landed or could land.”\textsuperscript{295} Here the body is neither a space of interiority externalized through representation in a space of interaction, nor an object that wears architecture. Instead, when taken in biotopological procedures, bodies and their surrounding are inseparable because they are woven and entangled together in the reality of absolute forms.

In brief, A+G’s understanding of the correlation between human beings and their technological environment further develops the relation between sight and touch introduced by Vision Machine to clarify a variety of implications entailed in the consideration of architecture as a nucleus to action where an “architecture of contact” means participation rather than isolation.\textsuperscript{296} A+G shake the grounds under our feet to make us seize more easily how architecture can think of the body and its surroundings as a vision, rather than by division. By doing this they let one come to know how to look at the manner in which their procedural forms and Kiesler’s forms of vision are tantamount to organic forms not because they look like life forms but because they are given as absolute forms that intra-act with the becoming of living beings.

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\textsuperscript{294} Arakawa and Gins, \textit{The Architectural Body}, 9.
\textsuperscript{295} Ibid., 33.
\textsuperscript{296} Frederick J. Kiesler, “Magic Architecture” in \textit{Selected Writings}, ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 34.
Vision as Equipotential Reality, Health as Absolute Form

The body is not an object (...) to live is also to know.297

The mechanistic doctrine of nature and its sensationist doctrine of perception, was adopted in large part to rule out influence at a distance panexperientialism, the priority of nonsensory perception, and influence at a distance.298

“Phenomenology,” writes Foucault in his introduction to the English translation of The Normal and the Pathological, “asked of ‘actual experience’ the original meaning of every act of knowledge. But can we not, or must we not,” Foucault inquires on Canguilhem’s behalf, “look for it in the living behind?”299 To seek meaning on the side of the living, without however reifying the opposition between the chemical and the organic, the living and the non-living, is an inquiry that occupies a central position in Canguilhem’s work. It is also one of the main propositions of Raymond Ruyer’s philosophy for which physical existence is a mode of relation and not a category of being. In problematizing life by tracing experience back in relational and formative processes, Ruyer avoids orchestrating a trial of identities based on a dialectical crisis of categories,300 insisting instead on pragmatic and affective resemblances as opposed to physical and structural ones.

Ruyer’s refusal to link finalism with mechanism, as suggested by the incompatibility he establishes between finality and contiguous linkages, was explained in Chapter One. What remained obscure is how the equipotentiality of living tissue introduces mental activity as organic process. In the first chapter, the link between finality and axiology was partially addressed, but

297 Canguilhem, Health: Crude Concept, 477.
299 Michel Foucault, Introduction, 20.
300 This is an argument articulated by Thomas LaMarre in Humans and Machines, http://www.inflexions.org/n5_lamarrehtml.html.
the manner of finalist activity in the organic realm, that is, the equipotentiality proper to the transtemporal and transspatial domains of the senses, and the corresponding opposition between thematic and positional continuity, were only superficially analyzed. In Néofinalisme, a book published a few years before La Genèse des formes vivantes, Ruyer had already begun to pose the problem of the relation between organic invention and biological finality, looking specifically at sensation and perception to categorically refuse the reduction of consciousness to explications based on progressive and contiguous connections.

Prefiguring Canguilhem’s total approach to life forms, as known in vision, and not by division, Ruyer holds a double-contrast between optical and mental vision, between knowledge-consciousness and knowledge-observation. Observation is defined as a mode of activity that apprehends reality structurally in objective spatio-temporal determinations (structures) as governed by the laws of physics and geometry. Knowledge-observation, or optical (di)vision, implies an observer who is exterior to the act of sensing. In offering a geometrical point of view, observation figures a position outside of the sensorial field, where organisms are resolutely not moving within and between their own modes of sensing. They are rather moving in numerical space, from structure to structure. In opposition, knowledge-consciousness, or mental vision, is an occurrence that enjoys no exterior point of view. Knowledge-consciousness moves along the world in “absolute survol” as ubiquitous positionality (thematic continuity) relative to no point of view outside of itself. While optical vision visualizes the world partes extra partes, mental vision captures the world as an absolute or pure form, that is, as a total and inseparable unity in movement. Here Ruyer effects a complete reworking of experience as the reality of transpositional continuity. Experience, he explains, is “a surface with just one side (…) if the
sensible surface could be seen from two sides, it wouldn’t be a sensation, but rather an object.”  

One does not have to be located outside of one’s sensation to know it. One can know by analogy, sympathy or empathy but the act of knowing is invariably irreducible to an optical, objective or observable reality.

Ruyer explains that an absolute surface is a surface that surveys itself without being on a different dimension of that which it surveys. Taken up in knowledge-consciousness, an organism knows itself without observing itself. An absolute form, or absolute surface, is thus tantamount to a true form, meaning “neither a Gestalt nor a perceived form but a form in itself, one that does not refer to any exterior point of view […] it is an absolute form that surveys itself independently of any supplementary dimension.” An absolute form images the primitive tendency of things to hold together in absolute interiority despite their diverging plurality. Ruyer reminds us that since the genesis of forms cannot be explained with their corresponding structures, an isomorphic relation between spatio-temporal observation and knowledge-consciousness cannot be established.

In giving no possible external point of view, absolute surfaces are hovered in absolute survol. “Survol,” the terminology used by Ruyer does not have a proper English synonym. The term invokes a movement occurring in infra-dimensional modalities, a proto-geometry that makes you seize space as a dynamic unity in movement. Absolute survol is non-geometrical and non-dimensional. It is a vision, not a division. It does not offer you the possibility to relate spatial elements retrospectively; neither does it offer you an overview. You may be flying on a surface, as suggested by the French verb voler, but you are not given an exterior position from which you act as a sovereign observer. In the realm of absolute forms, you cannot ex-inhabit your context,

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you cannot separate yourself from your surrounding. Even more, you cannot separate the elements that compose your surroundings.

Ruyer’s notion of the absolute resonates with Kiesler’s Correalism and Simondon’s phases of individuation: with absolute forms, fragments and parts are neither fused, nor confused, but given all at once in their ontogeny. As Deleuze explains, Ruyer’s notion of absolute form opposes real forms to figures and structures to construct a form of reality that “cannot be reduced to an apparent whole or to a phenomenal field,” which would eliminate the form’s details. For Ruyer, details of sensory images are given immediately in absolute unity, erasing the possibility to hold homogeneity as synonym of absolute.

Ruyer’s double-contrast between mental and optical vision on the one hand, and between knowledge-consciousness and knowledge-observation on the other, is based on another generative distinction between primary and secondary consciousness. In this context, the unity of movement, which characterizes the pluralism of absolute forms is invariably related to consciousness and perceptual segregation.

**Awareness as Primary Consciousness**

*Aujourd’hui les ténors de la science en marche l’ont annoncé, l’heure est venue de régler la question de la conscience, le dernier “grand problème” qui résiste à l’avancée scientifique.*

Simondon insists on the partial effectivity of both Associationism and the Theory of Form to articulate a genetic explication of the segregation of perceptual unities, as figured in the distinction between forms and images. On the one hand, Associationism juxtaposes a multiplicity of inert elements, which, according Simondon, fails at grasping “the internal coherence of the

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303 Gilles Deleuze, *The Fold*, 118.

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object individualized in perception." On the other hand, Simondon explains that the Theory of Form fails at accounting for the genesis of forms. He adds that both these theories lack a rigorous study of individuation, that is, an inquiry into “the critical moment where unity and coherence emerge.” For both Simondon and Ruyer, the production of isomorphisms between inner operations of physical fields is not sufficient to create a genetic explication of holistic experience understood as a vision. Ruyer’s absolute forms capture this critical moment, where the genesis of the form and of the object individualized in perception, are immediately given in their ontogenetic processes. His genetic explication of the segregation of perceptual unitaries is based on a refusal to consider sensorial organs as sovereigns of perception. It is without hesitations that he argues for every organic tissue to perceive.

Ruyer’s implied panpsychism serves as the initial premise to his concept of primary consciousness. Primary consciousness, he explains, is tantamount to organic consciousness whereas secondary consciousness is primary consciousness of the cerebral areas. However, secondary consciousness does not constitute an essential character of consciousness. Primary consciousness is what Ruyer calls action in relation to an absolute surface. Primary consciousness means that you grasp the totality of a surface according to a principle of ubiquity. Ruyer’s absolute form resonate with A+G surroundings for both leave “no square nanometer uncovered,” imaging the “everywhere you have landed or could land.”

It is crucial to insist on the fact that Ruyer’s conception of absolute consciousness is not the figure of a higher form of being. Consciousness does not conjure up in the development of the living (as suggested by organisms which develop a nervous system). Ruyer’s analogy between the brain and the embryo helps to clarify how consciousness is a mode of activity that belongs to all

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305 Simondon, *L'individuation à la lumière des notions de forme et d'information*, 233.
306 Ibid., 234
307 Alliez, *The Signature of the World*, 64.
organic forms. Ruyer apprehends the brain as analogically related to embryological development. The brain, he explains, is both a form in formation and a functioning; meaning a form whose structure is in an endless process of formation. Wilkund explains, the brain of an adult organism is “an organ that has remained ‘embryonic,’ while the rest of the adult organism, having finished its growth, is almost wholly out of contact with the (virtual) thematic potential.”

Because a cerebral connection is not a circuit that is irreversible, it sustains its connection with thematic potential to affirm it equipotential reality. Here equipotentiality is described as the reality of a form that gives form (a reality that however decreases in intensity when forms become structures for structuration is a process that reduces the potential of forms to keep in contact with thematic continuity). Ruyer’s field of consciousness is united in matter and in living tissue, resolutely negating consciousness as belonging to the imperialist power of a higher unity.

Ruyer describes primary consciousness as subjectivity, “self-surview,” auto-subjection, auto-sensation, that is, self-enjoyment. Primary consciousness is the “presence of a primitive mode of linkage that exists subjectively as absolute domain and that presents itself objectively as equipotentiality.” Subjectivity here is however not the mere equivalent of a subject. In contrast with optical vision where the subject’s consciousness transcends optical vision to enable him to give meaning to what he sees by juxtaposing fragmented, there is not “I” in the realm of primary consciousness. For Ruyer, “I,” in the sense of cogito, has not direct primary consciousness of its organism. Ruyer rejects the postulate according to which consciousness is consciousness of or about something because that consideration implies the idea of a subject exterior to its surroundings, and thus to its own modes of sensing. Primary consciousness is not tantamount to being consciousness of something. The rational for this rejection is that a subject insinuates a

308 Wilkund, A Short Introduction to the Neofinalist Philosophy of Raymond Ruyer, 49.
309 Ruyer, Néofinalisme, 144.
distance from experience, which Ruyer negates. Thus, for Ruyer, a feeling does not need a subj

ject. A feeling is complete in itself, meaning, absolute; sui-referential. A feeling figures an inclusion within itself, invariably making consciousness an absolute form.

Éric Alliez explains that Ruyer’s link between consciousness and absolute –pure or true–form links consciousness and morphogenetic processes, that is, it defines consciousness as self-creation. “If every being and every form is its own subject (auto-subjectivity),” Alliez writes, “consciousness and life are one and the same thing.” Alliez is quick to add that by this account “consciousness is nothing other than form or, rather, active formation in its absolute existence.” In this perspective the process of form-taking is tantamount to the “internal resonance of a being in relation to itself,” meaning to a form “that potentializes its own becoming.” By actualizing the capacity of forms to potentialize themselves, auto-subjectivity thus replaces the notion of subjective intentionality. Paul Bains clarifies, “the subjectivity of organic form (as opposed to material and mechanical structure constructed of progressively linked relations) is subjectivity without a subject-individual who would be proprietor of the consciousness.” In the organic realm of primary consciousness, there is not exteriority of reason; its inclusion is unilateral but non-localizable. Sensation in the act, as opposed to once processed, seizes the world from within as subjectivity, instead of from without as an object. In tracing experience back to formative processes, Ruyer is able to define experience as that which moves across forms in the making, rather than as the act of encountering constituted forms. Experience is therefore irreducible to a subjective compensation that occurs afterwards, once life has become objectified in the formalist

310 Alliez, The Signature of the World, 64.
311 Ibid.
312 Ibid., 63.
313 Ibid.
aspects of an object. In brief, Ruyer performs an inversion: life is not conscious; it is consciousness that is alive.

In the subjective domain of primary consciousness, there is no absolute elsewhere, no absolute alterity: an organism is always in all the places of its visual field. Renaud Barbaras claims that Ruyer encloses consciousness in its own life, preventing it from opening itself to the world.\textsuperscript{315} What Barbaras may be overlooking is how absolute forms resonate in folds as opposed to communicating via objects (either material objects or the body as transformed into a spatio-temporal structure). As Deleuze explains in \textit{The Fold}, to resonate in folds is a process of involution, meaning a process of heterogenesis. Taken in absolute forms, you may be flying over a surface in virtue of non-local linkages; it does not invariably means that you are controlled by an interiority that you cannot escape.

For Ruyer, only the psychological model of mnemonic bootstrap can account for the actuality of consciousness. Thematic continuity is a non-dimensional form of development that does not have a cause that can be localized in space. Thematic systems move beyond psychological causality for they are conditioned by spiritual and psychic laws, which are irreducible to a mythical geography. In its capacity to actualize reversible connections, the brain can pass form an action or a thought to another without making the passage available to optical vision. That is, linkages can only be deduced for they can never be offered to observation.

Thematic continuity is thus the reality of life lurking in between dimensions. Thematic continuity will be further addressed in Chapter Four in relation to Isabelles Stengers’ non-knowing and Jose Gil’s therapeutic ritual. Let me know recapitulate some of the pragmatic implications of absolute forms as concretized in the creation of architectural forms.

Design practices that aim at generating absolute forms are practices that modulate time in empty space. Duration write Deleuze and Guattari following Bergson, defines a particular status: “multiplicity of fusion,” which expresses the inseparability of variations.\(^\text{316}\) In *Semblance and Event*, Brian Massumi clarifies, “fusion is another word for nonlocal linkage.”\(^\text{317}\) Absolute forms are vectorial in that they figure formative influences transmitted by actions at distance. In Whitehead’s own terms, vectors “feel what is there and transform it into what is here.”\(^\text{318}\) In requiring no outside point of view, absolute forms are durational forms whose process of formation is conditioned by the goings on in other regions; they are vectorial surfaces that trigger unexpected connections. The vectorial reality of absolute forms is what I term form-fields. In effecting a passage from simple location in objective space to absolute forms in vectorial fields, form-fields emphasize the nonlocal linkages immanent to the becoming of forms. These non-local linkages bear witness to the impossibility of reducing life to visual forms. Their effects can be felt, but not completely seen. Absolute forms reinvent the mechanist conception of science presented in the previous chapter for it promotes spontaneity, self-motion, and self-determination in addition to refusing the reduction of influences to contiguity or direct contact.\(^\text{319}\) Emphasizing instead the reality of quasi-causes and actions at distance, absolute forms are resolutely more than forms; they are form-fields.

**The (Non)Space of Health: From Form to Form-Field**

With proceduralism and biotechnique, health is not lived in silence; it is heard aloud in the internal resonances of the proprioceptive body. As Lecercle writes, “with Gins and Arakawa,}

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\(^\text{317}\) Massumi, *Semblance and Event*, 144.


\(^\text{319}\) Griffin, *Parapsychology and Philosophy: A Whiteheadian Postmodern Perspective*
Conditioned by the poetics and the architectonics of cognition and action, health is heard aloud not when it becomes the subject of representation but when it convokes both the physis and the psyche into new configurations. Biotechnique and proceduralism divert interest “from the work of art and loses itself in the inextricable chaos of psychological antecedents.” They are unnatural yielding, which modulate polarized forces that compel inhabitants into action. Health seizes the body in the immediacy of its mental and physical modalities to question the level of energy needed by the body do what it did not know it could. It considers both body and surroundings as taken in co-evolutionary proprio-spatial dynamics to open unforeseen movements between modes of sensing. By this account, health can also be said to belong to the realm of absolute forms.

*City in Space* and the *Bioscleave House* express the primitive tendency of things to hold themselves together in an absolute unity. They both figure a pure interiority without exteriority, expressing the qualitative autonomy of their forms as the reality of a ubiquitous structure, that is, as the reality of a form-field.

Forms impose a burden on physicality, whose reality is reduced to staticity. Form-fields introduce the difference between a form only understood in its external physical reality and a form understood in its internal and equipotential modes of activity. A form-field is a distinctive mode of becoming that valorizes the plurality of the elements that compose space, a dynamic form of activity that swirls in the endless and synchretic relationship between and among physicality, mentality, technology and nature. Form-fields move from a conception of space based on objectivity, physicality and materiality to a definition of space as a pluralistic unity in movement, as the co-presence of heterogeneous forces and elements. In brief, a form-field is

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321 Bachelard quoting C. G. Jung in *The Poetics of Space*, xxxii.
tantamount to continuity clutching at originality; it is a continuing-across that is immediately a continuing-again. Visual, material and physical forms are however not meaningless. They act as pauses that introduce cycles. These cycles are crucial as they break the linearity of time and enable the production and expression of change and novelty. Physical or visual forms are thus to be interpreted as snapshots of an intensive process of individuation.

Now, in emphasizing consciousness and continuity, are architectures of aliveness responding to outdated notions? Foucault argues for the problems of consciousness and continuity (with their correlative problems of liberty and causality) to have been replaced by notions of events and series. An event, he writes,

> is neither a substance, nor an accident, nor quality, nor process; events are not coporeal. And yet, an event is certainly not immaterial; it takes effect, becomes effect, always on the level of materiality. (…) Let us say that the philosophy of event should advance in the direction, at first sight paradoxical, of an incorporeal materialism.³²²

Chapter 3
Bioscleave your Practice
Against Harmony

The model of biological harmony is far too overwhelming.323

[Architecture] degenerates into a dangerous pastime when one is merely hunting for forms: playboy architecture.324

Starting the inquiry with mainstream research engines, Google(.ca) not to name it, one finds popular definitions of bioarchitecture that are ingrained in the promise of a better world to come, and which are unspokenly informed by a humanist idea of progress. Michael Rice, one of the first hits, calls himself a bioarchitect and defines his practice as “the art and science of designing buildings and spaces which create, support and enhance life and living systems.”325

Coming shortly after, The BioArchitecture Foundation, a platform dedicated to the exploration of “biological architecture, holistic buildings and geomantic built environments”326 defines bioarchitecture as a practice that “harnesses and replicates the principles found in nature in order to create built environments which benefit people and other living things.”327 On their website, we can also read, “the central canon of BioArchitecture is that all life responds well to design that is energetically harmonious with nature.”328 Here the BioArchitecture Foundation is formulating a question more than a definition: what is the pragmatic of an energetic harmony between design and nature? And perhaps more importantly, can the essentialist presuppositions entailed in the

327 Ibid.
328 Ibid.
discursive generalization that flocks “all” life forms under one “positive” mode of reaction avoid scrambling differences and singularities? Does the moralist tone of the proposition, which makes the activity of responding “well” a synonym of harmony, precipitate us into thinking, or does it make us recognize? Can we refuse to equate the abstraction valid for all life forms with the truth to generalization?

While these generic definitions insist on harmony, they leave tacit the practice’s material considerations. Bioarchitecture does not only claim to create peaceful relations with nature, it also speak of the revolutionary impact of “biological” materials on design and construction processes. Can these “new,” or post-Kieslerian materialist possibilities not be used to blind and fool practitioners? Can they instead confer them with the means to construct the problem between life, technology and nature in a non-bygone way? Do these novel materials enable practitioners to look at contemporary modes of inhabitation as architectural form givers? Can we refuse to let the enthusiasm for new materials and cutting-edge technology — for incipiently marketable tools and materials — transform design into an aimless practice?

Correalism and biotechnique think of the efficacy of technological design as validated by human health rather than by technological performance. Kiesler’s biotechnique does not frontally address biological materials (cells, bacteria, DNA, etc.) as architectural medium. The missing consideration can be explained historically: biotechnology was in a nascent form when Kiesler developed his practice. The story here, directed by a deterministic argument that circulates in

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329 As Didier Debaise explains referring to Whitehead’s concept of society: there is, “one concept of society “valid for a whole set of realities (generic), but the abstraction valid for all, is effectively a specific reality, that is to say, locally determined: the multiplicity of concrete societies.” In other words, the abstraction valid for all does not hold truth to generalizations. In Debaise own terms, “one cannot define a society in general because each one is constituted within precise constraints, one can nevertheless characterize the generic concepts of society by its mobilized components.” See Didier Debase, “Vie et sociétés” in Revue Philosophique de la France et de l’étranger, 131:1, 2006 (consulted on academia.edu, 6), www.academia.edu/229621/Vie_et_sociétés.
architectural discourses, is tied to a problematic proposition, which is intimately linked to the need-morphology of technological growth. This erroneously suggests that Kiesler was ahead of his time to such an extent that his body of work could not be realized with the technology available then. Architectures of aliveness refuse to think that Kiesler’s prototypes required more “advanced” and “cutting-edge” technology to reach full concretion. To keep alert to the primacy of the social over the technological, architectures of aliveness refuse to make Correalism a progressivist and deterministic practice based on the essentialist properties of a specific medium.

For Kiesler, “the temptations of new materials in architecture cannot save the artist from his responsibility to the wellspring of ethics.”

Relationally rather than substantially alive, architectures of aliveness link the efficacy of biotechnique to absolute forms, running in parallel with Canguilhem’s suggestion, here explained by Foucault, “the problems raised by the development of a science are not perforce in direct proportion to the degree of formalization reached by it.” Here degrees of formalization coincide with the problem of absolute surface as organic feeling, and not simply with the challenges associated with the materialization of architectural forms. Now, to refuse the notion of progress ingrained in the idea of a converging harmony does not mean to refuse pragmatic difference. What can biotechnique learn from a more direct integration of biotechnology? There is something very concrete about the absolute feeling of aliveness. There is also something that remains mysterious. Can bioarchitecture transduce its own processes to sustain the mystery?

In this short chapter, Kiesler’s biotechnique takes part in a conversation with two practices that regroup four architects: (1) Michael Hensel, Achim Menges, and Michael

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330 Frederick J. Kiesler, Postscript II, 1960, in Selected Writings, ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 64.
Weinstock’s new biological paradigm for architecture and; (2) Zbigniew Oksiuta’s *Biological Habitats*. While the two approaches concur and differ in methods, techniques and aims, they both formulate practical propositions that make act upon the co-participation of nature, life and technology in architectural design. The new biological paradigm expands biotechnique’s emphasis on design evolution to consider manufacturing and construction processes. Ingrained in digital equivalences, it works within the assumed correspondence between computation and life to construct continuity between the different phases of the architectural process (design, manufacturing and construction). Instead of trashing the biological paradigm to valorize biotechnique, the practice will serve to expose another series of risk, which will clarify some elements that might have remained unclear in the previous chapters.

With his *Biological Habitats*, Oksiuta speculates on the chrono-topological character of architectural constructions to invent a regime of passage between spaces of interiority and spaces of exteriority. “What morphology defines as form and structure,” he writes, “means a chronological cross-section through a stream of process in space and time.” While his habitats express a relation of closure or tightness with their surroundings, they propose weightlessness as an architectural technique capable of sustaining the energetic exchanges between spaces of interiority and spaces of exteriority. Reenacting one of Kiesler’s techniques to absolute forms (suspension subsides into weightlessness), Oksiuta’s habitats are resolutely more than banal instantiations of chrono-topological structures. In proposing a spatial concept that is not exclusively rooted in technological or material possibilities, *Biological Habitats* effectively reinvest the ethical responsibility of the artist within the conceptual and affective dimensions of his practice.

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This chapter does not contribute a complete picture of what bioarchitecture is about today. Instead of producing an exhaustive listing of practices, it concentrates on two practices, which together cover a wide range of thematic, conceptual and technical propositions. The tripartite dialogue is scenographed as a choreography that figures the performative reality of clashing and merging, attachments and ruptures. Working between affinities and infidelities, architectures of aliveness do not seek to reveal what is left of Kiesler’s biotechnique in today’s discourses on bioarchitecture. In an assumed and arbitrarily chosen orthodox art historical manner, they interrogate how Kiesler’s biotechnique can inform today’s bioarchitecture, while at the same time retaining helpful insights from the practices that belong to the biological paradigm. The aim is to avoid the easy path of negative critique, which validates modes of thinking that valorize the disqualification of practices (techniques, discourses, etc.). In contrast, what is valorized is the positive identification of the practices’ pragmatic implications. In so doing, I hope to avoid submitting practices “to a converging principle from which they would only become different ‘points of view’ about the same world.”

The New Biological Paradigm: Emergence and Self-organization

Known for their Emergent Technologies and Design course at the Architectural Association in London, Hensel, Menges and Weinstock describe their work with a rhetoric that entails a fair amount of smoke and mirrors. Introduced as a springboard that “radically” renews our way of understanding architecture, as a practice based on “cutting-edge” techniques and technologies, the new biological paradigm not only dramatizes its own reason of existence, it also exaggerates the virtues of complexity theory. Submerged in the conceptual waters of emergence and self-organization, it links emergence to an “insight on the evolution and maintenance of

natural systems.”

To insist on its potential to impact the evolution and maintenance of architectural forms. The architects describe their paradigm as informed by an affiliation between architecture and emergence, which they define as a new science that investigates the “behavior of complex systems and the mathematics of their processes.” They add that their inquiry focuses specifically on “the systematic transference of that knowledge to design and production.” This transposition is nothing else than the celebration of emergence as a new type of knowledge, what Isabelle Stengers warned us against in the previous chapter. What the biological paradigm celebrates is neither the “development of a catalogue of new materials coupled with innovative production technologies,” nor the holding together of the body, but rather emergence itself (as if novelty could be expressed in relation to a generic form of order). In At Home in the Universe, biologist Stuart Kauffmann is categorical: complexity theory does not explain novelty; it rather describes how life succeeds at maintaining itself through sustaining its order. Kauffmann himself explains complexity theory as determined by our capacity of attributing functions for he describes life in virtue of a threefold functional system that figures stability, homeostasis and evolving principles. Can the biological paradigm move beyond the new descriptive possibilities offered by complexity theory to override the emphasis on the

335 Here is it important to note that even if they implicitly claim for their approach to successfully access the mathematics of living organisms, mathematics cannot be thought of as producing “truths” about life. Here I am paraphrasing mathematician Henri Poincaré who argued for the impossibility of creating mathematical and geometrical “truths” about space. Poincaré explains that research on different forms of geometry did not produce knowledge about space but about the relationships between bodies, bringing him to conclude that no geometry can be more valid than another. It can only be more convenient. Poincaré’s argument reveals two risks run by the new biological paradigm (1) a mathematical approach is not neutral in regards to the production of value and (2) mathematics cannot fully grasp the truth of living organisms. See Henri Poincaré, The Value of Science, New York: Modern Library, 2001).
337 Ibid.
338 Ibid.
“difference between yesterday and today’s paradigm?”340 Put otherwise, can the biological paradigm produce more than the recognition of the passage from determinism, predictability, stability and linearity between causes and effects to unpredictability, sensibility to initial conditions, strange attractors, and bifurcations?341

**Life as Computation**

The shift from sculptural techniques of whittling, carving, chipping, and scraping material to the modulation, oscillation, and vibration of particles does not mandate the relinquishment of creativity to machinery.342

Informed by biotechnology, computational systems and complex systems theory, the biological paradigm develops techniques said to bestow a quality of vitality from the inception of the architectural process. Also departing from a critique of the static notion of structures, as fully integrated in, and yet disconnected from their surroundings, the biological paradigm develops an evolutionary conception of architecture that encompasses the complex and energetic character of structures, the life span of material systems as well as the surrounding environment. Allied to biotechnique and proceduralism, it suggests a performative understanding of living systems; rejects the possibility of their reduction to mono-functional elements; looks at systemic effects that affect “the whole being rather than (...) a specific part;”343 insists on functions as multiple concurrent performative capacities; to define living forms in D’Arcy Thompson’s terms as “a diagram of the forces that have acted on them.”344 With a particular emphasis on the implementation of morphogenetic strategies, the biological paradigm focuses on architectural

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341 Ibid.


344 Ibid., 30.
potential rather than biological models. Equally against a conception of nature to be copied, what Kiesler called the “essentially romantic attempt to fashion a man-built structure by literal application of nature’s design principles,” 345 the biological paradigm makes the relationship between formation and materialization the generic focus of its practice.

Hensel, Menges and Weinstock situate their practice at the level of the morphology of technical growth (the absence of “need” in “need-morphology” is here intentional), and most particularly in the passage from form-of-design to form-of-production. They explain that architecture traditionally prioritizes the development of a form (design) over its process of materialization (production). 346 In heavily relying on geometry and representational tools to translate forms into materiality, the abstractions that give primacy to forms over their materialization processes are not abstract enough to transduce the operational reality of the concrete expressions they seek to capture. Refusing the sovereignty of one process over the other, the biological paradigm links forms-of-design to forms-of-production to develop an approach that seems to echo Kiesler’s sculptural gesture to form-taking. They specify that their investigations into the morphogenetic processes of material systems are not determined by the material constituents alone, but also by the “complex reciprocity between materiality, form, structure, and space.” 347 This complex reciprocity, they add, is apprehended in the related processes of production and assembly, with special consideration of environmental influences and forces.

347 Ibid., 48.
My Mother was not a Computer

Not subservient to the mechanics of life activities or to techniques of manufacture; it
[biotechnique] employs them wherever profitable but it is not a slave to industrial
dictatorship.\[348\]

In the first chapter of *Emergent Technologies and Design: Towards a Biological
Paradigm for Architecture*, a book the three architects wrote in companionship, Weinstock
defines nature as “a series of interrelated dynamic processes that can be simulated and adapted for
the design and production of architecture.”\[349\] He argues for evolutionary computational strategies
to morphogenetic processes to be capable of simulating nature. Here Weinstock seems to
misunderstand D’Arcy Thompson’s concept of the diagram. A simulation, Greg Lynn explains,
“is not intended as a diagram for a future possible concrete assemblage but is instead a visual
substitute.”\[350\] In chapter two, Menges generates a conceptual contradiction within the paradigm
itself, opposing simulation and computation, insisting on the differences in the initial conditions
of both processes, repudiating Weinstock’s argument to instead follow Lynn. For Menges, a
material simulation defines all variables of the system from the onset\[351\] while computation offers
a processual engagement with the material constraints of a system, leading “to results that are not
a priori fully determined.”\[352\] Menges further explains the distinction between simulation and
computation by nuancing the latter with computer-aided design (CAD). CAD, he tells us,
“internalizes the coexistence of form and information, whereas computational design externalizes
this relation.”\[353\] This distinction, he adds, sets the grounds for “the conceptualisation of material

\[348\] Frederick J. Kiesler, “The Endless House: A Man-Built Cosmos” in *Selected Writings* ed. Siegfried
Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 127.
\[352\] Ibid.
\[353\] Ibid., 51.

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behavior and related formative processes.” That is, he argues that these considerations open the technical possibility of equating their practice with morphogenetic processes.

To say that their work is based on digital computation means their practice is informed by -if not imbedded in- algorithms. An algorithm is a mathematical solution that tends toward the unification -or reduction- of a problem to a single equation, which is said to encompass the whole problem. An algorithm is a set of “performative” rules construed as a series of instructions. For the practitioners of the biological paradigm, algorithms enable the consideration of complex behavior and not only the modeling of forms. Based on investigations of the inner dynamics and behavior of living organisms, their algorithms abstract the organization of the living’s structures and their correlated behavior. The abstracted solution is then repeated in time, in a series of iterations, which, the architects claim, produces differences from the initial conditions. In other words, they argue for the repetition of their algorithms to generate small random variations in the design, which they add, actualize perpetual differentiation.

At stake is whether the metaphorical cross-pollination between computer sciences and biotechnology produces more than a structural resemblance, meaning, if it triggers a pragmatic difference conditioned by an affective resemblance. That is, can the combination of various variables produce more than an authoritarian solution to construct a field of problem that takes us on an explorative journey? In producing changes from a pre-existing equation, can algorithmic iterations truly actualize variational differentiation? Can an algorithmic approach to architecture be thought of as an “envelope of potentials from which either a single or a series of instances can be taken,” or does it only image the reality of “a fixed prototype that can be varied?” Put

354 Ibid.
355 Hensel, Menges, and Weinstock, Emergent Technology and Design. Towards a Biological, 56.
356 Lynn, Animate Form, 14. (emphasis in the original)
357 Ibid.

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otherwise, can algorithmic unification of structures and behavioral functions produce possibilities rather than pre-given probabilities? Can the generated form overspill the mathematical rules dictated by the algorithm?

Following mathematician René Thom, Isabelle Stengers explains that mathematical language should not “reduce the multiplicity of sensible phenomena to the unity of a mathematical description that would subject them to the order of resemblance.” Mathematically, she clarifies, should instead “construct the mathematical intelligibility of their qualitative difference.” She adds, this time referencing Benoit Mandelbrot’s fractal mathematics, that we ought to think of mathematics in terms of the creation of “a language that opens up the possibility of ‘encountering’ different sensible forms, of reproducing them, without for all that subjugating them to a general law that would give them ‘reasons’ and allow them to be manipulated.” That is, mathematics should be thought of as a set of enabling constraints rather than as a series of imposed limits. It should figure processes of heterogenesis rather than transcending explanations. Here, Stengers’ approach to mathematics enables us to ask how computational morphogenesis can produce more than new forms wrapped upon conventional modes of living? How can algorithmic iterations be continued into the process of inhabitation to trigger encounters between sensible forms? That is, can the variations from the initial form actualized in algorithmic iterations also serve as the basis to create other forms?

Situating their practice “beyond the creation of exotic shapes that are subsequently rationalized for constructability and superimposed functions,” the architects of the new paradigm momentarily make us think that they will finally move to the sensible realm by giving

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358 Stengers, The Invention of Modern Science, 156.
359 Ibid.
360 Ibid.
us insights on the modes of inhabitation their constructions induce. However, in lieu of grasping the opportunity, they linger on a descriptive mode, explaining their practice as promoting “the unfolding of performative capacities and spatial qualities inherent in the material systems [they] construct.”

In the blink of an eye, they dwindle, if not completely expunge the poetic and inhabitation potential of their own practice.

Despite appearing to break with the spatial and temporal fixity of structures, architectures that belong to the biological paradigm make computational materialization the sovereign focus of their practice, ascribing virtuous capacities to computational tools, returning to a principle of organization rather than one of conditioning. That is, the final form, even if slightly different from its initial parameters, results from a given set of parameters, from a series of pre-coded or pre-determined set of activities (in the particular case of algorithms, instructions are actually executed rather than performed). While the three architects refuse to reduce their practice to the peculiarities of a specific medium, pleading for a transmaterial approach that covers investigations in fibers, textiles, nets, lattices, branches, cells, mass components, casts, and aggregates, the forms they produce, and here I am paraphrasing Greg Lynn, can be said organic not because they signify, symbolize or express life, but only because they cannot be reduced to ideal forms. Nonetheless, the architect’s focus on materialization illustrates how abstract forms, or forms-of-design, are not directly linked to concrete forms. This unspoken reality brings them to emphasize the diverging tendencies proper to technical concretization in a way that is however unbeknown to them.

Tied to behavior but lacking the pragmatism of dwelling and inhabitation, the biological paradigm’s depiction of “emerging” modes of inhabitation shines by its absence. What its forms herald as habitual patterns of activity also remains obscure. Instead of straining life into

362 Ibid.
computational algorithms, biotechnique and proceduralism create forms that recompose “the experience of inhabitation” as opposed to form that repeat the organizational and evolutionary logic of natural forms. As Ruyer brilliantly explains, “biological organization is the real problem of biology and not its point of departure.” In brief, the biological paradigm breaks its alliance with biotechnique and proceduralism because it produces forms that ultimately invite conventional modes of living. That is, it produces forms that do not interrogate the experience of inhabitation.

In celebrating emergence as fundamentally tied to novelty, they unwittingly link their practice to a form of neofunctionalism endowed with descriptive and heuristic rather than inhabitation value. What is missing from their discourse and practice is a spatial concept that would bestow their practice with a direction, a purpose or aim (the intentional removal of “need” in from Kiesler’s “need-morphology comes into clearer focus). Here, it is not functionalism but emergence that “relieves the architect of responsibility to his concept.” To avoid escalating further down in the unproductive drain of negativity, let me now move to Oksiuta’s Biological Habitats.

The Non-Psychoanalytic Womb: The Architecture of Isopycnic Life

Polish architect Zbigniew Oksiuta also dramatizes the validity of his practice. Opening one of his papers with a reference to grey goo, a term coined by nanotechnologist Eric Drexler in Engines of Creation to describe an end-of-the-world scenario in which self-replicating robots are consuming all terrestrial resources, Oksiuta cautions the relevance of his practice by exploiting

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365 Frederick J. Kiesler, “The Electric Switch or the Switch to Process Architecture,” in Selected Writings, ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 116.
the catastrophic scenarios that feed alarmist environmental discourses. Looking at the biosphere as a potential victim of technological ecogaphy, he relies massively on rhetoric of emergency to warn us against the irreversibility of the exploitation of non-renewable resources. We, he tells us, “are transforming our biosphere into an inimical space for life.” Introducing the aim of his practice in a much less calamitous manner, he describes it as actualizing a passage from “the over-exploiting economy of linear systems to the cyclical economy of Nature.”366 Here Oksiuta is paraphrasing Fritjof who argues for “the main conflict between the economy and ecology results from that that the phenomena of Nature are cyclical, whereas technologies of humans are linear.”367 Despite the drama entailed in his argument, which implicitly describes his practice as the presage of a better world, Oksiuta’s intervention is timely in that it forces us to think of ecology and the environment as forms of commodification. Forcing us to refuse our contemporary environmental finality, which is ingrained in the commodification of the environment, he paradoxically (and naively) suggests for organic materials to be endowed with the capacity to escape the ready-made channels of material exploitation and commodification. 

Situating his practice beyond biological codes of “co-relation, differentiation and determination,” he links it instead to “undifferentiated and unordered cellular growth.” Investigating the capacity of living materials to act as form givers “without any prior aesthetic of formal interference,” Oksiuta does not seek to mimic life forms. In close connection with the biological paradigm, his explorations are informed by the interplay between simulation, information and materiality. At the intersection of what curator and arts critics Jeans Hauser calls wet and dry grids of production, Oksiuta, Hauser writes, uses “direct material systems (a mix of

367 Ibid.
liquids and solids) for calculating form, instead of imposing simulated geometrical concepts on material, thus inverting the direction of thought.\textsuperscript{368}

Oksiuta’s definition of architecture, however, is far from inverting the direction of thought. The basic task of architecture, he conservatively writes, is to construct “a spatial boundary between surroundings an interior.”\textsuperscript{369} In sharp contrast with Simondon’s chronotopeological structures, his membranes follow Dorion Sagan’s view according to which “the future of life may exist only inside ecological enclosures.”\textsuperscript{370}

\textsuperscript{369} Zbigniew Oksiuta, \textit{Breeding the Future}, 50.
\textsuperscript{370} Ibid., 53.
Oksiuta thinks of the dividing border between the inside and the outside as immanent component of the system as opposed to a foreign body, describing his *Biological Habitats* as dynamic membranes whose energetic exchanges can trigger self-organization and morphological changes. Put otherwise, *Biological Habitats* question the ways in which systems, when exposed to external forces, self-organize from within and feed back their internal organization by enacting morphogenetic changes. Oksiuta investigates the viscosity of membranes, their internal friction and surface tension to produce petri dishes at architectural scale. Petri dishes are sealed orders and sterile environments used to culture tissues and cells in biological laboratories. Usually made
out of plastic or glass, Oksiuta proposes to soften their sealed order by replacing hard materials with biopolymers. While polymers are usually used as scaffolds to stimulate the form-taking of cellular growth, Okisuta’s polymers move from scaffold to surrogate. Introverted biospheres, jelly-like rigid membranes, Oksiuta’s Biological Habitats ultimately behave like bioreactors (actualizing the passage from scaffold to surrogate). A bioreactor is a device used in tissue culture (among a variety of other fields) to sustain living cells and tissues by providing them with the necessary conditions for growth and division. Emulating the conditions of natural bodies (37°C, 5% CO2), bioreactors supply nutrients and other biological agents, remove waste, maintain homeostasis, keep the interior sterile while sometimes inducing microgravity conditions. Bioreactors also host a degradable matrix scaffold onto which cells are seeded to stimulate the attachment of cells in addition to inciting their 3D development. In this context, polymers pass from static molds to dynamic generative environments. Even if Oksiuta’s membranes are in some instances closed to their surroundings, what is innovative about his approach is that instead of starting with the concept of form, it starts with the notion of generative environments, defining forms as form givers from the onset. Here Oksiuta also formulates a pragmatic definition of aliveness. In emphasizing how order in artificial systems comes from without, he sheds light on the impossibility of creating buildings and architectural structures that truly behave like life forms. In so doing, he unspokenly renders visible how aliveness is a relational form of activity rather than an inherent characteristic of an organism.

Looking at both the biological potential of lifeless materials and at “life forms with a biological future,” Okiuta’s practice is construed around three central themes in biological sciences: membranes and self-organizing systems (which have already been introduced) as well as gravity. Let me now move to his gravitational inquiry, which, it was said in the beginning of this chapter, transduces Kiesler’s technique of suspension into a technique of weightlessness.
**Isopycnic** Life: Weightlessness as Form of Relation

The painter Millet used to say that what counts in painting is not, for example, what a peasant is carrying, whether it is a sacred object or a sack of potatoes, but its exact weight. This is the postromantic turning point: the essential thing is no longer forms and matters, or themes, but forces, densities, intensities.

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Oksiuta’s exploration into gravity is informed by low gravity fluid dynamics, a reality regrouped under the terminology “isopycnic.” Isopycnic is an adjective used to describe medium of the same density and, in the specific context of Oksiuta’s practice, the terminology is used to refer to a system into which two liquids of the same density are bounded in a state of

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weightlessness. Following this relational logic, Oksiuta works with neutral buoyancy and weightlessness to shape forms, relying specifically on pressure and temperature to regulate the volume and density of liquids. *Isopycnic Systems* and *Spatium Gelatum* are two persuasive interventions into this physical and poetic reality. Grown under different gravity conditions on earth, *Isopycnic Systems* and *Spatium Gelatum* are 3D membranes at the human scale; “flowing morphologies” at the molecular level; spaces that "ensure the circulation of energy, material and information" through liquid medium in milieux devoiced of gravity conditions. Oksiuta explains that gravity does not play an important role at the molecular scale, making viscosity, elasticity and surface tension decisive factors. Here Oksiuta insists on weightlessness as conditioning the capacity of a form to give rise to a form. Referencing embryonic development, he explains, “the state of neutral buoyancy is indispensable” to enable “the spatial morphology of the fetus.”

While the influence of the force of gravity increases during the growth of the fetus, embryonic development, he tells us, “is impossible in the gravitational field.” Despite his conservative take on the function of architecture, Okisuta formulates a pragmatic definition in virtue of which architecture is considered an inorganic membrane that catalyzes exchanges of information, which dynamically connect organic and inorganic bodies. Oksiuta, however, does not address the modes of inhabitation induced by his grown structures. Instead, he lingers on his ecological concerns to formulate a new age proposition that partially, if not completely vaporizes the pragmatic implications of his practice. His architectures, which he defines as biospheres, he tells us, “could be sent into space, as universal sperm to inseminate the cosmos with life.”

There seems to be no meaningful reason to dwell on this proposition, especially that his inseminating sperm does not give us cues on how we could inventively inhabit its fecundated environments. While Oksiuta

373 Ibid.
formulates a spatial concept that guides his explorations, he fails at prolonging it into modes of inhabitation. That is, despite considering forms as form givers form the onset, he does not provide any indications on the qualities or expressions of these emerging forms. In other words, he also celebrate emergence as a generic form of order.

Bioarchitecture: Architecture of the Non-Habitation Kind?

Functionalism is standardization of routine activity.\(^{375}\)

To paraphrase Walter Benjamin, the “crisis” of bioarchitectecture is a crisis of the conditions of the modes of exhibition of political beings. In emphasizing connections between architectural forms and biological processes, and in overlooking both the induced modes of inhabitation and their potential impact to effect perceptual changes that give rise to social transformations, the new biological paradigm and Oksiuta’s Biological Habitats replace political value with display value. In massively relying on alarmist discourse on the one hand, and in celebrating emergence on the other, the shining absence of modes of inhabitation is dazed innovative by discourses whose statements act as sovereign forms that shadow the forms of visibility produced.

While Oksiuta and the new biological paradigm insist on emergency or novelty to validate their own practice, Kiesler and Arakawa and Gins invent techniques of precarity, whose validity is not uttered but experienced within, along and among the co-individuation process of architectural bodies and surroundings. Transforming novelty as generic form of order and catastrophic discourses in affective and mood cycles, biotechnique and proceduralism move “emphasis from the conditions of a genesis to the absolute genesis of the mutual exchanges

\(^{375}\) Frederick J. Kiesler, The Electric Switch or the Switch to Process Architecture, 116.
between forms, structures and temporal sequences.” In addition, instead of focusing on discourses, they rather produce aimful propositions that act as enunciative events, which operate of a non-reductive correlation between heterogeneous series of discursive and non-discursive formations. In so doing, they successfully make us think and not recognize by keeping wonder and mystery alive.

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Chapter 4
Building Beyond Gravity

Part I
Architecture as Technique of Gravitation: From Endless Space to Weightless Movement

Churchyards have more space for the skeletons of the dead than our cities have for the lungs of the living. (…) We will have no more walls, armories for body and soul, nor armorized civilization; with or without ornament. We want:

1. Transformation of the surrounding area of space into cities.
2. Liberation from the ground, abolition of the static axis.
3. No walls, no foundations.
4. A system of spans in free space.
5. The creation of new kinds of living, and through them, the demands, which will remould society.\textsuperscript{377}

City in Space is more than a neoplastic intervention, that is, more than an abstraction of nature concretized in “denaturalized” forms; an expression used by Mondrian to describe forms that mix vertical and horizontal lines with a combination of black, white, grey and primary colors to break free from naturalistic representation. Weightless city without plan, program or anchor, City in Space prefigures both the oblique function and the aerodynamics of space vehicles. Not only refusing to represent nature, it proposes to explore the cosmos without completely abandoning the earth. Bringing the sky closer by virtue of lightness, the ascension proposed is not actualized by rocketry as vertical propulsion, but by action at distance as transpositional survol, what Kiesler terms endless space.

Departing from the impossible interchange of nature and human’s methods of building, endless space is the biotechnical chrono-topological structure \textit{par excellence}. Imaging the reality

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of an unnatural\textsuperscript{378} participation with nature, endlessness is a technique of mutative continuity that gives rise to alien forms of spatio-temporal determinations (which remain determinable due to their metastable reality). Informed by an immersive continuity between inhabitants and their surrounding environment, it seeks to activate new confluences between mentality and physicality to create continuity of the living kind. Materialized as sculptural performance, it emerges out of experiments with equipotentiality and thematic continuity. These experiment provide basis for speculation on how the abstract reality of materiality triggers psychic individualization to incite new forms of actions. Evoking and convoking imagination in the passage, endlessness ultimately aims at intensifying health. Already felt in \textit{City in Space} (1925), the \textit{Endless Theater} (1926) and the \textit{Space House} (1933),\textsuperscript{379} the spatial concept, architectural percept and transpositional affect is more directly addressed by \textit{Galaxies} (around 1950) and most particularly by the \textit{Endless House} (1950). The \textit{Endless House} continues \textit{City in Space}’s take off from the architectural plan to give rise to an absolute form that hovers over all of Kiesler’s work. Straddling between architecture and the scenographic distribution of paintings in galleries, endlessness is more than a banal paradigm of connectivity.

\textsuperscript{378} I borrow this term from Brian Massumi. See Brian Massumi, \textit{What can Animals Teach Us about Politics} (Durham: Duke University Press, 2014).

\textsuperscript{379} For an excellent analysis of the \textit{Space House} see Beatriz Colomina, “La Space House et la psychée de la construction” in \textit{Frederick Kiesler. Artiste-architecte} (Paris: Centre Georges Pompidou, 1999) 67-76. Colomina explains that the pillar belongs to the exhibition space and not to the house.
Galaxies: Qualitative Dimensioning as Bodily Modulation of Space

Kiesler thinks of the enclosure of the exhibition room as a “3D frame without end.”\[^{380}\] Breaking “through the borders of the finite, the prison of the frame,”\[^{381}\] he interprets the frame as both “symbol and agent of an artificial duality of ‘vision’ and ‘reality,’ of ‘image’ and ‘environment.’”\[^{382}\] Comprising a minimum of three and up to nineteen two-dimensional pieces

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\[^{380}\] Frederick J. Kiesler, “Towards the Endless Sculpture [1956]” in _Selected Writings_ ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 55.

\[^{381}\] Frederick J. Kiesler, “Space House” in _Architectural Record_ LXXV, January 1934, 20.

\[^{382}\] Frederick J. Kiesler, _Note on Designing the Gallery_, 1942.
assembled together into the unity of a single piece, *Galaxies* \(^{383}\) brings the intervals between elements, and the elements themselves into continuous flow. In this context, as Jose Gil tells us, the “material gives form to the immaterial” \(^{384}\) to bring about a conception of space understood as a “set of relations.” \(^{385}\) *Galaxies* creates continuous tension that gives rise to mutative spatial relations between living bodies and technology. Instead of using natural forms as systems of proportions to be represented in space, it envisions human beings as nucleuses of forces in relation with space. Proportions, like substances, could only lead to misplaced concretion.

Space, by this account, is a set of relations “modeled by the body,” \(^{386}\) which acts as an absolute unit of indivisible measurement. \(^{387}\) Here Gil explains that qualitative dimensioning is not a reality of the objective and metric kind, but rather a bodily capacity independent of any external standards of measurement. The body is hence said to create continuity from a diversity of discontinuous spaces \(^{388}\) by using its self-measuring capacities. Here the body as indivisible unit of measurement also images a peculiar form of transpositional movement. In Greg Lynn’s own terms, “a position in space can only be calculated continuously as a vectorial flow position without sequentially calculating the positions leading up to that moment.” \(^{389}\) In the realm of galactic dimensioning, “every dimension, every direction of space becomes a modification of the body.” \(^{390}\) Galactic dimensioning can thus be described as a creative “manipulation of a flow of parameters in time.” \(^{391}\) In brief, Kiesler’s gestural approach to qualitative dimensioning describes distance as an experiential non-dividable, contrasting the assumed correspondence between

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\(^{386}\) Ibid., 125

\(^{387}\) Ibid.

\(^{388}\) Ibid., 126-27


dimensions an economic calculation. The qualitative dimensioning of the elasticity of elements held together in tension renders visible a solidarity of differences held together in disjunctive plurality that makes biotechnique an etho-ecology of distances.

Figure 27: Frederick J. Kiesler, Galaxy (1947-48) © MOMA

By inviting its visitors to qualitatively continue the piece’s dimensioning of distances, Galaxies diagrams correlative forces and disrupts contemporary display techniques based on framing, bordering, isolation and division. Instead of focusing on how an individual framed piece can overspill the negative constraints of its own determining parameters, Kiesler imagines the pieces as collectively weaved in a concrete assemblage. Here, the interval images continuous
tension to signal the possibility of a correlation. “An interval,” writes Simondon, “signifies the possibility of a relation, and a relation implies an operation.” 392

By (un)framing depth and relief, Galaxies invites its visitors to imagine the continuation of what ends physically, inciting, inspiring and provoking them to contribute to the production of an “ever-expanding new totality.” 393 If the galaxies “actually end (physically),” Kiesler explains, “their capacity to inspire continuity would still be great, in that the observer could go on adding more and more units according to his own imagination.” 394 Today, the participation of visitors in the museal experience is a common thing. What is less common is the transposition of this relational reality to architecture beyond the paradigm of interactivity. As Greg Lynn claims, interactivity often negates community to focus on individuality. 395 In the light of Lynn’s claim, galactic dimensioning is not to be understood as an individual choice that would turn the inhabitant into a consumer. As Montreal-based artist/architect Jean-François Prost explains, in architecture, the possibility of an interaction is not sufficient for generating a correlation. That is, even if a building integrates relational and interactive possibilities, a trigger, an activator, is needed for the process to unfold. 396 Thus the relevance of Kiesler and Arakawa and Gins’ architectures, which, as it was said in Chapter two, integrate qualitative dimensioning and proprioceptive cues that are not mere invitations to actions but rather obligations irreducible to individual choices.

392 Gilbert Simondon, L’individu à la lumière des notions de forme et d’information, 557.
394 Frederick J. Kiesler, Toward the Endless Sculpture [1956], 55.

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To Color Time: Endless Space as Form of Opacity

Color-Forms are the easiest, cheapest, quickest way of transforming a space in accordance with a vision. If you have no money, you have to get drunk on a pot of paint.\textsuperscript{397}

The big thing was that the interior space was created by the light and not by the physical confines of the room.\textsuperscript{398}

Extending Galaxies into architecture, the Endless House is a gnarled, sinuous and porous construction that evokes the texture of a crater. Capturing the symbolic imagery of planetary surface, volcanoes and caves, it figures the geological activity of explosive, erosive, lava-like, gaseous, nuclear, hydraulic, eolian and celestial forces. The house is however not sunken below its architectural surrounding as the result of a depression. Liberated from the determining constraints of the ground and sculpted in clay, the “triple interplay of shells, one hollow laid within another, like broken eggshells,”\textsuperscript{399} is the prototype of a single-family house ready to take off. Correlating life’s finalities in the reality of a monolithic shell, the flattened spheroid shows no boxes, no square, no glass, no steel, and no aluminum, frontally opposing the modernist grid and International Style. Not designed at scale, its pragmatic implications move beyond an architectural imposture, that is, the small-scale model is more than the prototype of a rickety construction at large scale.


\textsuperscript{398} James Turrell quoted by Rachel Tie, “Artist James Turrell creates intense sensory experiences,” Claremont Graduate University, http://www.cgu.edu/pages/10663.asp.

\textsuperscript{399} Kiesler, Toward the Endless Sculpture, 56.
Figure 28: Frederick Kiesler, Endless House © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.

Figure 29: Frederick Kiesler, Endless House Plan © 2015 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.
Alive not because its form resembles a life form, meaning a form that cannot be reduced to an ideal form, the *Endless House* is more than the reminiscence of an organic form, as suggested by its ovoid shape. The house is a living occurrence shaped as anexact sphere that expresses a quality of vagueness as opposed to one of ruled objectivity. Kiesler insists on the distinction between the visual representation of a static egg-shape and the active expression of a spheroid form, associating his house with the latter. It is important here to note that the spheroid shape is not to be equated with an ideal platonic form. In the words of Peter Sloterdijk, spheres signal a tension between opening and impenetrability. “One could say,” Sloterdijk tells us, “that spherical space is also co-determined by an enigmatic character (...) A great deal of what it entails always remain vague, opaque, dim and in a sense resisting.”400 Doubling the enigmatic and resisting power of the sphere with social power, Kiesler argues for intergenerational relations to maximize livable space.401 “The spheroid shape,” he clarifies, “derives from the social dynamics of two or three generations living under one roof.”402 The *Endless House* is thus an individual house acting as embryonic cell, a nucleus of collective life whose anexact formalism expresses vagueness, opacity, and dimness without however provoking a dive into darkness.

The passage of time that is characteristic of the co-existence of several generations living in a single house is integrated in the design in the form of a lighting system. To consolidate its resisting opacity, the *Endless House* modulates time by integrating a scenic interplay between a prism and convex mirrors, which act together as a clock that colours time (instead of calculating it). In the *Endless House*, Kiesler tells us

daylight is transmitted through a prismatic glass crystal of three basic colors, gradually shifting to each in turn from dawn to dusk. The rays are filtered through the interior through a convex mirror, and the dweller can gauge the hour by the color of the tinted light around him. Instead of depending solely on a mechanical clock, splintering his life into minute particles of time, he becomes aware of the continuity of time and of his own dynamic integration with natural forces.\footnote{Frederick J. Kiesler, \textit{Endless House and its Psychological Lighting}, 50.}

The form of the house is thus pragmatically produced by the modulating activities of a family whose multigenerational character maximises liveable space, and, at the same time, as the configuration with the least resistance to inner and outer stress, meaning as the configuration that optimizes the distribution of light throughout the entirety of the interior surface. Making the distinction between the inside and the outside relative, the house becomes the reality of a durational occurrence better described genetically in relation to what it triggers bodily, rather than visually in relation to what it represents. That is, the resemblance with life forms is an effect of the pragmatic kind, rather than the trigger of an association or correspondence.

\textbf{Finality in the Cycle of Life}

\textit{Je me souviens que dans la Endless House les sols étaient traités comme des surfaces courbes qui semblaient bouger sous nos pieds. Ils n’étaient pas plats et, lorsqu’on y marchait pieds nus, le mouvement vertical du corps joint au déplacement horizontal nous donnaient la sensation de voler.}\footnote{Frederick J. Kiesler, \textit{Endless House and its Psychological Lighting}, 50.}

Transposed to architecture, Kiesler’s galactic dimensioning ascribes the same value to the elements that compose architectural space (floor, ceiling, walls, etc.) and to their in-between space, formulating a design strategy informed by an equipotential continuing-across. Shell in continuous tension where walls, floors and ceilings are self-supporting, the \textit{Endless House} is composed of segments rather than rooms. By coloring time, Kiesler changes cubist forms into endless space, abolishing the division of space into floors, ceiling and walls, and, in the same

stroke, punctuating the distinction between finality and enclosure. Eliminating the “separation into floor, walls, roof, and column,” the floor of the Endless House “continues into the wall, the wall into the floor,” creating continuity by “conversion of compression into continuous tension.” This continuity in tension bears witness to the power of the encounters of life’s finalities to transform urban and domestic forms and structures into procedures that invent atypical modes of inhabitation. It renders visible the excess of potentials generated by the endless encounters of life’s finalities, and the potency of that excess to activate novel forms of inhabitation. This is because endlessness is not tantamount to eternity but to infinity (as correlated with finality). Here infinity bears connection to visibility for, in a counter-intuitive manner, entails finality, which is commonly understood as its opposite, very much like visibility alludes to invisibility. The Endless House, writes Kiesler, “is called ‘Endless’ because all ends meet, and meet continuously.” Named Doktor Raum (Space Doctor) for his rupture with confinement, Kiesler integrates endings and finalities, working within the impossibility of their negation, seeking to architecturally construct the unnatural continuity of their chrono-topological reality. Acting as a system of energetic forces that rhythms life’s uncertain finalities rather than as a contouring that brings certainty by determining the path to an ideal finality, the Endless House is “a nucleus of new forms of life in coexistence with man’s mental, physical and social circumstances.” Endlessness is thus an anti-functionalist concept influenced and inspired by the cyclical rhythms of life.

405 Excerpt of: Frederick J. Kiesler, ”Notes on Architecture”, in Hound and Horn, January-March 1934.
406 Ibid.
407 Ibid.
409 Colomina, La Space House et la psychée de la construction, 69.
Psychic Cycle

Actualized along the polarized continuum between mentality and physicality, the cyclic
time of life seems to predominantly convoke the mental pole, bringing Kiesler to ask, “does the
architect have the right to the unconscious?”⁴¹⁰ For historian of architecture Beatriz Colomina,
Kiesler’s work replaces “the material condition of a building and its mechanical functioning (…) by sensuality understood as psychological pleasure.”⁴¹¹ Similar to Silvia Lavines’s reading of
Richard Neutra’s architecture in Form Follows Libido, Colomina argues for the material-
mechanic concerns to be transformed into psycho-sexual experience.

Architectures of aliveness refuse to subside the analytics that emerge at the intersection
of phenomenology and psychoanalysis, a synthetic view that has assumed passive authority in a
variety of architectural circles over the last decades. Architectures of aliveness embrace the
possibility of a sexual and sensual relation with architecture, where to inhabit means to be active
in a joyful, pleasurable, orgasmic and ecstatic manner, whether soft or rough. What architectures
of aliveness negate is the consideration of the Endless House as the symbol of a return to the
womb and the feminine.⁴¹² Between enjoyment (jouissance) and reproduction, the feminine sex
performs a double function in that it gives both pleasure and life to humanity, indubitably
presenting itself as a powerful symbol of Kiesler’s endless space.⁴¹³ However, architectures of

⁴¹³ The New Scientist reports a very interesting project by artist Joe Davis. On their website, they explain: In a “sexually charged example of performance art Davis sets out to correct what he feels is a case of censorship in scientists’ efforts to communicate with extraterrestrials. He explains that researchers have
aliveness categorically refuse to sustain this analytical logic for its essentialist construction of gender and sexuality. Without denying architecture as an academic discipline and professional practice dominated by masculine imperialism, a reality partially signaled in both the phallic allure of a spectacular number of constructions, and more intensely in the gender disparity within the profession, architectures of aliveness rebuff the nostalgic view of the birth house, which relates the *Endless House* to the womb.\footnote{414}

Replacing the psychoanalytical focus with the energetics of proprio-spatial dynamics and transpositional continuity, architectures of aliveness insist on the modifications of experience actualized in the cyclic process of the mental-physical polarization, which recalibrates modes of knowing, thinking and doing. Orienting the light beam on how endlessness modifies and activates the intended use of architecture to not only intensify health but also enhance the character of domestic and urban environments, architectures of aliveness follow Kiesler’s own statement, “the form of the house is an organic force linked to the movement of the body’s proprio-spatial dynamics.”\footnote{415}

Architectures of aliveness yield answers to life’s intensification, linking Kiesler’s energetic approach to William James’s *Energies of Man*. We, James tells us, “live subject to

\begin{itemize}
\item sent images of an anatomically correct man into outer space but the image they sent of a woman lacked genitalia. To right this wrong, Davis transmitted the sound of vaginal contractions of ballet dancers to several nearby stars. The audio recording was beamed from MIT’s Millstone Hill radar for several minutes before the United States Air Force shut him down.” Phil McKenna, “The mad scientist of MIT? *New Scientist*: http://www.newscientist.com/blogs/culturelab/2012/03/the-mad-scientist-of-mit.html.
\item I am equally refusing the formalist representations of gender as notably figured in the architectural layout of Duke University’s campuses, the institution where I am presenting this dissertation. In an excellent paper by art historian Annabel Wharton, who teaches at Duke, we learn that the institution originally promoted its West Campus as the manly campus insisting on the correspondence between men’s hard labor and those demanded by the neo-Gothic style architecture of West Campus. In opposition, the Georgian style of East Campus, with its perfect symmetry was said to figure the “softness” of the female campus. The University brochures even show men working in laboratories and women knitting and discussing in their dorms. See Annabel Wharton, *Gender, architecture and institutional self-preservation: the case of Duke University* (Durham: Duke University Press, 2002).
\end{itemize}

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inhibition by degrees of fatigue which we have come only from habit to obey.” “It is notorious,” he adds, “that a single successful effort of moral volition, such as saying ‘no’ to some habitual temptation, or performing some courageous act, will launch a man on a higher level of energy for days and weeks, will give him a new range of power.” Kiesler’s own architectural term for James’s “second wind” is Magic Architecture. Magic here means wonder as a pragmatic social form of relation irreducible to a mystical, new age or esoteric practice. Magic architecture, Kiesler tells us, “performs wonder in the development of mankind (…) magic architecture is a generator (…) its magic consists solely in the discovery of capacities in the natural core of a being.” It is thus within, among and along the psychic cycle, which figures energies that also impact physicality, that endlessness becomes a relation of the sensual and erotic kind. Without claiming the launch of a courageous effort of volition as the exclusive possibility of an architectural orgasm, the sensual power of endlessness is here problematized as energetic relation, and more precisely as the erotic energetics of proprio-spatial dynamics.

**Contemporary Forecast: What Finality for Endlessness?**

It is now time to bring endlessness’ own finality in dialogue with contemporary figure cases that prolong its operational form. In so doing, endless space is brought to the level of praxis, described by Simondon as “a tendency towards the development of an already begun act.” Kiesler’s cosmological architecture forecasts a number of weathered experiences that induce unnatural modes of attachment. Like a crystal that can individuate again when put back in its

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417 Ibid.

418 Frederick J. Kiesler, “Magic Architecture” in *Selected Writings* ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 34.

solution, these weathered experiences are today reactivated in practices that create meteorological patterns of their own kind. Refusing to consider contemporary works as banal instantiations of Kiesler’s pieces, this chapter describes them as sequels that exhort, prolong, transform, transduce, rearrange and reinvent endless space’s modes of activation. Before we move forward in the chronological time of art and architecture history, let me first recapitulate how the opacity of Kiesler’s unnatural continuity propels endlessness into weightlessness. That is, how transpositional survol is also a form of (non-vertical) rocketry. The ambivalence between the moving experience of weightless movement and the propulsion system proper to rockets is here a correlation meant to sustain wonder.

Endlessness proposes to apprehend the architectural possibility of survol as conditioned by the galactic dimensioning of heterogeneous elements. Technique that invites the body to continuously renegotiate its relation to the elements actually and virtually present across the surface it is hovering over, endlessness suggests for transpositionality to be conditioned by a qualitative dimensioning of distances. In its capacity to grasp the totality of a field according to a principle of ubiquity, endless space interrogates our sense of weightedness and weightlessness instead of framing our experience to orient it. To qualitatively dimension distance in absolute survol is thus to work with techniques of levitation and gravitation, or, in other words, with techniques based on movement across surfaces rather than movement along axes from point to point. To qualitatively dimension distance is to continue along and across; it is to fly in absolute ubiquity along a surface; it is to navigate cosmologically “in a state of eternal readiness for action, motion, and radiation.”

It is to navigate Portuguese style, that is, without a compass. Enveloping its inhabitants in the dynamism of a floating structure, using levitation to trigger

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spatial changes that force new proprioceptive combinations, endlessness recalibrates the sensorium and echoes Roberto Matta’s idea of an architecture that could “get out of shape” to “fit our psychological fears,” and relieve “the body of all the weight of…[its] right-angle past.”

Premonition of the design of the International Space Station (ISS) and of the daily reality of cosmonauts and astronauts living in microgravity conditions, Kiesler’s inquiry into endless space coincides in chronological time with milestones in the field of outer space science and technology. These historical landmarks include, but are not limited to three events: (1) the launch of the first V2 missile in Germany in 1942; (2) the launch of the first American rocket, the Bumper rocket from Cape Canaveral, Florida in July 1950 and; (3) the first rocket used to reach outer space, the R-7 ICBM, which launched Sputnik on October 4, 1957. Moving forward in time, the interpenetration of shells that is characteristic of the Endless House, and the emphasis on galactic dimensioning rather than on individual forms, also bears connection to the docking and sewing system of the International Space Station.

The experiential density and temporal thickness proper to endless space as a surface of emergence is magnified when linked to rocket science as vertical transportation. The correlation between rocketry and endless space does not lead to the substitution of transpositionality for a grid-like conception of verticality. Rather, it fulfills a psycho-function that effects a pragmatic rearrangement. Instead of turning the canvases of City in Space and the surface of the Endless

422 There is an amazing story about the manner in which the Russian and American modules were assembled. According to Bernard Foing, an astrophysicist at the European Space Agency, none of the space agencies wanted for their module to embody the female part of the docking system. The docking system developed by Vladimir Syromyatnikov, Androgynous Peripheral Assembly System (APAS), is a structure that responds to the refusal of both agencies in that it takes the form of an androgynous locking alliance that does not entail the female/male distinction. NASA’s space engineer Robert Howard denied this statement. A monument commemorating a “warm” alliance between two nations whose relations were historically qualified as “cold” is found in on Reunion Island. http://www.spacesafetymagazine.com/spaceflight/rendezvous-docking/vladimir-syromyatnikov-father-apas-honored-reunion-island/
House into an annunciation of the exponential proliferation of screens and surfaces of projection in today’s urban and domestic life, vertical transportation and rocketry move the focal point onto the modification of experience generated but the ubiquitous reality of thematic continuity. The dynamic correlation between Kiesler’s architecture and rocketry reinvests the exhilarating trauma of the mother’s womb as the most primitive form giver into the cosmopolitical reality of outer space exploration. As Bruno Latour beautifully, provocatively, and satirically writes, “if cosmopolitan is an adjective fit for a fashion magazine, cosmopolitics, on the other hand, is the duty of the future, the only way to build the common Domus.”

Pause

This chapter inherits unexplained data from the previous chapters, facing the obligation to rework a disparity of elements. Instead of reiterating the unresolved propositions, it starts (restarts, or continues?) with a new figure case that introduces new concepts. The objective is not to obfuscate what was left unanswered in the first three chapters, but to bring Kiesler’s work, and particularly his concept of endless space, in dialogue with actual scientific practices.

The peculiarity of this chapter is that it starts with science to exacerbate its genetic role. Approaching artistic and scientific practices in their own terms and on their terrain, it gives them equal weight to put emphasis on the pragmatics of their effectiveness. Taking off with a neuroscientific inquiry, without however bestowing greater value to scientific protocols, the aim is to activate new technological and aesthetic forms of belonging.

Architectures of aliveness propose an analogy between Kiesler’s proprio-spatial dynamics and space orientation. The aim here is to insist on space orientation as an abstraction

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that produces polarized contrasts along the cross-referential reality of the mental-physical continuum. Drawing upon life in weightlessness to question the modes of orientation proper to absolute survol, the suggested analogy introduces spatial orientation as an incipient mode of attachment to the non-local movement of life. Orientation highlights the non-mechanistic character of movement to emphasize spontaneity, self-motion, self-determination and action at distance proposing in the same movement to hold a nuance between mechanist and organic movement. As Canguilhem tells us, “what distinguishes biological movement from physical movement inertia from tendency, is orientation.”\footnote{424}{Georges Canguilhem, The Knowledge of Life, xx.}

Moving between the rational geometric and the mystic-organic, this chapter echoes what was already said in the introduction. That is, it categorically refuses to reify the dualism between social sciences, humanistic approaches and science-based practices. Oscillating between popular and scientific imagination, it rejects the opposition between aesthetic inspiration and scientific rationalization, between the functionality of outer space habitats and the aesthetic of experimental architecture. Following Greg Lynn, architectures of aliveness look at space modules as “the tool of the situation, without aesthetic sophistication, far from perfection, purity and the celestial”\footnote{425}{Greg Lynn, Greg Lynn and Giovanna Borasi se rencontrent à Venice, Los Angeles, à l’automne 2009, 55.} to speculate on the aesthetic potency revealed in a lack of sophistication. Speculation, however, is not “a freedom to engage in some sort of mythical-mystical enthusiasm giving in to a poetic license with the power to break away from what would be an old-fashioned rationalism.”\footnote{426}{Isabelle Stengers “Speculative Philosophy and the Art of Dramatization” in The Allure of Things: Process and Object in Contemporary Philosophy (London: Bloomsbury Academic, 2014), 188.}

Constructed within, around and along the correlative field of exchangeability between neuroscience projects that investigate the contribution of gravity to sensory and motor functions, and architectural projects influenced by planetary sciences, life in weightlessness and space
vehicles, the guiding axiom suggests that the integration of gravitational changes in architectural construction effects changes in space orientation that reorder the sensorium to incite and provoke new modes of thinking and doing. Compelling inhabitants to question the level of mental and physical energy they need to reach greater levels of magnitude with their architectural body and surrounds, architectures of aliveness interrogate how the integration of gravitational changes in earthly architectural structures can intensify wellbeing. By investigating the biological, physiological and psychological challenges of life in weightlessness, it asks how experimentation with gravity engages the mental-physical continuum with new aesthetic experiences that open up new modes of looking, seeing, comprehending, and attaching ourselves to the movement of life. Scientifically speaking, the use of the term gravitation could be said an oxymoron. I will leave the apparent imprecision of the terminology in transitory irresolution to first introduce the scientific figure cases, which will serve to illustrate how gravitation is a philosophical concept and an architectural technique whose poetic and affective value is conditioned by scientific rigor.

Sustaining the ludic and joyful pedagogics of biotechnique and proceduralism, this chapter focuses on neuroscientific experimentation that investigate modifications in space orientation in both literal and apparent weightless conditions. More specifically, the discussion concentrates on the ISS and the tumbled room. These two models will be further explored in relation to three architectural figure cases whose distinct fields of problematization will enable an expansion of the disciplinary field of inquiry. That is, this chapter looks at science as a genetic relation to capture the pragmatic effects of endless space, weightless movement, biotechnique and proceduralism as informed by a threefold disciplinary intertwining between psychology, sociology and anthropology.
Part 2: Levitating Architectures

Life in the International Space Station: Space Orientation in Circulation

New sensory-motor strategies emerge in microgravity.427

Part of the difficulty of the people who predominantly rely on visual cues for spatial orientation is a result of the natural tendency to assume that the surface seen beneath our feet is the floor.428

In stark contrast with the crew of the ISS, the Soyuz, Mercury, Gemini, and Apollo crewmembers rarely encountered orientation problems because they remained seated in modules that strikingly look like torture or obstetric rooms. Surface awash with tools, computers, stowage, and machines among other things; the ISS is the model of a transcontinental and multicultural house, which hosts multiple sectors of activity that reach scales far beyond the realm of domesticity. The ISS pictures endlessness at large-scale in at least three distinct manners: (1) the self-supporting character of the orbiting structure; (2) the proprio-spatial dynamics triggered by both microgravity conditions and the design of the interior surface of the station and; (3) the qualitative dimensioning that coordinates the variety of heterogeneous elements it houses. In the ISS (and also in Mir, the former Russian station), to accomplish their daily personal and professional activities, astronauts and cosmonauts are not invited to experiment with microgravity; they are hurled into co-participation with it, as the reality of both their architectural body and surrounding. For them, the experience is both aesthetic and functional. While changes in space orientation force a reordering of their sensorium, what they usually describe as a feeling of gracefulness, it also tackles their efficacy and productivity, making orientation a skill they need to develop in order to successfully perform their laboring tasks. Tricking their eyes, their hands,

their back, their legs, their sense of place, space and self, the ISS is an orbiting configuration that forces their body into postural activity. Fundamental to task-oriented labor and activities, the instrumental rational for sending human beings in space, postural activity is here linked to proprio-spatial dynamics, that is, to proprioceptive experiences that are at once between vision and movement, and yet irreducible to neither.\textsuperscript{429} Postural activity is the metastable result of a complex integration of orientation and motion information issued from visual, vestibular, and somato-sensory inputs. These inputs collectively contribute to a sense of body orientation in addition to coordinating muscle activities in a manner that is “largely automatic and independent of conscious perception and voluntary control.”\textsuperscript{430} So what happens to spatial orientation in the ISS that makes postural activity a procedure of sensory reordering?

\textsuperscript{429} For an artistic exploration of weightless postural activity, see the work of dancer Kitsou Dubois. Dubois gave postural classes to astronauts to increase their sense of position in microgravity conditions.  
http://www.kitsoudubois.com/  
\textsuperscript{430} Clément, \textit{Fundamentals of Space Medicine}, 113.
Figure 30: Space Vehicles mockup 1, NASA JSC (Photo: Marie-Pier Boucher)
Figure 31: Space Vehicle Mockup 2, NASA JSC (Photo: Marie-Pier Boucher)
Proprioceptive Transpositionality: Orientation in Weightless Conditions

The study of psychology has evolved no more certain result than that there are uniformities of mental action which are so entirely conformable to those of bodily action as to indicate their intimate relation to a mechanism of thought and feeling, acting under the like conditions with that of sense and motion.431

Research Chair at Centre national d'études spatiales and Professor at the International Space University, Gilles Clément, a world-known specialist in the field of space medicine, questions the disturbing and destabilizing implications of the absence of gravity and their impact on mental habits. His program of research looks specifically at the ways in which astronauts and

cosmonauts (among other groups, for instance, patients who suffer from vestibular “disorders”\(^{432}\)) estimate their tilted positions (taking the vertical as initial frame of reference) to evaluate distance, depth and objects in 3D environments. Charles Oman, Director of the Man Vehicle Laboratory at MIT tells us, “on earth gravity furnishes a ubiquitous sensory cue that helps us keep the various self- and world-fixed coordinate frames we use for spatial perception, imagery, and actions in proper registration.”\(^{433}\) In contrast, in the ISS, ubiquitous perception occurs in 3D, inducing a reordering of the sensorium, which impinges on habitual patterns of activity. In the ISS astronauts and cosmonauts move at angle between modules, which are themselves connected at 90° angle. This double angularity precludes the co-alignment of all frames of reference and constrains them to constantly renegotiate their capacity to differentiate up and down. Microgravity troubles vision in such a spectacular way that incredible scenarios sometimes occur. Clément reports that a group of astronauts once thought they had lost one of their teammates to realize, at their greatest surprise, that he was “below” them the whole time.

For Clément, the issue at stake with space orientation in microgravity conditions is proprioceptive sensation. The absence of gravity, he explains

modifies the stimuli associated with proprioception and impact spatial orientation, including knowledge of position in the passive limb, difficulty of pointing accurately at targets during voluntary limb movement, modification of tactile sensitivity, and changes in the perception of mass.\(^{434}\)

Conditioned by the integration of angular acceleration with visual and somesthetic inputs, which, in weightless conditions, undergo a modification of sensory signals that lead to misinterpretations and non-adequate responses, proprioception, Clément tells us, arises from

\(^{432}\) Laurence Harris also reports that data collected from this kind of research could be used to help people who suffer from Parkinson. Unpublished Interview. Laurence Harris. Interviewed by Marie-Pier Boucher. Toronto, June 2012.


\(^{434}\) Clément, Fundamentals of Space Medicine, 111.
organs within the body, from muscles, tendons, and joints. For instance, when astronauts and cosmonauts kick their feet on the interior surface to bounce back in the station, their gesture is a technique meant to reactivate their sensory ordering by prompting a reactualization of their proprioceptive sensations.

Despite the compelling implications of proprioception, Clément denounces the lack of research on the topic, pointing to the fact that “there is almost no space study of neck and joint angle sensors, and on the role of localized tactile cues in the perception of body verticality.” It is thus not surprising that the current dominant model to revitalize the deconditioning of the psychological and neuronal systems is not focused on proprioception, but rather on the creation of artificial gravity chambers. Artificial gravity chambers depart from a “normative” condition instead of a creative inquiry in that their aim is to correct reality by bringing it back to an habitual or pre-given state. Here, the reactivation of the neuronal system as effected in virtue of “normal” patterns of activity is tantamount to what neuroscientists call the neurotypical. Laurence Harris, Director of the Center for Vision Research and Professor of psychology, biology, kinesiology and health sciences at York University in Toronto, inverts the problem to depart instead from atypical neurology. Disputing the need to develop apparatuses that could produce artificial gravity, his approach is informed by the enabling constraints brought about by microgravity. Harris persuasively proposes to rethink the spatiality of the station from the context of proprioception to insist on the fact that the problem is chiefly architectural rather than neurological.436

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435 Ibid.
Bodies in the Space Environment:

We realize that the perception of our physical reality is triggered by the swinging pendulum of the psyche.\(^{437}\)

_Bodies in the Space Environment_ is a collaborative project between the Center for Vision Research at York University and the Department of Aeronautics and Astronautics at MIT. It proposes an exploration of the contribution of gravity to sensory and motor functions, with particularly emphasis on balance and spatial orientation. More precisely, it questions the manners in which we combine more than one sense to make judgments of object orientation in space. The team produced a series of experimentations in different gravity gradients: on the ground under normal gravity conditions, underwater in buoyancy conditions, and in a microgravity aircraft (parabolic flights or what NASA engineers and scientists call the vomit comet).\(^{438}\) The team’s focus is on the effect of weightlessness on the perception of up. Working as a form of priming that is triggered by a complex multimodal, or cross-referencing system\(^{439}\) that combines information abstracted from “gravity sensors, visual information, and the internal representation of our body,” the perception of up, they explain, conditions our capacity to sense the acceleration of our surrounding environment.

\(^{437}\) Kiesler, _Towards the Endless Sculpture_ (1956), 63.

\(^{438}\) It is reported that in parabolic flights, women rarely experience space sickness while men usually all suffer from it. Observed both by cosmonauts at ROSCOMOS, the Russian Space Agency in Star City Russia, as well as by a number of people who have themselves flew in parabolic flight. Personal conversation with Rob LaFrenais, Nicola Triscott and Nahum Mantra.

\(^{439}\) It would be more accurate to use the term amodal rather than the one of cross-modal to highlight the uncertainty brought about by changes in the integration of orientation cues. As Brian Massumi explains, “the felt-perceptions of movement-quality are not learned, but arise spontaneously.” Amodal, he adds, means that “they are not in one sense mode or another.” The term cross-modal, he adds, “is used to refer to a ‘transfer’ between different sense modes – forgetting that what comes and goes _between_ them, what actively appears in their interstices as the perceptual feeling of their co-occurring, is itself, strictly speaking, in _no mode_. It is the direct perception of what happens between them, in no one mode. (…) The perceptual feeling of the amodal is the fundamentally nonconscious thinking-feeling of what happens.” Massumi adds that “proprioperception is the mode of experience of the amodal as such.” Brian Massumi, _Semblance and Event. Activist Philosophy and the Occurrent Arts_ (Cambridge: MIT Press, 2011), Chapter 4 (109-111).
Figure 33: Bodies in the Space Environment, @ NASA
Figure 34: Bodies in the Space Environment, Astronaut Michael Barratt, Expedition 19/20 flight engineer, performs the BISE experiment in the Destiny laboratory module @ NASA
The team’s initial hypothesis resonates with Clément who explains, “because the rules of geometrical perspective are less accurately defined in microgravity, the subjects should rely less on perspective cues for depth perception.” Their method uses the OCHART test, which is based on the inversion of the letter ‘p’ that becomes the letter ‘d’ when you rotate it. This inversion enables them to measure the subject’s capacity to find the angle at which the letter changes from p-to-d and d-to-p. Their outcomes found that in conditions of reduced gravity, astronauts and cosmonauts rely predominantly on body orientation cues as opposed to visual cues. It also propounds that the perception of the visual background is “significantly less influential in determining the perceptual up right during short terms exposure to micro-gravity.” Their findings also suggest the non-linearity of the integration and combination of multimodal sensory information when one source is removed.

While astronauts themselves insist on labor and productivity, Harris avoids the labor paradigm to insist instead on proprioception. His approach resonates with Simondon for whom labor, at the biological level, entails no less than the exploitation of nature. The working individual, Simondon tells us, is already individuated biologically. Taken up in his laboring activities, the individual substantializes work as exchange value and gives rise to a form of sociological substantialism, which, Simondon warns us, is incapable of creating a second individuation. While Simondon’s claim may not frontally address contemporary affective labor, architectures of aliveness follow Harris’s take on proprioception to avoid sociological substantialisation but also, and perhaps most importantly, to dodge the deterministic implications

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of functionalism and productivity, which, in the context of the labor paradigm, lurk as malicious forms causality.

In making proprioception the need-morphology of architectural growth, Harris hijacks, diverts and redirects the labor paradigm in addition to subsiding the psychological individualization of space as determined by individual needs. Moving emphasis toward a subjective, yet impersonal psychological conception of a non-individualistic society, his approach resonates with Isabelle Stengers conception of ethos, which, she argues, is irreducible to an individual psychology. Rejecting the consideration of “individual needs as the equivalent of a complete and pure individual that could exist before its integration,” Harris implicitly affirms the impossibility of making the individual psychological and neurological features of astronauts and cosmonauts sovereign of their cosmic society. Since proprioception is, as Clément told us above, independent of conscious perception and voluntary control, it cannot be equated with individual needs or desires. Here, to speak about individual needs means to speak about the personification of the station in relation to the crew’s personal desires (for instance in relation to stowage, food variety, storage, and crew quarters). Echoing what Stengers told us in Chapter One, a proprioceptive approach generates instead the possibility to think about orientation as a decision made without a decision-maker, which is also making the maker. That is, it shows the irreducibility of sociality to an individualistic reality that would dictate a model of response and action in relation to the environment. In locating his project outside the labor paradigm, Harris is however not amputating individual differences. He is rather proposing an alien consideration of individual participation in collective individuation as the reality of a cooperation that emerges in mental activity. In the same stroke, he avoids the pitfalls of behavioral psychology as the science of conduct. Based on a deterministic milieu, the analytics of behavioral psychology are ingrained

443 Simondon, L’individu à la lumière des notions de forme et d’information, 296.
in a mechanist explication of the movements of the organism in its milieu. In brief, Harris thinks of space as a set of affective relations rather than as a mechanistic and deterministic environment. Here Harris’ approach resonates with Guattari: instead of emphasizing objects and things as associated with the production of scientific truths, his approach looks at the production of existential territories and actualizes a passage from an ideal of scientificity to a form of ethico-existential efficacy.

Now, if labor cannot trigger a new individuation and only substantialize sociology, and if inter-individual psychology is nothing more than a disguised mechanist depiction of behavioral activity, what can trigger the dephasing of bio-physical individuals into psychic, collective and transindividual occurrences? Before moving to collective and transindividual individuation, let me first address psychic individualization, which conditions the possibility of engaging with the two subsequent phases. Refusing arguments that pretend to reach the psyche by determining its objective conditions, Simondon’s psychic phase of individualization belongs to the aesthetic reality of a subjectivity without a subject. It is thus far removed from behavioral psychology and its implied mechanist milieu.

**Psychic Individualization: Action as Reenaction**

Paraphrasing Merleau-Ponty, José Gil explains, “there is no ‘high’ for a pure spirit.” In relating space orientation to mental and bodily activity, Gil restitutes life’s polarization to affirm thought as a reality of the vital kind. The fact that psychic individualization does not give rise to a novel individual, but that it rather complexifies and already individuating individual now comes

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into clearer focus. Taken up in microgravity gradients, astronauts and cosmonauts experience sensory conflicts that overburden their habitual neuronal patterns. Caught up in sensory incompatibilities, they experience sensory saturation, which calls upon perceptual resolution.

For Simondon, psychic individualization occurs on the pre-conscious level, and more precisely on what he refers to as the subconscious, namely, the strata found in between unconscious and conscious states.\(^ {447}\) That relational stratum is for him the centre of individuality and is essentially affectivity and emotivity. Affectivity and emotivity, he tells us, are psyche's transductive form \textit{par excellence}. Together they link the relationship of the individual to itself and to the world to they trigger both the individual's auto and hetero-positions, giving rise to a bipolar understanding of the individual. Psychic individualization emerges with the experience of the sensation of a gradient, whose correlative is the response to a tropism (in contrast to a reflex); that is, the act of seizing a direction. It would be correct here to say that we perceive to orient ourselves. Brian Masumi specifies Simondon’s approach to orientation by explaining, “the way we orient is more a tropism (tendency plus habit) than cognition (visual form plus configuration).”\(^ {448}\) In other words, sensation orients an individual along a series of gradients that tend toward perception. When the act of orientation faces the experience of various gradients, the individual experiences a conflict between a plurality of tropisitic orientations that calls upon perception in order to resolve the sensitive contradiction. Every perception is thus the resolution of a problem of incompatibility.\(^ {449}\) However, even if perception brings a resolution, it does not overcome tropisms, which are nevertheless integrated in a complex system that figures emerging properties. Preceding sensori-motor activity, perception images a potential, nascent or incipient

\(^{447}\) Simondon, \textit{L'individuation à la lumière des notions de forme et d'information}, 248.


\(^{449}\) Simondon, \textit{L'individuation à la lumière des notions de forme et d'information}, 243.
action. Perception, however, “does not capture organized wholes.” It is rather the “act that organizes them.” Affection on the other hand is the experience of the resolved contradiction experienced as a becoming, anticipating further action with respect to a bipolar frame of reference that links the individual to itself and to the world. This bipolarity is both emotion and collective: emotion is for Simondon what links the individual to itself whereas the collective relates it to the world. The emergence of the collective is tantamount to dynamic forms coming together into a system, which conditions the possibility of signification. That is, perception is not perception of an object but that which enables couplings between individuals and the world such that what is perceived is the polarized world rather than the object. Put otherwise, to discover significations is to live collectively. By this account, Simondon tells us, the collective is apprehended as set of participations rather than as a milieu. “Signification,” he specifies, “is a relation between beings and not a pure expression.” It is thus the polarization of the world that gives it its meaning.

Here meaning is understood in French as sens. This consideration is intended to sustain the pragmatic of the world’s polarization as encompassing both the production of meaning and the act of orientation. In this context spatio-temporal orientation is invariably a meaningful activity endowed with collective power.

In the particular case of astronauts and cosmonauts, when their senses provide them with conflicting information about which way is up, perception emerges to resolve the contradiction. Often associated with the effects of space sickness, microgravity does not presuppose space sickness. Rather, space sickness is occasioned by a sensory conflict that increases when gravity decreases. When the environment is “altered in such a way that information from the sensory

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450 Ibid.
451 Ibid.
452 Ibid., 107
453 Ibid., 307
system does not match habitual neural patterns of activity, motion sickness may result. That is because the semicircular canals do not react to the body’s position in a gravitational field but to a change in the body’s position. In other words, semicircular canals do not measure motion itself, but changes in motion. At stake here is the fact that there is no such thing as raw neuronal activity, or virginity of sensation, perception and orientation. As Clément explains, “the brain does not continuously calculate the direction of gravity, but uses an internal estimate of gravity whose weighting changes during spaceflight.” Andrew Pickering holds a similar argument in his analysis of Grey Walter’s tortoises. Pickering explains that the brain does not live “in the instantaneous present, but instead scans its environment ten times a second to keep track of what is going on.” Both Clément and Pickering exemplify the tendency of living bodies to repeat their own actions, that is, the fact that they live in perpetual reenaction. Space orientation is thus conditioned by the reenaction of qualitative estimations rather than an emergent property. In Massumi’s own words, “reenaction is the initial phase of every occasion” such that “a nascent action is the reenaction of a tendency to action.”

Now before dephasing to the transindividual, let me first recapitulate some of the issues discussed and bring them in dialogue with architectural project that explore the implications of psychic and collective individuation. It was previously said that for Harris, the problem of space orientation in microgravity conditions is architectural rather than neuronal. However, given (1) the ethical implications of conducing research projects similar to Bodies in the Space Environment, and the administrative work-load entailed in being granted approvals (it took Harris

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10 years before being given permission to realize his project) and; (2) the resistance of both space agencies and the astronauts themselves to enhance the design of the station; it is most likely impossible that the design of the ISS will ever integrate the proprioceptive body as the qualitative energetic unit of measurement of the need-morphology of its technological growth. While one would think that astronauts would be keen on bringing changes, those I met at the Johnson Space Center appeared so indoctrinated that their one and only objective seems to revolve around their labor productivity, with no consideration whatsoever of their life environment (besides major risks such as radiation). This may however change once the plan to land humans on Mars reaches greater concretization. Since the journey would take at least three years round-trip, these concerns may prove of higher importance than they do now.

It thus comes as no surprise that space architecture is an incipient form of design that struggles to make its place in the Space Industry. Changing its terminologies to keep its validity, from space architecture to human factors, its future in space agencies is seemingly precarious. For Robert Howard JR., aerospace engineer and Space Human Factors analyst at NASA’s Johnson Space Center (JSC) in Houston, TX, innovation in the field of human factors (which includes space orientation, as well as techniques to prevent physiological and psychological distress) will most likely come from the tourist industry. Unsurprisingly, when you enter the space vehicle mock-up facilities at JSC, the first mock-up you see is the inflatable module of Bigelow Aerospace’s; the Bigelow Expandable Activity Module, or BEAM, which both NASA and Bigelow Aerospace intend to attach to the ISS. The module is not expected to host tourists at first, but to offer more comfort to the ISS crew during the first stages of it stowage. While the commercial penetration of this sector of activity is already on its way, alerting us to the risks for space orientation to become an even greater form of commodification, we find productive resistance in contemporary artistic and architectural practices. Here, I am especially referring to the work of architect Greg Lynn and artist Tomás Saraceno to which I will now turn.
Figure 35: Bigelow Expandable Activity Module, Space Vehicle mockup, NASA, JSC

(Photo: Marie-Pier Boucher)
Part 3: Life in the Gravitational Interval

Architectures of Wonder: Tilting, Gravitating, Tumbling

We make our own gravity.458

Everywhere evenly distributed agent a ubiquitous site or an architectural body will even be able to renegotiate gravity.459

The RV Prototype: From the Hospital Bed to the Tumbled Room

We, architect Greg Lynn tells us, “are living in a time when Future Primitive forms and typologies are being invented.”460 Echoing both Kiesler’s biotechnical project, and Arakawa and Gins’ proceduralism, Lynn produces architectural forms beyond the realm of naturalistic representation and abstraction. Looking specifically at gravity, and at the reality of vectors, orbits, curves and rebounds, as opposed to platonic primitive geometries such as cubes, spheres and pyramids, he develops a design (non)program, which combines heterogeneous forces that emerge out of environmental and weather patterns, domestic activities as well as low-cost and low-energy consuming materials. Refusing to extract modalities from pre-existing forms in order to move beyond the realm of abstracted representation toward what Brian Massumi calls “lived abstractions,” Lynn’s architectures invent alien procedures endowed with the power to intensify the vitality of both its inhabitants and their architectural surrounds.

Departing from the contemporary commodification of comfort, Lynn’s method comes as a refreshing breeze in the suffocating atmosphere created by a variety of humanist and social discourses. In sentencing and convicting the discipline and practice to a servant of capitalism, these discourses reduce architecture to a banal mechanism of enslavement and social subjection.

459 Arakawa and Gins, The Architectural Body, 34.
Instead of engaging in negative, deconstructive and oppositional critique to denounce capitalism as the procedure of our everyday actions, and to also avoid replaying the depressing melody of alienation, surveillance and control (whether affective, social, economical, etc.), Lynn starts instead within capitalist production itself. Extending two typologies proper to its commodification mechanisms, Lynn reinvests the risks of an adventure, which, unlike most vivid critics that condemn architecture, resist the authoritarian tone that lurks in their discourses; tone that they are seemingly unable to hear, making them deaf preachers of their own cult. Here Lynn gives his practice the means to resist the reification of the opposition between alienation and liberation by presenting a more humble and unpretentious strategy based on exploration rather than authoritarian denunciation (which is often disguised under the name of activism).

The recreation vehicle and the Barcalounger, or La-Z-Boy, Lynn tells us, emerged as two typologies that promised not only comfort, but also freedom and dynamic motion. With his RV Prototype, Lynn expands and amplifies both typologies to the entire living environment, inducing a literal reduction of energy footprint. His ecological concerns are however not built upon or fed by alarmist environmental discourses. 60m3 “wrap-around surface” constantly rotating at 270 degrees angle, the RV Prototype is a powerful response to the progressive regression of interior design, meaning, to the gradual transformation of our houses into the depressing and dispiriting reality of hospitals beds. The bespoke comfort of a one of-a-kind specified automobile, Lynn tells us

is merging with the living room couch and television where everyplace aspires to be a first class flat bed seat with color temperature and intensity controlled lighting, internet access and entertainment on-demand (...) offering massages, heating and cooling, home entertainment control integration, food and beverage coolers, as well as recline, glide, rotate, lift and rocking motion. The motion of hospital beds is now available for the home in the Craftmatic.⁴⁶¹

⁴⁶¹ Lynn, Project Room by Greg Lynn ,12.
First exhibited in the *Future Primitives* section of *INTERIEUR 2012*, a design biennale held in Kortrijk, Belgium, the *RV Prototype*—where RV stands for Room Vehicle—is a motorized 1:5 scale model of a single-family house. Relieving us from the blinding and dazzling multi-colored architectures of Arakawa and Gins, the colorless (black and white) prototype is lighten up by natural light. Lightweight configuration made out of carbon fiber (the mass of the shell is less than 50 kilos), the rotating movement of dynamic structure is in indirect correspondence, or non-coincidence with the movement of life. That is, the three axes rotations do not depict the movement of life; they rather fulfill a pragmatic function: they maximize “environmental quality” by offering the possibility of a rotation that responds to weather, daylight and temperature. In transducing weightlessness and suspension into rotation, the *RV Prototype* produces an affective resemblance with Kiesler’s *Endless House*. For instance, the snapshot of the vertical position of the house also images an egg becoming a rocket. In the peculiar case of the *RV Prototype*, the proposed take off moves way beyond the image of vertical propulsion for the rotation of the house pictures several angles that make the launch a take off of the multidirectional kind. The threefold rotation also generates variations in orientation that are conditioned by the daily habitual activities of its inhabitants. In this perspective, the rotation works in companionship with the movement of life as opposed to serving as the basis of a representation. The “three basic surfaces,” Lynn explains, “would be the orientations and everything in between would be momentary.”

For example zero degrees is living, 90 degrees is kitchen and bath and 180 degrees is sleeping and relaxing.” The shape becoming rocket also figures a form of movement that takes off without leaving the earth. To paraphrase Paul Virilio, it

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462 Greg Lynn, “RV Prototype (RV= Room Vehicle),” *De Zeen Magazine*, http://www.dezeen.com/2012/10/30/rv-room-vehicle-by-greg-lynn/

463 Ibid.
renders visible a fleet in being of the cosmological rather than hydraulic kind, or, more rightfully a flying, or hovering in being.

Figure 36: Greg Lynn, The RV Prototype, INTERIEUR 2012, Belgium © Greg Lynn

FORM
Figure 37: Greg Lynn, The RV Prototype © Greg Lynn FORM
Figure 38: Greg Lynn, The RV Prototype © Greg Lynn FORM
Figure 39: Greg Lynn, The RV Prototype © Greg Lynn FORM
Calibrating mobility and high performance, the RV Prototype does not move its inhabitants around to make them comfortable. In stark contrast, the rotation is meant to oblige them to climb, tumble, traverse, and clamber around, that is, to become active co-participants of their own architectural surrounding. Or put otherwise, it forces them to construct their surroundings in their very activity of inhabitation. Moving from a consideration of the recliner as sedentary mode of consumption, the RV Prototype demands “enthusiasm and activity” toward a reenergizing habits of inhabitation (which also impact habits of thought). The rotating movement thus belongs to the realm of psycho-functions. In the RV Prototype, you tumble over the surface without ever falling because you never leave the ground. You are alive in absolute motion, exploring the world through the symbolism of thematic continuity, summersaulting in tandem with your architectural surround, feeling the tension in the interval, as united in the pluralist opacity of temporal thickness.
Figure 41: Greg Lynn, RV_Section_A © Greg Lynn FORM

Figure 42: Greg Lynn, RV_Section_B © Greg Lynn FORM
The *RV Prototype* shares an obvious connection with the ISS, and perhaps a more pragmatic one with the tumbled room, an experimental device used to investigate changes in space orientation, and their corresponding disorienting effects. Flinging both architecture and its inhabitants in a double-rotation, the tumbled room is a device notably used to conduct neuroscientific research on how rotating systems may induce an illusion of levitation. Harris and Oman’s team explains, “a rotating furnished room can completely overcome the restraining influence of non-visual inputs”\(^4^6^4\) to give rise to the experience of “partial or full levitation illusion.”\(^4^6^5\) Architectures of aliveness prefer the term hallucination to illusion to conceptualize these effects that scientists regroup under the concept of Visual Reorientation Illusions (VRI). As Deleuze tells us, “every perception is hallucinatory because perception has no object.”\(^4^6^6\)

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perception resolves sensory contradictions to figure nascent forms of action, the term hallucination is the most fitted to depict incipient action.

**From Static to Stasis: Vectorial Transpositioning and the Vanishing Horizon**

Lynn creates a regime of visibility that moves emphasis from abstractions based on form and vision to abstractions based on process and movement. Reinterpreting the mechanist notion of movement and its correspondence to optical vision in the context of today’s information age, he illustrates the pragmatic implications of his practice as based on a conceptual contrast between motion and animation. Drawing upon time to highlight the distinction, he explains that in the realm of motion, time is created by “superimposition or sequence of static forms” ⁴⁶⁷ that the viewer resolves through the “initiation of optical motion.” ⁴⁶⁸ In this context, he explains, motion and time are taken away and retrospectively added by the viewer through phenomenology. ⁴⁶⁹ As such force and motion are thus “eliminated from form only to be reintroduced, after the fact.” ⁴⁷⁰ Lynn links this method to the cinematic model for its simulation of movement based on the sequencing of static snap-shots. ⁴⁷¹ In opposition, he tells us “the slow undulations that are built into any landscape surface as hills and valleys do not mobilize space through action but instead through implied virtual motion.” ⁴⁷² Here virtual motion is another way of talking about transpositional continuity. To resume, for Lynn, an animate form is one that literally moves, meaning that the quality of its movement can be explained in objective space through coordinate points. Conversely, an animated form does not literally move. Their distinction is informed by the

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⁴⁶⁸ Ibid.
⁴⁶⁹ Ibid., 34.
⁴⁷⁰ Ibid., 11.
⁴⁷¹ Ibid.
⁴⁷² Ibid., 29.
contrast between the staticity of coordinate points and the dynamism proper to vector and gradients.

Working with gradients, Lynn seeks to integrate the “co-presence of motion and force at the moment of formal conception”\textsuperscript{473} by bringing the graceful manner of a landscape capable of initiating “movements across itself without literally moving”\textsuperscript{474} into the realm of the built environment. Transposing the reality of landscapes to topological surfaces, his objective is to create forms that “behave as landscapes in that the slopes that are generated store energy in the form of oriented rather than neutral surfaces.”\textsuperscript{475}

Proposing another distinction, which focuses the inquiry on gravity, Lynn opposes stasis and orbital—or dynamic—stability to establish a distinction between a simple and a complex understanding of gravity. Complexity, however, is not celebrated as a new form of knowledge. It is rather used as a technique of exploration. On the one hand, simple gravity images statis, that is, an unchanging vertical force, which, he tells us “is the ordering system through the unchanging constant force of a ground point.”\textsuperscript{476} On the other hand, complex gravity entails mutual attraction, generates motion and figures “stability as the ordering of motion into rhythmic phases.” Put otherwise, static gravity eliminates movement from the onset, generating a disparity with stable gravity where motion plays the role of an ordering principle. Given a constant mass, Lynn tells us, stability is achieved through orbits rather than stasis. Moving “from autonomous purity to contextual specificity,”\textsuperscript{477} to integrate “movement, orbit, [and] dynamic stability [read metastability] between objects,”\textsuperscript{478} Lynn’s take on gravity depicts a reality that is irreducible to

\textsuperscript{473} Ibid., 11.
\textsuperscript{474} Ibid., 29.
\textsuperscript{475} Ibid., 30.
\textsuperscript{476} Ibid., 14.
\textsuperscript{477} Ibid., 11.
\textsuperscript{478} Greg Lynn, \textit{Greg Lynn and Giovanna Borasi se recontrent à Venice, Los Angeles, à l’automne 2009}, 55.
the act of bodies falling in vertical fashion. That is to say, through emphasizing orbits, Lynn suggests a more dynamic conception of gravity as that which conditions the mutual attractions between bodies. In other words, for Lynn, gravity is an improvised choreography that gives rise to a self-organizing movement between contextual elements. Consequently, gravity images the ways in which the elements of a context combine and recombine. This reality in particularly rendered visible in the clambering around induced by the RV Prototype. In subsiding the biological with the gravitational, Lynn actualizes a productive passage the stasis of Le Corbusier’s ‘universal man’ to the evolutionary reality of ‘man in motion’.479

To Rhythm Life: Gravitational Summersault

Calibrating actual and virtual movement in a non-coinciding occurrence, meaning that virtual motion is not in direct correspondence with actual movement, the RV Prototype works as a figure case that shares a relation of affinity with the tumbled room. The tumbled room transduces the reality of an uneven, changing landscape, which is central to Lynn’s project into the scientific measurement of space orientation. Usually shaped as a cube with an interior design that looks like a familiar scene, such as a dining room as illustrated in Figure 45, the tumbled room is also a motorized configuration. Attached to a robotic arm that makes the squared-room turn upon itself, the inside is equipped with robotic chair linked to a mechanism that also enables its rotation. However, both rotations are inverted in order to complexify qualitative dimensioning and challenge space orientation. The procedure starts by tightly strapping a subject onto the chair. Once the securely attached the experiment is set into motion by the activation of both rotations. Making space dance before, within and among the subject’s senses, however not to reflect what is...

outside of it but rather to “inflect what takes off from it,” the double rotation throws the body into indeterminacy, triggering an incipient feeling of disorientation. Even if the induced changes in orientation differ from those experienced in microgravity conditions, in moving visual scenes to produce hallucinatory self-motion the tumbled room can be problematized as a non-sophisticated earthly sequel of the ISS.

Figure 44: Tumbled Room, Center for Vision Research, York University, Toronto © National Geographic

480 Massumi, Semblance and Event. Activist Philosophy and the Occurrent Arts, 149.
Clément explains that in tilted position, as experienced in microgravity conditions, “eye movements must continuously compensate for head movements so that the image of the world is held fairly steady on the retina, and thus appears clear and stationary.” In the tumbled room, similarly to the ISS, exchanges in perceived surface identity are a common occurrence that also calls upon the compensation of eye movement to recalibrate the tilted position induced by the double rotation. Experiments conducted at the Center for Vision Research suggest that Visual Reorientation Illusions “are more likely to occur if a strongly polarized object such as another astronaut comes into view.” These results echo Simondon’s persistence on the fact that perception does not seize objects but the world as a polarized reality. The team adds that illusions arise because “subjects judge the direction of gravity in terms of the frame of reference provided by the intrinsic or extrinsic polarity axes of objects in the room and/or the body axis.” This can presumably be explained by the fact that in the context of their experiments the body is in stationary rotation, partially precluding the capacity of semicircular canals to react to a change in the body’s position. Notwithstanding, the team also explains that their result found that “motion of the visual surroundings can also affect the perceived orientation of the self.”

While our habit of thought would bring us to problematize the polarization of the world as informed by the connective disparity imaged in the figure-ground relation, Oman insists that in the specific case of microgravity, “what is being reinterpreted is the identity of surrounding surfaces,” and not the figure-ground relation. In Métamorphoses du corps, José Gil explains that Gestalt theory links perception to contextual activity. He adds “that the example of the

482 Ian P Howard and Gang Hu, Visually induced reorientation illusions, 598.
483 Ibid., 597.
484 Ibid, 586.
485 Oman, Spatial Orientation and Navigation in Microgravity, 5.
figure/background demonstrates a vacillating gaze focusing alternately on the one or the other.\textsuperscript{486}

Speculating on the potential impossibility to focus on the figure or the background Gil asks, “what then is the form of this figure/background?\textsuperscript{487}” Instead of trying to resolve the apparent disparity, Gil claims are extremely relevant to the current discussion for he explains that in trying to distinguish figure and background we realize that “we are no longer in the presence of figures, but a kind of scansion between two forms that have the tendency to appear and disappear.\textsuperscript{488}” This regime of appearance and disappearance is for Gil a rhythm rather than some kind of bordering. Gil adds that this kind of perceptual hallucination marks the advent of an energetic establishment of a relation between forms, what he describes as a “form of forms\textsuperscript{489}” that moves across forms; a dynamic meta-form endowed with the power of transformation; a trans-form. In this context, the energetic establishment of a relation between forms replaces the traditional figure/ground relation with that of a temporal rhythm, which Gil, following Maldiney, defines as “the articulation of its implied time.\textsuperscript{490}” Gil specifies that this peculiar rhythm gives rise to a rhythming space where the body is in relation with space as opposed to being represented in it.\textsuperscript{491}

Let me now move to the Oblique Function as another architectural technique that seeks to sustain the body in relation with its surroundings.

\textsuperscript{486} Gil, \textit{Metamorphoses of the Body}, 132.
\textsuperscript{487} Ibid.
\textsuperscript{488} Ibid.
\textsuperscript{489} Ibid. 57-85.
\textsuperscript{490} Ibid., 132.
\textsuperscript{491} Ibid. 134.
The Oblique Function: Tilted Inhabitation Continued

Elevators do away with the heroism of stair climbing so that there is no longer any virtue in living up near the sky.492

Only if we are capable of dwelling, only then can we build.493

Figure 45: Paul Virilio and Claude Parent.

Paul Virilio “hates technology with a passion (…) as a form of love or devotion.”494

Particularly dismayed by the current “wired” status of our society, he condemns it to a quasi-religious form of isolation. Globalization, he tells us, is bringing confinement and social isolation closer and closer. He goes as far as saying that Foucault’s Great Enclosure is not behind but

ahead of us. From the bunker to the cave, the theme of enclosure pervades across all his work. Seeking to bring back Kiesler’s magic architecture as a generator that “is not an expression of escape into religious solitude (resignation),” Virilio brings the body back as the central non-place of architecture as political space. For Virilio, the body holds the potential to destabilize the progressive isolation actualized by technological development. It is thus through the invention of new forms of dwelling that we will be capable of reducing the speed of globalization. Looking at pragmatic methods “where the inhabitant does not become the habitat of technology,” Virilio moves emphasis from the French meaning of building (immeuble) for it entails the idea of immovability. In stark contrast, he invites us to think of the built environment as linked instead to dwelling. Linked to the French word “demeure,” dwelling actualizes a pragmatic difference based on an etymological nuance. Demeure, Virilio tells us, does not image immovability. It rather figures to transitive verbs such as to stay, to remain, imaging the reality of residents as taken up in “absolute motion.”

Virilio is unequivocal: we ought to “slow down the rhythm of architecture to keep it from following the acceleration of the human mutation.” Virilio explains that in the age of globalisation, dwelling is a speed reducer invariably tied to mentality. Insisting on “disequilibrium and fluctuation as a way of enhancing human mobility and consciousness” he, along with architect Claude Parent introduced the Oblique Function as an architectural technique that sets “the body in motion again by using terrestrial gravitation.” Focusing their inquiry on terrestrial and planetary conditions (earthquake, planetary surfaces), Virilio and Parent call for a come back to the floor, not only because, as Deleuze and Guattari tell us, to inhabit is to come

495 Kiesler, Magic Architecture, 34.
496 Virilio, Crepuscular Dawn, 71.
497 Ibid., 65.
498 Ibid., 12.
499 Ibid.
back, but also because their exploration into planetary activity brings them to conclude that it is “the ground that contains life.”  

Virilio and Parent remark that the automobile industry has integrated gravity and aerodynamics to denounce this missing consideration in architectural practices. Departing from the inclined planes used for automobile design, the Oblique Function integrates an inclined plane in architectural design by transforming walls into surfaces of inhabitation. Negating the vertical axis, the Oblique Function claims “back the walls for living,” privileging sur- and sub-faces to eliminate all useless surfaces. In the same stroke, it also completely abolishes the concept of the wall. In other words, the Oblique Function reorders both horizontal and vertical planes, sustaining the horizontal plane without however making it permanent.

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500 Ibid., 29.
501 Ibid., 33.
502 Ibid.
Figure 46: Claude Parent and Paul Virilio, The Oblique Function.
Figure 47: Claude Parent and Paul Virilio, The Oblique Function.
Figure 48: Claude Parent and Paul Virilio, The Oblique Function
Figure 49: Claude Parent, French Pavilion, Venice Biennale, 1970

Figure 50: Claude Parent, French Pavilion, Venice Biennale, 1970
By tilting the ground, the Oblique Function puts the body in a tilted position to impose a kind of galactic directionality that forces the body to perpetually adjust itself to a changing axe. In so doing, Virilio and Parent argue that their Oblique Function succeeds at maintaining the body in a continuous state of awareness. Also departing from our capacity to sense the acceleration of our environment, the oblique function works with positive and negative acceleration. Negative acceleration is induced when the body attempts to climb up the surface, while positive acceleration is actualized when it goes down the slope.\textsuperscript{503} Hosting the body in positions that depend on its inclination, the Oblique Function is an architectural technique that brings forth posture as a form of forms, meaning as that which gives rhythm to architectural forms.\textsuperscript{504} Working with gravity and weight like a “sailboat works with wind,”\textsuperscript{505} the oblique function makes you fly on the tip of your feet, invariably calling upon an effort of moral volition.

The Oblique Function rethinks the ergonomics of the body to think of it in terms of a mass of weight rather than in terms of a system of proportions. In so doing, it actualizes a passage from ergonomics to energetics. Let me now turn to Saraceno’s work, which brings bodily proportions to another level. Inviting us to take off from the ground to live in suspension, Saraceno’s \textit{In Orbit} brings bodily proportions into new configurations where human bodies, the artist tells us, become planets.


\textsuperscript{504} Gil, \textit{Metamorphosis of the Body}, 136.

In Orbit: Priming Urbanism in and of the Sky

“No walls, only the horizons (...) no floor, only the ground beneath his feet; no ceiling, only the sky arching overhead.”

*In Orbit*, a piece by Berlin-based Argentinian artist Tomás Saraceno, is an architectural installation meant to trigger the feeling of weightless movement. Developed in the context of *Air-Port-City*, a broader project that comprises a variety of pieces, *In Orbit* is an aerial installation brought up into the urban and civic sphere, bordering on the scale of a building. Currently displayed at K21 Ständehaus in Dusseldorf, Germany (since 2013 and until at least the end of the year 2015), the cosmo-urban design is shaped in the form of a giant steel wire spider web installed approximately 25 meters above the ground. Altogether, it covers 2500m² and spreads itself out across three levels below a glass cupola. Six inflatable PVC balls that measure 8.5 meters in diameter hold the three layers apart from one another. Generating a productive tension in the interval between the floor of the gallery and the suspended meshwork, the dynamic interlacing also induces a tension in the intervals between the three meshwork levels. Even if the installation brings the sky closer by virtue of suspension, the celestial sphere remains nonetheless inaccessible. Seemingly imaging a lightweight structure, the web alone paradoxically weighs three tons.

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Figure 51: Tomás Saraceno: In Orbit at Kunstsammlung Nordrhein-Westfalen, K21 Ständehaus, Düsseldorf 2013. Courtesy: Tomás Saraceno; Pinksummer contemporary art, Genoa; Tanya Bonakdar Gallery, New York; Andersen's Contemporary, Copenhagen, Esther Schipper Gallery, Berlin. © Photography by Studio Tomás Saraceno, 2013.
Figure 52: Tomás Saraceno: In Orbit at Kunstsammlung Nordrhein-Westfalen, K21 Ständehaus, Düsseldorf 2013. Courtesy: Tomás Saraceno; Pinksummer contemporary art, Genoa; Tanya Bonakdar Gallery, New York; Andersen's Contemporary, Copenhagen, Esther Schipper Gallery, Berlin. © Photography by Studio Tomás Saraceno, 2013.
Figure 54: Tomás Saraceno: In Orbit at Kunstsammlung Nordrhein-Westfalen, K21

With this piece, Saraceno continues his exploration into the creation of biosphere-like configurations that act as architectural and urban analogies to the morphology of soap bubbles, spider webs, neural networks and celestial forces. Creating alternate forms of living that emerge out of techniques of suspension and inflation, Saraceno’s method is massively informed by scientific knowledge. Artist of the correlalist kind, his practice is based on the construction of pragmatic fields of exchangeability between engineering, physics, chemistry, biology, aeronautics, and outer space and material sciences. In Orbit results from laborious and rigorous research on the skillful abilities of spiders to construct their webs. Carried out in close
collaboration with engineers, architects, and arachnologists, the piece was developed over a three-year period.

_In Orbit’s_ experience starts on the ground floor since to access the installation in an active mode (read non contemplative), you have to climb up the stairs up to the top floor of the arts institution. Welcomed by orbital technicians, in a décor that comprises a reception desk and lockers, you immediately feel like you have just arrived in the changing rooms of your local gym. And the resemblance does not stop here since you literally have to change clothes to continue your journey. The dress code is simple: a one-piece suit that is similar to those worn by mechanics, and a pair of sneakers. Meant to prevent hazardous incidents with the piece, the dress code also fulfills an aesthetic function: it forces you to slow down the speed of your adventure to question the metastability of your own present and presence. That is, the protocol for accessing the piece makes you doubt about what will come next. In addition to the provided outfit, you are also given a key to a locker where you can leave your personal belongings behind. This comes as a reminder that you are about to start a journey in an environment that echoes the ISS: here, if you drop something, you will most likely never retrieve it. Once dressed up, you are invited to climb up a few metal stairs, which give you the feeling that you are about to enter the Soyuz craft. Finally ready to launch yourself into orbit, the excitement soon becomes a question of volition. Interrogating the prowess of your own being _In Orbit_ throws you into a state of wonder. It makes you wonder if you can trust the artist and his collaborators since you are literally about to float in suspension 25 meters above the ground.

_In Orbit_ makes your eyes wander, your knees bend, your body curl down, and your hands move to hold, grasp, or grip. Undergoing a modification of experience that reorders your sensorium, your body rapidly reaches levels of saturation that are triggered by the intensities of the signals it is receiving. In preventing you from accessing your habitual forms of orientation, you are invariably forced to invent a new metastable equilibrium. If you ever have the chance to
experience this installation, you may look, and feel ridiculous like I did. For the first minute, I held myself to the net in a cocoon like position, experiencing a slight feeling of fear and vertigo, which made me feel like the protagonist of a show that could have be called *Dumbs in Space*.

Using techniques of suspension that combine the symbolic meaning of networks and spheres, *In Orbit* forces you to question the necessary level of physical and mental energy you need to reach greater levels of magnitude with your mentality, physicality as well as with you surroundings. Here disorientation is generative, that is, pragmatically linked to political action. Disorientation suspends social movement to oblige the actualization of a new orientation that lends syncopation to atypical forms of social and technological belonging.

*In Orbit* actualizes the double polarization choreographed by architectures of aliveness: on the one hand it convokes the mental and physical continuum and, on the other, it evokes the line between planetary and outer space reality. Apprehended contemplatively, the piece images a “sea of clouds.” When gazed at from the ground floor, or from another level of the gallery, it makes you feel like you are looking at people who are “swimming in the sky.” Even if this “external” point of view seems to offer you the possibility to ex-inhabit the piece, *In Orbit* is not here problematized as something that is simply offered to visual pleasure. By recapturing the graceful manner of a web that is one with its spider and conversely, it brings forth the irreducibility of architectural bodies and surrounds. For Saraceno, “to describe the work means to describe the people who use it – and their emotions.”

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In Orbit also actualizes a double ordering of the social world. Emerging out of an intertwining between spheres and networks, it avoids what Bruno Latour calls “the pitfalls of a globalization that has no real globe in which to place everything.”

Discussing the two concepts of networks and spheres, Latour goes on to say, they are clearly in contradiction to one another: while networks are good at describing long-distance and unexpected connections starting from local points, spheres are useful for describing local, fragile, and complex atmospheric conditions.

Latour nuances the distinction: while spheres image the possibility of living in, or on something, “one does not reside in a network, but rather moves to other points through the edges. Networks have no inside, only radiating connectors provide connections but no structure.”

However, Latour is quick to add, the double ordering of spheres and networks is not tantamount to an comprehension of spheres as a form of reality that is “made from different stuff, as if we must choose between habitation and connection, between local and global.” In other words, the double-ordering of networks and spheres brings a pragmatic distinction that impacts the forms of relations that condition peculiar modes of inhabitation.

In questioning the level of mental and physical energy needed to inhabit its meshwork, In Orbit puts emphasis on the fact and here I am paraphrasing Arakawa and Gins, “the body must either escape or ‘reenter’ habitual patterns of action.” To describe how people inhabit it is thus to look at their patterns of habitual activity. We, writes William James, “are subject to the law of

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510 Bruno Latour’s lecture at Harvard quoted by Andres Treske, The Inner Life of Video Spheres, (Amsterdam: Institute of Network Cultures), 34.
habit in consequence of the fact that we have bodies.”  

“All our life, so far as it has definite form,” James tells us, “is but a mass of habits.”  

The laws of form-taking can thus be defined in correlation with those of habit-taking. Laws are here understood in the Piercean sense as defined by Massumi as “nothing other than the regularity of habit acquired in the chaotic course of emergent experience.”  

Since habits crystalize in repetition, architectures of aliveness insist on the fact that what is repeated is not the architectural form but rather the habit convoked by the experience of inhabitation.

Orbiting Habits

Most of us feel as if we lived habitually with a sort of cloud weighing on us.

Compared with what we ought to be, we are only half awake.

“There seems no doubt,” James tells us, “that we are each and all of us to some extent victims of habit-neurosis.”  

“Our virtues,” he adds, “are habits as much as our vices.”  

Describing habits as “the enormous fly-wheel of society, its most precious conservative agent,” James invites us to “make our nervous system our ally instead of our enemy.”

In a similar line of thought, Michael Hardt and Toni Negri tell us, “habit is the common in practice, the common that we continually produce and the common that serves as the basis for our actions.”

Habits, they add, “are not really obstacles to creation but, on the contrary, are the common basis on which

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515 Ibid.
517 Ibid.
518 Ibid.
519 Ibid.
521 Ibid.
all creation takes place.”

Put otherwise, habits figure pure creative energy that holds the potential to give rise to alien forms of attachment. New habit can indeed be launched, James explain, “on condition of there being new stimuli and new excitements.” Not only training us to our most useful pitch of physical energy, habits also conditions our modes of thinking.

In forcing the body to move differently In Orbit not only re-trains us physically, it also triggers new habits of thought that give rise to alien modes of attachment to the non-local movement of life by. Let me now look more closely at how the bodily movements induced by In Orbit also open new exploratory adventures, that is, how they impact our habits of knowledge production.

To study both people and things, anthropologist Tim Ingold tells us, is to study the lines they are made of. Life, he adds, is lived “along paths, not just in places.” Also concerned with the qualities of the movements that make us, Ingold proposes wayfaring and its conceptual persona, the wayfarer, as a distinctive form of movement abstracted from the process of life itself. Ingold contrasts the wayfarer’s movement with transportation described as a destination-oriented activity. Transportation is for Ingold, as for architectures of aliveness, a form of occupation in that it is tied to a traveller who is moved rather than moving. In contrast, wayfaring moves beyond a consideration of space as a reality occupied by objects, linked by connections and transportation means. Rather, space, for the wayfarer, is lived along lines, “lines that are knotted and weaved in textures by gestures of inhabitation.” Since line are paths along which life is lived, and not connectors, gesture is “more than a connected sequence of fixed points.”

Caught up in a parliament of lines, in a web of movements, the wayfarer is “always on the way from one place

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523 Hardt and Negri, Multitude: War and Democracy in the Age of Empire 198.
525 Ingold. Being Alive: Essays on Movement, Knowledge and Description.
to another;”\textsuperscript{526} “he is his movement.”\textsuperscript{527} The wayfarer, Ingold adds, does not move “up” or “across” but “along: the movement of life. Imaging a fabric of trajectories composed with “lineal movement along paths of travel”\textsuperscript{528} rather than “durationless criss-crossing,” the wayfarer’s movement is transversal. That is, the wayfarer moves perceptually rather than objectively.

Moving emphasis away from transportation system, Ingold invites us to think of wayfaring as the embodied experience of perambulatory movement.\textsuperscript{529} That is, he invites us to think of movement as a metastable occurrence rather than as a determined path toward an ideal end. The wayfarer, he tells us, “has no final destination, for wherever he is, and so long as life goes on, there is somewhere further he can go.”\textsuperscript{530} “Skills of perception and action,” he adds, “emerge within these wayfaring processes of ontogenetic development.”\textsuperscript{531} Here wayfaring echoes James’ concept of second wind.

**Orbital Wayfaring**

_in Orbit_ invites us to feel space vibrationally like a spider, that is, to live along the world’s vibrations. To live vibrationally is tantamount to work with gravity as a sailboat works with wind for when you lay down on the net, you literally feel that you are on a sailing boat. _In Orbit_ not only forces its inhabitants to leave -or reenter- new habitual patterns by making usual forms of engagements impossible, it also images equipotentiality because the wayfarer moves along the spider web through the reverberating effects produced by the other inhabitants. These

\textsuperscript{526} Ibid, 147.
\textsuperscript{527} Ibid.,150
\textsuperscript{528} Ibid.,149
\textsuperscript{529} Ibid.,148
\textsuperscript{530} Ibid.,150
\textsuperscript{531} Ibid., 65.
effects are not necessarily seen. Notwithstanding, they trigger collective and transindividual individuation.

In creating “sets of participations,” In Orbit convokes the collective to call upon the spirituality proper to the transindividual. Here the transindividual comes as a resolution for, Simondon tells us, the significations that emerge at the collective level are not in the individuals, or between them, but across them. The collective is also a resolution. However, the resolution it actualizes is in contradiction with our common understanding of the collective. The resolution generated in the collective phase remains at the level of the individual who resolves the bipolarity of its problems between emotivity and affectivity. That is, the collective is not the image of a resolution of the relations between and among individuals. It is a resolution within individuals. The collective is thus a metastable compromise between subjective requirements in conflict.

Similar to the technical object, the individual does not resolve its subjective problems functionally but synergistically.

The transindividual phase of individuation also defies common appreciations in that it does not problematize individuals and society as two terms whose connections would give rise to the collective. That is, individuated individuals do not meet in the transindividual to create society. The social is the result of an individuation, not its condition. The transindividual, Simondon clarifies, departs from the unresolved modalities of biological structuration. The transindividual recaptures the non-individuated charge of reality to enable a second individuation of the individual’s potentials. Even if life may be said to be complete in itself, Simondon explains that vital individuation always leaves residuals outside of its system. Simondon adds a nuance to his explanation by advocating that the transindividual is irreducible to Bergon’s élan vital for it

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532 Simondon, L’individu à la lumière des notions de forme et d’information, 307.
533 Ibid., 303
is not totally in continuity with vital individuation despite the fact that it prolongs life. The transindividual is a form of transpositionality, which Simondon defines as a “non-structured background that rhythms the speed of individuation, and the possibility for a second individuation.”\(^{534}\) The transindividual is neither social nor individual. The social and the individual are rather its extreme poles. In connecting the collective back to the pre-individual nature, the transindividual generates a new individuation that opens the possibility for thinking about the reversibility of time. Here Saraceno’s meshwork comes as a metaphor of the transindividual. As Gil explains, “reversibility comes about when the relations between things and actions in space weave a texture such that any event, any significant gesture, or any phenomenon necessarily comes to be inscribed there.”\(^{535}\) Now, if the transindividual enables us to think of the irreversibility of time for it actualizes a new individuation informed by the residuals left by vital individuation, how can the transindividual be transposed to architecture? That is, how can endless space, chrono-topological structures and absolute survol actualize the reversibility of time?

**Part 4 Aliveness As Therapeutic Ritual: This Is Not a Cure for Progress**

The recovery of the intimacy of life\(^{536}\) as allied to the cosmic and terrestrial conditions of a particular region can be achieved by developing a spiritual bond.\(^{537}\)

Why not imagine multiple causality where ‘moral’ causes (whence ‘imagination’) would interfere with ‘physical’ causes?\(^{538}\)

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\(^{534}\) Ibid.


In *Metamorphosis of the Body*, José Gil makes a persuasive intervention into our understanding of the relationship between change and continuity, explaining that it is the very nature of liberal discourses to promise both. Recapturing William James’ conception of the self as the reality of continuous change, as well as the reality of absolute forms as organic consciousness, the logic of liberal discourses obliges architecture of aliveness to ask how its chrono-topological surfaces are offered up to the exercise of power. What is the time and space of power in the realm of chrono-topological structures? Can chrono-topological structures be thought of as a nascent form of geopolitics to give rise to “a different relation between power and territory than that of occupation or exercise of power over space?” Is the continuity proper to endlessness and absolute forms tantamount to the irreversibility of time? Put otherwise, how can architectures of aliveness think of change in relation to absolute interiority and absolute exteriority? Can architectures of aliveness pragmatically reorder the finality of chrono-topological structures to produce recurrent time? That is, can they suspend the irreversibility of time to engender change?

Against both the purification of knowledge and the prevalence of objective reference, architectures of aliveness follow Deleuze and Guattari’s work, which Gil describes as a “constant coming and going between the therapeutic field and the field of social and economical power.”

In this line of thought, can therapeutic power reinvent the way we orient ourselves in space to explore unconventional modes of attachment to the non-local movement of life?

**Cycle as the Rhythm of Life: When Symbolism Trumps Despotism**

Life’s rhythms are cyclical. Morphogenesis sets into place the elements of a cycle.

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539 Gil, *Metamorphosis of the Body*.
541 Frederick J. Kiesler, “‘The Endless House’: A Man-Built Cosmos,” in *Selected Writings* ed. Siegfried Gohr and Gunda Luyken (Verlag Gerd Hatje, 1966), 126.
Gil departs from the antinomy of space and time and looks at the body as the (non)-site of its resolution. Here the term non-site highlights the fact that for Gil, the body is irreducible to a set of organs, an organism, or a machine. Neither a language, nor an object, the body on its own, Gil tells us, “signifies nothing, says nothing.”\footnote{Raymond Ruyer, La Genese des forms vivantes, 38.} Rather, the body “is what allows signification to come about.”\footnote{Gil, Metamorphoses of the Body, 99.} The body can thus be defined “as operator of symbolic correspondences,” bringing Gil to ask, “how should the symbolic tissue behave to give rise to recurrent time?” Instead of looking at contents and forms (myths and dreams) to reveal the symbolic function, Gil focuses on the ontogenetic development of symbols as taken in their incipient form to define them as carrier of energetic charges that can only be approached in relation to the body.

Power antinomies, Gil adds, emerge “when the body can no longer sustain the correspondence between space and time.”\footnote{Ibid.} Attributing the correspondence of time and space to the “generative space of recurrent time,”\footnote{Ibid. 60.} Gil introduces the therapeutic ritual as an occurrence endowed with the power to override this peculiar incapacity of the body. “The ritual,” he writes, “stops irreversibility and restores the threatened cycle.”\footnote{Ibid., 69.} Gil defines rituals as “a series of highly symbolic gestures and aspects of behavior that make up, as Leach says, paraphrasing Levi-Strauss, ‘machines for the suppression of time.’”\footnote{Ibid., 77.} In other words, the therapeutic ritual “brings about cyclical time.”\footnote{Ibid., 62} Gil clarifies, “in order to be cyclical or recurrent, the flow of time “must not be seen as autonomous or independent of things and of beings.”\footnote{Ibid., 67} This autonomy is
beautifully described by Virilio as “infra-metrological or infra-physiological time,” said to affect “every vital cycle.”\textsuperscript{551} Now, how is this new form of time “also a new quality of space?”\textsuperscript{551}

Working within the interval between two periods united in temporal thickness, the therapeutic ritual is a “machine for producing the unconscious.”\textsuperscript{552} That is, “therapeutic discourses on the body” gives rise to symbolic efficacy through the “magical action of words on body parts.”\textsuperscript{553} Symbolic efficacy is thus linked to action at distance. A therapeutic method can thus be described as a mental pause that introduces cycles into the physical reality of experience. These cycles are crucial because they break the linearity of time and enable the production and expression of change and novelty. In other words, a therapeutic method does not seek to explain the psyche but to invent techniques that stimulate its individualization. It is a method to activate a creation, which immediately generates a modification of experience. Thus, the cycle is categorically not bringing the situation back to its initial conditions.

Similar to the manner in which endlessness images a multiplicity of vectors and times along a single continuous surface, Gil’s ritual images the solidarity of differences between relations of effectivity in a genetic cycle. Following Gil’s conceptualization of the ritual, architectures of aliveness think of architecture as a form or therapeutic ritual. Instead of developing techniques to correct behavior, they seek to energize both the physis the psyche with the aim of effecting modifications of experience. The modification of experience triggered by the ritual is however not the equivalent of a cure. The ritual is a resolution of tensions into a metastable equilibrium, a form of spiritual metabolism that activates a redistribution of the co-participation of our mentality and physicality toward an intensification of our capacity to action.

\textsuperscript{551} Virilio, \textit{Crepuscular Dawn}, 41
\textsuperscript{552} Gil, \textit{Metamorphoses of the Body}, 143.
\textsuperscript{553} Gil, \textit{Metamorphoses of the Body}. 
While the ritual brings about the figure of the therapist, the architect of aliveness is not a doctor, nor a therapist. It is the correality of the architectural body and its architectural surrounding that images a therapeutic ritual. To paraphrase Guattari, the architect is an artist rather than a psychologist, meaning that even if his method is informed by science, its impact does not explain the social in virtue of a principle of scientificity. More precisely, the architect does not effect a reification of psychic entities that could be seized externally.

Since symbolic formation is invariably related to power formation, how can the relation between symbols and forces, which is central to the therapeutic ritual, be used in architecture to “impede the formation of despotic” procedures of meaning production? Instead of departing from given knowledge about the body, which Gil argues, betrays the body itself, architectures of aliveness depart from non-knowing as a form of embodied awareness. Between spirituality and rationality, non-knowing (non-savoir), Stengers explains, refuses to identify a stable referent to privilege and instead inhabits knots of problems that problematize our modes of attachment to the world. That is, non-knowing is not a negative approach to knowledge production but the very possibility to maintain ourselves in a field of knowledge production guided by exploration and learning (as opposed to forms of knowing which are ingrained in recognition).

Let me now conclude by repeating some tendencies that were depicted in this chapter. Tendencies here are understood in Simondon’s terms as the non-resolution of potential that precede the genesis of the individual. Recapturing the reality of space of interiority as an absolute form that is irreducible to an “internal property” would reduce life to a form of occupation (simple location) as opposed to a form of inhabitation. Architectures of aliveness explored in this chapter the reversible determinations actualized in psychic individualization. Here we can come back to what was left open at the end of Chapter Two. While Foucault claimed that notions of continuity and consciousness have been replaced by events and series, Gil insist that they need to be thought together as two epistememes that do not coincide but that are correlated.
In the light of the discussion, architectures of aliveness can thus be vaguely described as architectures that force their inhabitants to transform gravity into energy and to modulate that energy into a flux that connects the body with its own potentialities.\textsuperscript{554} In encouraging the body to move differently, the integration of gravitational changes in earthly architectural structures rise up physis and psyche to their most vigorous pitch of energy to trigger the actualization of alien modes of engagement with both the local and the non-local movement of life.

Conclusion
(Bio)Mediatic Cosmoscape: Levitate Thought

Figure 55: Jem Finer and Ansuman Biswas, Zero Genie.

Architectures of Aliveness: Building Beyond Gravity began its exploration in the midst of the current fears associated with globalization and its forecasted hazardous impact on health. Focusing on outer space and biotechnology as two models that seek to cool down these fears, it has attempted to bring uncertainty and indetermination in the debate. Looking at health as a political problem based on movement, in opposition to a hygienic model based on immunity, it sought to emphasize exploration in order to rebuff recognition. Instead of thinking of health in terms of a good model of behavior ingrained in essentialist modalities, it followed the work of architects Frederick Kiesler and Arakawa and Gins who proposed to define it as a form of
behavioral / aesthetic relation. The refusal of a hygienic conception proved useful to resist the production of an authoritarian discourse based on an ideal formulation of health. It also made explicit the impossibility of a pretense to axiological neutrality.

Informed by discourses on globalization, which announce the collapse of borders and the opening of spaces, architectures of aliveness highlighted the malicious recuperation and exploitation of these promises by neo-liberal discourses, which generate fear by insisting on the potential for global cross-infection. Categorically renouncing the rhetoric of fear and panic, architectures of aliveness moved emphasis toward the impact of global movement on the body. Looking specifically at the development of mobile architecture as a form of design that is progressively making the world immobile, it aimed at providing pragmatic tools of resistance endowed with the capacity to intensify psycho-physical mobility. However, in the manner of a science-fiction novel, architectures of aliveness tried to resist the formulation of liberatory promises to focus instead on figures cases and concrete alternate scenarios.

Informed by the current fascination generated by the proliferation of biotechnology, and its increasing coincidence with architectural design, architectures of aliveness has attempted to depict architecture as one of the most primitive forms of biotechnology. This consideration was intended to challenge the assumed novelty brought about by contemporary biotechnology. Looking at biotechnology as a form of exploitation massively informed by techno-scientific spin-offs, the objective was to move away from the general disinterests generated by the dazzling power of technology. In this context, the aim was thus to insist on how the use and abuse of a rhetoric of novelty produces as well as shadows a lurking status quo.

Actualized in the form of a passage from the denaturalization of forms ingrained in visual forms and functional abstractions to the development of unnatural forms of participation, the inquiry was introduced as a refusal of the celebration of technological performance. In today’s information and biotech age, the focus on technological performance is ingrained in the
production of general systems of equivalences that flatten and to raze modes of valorization. Insisting instead on an aesthetic of imitation defined as a catalyst of affective resemblances (as opposed to the construction of equivalences that produce structural resemblances), architectures of aliveness gravitated toward the construction of forms of belonging and embodied relational behavior over time as counter-points to the hegemony of forms of identification. This change in focus was meant to emphasize architecture as a political practice primarily endowed with social value as opposed to a contemplative practice based on the production of new forms.

In an attempt to avoid the easy path of negative critique, architectures of aliveness sought to resist the production of a dwindling critique that jostles possibilities into an abyss, and which ultimately voids the world of any kind of possibility of attachment. Instead of looking at biotechnology as a generic model of the common good, the concept of aliveness was introduced as a form of non-knowing (or re-knowing) capable of generating alien modes of attachment to the non-local movement of life. More precisely, architectures of aliveness proposed to look at outer space modules of inhabitation as a form of architecture that encourages its inhabitants to constantly reinvent their psycho-physical mobility. It asked how the challenges brought about by life in weightlessness could inform urban and domestic procedures in order to keep the built environment and its inhabitants in a perpetual state of wonder and exploration. Aliveness was thus vaguely defined as a concept meant to offer alternate modes of thinking about the impact of technology on our wellbeing (physical and psychic) beyond a critique of instrumentality.

Aliveness was defined in close connection to health as a form of proprio-spatial dynamics to bring an aim to the more generic conception of life.

Architectures of aliveness, however, do not lay claim to have capture the totality of tendencies, issues, challenges, openings, and pitfalls entailed in a political consideration of health, for this pretense would be tantamount to a form of conceptual colonization. Neither did it seek to make aliveness a form of disguised imperialism by reducing its counter-concepts to mere by-
products of cultural history. As Ingold provocatively writes, “it is hard to imagine any paradigm that could be less cultural, and less historical, than one which assumes that everyone else’s paradigm (…) is a product of cultural history.”\textsuperscript{555}

The ultimate objective was to transduce the modifications of experiences actualized by the proposed change in focus to the field of media studies. Let me now reformulate the initial question to concretely address this specific inquiry: how can media studies develop techniques of wonder that induce life’s mobility instead of models of recognition that work toward its immobilization?

The current rationale for a world moving too fast is to accelerate the speed of things in order to catch up. Architectures of aliveness propose to invert this conception. To think of media alive, it is argued, it to slow down the speed of things. Echoing Simondon and Kiesler for whom life is a process that slows down the speed of the physical world, architectures of aliveness propose to enable bimediatic inquiry by thinking of media production in terms of its capacity to slow down biotechnological acceleration. Accelerated media, it is suggested, dramatically diminishes, if not completely erases, the possibility to construct techniques of belonging for it promotes the acceleration of time as opposed to its density and thickness (slowing down is thus not a mere synonym of deceleration). Now, refusing acceleration is not enough to account for the modification of experiences generated by the concept of aliveness. Can the ubiquity of “new” in media studies discourses come to the rescue?

It is today a common practice to claim the radicalization of everything. This fascination is informed by the actual economy of novelty that lurks everywhere as unspoken causality. For instance, this reality massively informs today’s humanities’ conceptual landscape. Either

disguised under the term “new” or “turn,” radicalization may very well be a symptom of our commodified society. In the last few decades alone, a variety of turns have been announced: the semiotic turn, the affective turn, the material turn, the post- and non-human turns, to only name a few. We have turned so many times that we might be on the edge of losing orientation. Here, however, disorientation is seemingly not endowed with political value for the proposed reorientations are meant to make us recognize the differences between old and new forms of knowing. In this perspective, is the proliferation of turns enclosing us into closed circles of thought? Since to turn is another way of talking about novelty, can we turn and at the same time doubt the implicit prophesy of novelty? Can “new” media be about something else than the description of a conversion and act instead as a form of non-knowing that incites exploration? Put otherwise, can the adjective “new,” understood as a generic qualification not fool us to blindly equate it with concrete forms of exploration? Can a rhetoric of novelty make us wonder? Can the adjective “new” actualize more than the announcement of change revealed in emerging properties? Can emergence move from a generic conception of novelty to concrete pragmatic change? Instead of relying on a rhetoric of novelty, architectures of aliveness proposed to focus the inquiry on Correalism, an (in)disciplinary project constructed by Frederick Kiesler. Now, to comprehend the pragmatic implications of Kiesler’s correalist project on media studies, as well as to highlight the intensities of experience that it enables us to capture, let me first look at today’s (bio)media landscape.

**Biomaticscape: From Emergence to Optimization**

In *Bioart and the Vitality of Media*, Robert Mitchell looks at bioengineered life as artistic medium, which, he argues, serves as the basis for a reflection on the nature of media. From the onset, Mitchell explains that his exploration is primarily concerned with the description of the transformations undergone by media in the biotech realm, as opposed to the construction of
exploratory techniques that incite us to wonder about the impact of biotechnology through inviting it to act differently.

Mitchell’s inquiry is informed by bioart, a form of art that uses life and the tools of biological sciences as medium for artistic expression. The primary difference between bioart and other forms of contemporary art production is usually explained by the ethical consideration that the artist (and viewer) must ascribe to the materiality of the work. For Mitchell, “literal” integration of biological sciences in art production brings a nuance into our understanding of the concepts of media and medium. More specifically, it actualizes a distinction between media understood as a recipient for storage and communication, and medium, which, he asserts, is tied to the concept of emergence. A medium, Mitchell tells us, is “a material means through which information, thoughts, sounds, images, colors, and textures are stored and transmitted from one place or time to another.” Media, on the other hand, depicts the reality of “fluids or solids employed to keep living cells developing, dividing and transforming during the course of an experiment.” Put otherwise, the concept of medium is tantamount to a mode of transportation whereas the concept media images a milieu of emergence. Mitchell transposes this nuance to the lived experience of the gallery-goer to highlight the ethical considerations of bioart production. The distinction he draws between media and medium provides the point of departure to another distinction between prophylactic and vitalist art. Prophylactic art, Mitchell argues, separates and insulates itself from its observers to generate representations. In contrast, vitalist art uses gallery-goers as a media “for generating new biotechnological possibilities.”

Mitchell’s terminological contrast is a reification of McLuhan’s distinction between hot and cool media as concretized in the reality the bioart experience. For McLuhan, hot media are

556 Mitchell, Bioart and the Vitality of Media (Seattle: University of Washington Press, 2010), 11.
557 Ibid.
558 Ibid.,
low in participation. They exhibit an overabundance of data, which makes them complete forms. In contrast, cool media are high in participation, meaning that they are incomplete forms that necessitate an audience for their completion to reach concretization. The contrast between hot and cool media is strikingly similar to the one between prophylactic and vitalist media for both illustrate the levels of participation required for a mediatic experience to be actualized. While Mitchell actualizes a performative diagnosis that enables us to move beyond the immobility of a passive observer to a conception of active participants, he also restitutes the reality of categorical thinking to fall back into modes of recognition. His engagement with bioart is informed by a subtle essentialist understanding of media as a pre-given set of parameters that determine modalities of experience. It also departs from a sharp opposition between objects (art) and subjects (gallery-goers) where experience is reduced to the retrospective relation between two individuated terms (the art piece and the viewer).

In *Critical Terms for New Media* Mark Hansen and W.J.T. Mitchell explain that the shift from a conception of media based on artifactuality to one based on processes of mediation is tantamount to an understanding of media as a “singular form of abstraction that denotes an attentiveness to the agency of the medium in the analysis of social change.” In this context, Mitchell’s vitalist art can be equated with an understanding of media a surrogate of human agency.

While Mitchell’s vitalist approach productively moves (bio)mediatic inquiry from a passive to an active form of experience, it focuses on what happens to life as a conceptual category when it is bioengineered without offering tools to wonder about bioengineering. In stark contrast with the concept of aliveness, which is informed by the work of Arakawa and Gins who

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argue for the obligation of inviting the world to be a different world. Mitchell’s vitalist art thinks of bioengineering as a given or imposed reality. The consideration of bioengineered life as a given reality also informs Eugene Thacker’s concept of biomedia.

In *Biomedia*, Thacker looks at the ways in which the digital is transforming the biological. Biomedia, he writes, “entails the informatic recontextualization of biological components and processes, for ends that may be medical or non-medical.” Refusing body anxieties, he claims that biomedia neither fears the complete hybridization of bodies and technology nor the total substitution of the body by technological means. Thacker adds that biomedia focuses on the optimization of the biological domain, that is, on processes that enhance biological materiality such that, he argues, the biological can reemerge as endowed with greater biological potential. Thus, at stake is not life but the digital rearrangement of biological life. In emphasizing the optimization of biological life through technological means, Thacker’s concept of biomedia actually lands on a commodified version of life. Technology, by this account, is reduced to a means of optimization rather than raised to the level of a companion.

The biologization of life, that is, the reduction of life to the contemporary descriptive possibilities offered by biotechnology is implicitly what architectures of aliveness seek to resist. Aliveness is not the name of a quality that can be attributed to a media form in virtue of pre-given parameters. Neither is it the generic term of a descriptive conceptual category. It is rather a concept meant to guide exploration. That is, aliveness insists on life as a mode of aesthetic relation and on its conditioning capacities as opposed to life as a descriptive category and derivative determining forms of organization. Aliveness acts as a conceptual quasi-cause that connotes the formative participation of the future (in opposition to the celebration of a future to

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come as figured in the abuse of the concept of emergence). Aliveness aims at producing modifications of experience that incite exploration to resist forms of identification. Thacker’s reduction of the body to its biological identity encloses it into pre-given probabilities dictated by technical possibilities. The body is thus stuck in the recognition of its biological identity where its only escape lies in its capacity to technically optimize itself.

**From the Descriptive to the Appreciative: The Discursive as Incipient Praxis**

These two approaches reinvest an implicit *status quo* for they make us recognize changing possibilities as opposed to offering new forms of attachment. They are predominantly descriptive rather than appreciative. In attempting to capture the scapes produced by the embodied experiences offered by the increasing proliferation of biotechnology, they take bioengineering as a given without providing us with possibilities to doubt, wonder and explore. That is, they provide us with new terminological means to describe realities without proposing alien manners of staging those same realities.

Taking biotechnology as a given to look at the changes it actualizes is indeed a form of *status quo* because it makes us look at existing probabilities rather than inviting us to construct new possibilities. Here architectures of aliveness are not trying to negate the effects of biotechnology and bioengineering. However, they categorically refuse to raise this reality to the level of a dominant model from which all modes of bimediatic inquiry have to depart from. This conception would make the concept of aliveness a vulgar by-product of biotechnology. Instead of looking at the “new” descriptive possibilities offered by biotechnology, aliveness seeks to bring wonder into the equation. In the realm of aliveness, life precedes its concretization into bioengineered forms. This infra consideration of life is intended to make us think about the development of both practical and productive modes of inhabiting the world.
We find tools of resistance to the general acceptance of the distribution of biotechnology in the practice of the Critical Art Ensemble (CAE). Concentrating its inquiry on practical ways of inhabiting the world, the CAE’s focus moves away from discourses on media and technical specificity in order to make us doubt and wonder about the promises and effects of biotechnology. Informed by a strong desire to replace the national military by global public health, the CAE’s objective is to construct forms of resistance to the hegemonic power of biotechnology and bioengineering. These exploitative powers, the CAE argues, are intensified by symbolic mechanisms that rely heavily on fear and panic. Instead of approaching biotechnology form a generic angle, the CAE looks specifically at bioweapons. Tracing back their history, the CAE makes a persuasive intervention by explaining that bioweapons are weapons that operate as boomerang effects. That is, bioweapons only succeed at self-destruction for they usually turn themselves against their own place of emergence. Here the CAE renders visible a paradox: while politicians bank on bioweapons as a way of generating fear and panic to better promote their approaches to homeland security, they are totally useless to terrorists who fully understand the risks of their boomerang effects.

What is innovative about the CAE’s approach is that it goes beyond the mere critique of military tactics to emphasize the possibility of creating “models of risk assessment that are accessible to those not trained in biology.” Its method inverts the hegemony of discourses that seek to “calm public skepticism by ripping bio-imaging out of the realm of political debate and fortifying it within the spectacularized and specialized bunker of aestheticization.” Strongly aligned with architectures of aliveness, the CAE argues that we must slow down the speed of biotechnological development to open atypical modes of engagement that do not follow the speed

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564 Ibid., 7.
of the mutations generated by bioengineered life. We have, they tell us, to reduce the speed of functioning for it gives rise to forms of efficiency that are economically recaptured for the sake of profitability. ⁵⁶⁵ In the accelerated realm of biotechnology, functioning, the CAE explains, is solely valued in its capacity for distribution with no consideration of its pragmatic effects.

Vigorously challenging the promises of technology as based on virtues of democracy, liberty, efficiency and progress, the CAE warns us against these promises, which, it explains, are ingrained in capitalist expansion (however disguised as an advancement of public good).

Biological engineering, the CAE wants us to understand, announces democracy by stipulating that “all citizens would be fit agents for political action.” ⁵⁶⁶ Here the CAE urges us to doubt the celebration of the liberal and emancipatory powers announced by biotechnological development.

While the three approaches presented above address biotechnology specifically, they implicitly question material culture, which is Jane Bennett’s central focus of in her book *Vibrant Matter*. While biotechnological development seemingly reduces life to a biological reality, Bennett makes a persuasive intervention by proposing to think of matter as a “dynamic force emanating from a spatio-temporal configuration rather than from any particular element within it.” ⁵⁶⁷ Bennett’s vibrant matter moves from a mechanist consideration of matter based on space occupied to an experiential conception understood as a “force with agentic capacity.” ⁵⁶⁸ Bennett invites us, like Saraceno, to think of the world as vibrational form of experience. To feel the world in vibration, and to vibrate the world, she tells us, is to think of activities in terms of intensities as opposed to reducing them to their spatial extensions. Here Bennett follows Deleuze who defined activity as the vague essence of matter. In emphasizing vibration as opposed to

⁵⁶⁵ Ibid., 11.
⁵⁶⁶ Ibid., 44.
⁵⁶⁷ Ibid.
spatio-temporal location, Bennett, like Kiesler, Ruyer and Whitehead offers a productive critique of the reduction of life to the mechanist reality of visible forms.

In bestowing agency to all forms of materiality, Bennett refuses the supremacy of the biological and in the same stroke, she invites us to not reserve ethical considerations to biological materials. Following Bergson, she describes vibrant matter as driven by élan vital, which, she beautifully defines as a “drive without design.” That is, the material world is for her a non-harmonious whole in movement that figures an indivisible continuity. Here Bennett is categorical: all matter is animated and the difference of animation between physical and biological materiality is a difference of degree and not a difference in kind. That is, for Bennett, as for Simondon, to live is a doing rather than a being. Life is not an intrinsic property of materiality but a relational form that animates the world vibrationally. That is, life’s expressions produce forms of belonging as opposed processes of identification.

Even if Bennett refuses systems of exclusion based on essentialist modalities to focus on élan vital as a form of indeterminate vitality that makes the entire world vibrate, she fails at capturing the non-vital reality of transindividuation. In bestowing élan vital to all forms of individuation, she implicitly restitutes individualistic qualities of materiality; what she calls incipient qualities of matter. While her approach might be presented as a refusal to reify life, the outcomes suggest the contrary. Put otherwise, she inverts he own logic of thought by attributing agency to things in themselves as opposed to thinking of them as relationally animated. Even if she states otherwise, her emphasis on the description of our manners of looking at matter departs from a relational conception to land into materialistic considerations that individualizes things into forms of agentic existence. This contradiction is revealed from the onset in the subtitle of her book: *A Political Ecology of Things*.

Architectures of aliveness refuse to completely dismiss her approach. As Ingold explains, material culture scholars “have sought to recapture the physicality of the material world that had
been neglected by the postprocessualists in their quest for free-floating ‘meanings’ that had seemed only arbitrarily attached to their signifiers. In this perspective, Bennett’s intervention brings pragmatic value for it thinks of the world in the concreteness of its materiality as opposed to relying on soft abstractions that arbitrarily produced meaning. In addition, her approach to materiality does not obstruct “our understanding of the fields of force and circulations of materials that actually give rise to things and that are constitutive of the web of life.” However, as Ingold reminds us, these conceptions of the material world often focus “on the artifactual domain at the expense of living organisms.” Bennett does not truly deny living organisms for she expands their vitality to the entire realm of materiality. However, in the same stroke she fails at capturing the non-vitality of the vibrating world, as expressed in Simondon’s transindividual phase on individuation.

Now, in the light of these negative considerations, can architectures of aliveness move beyond the limitations of the discourses it re-figures and resist the construction of an ideal conceptual horizon at the same time? To attempt the concretization of this perilous adventure, let me now look at how Kiesler’s correalist approach provides us with the necessary tools to bid on the attempt.

569 Tim Ingold, Toward an Ecology of Materials, 428.
571 Ingold, Toward an Ecology of Materials, 428.
Correalism as Form of Life

The new content in the arts is the desire to correlate.572

Correalism encourages us to engage in the world of experience as opposed to focusing on the formulation of descriptions, situating its inquiry beyond the production of statements on the status of things (whether the production of scientific knowledge or artifacts). In the realm of Correalism, the genesis of the technical object is at the same time a becoming of the human (technogenesis as anthropogenesis). However this correlated experience is irreducible to the ways in which human being feels the technology, and conversely. This two-sides aesthetic relation is rather taken as the life of the ensemble, that is, as a distinctive mode of existence. In so doing, Kiesler avoids the reification of lived abstractions that bestow animation to individualized objects and things.

In its refusal to think of the relation between human beings and technology as determined by systems of equivalences, Correalism resonates with W.J.T. Mitchell and Mark Hansen’s take on the relational form of mediatic experience, which they invite us to think of in terms environments for life. Mitchell and Hansen, unlike their contemporaries who celebrate emergence as invariably imaging new possibilities, insist instead on the manners in which the consideration of media as environments for life “differs from conceptions of medium/media as a narrowly technical entity or system.”573 Resonating with Arakawa and Gins, Mitchell and Hansen explain that media “does not only deal with extensions of the human sensorium, but with their introjections into the structure of feeling and forms of life that constitute human subjectivity and collectivity.”574 In emphasizing the temporal implications of media, they think of technology as

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573 Tim Ingold, Worlds of sense and sensing the world: a response to Sarah Pink and David Howes, 314.
that which can reorder the sensorium. For the correalist practitioner, who thinks of media as
environments for life, the aim is thus not to optimize the body or to celebrate technical novelty
but to insist on duration as that which holds the potential to affect organisms from within as well
as to bring about a bridging of the without to enable the re-understanding of space.

Now, does Correalism belong to the realm of new media or of biomedia? Or does it
refuse all forms of categorization? Kiesler’s project affirms the extensive unity of arts in a
manner that prevents the possibility of disciplinary territories. In so doing, it greatly challenges
traditional categories of analysis and synthesis. In refusing categorization, Correalism rescues us
from classificatory thinking to insist instead on the study of pragmatic effects. Echoing Brian
Massumi who argues that “an evaluation of a technique’s manner of event can replace the notion
of ‘medium,’” Correalism here replaces the terms media, medium and mediation. However,
architectures of aliveness do not announce Correalism as actualizing a total reconfiguration of
mediatic activity for it would implicitly recuperate the rhetoric of novelty. Correalism is rather
apprehended as a form of slowing down that follows the movement of life, which, in William
James’ terms means “the possession of a structure weak enough to yield to an influence, but
strong enough not to yield all at once.” In the correalist cosmoscape, if we can still rely on the
adjective “new,” it could only be used to depict the quality of a metastable relation, meaning a
relation that images a productive tension between past and future.

The Crisis of Identities: Cross-Classification and the Refusal of
Categorization

The categorization of Kiesler’s work is at best a waste of time, and at worse a reification
of disciplinary dogma and institutional territories. Architectures of aliveness refuse the

575 Massumi, *Semblance and Event*, 123.
categorization of art for it gives rise to forms of recognition that serve funding agencies and most particularly art historians by providing them with stable grounds to resolve the bickering of their disciplinary postures. While the categorization of art may be endowed with heuristic value, it also encloses practices in pre-given categories that produce systems of exclusion. That is, art practices that do not belong to existing categories will be dismissed, qualified as heterodox or asked to invent their own category. In so doing, systems of categorization promote forms of identification and recognition that shadow affective tonalities.

Classificatory systems give rise to divisions ingrained in pre-given criteria that respect the genre-species logic, which states that an ensemble (species) ought to be divided into sub-ensembles (genres) and that each sub-ensemble ought to be classified according to the preceding sub-ensemble's rule. Whitehead and Russell's cross-classificatory method transforms the analytical division at the basis of this logical system. Cross-classification categorically refuses to posit a primordial unity from which divisions would be generated. The geometrical axioms that belong to cross-classification are irreducible to synthetic a priori, experimental facts, and purified universals. They rather depict the reality of contingent conventions. Cross-classification avoids relinquishing entities' compositional relationalities and singularities to account for a form of classification that does not emerge out of oppositions but that results from abstractions that produces polarized contrasts on a cross-referencing continuum.

Cross-classification is informed by projective geometry, which studies light in contrast to metrical geometry, which studies solids. To grasp the distinction, think about a Cartesian grid where x and y represent horizontal and vertical axis. Now think of the grid in 3D where the third modality is represented by the variable z. In adding a third variable, projective geometry destabilizes the two-axis grid to bring time to depth as fourth dimension to actualize unexpected possibilities of encounters and connections between lines. The dimension introduced by the third and fourth variables erase the impossibility of two parallel lines to meet, opening the possibility
of an encounter at a point at infinity. Cross-classification is here another way of speaking about transduction for it produces affective resemblances that are not ingrained in structural correspondences. It also echoes endless space as a spatial reality that sets in motion cross-fertilizations between, among and along heterogeneous fragments. Put otherwise, projective geometry enables us to think of the correalist project as that which renders visible the material, physical, social, psychic, and technological modalities that compose space as a vectorial field. Lastly, it also speaks to the mental/physical polarization of life, emphasizing the fact that life is not contained in neither poles but in their non-coinciding relationalities.

Architectures can thus be qualified as a form of (bio)media production not when it restitutes a pre-given category but rather when the forms it produces emerge from incident and incipient connections across heterogeneous elements. As a consequence, Correalism figures an interzone of activity that renders visible the co-existing modes susceptible of raising indetermination. Thus, a building is not defined as a static form but as a trigger for movement, and as an inorganic membrane that catalyzes the encounter of bodies and objects toward the composition of new subjectivities.

Even if Kiesler generously invited all artists to claim themselves architects, Correalism does not amount to the negation of singularities and differences. Before explaining the implications of this statement let me emphasize that this invitation affirms the necessity for all forms of practices to account for forms of inhabitation, that is, for proposing modes of moving along inside the movement of life. In other words, it implies the fact that to consider yourself an architect, you do not have to dedicate yourself to the construction of buildings. To be an architect is rather tantamount to be a life practitioner. Now, let me explain how this consideration is irreducible to a complete merging of singularities. Correalism is a model of disobedience that demands the construction of fields of exchangeability and not the complete merging of disciplines and practices. As if Kiesler could already anticipate a symptom that characterizes our
contemporary moment. Correalism reinvests the pragmatics of transdisciplinarity as a symptom that reveals theoretical and practical presuppositions when used as an instrument to depict forms of collaboration. Transdisciplinarity is sometimes used to endow a research project with value without however being considered pragmatically. Today, in many cases, transdisciplinarity is a form of branding rather than an ethos.

The actual imperialism of transdisciplinarity also gives rise to forms of multi-specialization that ungracefully flatten down disciplinary differences and singularities. For instance, nowadays, a variety of artists claim themselves, philosophers, engineers, scientists, designers and so on. We also witness the reverse movement where a number of academics want to be recognized as artists. These artists and scholars implicitly make transdisciplinarity a religious form in that they end up isolating themselves in their own specialization. Collaboration here means exchanges of knowledge rather than processual engagement. The complete merging or synthesis of skills is not a form of Correalism. When practitioners claim their capacity to complete their own practice, they close down all possibilities of transindividuation. In contrast, to recognize your own incompletion as a practitioner is the initiatory phase of a practice whose techniques triggers individuation processes informed by learning and exploratory activities. Taken up in cross-classification, Correalism images a struggle between fields of practices whose resolutions can only be metastable. It insists on the construction of alien forms of exchanges that force practitioners to risk their own practice. Before moving further into the political implications of Correalism, let me first address how it also speaks to the field of visual studies.
From Vision to Visibility: Experience as Form of Opacity

Space, for Kiesler, is common to all medium and media, a form of relationality that makes the world thick. A form of relation that is “invisible to the naked eye, but very much felt by the psyche.”577 Space is thus a singular form of invisibility that effects modifications of experience in its capacity to actualize separations and links. However, for Kiesler, space is something that cannot be represented fully. Correalist space thus complicates the manners in which we can capture the density it bestows upon experience.

Architectures of aliveness seek to resist the epistemological imperialism of vision. Informed by a consideration of life as a reality that is only partially offered to sensuous experience, and which is catalyzed in empty space, the concept of aliveness was introduced as an elusive form irreducible to techniques of visualization. Despite the fact that the non-punctuality and non-locality of life have been elicited in several discourses over the last Century, the sovereignty of vision is still polluting a variety of disciplines. This reality is notably figured in the current proliferation of Visual Studies departments where the possibility to visualize the world is taken as empirically sufficient to caution the existence of the field. One of the central problems that emerge out of the celebration of visualization techniques is that their heuristic value is equated with a truthful depiction of the world. The recuperation of scientific imaging by popular media as well as by academics in the humanities and social sciences is mischievously jeopardizing effective exchanges for these models are taken as sufficient in themselves. Here collaboration is no doubt reduced to a banal communication that occurs at level of research outcomes. While scholars insist on the images distributed in popular media, they would benefit from truly working closely with scientists for they would realize that scientific reliance on

visualization techniques represents only one form of data articulation. That is, scientists do not equate visualizations with simple location. When a scientist looks at a visualization, he/she sees more than what popular media and a great number of scholars can perceive. To reduce scientific production of knowledge to scientific imaging is thus a transfiguration of sciences. At stake is the possibility of a culture of divergence where the objective is not to convince the scientist or to be convinced by scientific claims but to question how we can make our own practice diverge to avoid landing on forms of recognition.

Now, what kind of epistemological framework can account for the impossibility of visualizing life without however reducing visibility to a meaningless activity? Architectures of aliveness did not seek to overspill vision. Rather, it suggested an approach that thinks of vision as an event that takes place within and among the correlationalities it shares with other senses, and most particularly its relation to transpositionality as the reality of proprioceptive occurrences. In this light, what kind of approach can resist the reduction of the world to visible images without claiming simplification and mistaken purification of knowledge? What kind of visibilities can be linked to the architectural body? How can vision avoid relying on the identification of psychological categories to resist the explication of the psyche’s mechanisms and insist instead on modes of intensification? Deleuze’s distinction between activities that render things visible as opposed to making them visible proves here amazingly useful. To render visible is not to reveal something that would otherwise be left invisible. To render visible is neither tantamount to the production of a script from which visible forms could be transduced into practices of reading. That is, to render visible is irreducible to the mere identification of the topos of invisibility. And perhaps most importantly, to render visible is not the equivalent of stipulating that an observer can only access the world as simulacrum. In the light of this distinction, what is the visibility
proper to non-representational thinking? How can it avoid skewing “experience toward an enveloping aestheticized perception”? How can visibility be used to trigger exchanges between fields of practices? Architectures of aliveness suggest opacity as the non-model of activities that render visible. That is, it proposes to think of the correlationalities that characterize the intervals between the elements to be felt as opaque density. Opacity is not a quality that can be added retrospectively to reveal the place of invisibility. Opacity is rather the processual reality of all living occasions. By this account, the analogical method presented in Chapter One can be further explained as a beam of intensities that creates plays of shadows instead of a total enlightenment. The obscurity proper to the analogical act sustains wonder to makes us think instead of creating representations that can make us recognize.

Correalism proposes to explore the world as visual impossibility. A major axis of the correalist project is to respond to the impossibility of visualizing life by producing more visual impossibilities. Instead of formulating a critique of the “the reduction of vision to the triadic relation between objects, images and their interpretations,” Correalism emphasizes proprioception as the reality of experiences whose occurrence take place between vision and movement and yet at the same time in neither mode. To insist on proprioception and to resist the production of a negative critique of vision, Correalism and biotechnique suggest an aesthetic of inhabitation based on our sense of weightedness and weightlessness. Now, if aliveness is a form of opacity whose occurrences are based on the production of continuous space where the body is in relation with space as opposed to be represented in it, what are the worldview-changing realizations it renders visible? Endless space resonates with the promises of globalization in that it makes the world a surface where bodies, goods and information can circulate freely.

578 Critical Art Ensemble, *Molecular Invasion*, 70.
579 Ingold, *Worlds of sense and sensing the world: a response to Sarah Pink and David Howes*, 314.
Globalization thus proves a successful model that exploits the concept of endless space to figure endless possibilities of connections and distribution. What kind of political approaches could bring indeterminacy to produce spaces of resistance?

In Chapter One, it was said that Correalism prefigured both bioarchitecture and environmentalism. While connections between correalism and bioarchitecture were elicited in Chapter Three, those with environmentalism have yet to be addressed. How is Correalism enabling media studies to move beyond the mere passage from biological to ecological metaphors? How can a correalist approach to the environment think of atypical modes of inhabitation? In putting forth postural activity, Correalism affirms posture as a form of choreography whose forms of vision give rise to the construction of forms of knowledge. How can Correalism also condition epistemological postures? Here architectures of aliveness follow Isabelle Stengers for they suggest to think of knowledge production as the metastable reality of postural choreography informed by etho-ecological considerations. That is, etho-ecology affirms the inseparability of ethos, which Stengers described as “the way of behaving peculiar to a being,” and oikos, which she defines as the habitat of that being. More precisely, etho-ecology asks how an “habitat satisfies or opposes the demands associated with the ethos, or affords opportunities for an original ethos to risk itself?” Let me come back to the concepts of dwelling and inhabitation in order to shed light on the issue at hand.

Transpositionality as Opaque Pluralism

Departing from the inversion proposed by the shell, where we live to construct rather than the opposite, looking at flying in being as an incipient biotechnical procedure of

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581 Ibid.
construction, architectures of aliveness insist on the manners in which the forms of movement abstracted from the activity of inhabitation conditions our modes of knowledge production.

Virilio makes a distinction between mobility and circulation, which seems to be based on an inversion that creates a confusion of sense. The Online Etymology Dictionary dates circulation back to the 15th Century Middle French circulation, and to the Latin circulationem (nominative circulatio), which stems from the past participle circulare, meaning, "to form a circle." In the same dictionary, we also learn that mobility stems from Latin mobilitatem (nominative mobilitas), which means "activity, speed." While mobility images activity, circulation seems to be ingrained in the production of enclosed spaces that reinforce social isolation. In asking for techniques to inhabit circulation, Virilio is introducing the necessity for dwelling to act as a speed reducer that effects a redistribution of meaning, which moves beyond the consideration of circulation as a form of enclosing to introduce dwelling as speed reducer. Now, how can dwelling move beyond the production of forms of enclosure that Virilio is vigorously resisting?

To resist the noxious habit of making circles is what Tim Ingold actively urging us to refuse in Lines: A Brief History. Ingold explains that drawing circles is an activity that trains us to first isolate beings from within, and to secondly connect them with their surrounding. In other words, modernity has taught us to think of the entities that inhabit the world as enclosed, individualized and isolated beings, as ex-inhabitants rather than inhabitants, and to retrospectively relate them to their environment. As Citton and Walentowitz explain, for Ingold, circles teach us to enclose and to occupy, to think of the world through the spatial division between ‘outside’ and ‘inside.’

To draw life as contained within clear lines of demarcation is thus to draw death for lines artificially enclose beings. To draw closed systems is thus tantamount to an intellectual

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582 Yves Citton and Saskia Walentowitz, “Pour une écologie des lignes et des tissages” in Revue des Livres, 4, mars 2012.
suicide. Ingold renders visible the absurdity of this habit for, he explains, “bodies are open to the lifeworld and move along with it, not inside of it.” In brief, Ingold’s wayfarer is not surrounded by an environment or connected in a network. That is, the wayfarer does not occupy space. He rather inhabits it in wayfaring activity.

We can transduce Ingold’s argument to Arakawa and Gins’ architectural surrounds to highlight the manner in which architectural surrounds, unlike Mitchell’s vitalist art, are irreducible to surrogates of human agency. Citton and Walentowitz add that for Ingold, there is no ‘I’ in an environment; rather, multiple trajectories are knotted in me. Beings, they write, are “knots rather than cells.” The consideration of organisms as being ‘in’ a milieu feeds the emphasis on physical forms for it enables to distinguish where the organism ends and where the milieu starts. Here, the spider’s mode of inhabitation proves useful another time for the web of the spider is one with the spider and conversely. That is, it prevents the possibility of drawing clear lines of delimitation. Ingold’s wayfaring ecology, Citton and Walentowitz tell us, “substitute the inhabitant of a meteorological world to the ex-inhabitant of the terrestrial globe,” generating an astonishing perspective: in place of observing the earth from the sky, Ingold’s ecology restitutes us in a sky seen from the earth.

Now, if an organism cannot be said to be in an environment, what is the point of view of the world that emerges out of this impossibility? While Chapter Two emphasized the impossibility of an external point of view, absolute survol and transpostionality could

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584 Yves Citton and Saskia Walentowitz, Pour une écologie des lignes et des tissages, 12.
585 Ibid., 3.
586 Ibid.
587 Ibid., 6.
588 Ibid., 6.
nevertheless be wrongfully equated with the possibility of a totalizing gaze from which an overview would be made possible. In the light of Ingold’s ecology, transpositionality and endless space cannot be said to figure the reality of a projection on the exteriority of a surface where the non-observer could enjoy an exteriority that would make him an ex-inhabitant of the world. \(^{589}\) That is not to say that critical reflection cannot occur. It rather affirms the absurdity of the claimed possibility of an encompassing overview or of an external position to a field of knowledge. Put otherwise, in the realm of architectures of aliveness, you can invite your context to behave differently but you cannot ex-inhabit it.

Correalism figures a reality that is not based on modalities of juxtaposition, synthesis or convergence for those modes of thinking would reduce the world’s plurality to the possibility to a single point of view. In this wayfaring line of thought, how architectures of aliveness avoid submitting practices “to a converging principle from which they would only become different ‘points of view’ about the same world?”\(^{590}\) Put otherwise, what would be the ecological point of view of absolute *survol*? Architectures of aliveness follow Deleuze who, in *The Fold* explains, “every point of view is the point of view of variation.”\(^{591}\) Transpositionality is thus here understood as the point of view of a variation. While this conception is linked to a form of relativism, Deleuze clarifies that relativism is not "a variation of truth according to the subject, but the condition in which the truth of a variation appears to the subject.”\(^{592}\) The point of view of transpositionality can thus be said to belong to a regime of invisibility for there is no global point of view ensued in absolute *survol*. That is, architectures of aliveness do not offer a viewpoint to observe. They instead insist on the correalist perspective as the reality of a pluralism that implies

\(^{589}\) Ingold, *Being Alive: Essays on Movement, Knowledge and Description*, 96.
\(^{590}\) Isabelle Stengers, *Engagement pour le possible*, 134.
\(^{591}\) Deleuze, *The Fold*, 138.
\(^{592}\) Ibid.
“distance and not discontinuity.” Now, if Correalism is pluralism, which Kiesler defines “as the realities of conjunctions and disjunctions,” and if the world is experienced as a form of opacity, how is pluralism offered to the exercise of political action? And, most importantly, how can the opacity of pluralism not reduce the economy of our attention to a form of social depression?

The Refusal of Deterrence: Aliveness as Technique of Non-Obedience to the Milieu

In the term cosmopolitical, cosmos refers to the unknown constituted by these multiple, divergent worlds, and to the articulations of which they could eventually be capable, as opposed to the temptation of a peaceintended to be final, ecumenical: a transcendent peace with the power to ask anything that diverges to recognize itself as a purely individual expression of what constitutes the point of convergence of all.

In Chapter Four, perception was described as the resolution of a sensory conflict in context of which the tropisms, which challenge sensory orientation, were said to image a struggle that cannot be fully overcome. In this context, physical and mental life can be understood as figuring a struggle with the milieu (and not in opposition to it). This consideration provides the point of departure for a political model at another scale. That is, it opens the possibility for refusing an ideal horizon of intersubjective agreement to valorize instead conflicts and struggles at the transindivudual level.

Architectures of aliveness refuse the pretentious claim to transparency. This consideration is informed by Canguilhem’s understanding of the body as a reality that cannot be represented as well as by Sloterdijk’s emphasis on the opacity of spheres. In this line of thought, architectures of aliveness insist on the impossibility of transparency to promote a politics of conflict that creates zones of struggles. Absolute peace and transparency are here apprehended as

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obstructions to political adventure. That is, architectures of aliveness transpose sensory and perceptual occurrences at another scale to equate the absence of dissensus, oppositions, fights, and struggles as a refusal of political engagement. As if uttered opposition and dissensus could only lead to a blood war. Qualified otherwise as a form of political politeness, the peaceful model of pluralism is nothing less than a form of liberalism ingrained in the “rationalist belief in the availability of a universal consensus based on reason.” Here Chantal Mouffe warns us: pluralism borders up with liberalism. In fact, to be politically polite in an attempt to reach peace which restitutes a mechanist form of obedience to a milieu. Political space, by this account is reduced to the impossibility of a struggle.

Absolute _survol_ is not the synonym of an overview, meaning that it is not tantamount to a form of liberalism in context of which we could be lured in thinking that we could once and for all live in peace because we would finally be capable of accessing the plurality of point of views. In contrast, a truly democratic system is one that is not fully transparent and that assumes its opacity. Architectures of aliveness insist on the fact that it is the pretense to total transparency that we should refuse. To emphasize the implications here, let me refer to Isabelle Stenger’s figure of the diplomat as well as to Chantal Mouffe’s agonistic pluralism.

In Chapter One, correalism was said to image the reality of a diplomatic alliance. Isabelle Stengers nuances the figure of the diplomat with that of the expert by establishing a distinction informed by the ways in which they respectively risk their own practice. The practice of experts, she tells us, “is not threatened by the issue under discussion since what they know is accepted as relevant.” In contrast, the diplomat does not share the risk of his opponent. Also refusing the

model of peace ingrained in commanding, policing, and enforcing operations, Stengers, however, does not scramble peace altogether. In the realm of diplomacy, she tells us, peace has to be invented and not imposed. Peace should thus be understood as a form of non-knowing. The diplomat’s manners should however not be understood as a form of war. Stengers is categorical: in the context of a diplomatic alliance, nobody wins. It is rather the event, as opposed to its parties or terms that reaches a metastable equilibrium. The art of diplomacy, she goes on to say does not refer to goodwill, togetherness, the sharing of a common language or an intersubjective understanding. Neither is it a matter of negotiation between flexible humans who should be ready to adapt as the situation changes. It is an art of artificial arrangements that do not exhibit a deeper truth than their very achievement.

Here Stengers seeks to emphasize the necessity of conflicts and struggles. She clarifies, “I have named ‘diplomats’ those practitioners whose obligations designate the possibility generating rhizomatic connections where conflict seems to prevail.” In other words, Stengers think of diplomacy as that which can bring struggle to a metastable state that is not the equivalent of a peaceful mode of convergence but rather the very possibility of more conflict to emerge. In this context, diplomacy figures the resolution of a conflict that does not overcome the conflict (like perception does not overcome tropisms), opening up the possibility for further conflict to emerge.

Correalism, as the image of a diplomatic alliance echoes Guattari’s *Three Ecologies* for it creates zones of struggles that valorize differences as opposed to proposing a converging model that would resolve contraries. It also resonates with Chantal Mouffe’s notion of agonistic

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599 Ibid.
pluralism. For Mouffe, “plurality is at the origin of antagonistic conflicts.”\textsuperscript{601} However, she warns us, agonistic space is not a manner of thinking of conflict and contest in terms of a resolution based on the possibility to see things from a multiplicity of perspectives. Agonistic space reveals the very limit of any rational consensus as well as the exclusion produced by all forms of consensus. Agonistic space, she adds, “differs from the traditional liberal conception of democracy as a negotiation among interests.”\textsuperscript{602} Agonistic space is not synonym of a war between antagonisms but the very possibility of creating zones of struggle where differences can be confronted. Informed by both Stengers and Mouffe, architectures of aliveness think of political space as a fragmented and multipolarized open whose dynamic unity ought to be constructed. It also promotes the creation of zones of conflicts and struggles where practitioners can behave like diplomats and risk their own practice. In brief the diplomatic matrix of agonistic space is that which can rescue us from political deterrence.

**What Possibilities for the Globalization of Chrono-Topologies?**

Even though outer space was introduced as the main focus, the field was addressed in a very particular manner through the detour of its modules of inhabitation. This specificity might now be perceived as a relinquishment of the political and economical implications of space colonization. Put otherwise, in making globalization its point of departure by looking specifically at its impact on the liveliness of the world, architectures of aliveness failed at opening the debate to geopolitical considerations. That is, it did not ask how the relational manner of aliveness could contribute to the production of forms of non-knowing that could problematize anew the assumed distinctions (East/West, North/South, Occident/Orient) that condition our understanding and


\textsuperscript{602} Ibid.
experience of space. These limitations force us to ask if aliveness can operationalize alien correlations between discourses on space exploration? As live art practitioners Jem Finer and Ansuman Biswas argue, outer space is a political territory that has been colonized by industrialized and affluent powers. In their piece Zero Genie, they formulate a critique of the structure and history of space programs. They reference shamanic rituals to show that they can challenge discourses on space exploration by providing conceptual and practical tools to analyze how space is constructed and experienced. Here Finer and Biswas render visible the fact that geopolitical modalities massively frame our understanding of space programs in virtue of a number of antagonisms (East/West, North/South, Occident/Orient) that may be better approached from a metaphysical point of view. In this perspective, can aliveness act as a form of non-knowing to open the possibility of looking at space programs from a creative and constructive point of view instead of judging them in virtue of their geopolitical identities? Can aliveness suspend the modalities of narratives on space exploration to enable the emergence of a new mythos for space? How can aliveness intensify the density of knowledge production while at the same time freeing it from the burden of geopolitical presuppositions? Geopolitical frontiers account for territorial identities, focusing on differentiations as rooted in geopolitical recognitions. Aliveness would invert this logic of thought to depart instead from the correalist possibilities found between, among and along heterogeneous spatial conceptions without aiming to reduce them to a universal spatial model. While architectures of aliveness failed at addressing these considerations, it nevertheless put into place obligations of thought. In looking at the body as the central object of political space, it emphasized the fact that a pragmatic reworking of discourses on space exploration could not be articulated without considering bodily modalities. The rational for this consideration is that ideologies need bodies to be undone, challenged, and reconfigured. By this account, the failure of architectures of aliveness is rather the point of departure of the possibility to correlate discourses on space exploration. That is, its failure images
the struggle of a method that sought to avoid making aliveness a product of thought to instead force thought into modalities of non-knowing.
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**Interviews**


Biography

Marie-Pier Boucher’s work focuses on the impact of bio, neuro and outer space science and technology on spatial and architectural practices. She is co-editor of *Adaptive Actions (Madrid)* and *Heteropolis*. Both publications are edited by AA, a platform she has contributed to and collaborated with since 2009. In the context of this collaboration, she participated in a collective exhibition at the Madrid Abierto (Spain) and the Leonard & Bina Ellen Gallery (Montreal). She also served as guest-editor of *Inflexions*. Her research residencies include: Johnson Space Center, NASA, Houston, USA (2014); Banff Center for the Arts, Canada (2011); Max Planck Institute for the History of Science, Berlin, Germany (2010) and; SymbioticA: Center for Excellence in Biological Arts, Perth, Western Australia (2006). Her research has been published in *Parrhesia: a Journal of Critical Philosophy* (2010); *Gilbert Simondon: Being and Technology* (2011); *Media-N* (2014); *Fabula* (forthcoming 2015); and *Cultivamos Cultura 2009/13: A History of Residencies* (forthcoming 2015). She holds a B.Sc. and a M.Sc. in Communication from the Université de Montréal in Canada. Upon completion of her PhD, she will be joining the department of Art History and Communication Studies at McGill University as a Postdoctoral Research Fellow with a fellowship from the *Fonds Québécois de Recherche sur la Société et le Culture* (FQRSC) (2015-17).