Systems & Subjects

Thinking the Foundations of Science and Philosophy

By Cadell Last

Systems & Subjects

Thinking the Foundations of Science and Philosophy

By Cadell Last

This book is dedicated to Stefan Blachfellner of the Bertalanffy Center for the Study of Systems Science (BCSSS), for not only believing in me, but also investing in me, opening a crucial opportunity to link my Doctoral work, and the beginnings of my online work through Philosophy Portal.

.

This book uses Ludwig von Bertalanffy's scientific foundations of systems theory, rooted in life metaphors and coupled with technical interpretations, to approach the mystery of subjectivity in an open and exploratory form. This mystery is framed through a mixture of four giants of the continental philosophical tradition: Martin Heidegger, Sigmund Freud, Friedrich Nietzsche, and Georg Hegel. Throughout the book system and subject are thought in a feedback loop with each other, from the origin of modern science to the puzzles and contradictions of contemporary science. We first ground the book in the interiority of Dasein (our being-in-the-world), second shift towards thinking history from a meta-psychological point of view (historicity of the analytic psyche), third approach politics as a species level self-overcoming (horizon of organisational forms), and finally, think both the absolute concept and concept of the absolute (from physics to evolution to philosophy itself). The aim of this work is not to provide final answers to all fundamental questions, but rather to play on the frontier in the total absence of final answers. The ideal result of this play is partially to analyse and hystericise science, but also to open the conditions of possibility for new university-level and masterful discourse including subjectivity into science itself.

Endorsements

"We need much better tools for placing our analytical and soulful intelligences into deeper constructive dialogue. This is an urgent planetary problem upon which the wellbeing of our strange new civilization may depend. Fortunately, this text is precisely that kind of tool. Yet such attempts are risky. We certainly admire people who try to produce novel syntheses across disparate domains of existential significance but the results are often lamentably vague or else too idiosyncratic to provide general applicability. Not so in this case! Cadell Last's peculiarity is that he can evade the usual lopsidedness in these affairs. Thus he can deliver a plausibly useful hybrid of systems theory and continental philosophy, cognitive theory and spirituality, information theory and ethics.

It is as though we are watching someone take the tension of the Subject's unknown relationship to itself in a liberating ontology from which it can never escape -- and build that into something like thermodynamics. A curious and provocative move. Daring in a reasonable way. The systems theory of subjectivity revives the utility of the Platonic and esoteric without positing anything of which Hegel, Nietzsche or the natural sciences would significantly disapprove. Perhaps we might call this a work of radical evolutionary nondualism coupled with an ethics of synergy that is disarmingly framed as a leading-edge technosocial treatise."

Layman Pascal, Feral Philosopher, host of The Integral Stage podcast

"'May you live in interesting times' is an apocryphal English translation of a traditional Chinese curse. Interesting times are times of turmoil, strife, uncertainty, change and revelation - in other words Apocalyptic times. In the 21st century, the roughly 300.000 year old human is thrown into a hyperconnected, digital

world featuring the rise of nanotechnology, synthetic biology, AI, quantum computing and more. In order to survive our Apocalypse, we need thinkers that span anthropology, philosophy and technology. Cadell Last's deep and thorough engagement with thinkers such as Hegel, Nietzsche, Freud and von Bertalanffy provides creative, provocative and interdisciplinary thinking for our times. Let's buckle up and take that ride."

Thomas Hamelryck, Associate Professor in bioinformatics and machine learning, University of Copenhagen, Denmark

It is difficult to think systems, a radical challenge to consider subjects, and Dr. Cadell Last has decided to think both. Systems shape subjects though, as subjects change systems, and that means the topic is active and changing. To make matters more complex, Dr. Last considers the possibility that the very act of considering "systems and subjects" actively forms both, as thinking about this meta-thought shapes the meta-thought, a notion which shapes the meta-meta-thought–like a fractal open to infinite recursion. Wittgenstein famously claimed that the world is everything that is the case, but are we part of that world? If so, everything changes.

Is it possible, perhaps, that moderns imagine systems as independent of subjects so that we don't have to consider our radical freedom? Is it possible that we have separated in science the subject from our thinking of objects due to a subconscious desire to "solve the problem of the subject" by effacing it? Are we so sure that each of us isn't the embodiment of a pure thought of an unknown where there is only pure possibility? What kind of communities might form between people who think such? Elaborating and expanding on the brilliant Ludwig von Bertalanffy, Dr. Last walks readers into a universe which might house an Absolute concept capable of creating radically different constraints than what we are accustomed to imagining, all while warning us that failure to consider this possibility might be precisely why the future ends up a utopia where we are nowhere to be found. The stakes are high,

and yet currently scientists and philosophy leave the thinking of these possibilities ignored, abandoning them to new age spiritual obfuscation. No wonder we feel lost.

Moderns tend to think of the brain like a computer which uses "1s and 0s," but what if we tried to understand ourselves according to quantum logic, as paradoxically and simultaneously thinking in 1/0s—how might we think our nature then? This consideration has implications on everything from quantum gravity to Freudian psychoanalysis to Hegelian reconciliation, and Dr. Last explores all of these creative perspectives, ending the book on a note of hope. Thanks to technological complexification, we are gaining the tools needed to explore reality deeply, but Dr. Last encourages us to so adventure always aware that we create ourselves and what we explore in the process. Thinking that is our "hard problem," but thanks to Dr. Last the problem is much easier for us to tarry with and learn to love. Life is indeterminate, and that means we can prove determined to live.

Daniel L. Garner of O.G. Rose, Author of *The Conflict of Mind* and *Thoughts*, Creator of the *DLG Pattern Method for Piano*.

I see here a brilliant book. I am attracted to its boldness and breadth of clarity, and find in it a depth of metabolisation that speaks to an intensity of will, and a hope without ignorance of tragedy or historical-systemic conditionality.

It reads to me like a friend speaking well on something I care about —something of a pattern I see too. It's a pattern shared from many angles, illuminated by living dyads of historical tension, and a through-line of argument that remains in touch even as vast domains of canonical thought forms are brought into focus and contextualised in ways that are vital and fresh. As I read I find myself affirming, learning, and crucially: returning in address to wondering tensions and absences that stir active thought toward further participation in mystery.

As a philosopher who navigates similar wave-sets of contemplation as the author, reading this work sometimes feels as if we've each lived fragments of the same memory. But given unique knowings of the lifeworld—steeped in difference alongside a breadth and depth of historical as well as just so phenomenal sameness, even that 'shared same' memory would be independently perceived and interpreted by each of us. The living prisms (or re-animate prisons) of our perceptions coloured and pulled, in tension this way and that, by logics and narratives and significances as dispositions-to-awareness which cannot but combine to know the knowing just some bit uniquely. A song played once but heard differently, begetting different repetitions in response. Or if you prefer: a note tuned to a pitch that never quite the same beckons for two.

For this is a book about living and dying, struggling and overcoming, departing and returning, from the finite-absolute through the infinite-conditioned. Or perhaps, from the infinite relativity through finite point of no return as always-already departed: the nowhere of now and here, grappling with the real of systems which subject the subject. And that matters because this book – despite giving so much to the reader, sharing with so much boldness of clarity – does not do all the work for you.

For of course how could it? It's a book meant to be well met. And it shares liberally nutrient-rich food, in friendship. So I recommend you meet it with openness to such: as a two way process. And thereby value the worth of your own transformative undergoing. Lest, that is, this book becomes mere system for your subject. The reality is the work is more, if its text be known and fulfilled as invitation to real address. For when a friend speaks well on something you care about, it's a good idea to accept its gift like a bridge to the future. One that carries you like a current: opening to, and inviting thereby, fresh discernment on the way beyond.

Tim Adalin, Philosopher and Founder of Voicecraft

Contents

CHAPTER 2: HISTORICAL META-PSYCHOLOGY

2.0 Philosophy of Problems
      2.0(a) – From External Reductionism to Internal Holism
      2.0(b) – Relational Intensity and Self-Referential Symbolism
      2.0(c) – Bringing Science to the level of Psychoanalysis
2.1 Singular History
      2.1(a) – The Problem of Historicity
      2.1(b) – Speculative Historical Theories
      2.1(c) – From Physical History to the Beyond of Physics
2.1.1 Technical Reflections on History
      2.1.1(a) – 'Doomed' to Higher Organisation
      2.1.1(b) – The Actuality of Potentiality
      2.1.1(c) – Emergence of the New
2.2 Multiplicity Models
      2.2(a) – Postmodernism as Pure Multiplicity
      2.2(b) – Modelling in Multiplicity, Multiplicity as Model
      2.2(c) – Individuation of Personalities as Multiplicity
2.2.1 Technical Reflections on Multiplicity
      2.2.1(a) – Science and Identity as Process and Multiplicity
      2.2.1(b) – Science and Identity as Indeterministic, Open-
Ended
      2.2.1(c) – Science and Identity as Organisation
2.3 Mental Paradox
      2.3(a) – The Psychoanalytic Idea
      2.3(b) – Image of Robotic Man and Psychological Time
      2.3(c) – Laws Emerge in the Future-Present
2.3.1 Technical Reflections on Mind
      2.3.1(a) – Discovering the Future
      2.3.1(b) – Creatures of the New
      2.3.1(c) – Total Otherness
2.4 Existential Mystery
      2.4(a) – The Subjective Why, and the Problem of Meaning
      2.4(b) – Performing the Why, and the Pressure of Meaning
      2.4(c) – The Further Reaches of Human Nature
2.4.1 Technical Reflections on Mystery
      2.4.1(a) – Virtual Design Space
      2.4.1(b) – Form and Repetition
      2.4.1(c) – Home in the Symbolic Order

CHAPTER 3: POLITICAL OVERMAN

3.0 Philosophy of Power
      3.0(a) – Meta-Horizons of Power in Historical Projects
      3.0(b) – Meta-Horizons as Emergent Complex Fields

PREFACE: ON SCIENTIFIC REFLECTION

This book represents, perhaps not a "new," but certainly a "strange," kind of science.   Over two centuries ago, G.W.F. Hegel sought to bring the subject into the scientific universe, first by demonstrating the process by which philosophical knowing comes into existence, and second by demonstrating the logic by which the existential process is interpreted in the concept of a philosophical knower. The results of Hegel's work have not necessarily been taken up historically by the lineage of knowing that constitutes itself in our present as scientific knowledge.   However, we can say that there is a lineage of knowing, which constitutes itself in our present as "continental knowing" that is carrying on Hegel's results, insofar as they embody their knowing of truth as "not only substance, but also as subject."[1]   A few key knowers that can be linked to this historical lineage include Friedrich Nietzsche, Sigmund Freud, and Martin Heidegger.   In this work I endeavour to put all of them into deeper discourse with the scientific universe, but also to bring the scientific universe closer to their knowing.

Consequently, *Systems and Subjects* does not so much seek to explain and develop systems science, as it seeks to push its discourse to its own limit with the aid of philosophy.   Such action is not a deconstructive effort, but rather an effort of sublation, that is the paradoxical simultaneity of cancelling and lifting to a higher level.   In that spirit, this work seeks to discover whether the language games of systems science can be opened to new territories with the help of the continental traditions stemming from Hegel's great philosophical legacy. For too long the fields of scientific knowing, both constituting themselves in "isolated and fragmented reductionism," as well as "connected and integrated holism," have been "out of the

---

[1] As Alenka Zupančič has noted, while science continues to operate in relation to a real independent of the subject, for continental philosophy, such discourse is meaningless, see: Zupančič, A. 2011. One Divides Into Two: Dialectics, Negativity & Clinamen. Conference ici Berlin. Kulturlabor Institute for Cultural Inquiry. 28-30 March 2011.

loop," when it comes to the history of modern philosophy and its potential implications for scientific knowing. This book hopes to be a bridge that can make this divide both self-evident and illusory. I seek to show that science has always required some relation with philosophy, since science separate from philosophy is only philosophy's own (repressed) self-distance from itself. The classic *subjective* starting points of modern science, Newton and Descartes, is philosophical, they are philosophers. Now far away from the roots of its own tree, contemporary science requires a new openness to philosophical foundations to keep itself alive *for* subjectivity. This is increasingly necessary today as we potentially approach a *post*-human universe, largely as a consequence of the historicity of science itself. Alternatively, I also think that philosophy itself stands a chance of being reinvigorated by such a *(re-)sublation* of science that is not just a further critical or epistemological distancing from science as a historical real. Do we not need a properly philosophical gaze and voice to think the immanent ontological and historical consequences of quantum physics, cognitive science, artificial intelligence, global digital technologies, and so forth?

My background as a developing mind was in the evolutionary sciences, primarily anthropology. From the first, I always viewed knowledge as something that originates in human cognition and the personal, I viewed it as rooted in the inside, from the subjective side, as opposed to from the outside, or the depersonalised propositional side. And at the same time, for me, this did not diminish or undermine the external propositional side of the equation. It simply meant that our knowledge involved and was dependent on the subjective cognitive position, the reflection of the inside, of our subjectivity: it was a reflection of the in-itself that was for-us, and what the in-itself was independent of us, was simply not intelligible. My first and greatest imaginary picture (and original or primary motivator), was to (assuming there is other intelligent/technological life forms or civilisations in the universe), view aliens up close: to be an *anthropologist of the alien*. Since I quickly realised the impossibility (or at least the

extreme unlikeliness of this goal), I first settled for the study of primatology, and specifically the study of great apes in central Africa. But it was only as a consequence of turning or opening to philosophy, that I realised that my desire for the alien was really a self-reflexive mediation in alienation, i.e. what I was looking for was myself. I am basically a monstrous gorilla conditioned by the cultural excesses of the human universe.[2] Thus, in fully and reflectively including subjectivity, it is not that I think there is no real outside, it is just that I think there is no way to (meaningfully) subtract knowers, our own desire, from the equation. From this subjective inclusion one gained a strange kind of objectivity, specifically an ontoepistemological objectivity.

Science in-itself, and from its beginning, opens a type of knowing with meanings, motives, and powers that seem to offer a qualitative rupture in the history of the field of knowing as such, exposing us to realities simply unfathomable to pre-scientific cognition. I mention in the main text of this book, that fictional representations of flights to the moon, or viewing the earth from the perspective of the moon, only really emerge in full form internal to the logic of the scientific universe. Now we have actually travelled to the moon, with that same logic (ultimately Newtonian determinism). What does it mean that I fictionally represented the idea of being an *anthropologist of the alien* using the evolutionary and cosmological logic available to me, a subject, as the inheritor of the historical work of science (our knowledge of galactic distributions, exoplanets, universal chemistry, evolutionary processes etc.). What does it mean that this knowing led me to the realisation that I cannot escape my own unconscious historicity, its excessive life force, entangled with conceptual determinations? Is it a vision or a premonition of an immanent conflict between the human and the alien internal to the human universe itself? What does it mean to include the subject internal to the universe of general systems? What does it mean to develop a reflexive science?

---

[2] I do not situate this realisation in an evolutionary-historicist materialism, but rather a dialectical materialism, following: Žižek, S. 2012. *Less Than Nothing: Hegel and the Shadow of Dialectical Materialism*. Verso.

There is a culture of science that can be intuited and conceptualised, in a way that seems deeply unreflective, even arrogant and detached from subjective reflection. Sometimes, one can get the image of a scientific subject with an enormously powerful and impressive looking conceptual framework or technical capacity, but with a childish emotional capacity to relate that framework or capacity to the real of human history and phenomenal experience mediating an excessive life force. Indeed, the main tension in the post-Hegelian continental tradition, involves this relation between conceptual determinations and some concept of life force in-itself (think Nietzsche's *Will to Power*, Freud's *Libido*, or Heidegger's *Dasein*). Here science often seems dumb and mute. Science is always trying to understand some real that has no relation to our subjective experience, perception or conception of the universe as a part of the universe itself. Here I speak from personal experience. I remember completing my doctorate, having moved through specified evolutionary domains, towards a very general and universal picture of evolutionary processes, and yet still feeling a sharp disconnect between my knowledge and the immediacy of my personal life. Apparently, or conveniently, I had forgotten about the whole original motivation as that movement towards the alien. Consequently, or understandably, something felt, not quite right, even if I could not fully articulate the reason of this not-quite-rightness. There was a way in which the (evolutionary) picture was in my eye, but my eye was not in the picture (to borrow the Lacanian phrase). I knew that somehow there was a mission before me to investigate this gap, and to see what bridges or nests (or spaceships?) could be constructed from affirming it.

The opportunity to write this book appeared in the context of a research project with the Bertalanffy Center for the Study of Systems Science (BCSSS), situated in Vienna, Austria in 2019. For most of this time I was underneath the supervision and guidance of the managing director of the institute, Stefan Blachfellner. Stefan and I had met in the summer of 2018 at the first workshop for a "School of Thinking" in Paris, France, a

project I had been involved in organising with colleagues from the Vrije Universiteit Brussel (VUB) as an attempt to introduce, not only new frames of thinking, but to think about frames of thinking as such.[3] My focus and contribution here had been primarily thinking about dialectical logic, and the ways in which it helped us to think conflicts and tensions in scientific logic.[4] After meeting Stefan, the chance to develop my ideas in the context of systems science seemed ideal, considering that my doctorate was already situated in an interdisciplinary field, and I was quite comfortable existing at the edges of disciplinary boundaries, as opposed to identifying within their conceptual centres. Philosophy had taught me to keep scientific knowledge in a self-relation.

For several months I familiarised myself with the foundational works of the pioneer of systems science, Ludwig von Bertalanffy, most specifically *General Systems Theory: Foundations, Developments, Applications* (1969), as well as with the modern technical works in systems science, most specifically, *Principles of Systems Science: Theory, Analysis, Modelling and Design* (2014) by George E. Mobus and Michael C. Kalton. What I found in these works was an opening and an invitation, internal to the scientific universe itself, to include subjectivity in a relation to general systems. Consequently, the absorption of these works opened new connections in my mind in relation to the continental philosophy, and specifically the dialectical logic that I had intuited would be so insightful in applying to the edges of contemporary scientific disciplines. I was specifically motivated to fully live inside or inhabit the conflicts and tensions at the edges of the disciples of modern science, as opposed to identifying with any specific science in particular. My hope in this inhabitation was, again, not so

---

[3] One can find the first objective scholarly project from this work here: Lenartowicz, M. & Weinbuam, W.D.R. (Eds.) 2022. *The Practice of Thinking: Cultivating the Extraordinary*. Lannoo Publishers.

[4] The work I presented on can be found in this paper: Last, C. 2020. Chapter 13: A Reflective Note for Dialectical Thinkers. In: *Global Brain Singularity: Universal History, Future Evolution and Humanity's Dialectical Horizon*. Springer. p. 257-292.

much deconstructive in its aim, but rather seeking to birth new knowing by thinking and playing with contradiction. My work is that of a "conceptual midwife," or what is the same in this tradition which can be traced back to Socrates, a philosopher.

The result, I think, and as already mentioned, is a strange kind of science. It is a science that unapologetically includes subjectivity at the foundation of both philosophy and science. In other words, we start with a loop that includes the subject and the idea of general systems, and we never leave that loop, but rather spin round and round in a type of "pure" repetition. This "mechanical" spinning is not in a closed circle aiming for completion or perfection in a single system, but rather in a circle with a gap in it (a *framed negativity/nothingness*), so that each mechanistic spin qua repetition allows for something new, a difference, maybe a conceptual determination never determined before. This is the essence of the *drive* of this book itself. In writing it, I have to admit, I was in quite unusual mental "spacetime," not a non-spacetime, but a *negativity of spacetime*. The research involved in preparing the book took many many months (and was being conducted without the explicit aim of even writing a book at all). But the actual writing of the first draft of the book itself, unfolded in only about one crazy *intense* month (bordering November and December 2019). I was almost totally, if not totally, isolated for this time. I was mostly working from early morning until late evening in the (empty) BCSSS main office. There was some inexplicable movement ("fire") that allowed me to unfold a notion that I now believe will have some utility for me (and I hope others) for quite some time to come. At the very least it is a creative experiment.

Creativity, creation itself, is a strange thing. I am always tempted to say that the book wrote me, in a sense re-creating me. I had the distinct phenomenal feeling of being "de-centered" while writing it, not in some miraculous or supernatural way, but as if my previous research had induced a pregnancy and now a birth qua book was naturally falling (fighting) out of me. I was merely the conceptual midwife

helping it emerge. There was very little feeling of "forcing" the book to come out. Since it would be my second formal book, after my doctoral thesis *Global Brain Singularity* (2020), one could say that the second labour was less painful than the first. However, the after-birth did require some cleaning and time, in order to make it presentable in the form you are reading now. I took a long break after writing it, in part because my contract with the BCSSS expired in December 2019, and in part because the personal events of my life and the world (coronavirus would hit us all throughout the first months of 2020) took me far away from it. Intermittently, I would return to it, in the hope that it would eventually be capable of seeing the light of day, but for various reasons, it took until late 2022/early 2023, for that to actualise itself. Now, after several re-readings, long editing periods, adding several citations and footnotes to add depths, and point towards further necessary readings, I believe it can now stand on it own, as my second born.

The reason this Preface is titled "On Scientific Reflection," is because I want to open a new or a different culture of science. This proposal may sound grandiose, but it is quite modest, in the sense that it requires the addition of no new positive content. All it requires is the (radical) act of turning inwards for a new perspective on our outward gaze. I want to open a culture of science that is not afraid of its own personal self-reflection. That is, when we apply the scientific method to external objects, as scientists, we hope to discover the truth, even if that truth shatters our pre-conceptions of the way reality seems to our common sense. Surely the history of science attests to the power of that form of reflection and commitment to the truth. But we should always remember how *inwardly painful* it is to shatter our pre-conceptions, whether it involves reconciling our subjectivity with the orbital motion of planets (we are not the physical center of the universe), or the motion of life's coming-to-be (we are not the living center of an intelligent design), or the motion of our own neuronal wirings (we are not the mental center of our own phenomenal experience). These transformations bring us to the edge of life and death. Now, I believe, and in the spirit of

Hegel, it is time for us to reconcile science with the actual contents of our personal subjective self-reflection, where we should find an excessive life force, not only over and above our conceptual determinations, but intimately involving our conceptual determinations. Thus, we should apply something like the scientific method, to the very contents of our mind, even if what we find horrifies or terrifies us, as alien or monstrous.[5]

Of course, this application of the scientific method to the inner contents of subjective reflection, was first developed by Hegel in the *Science of Logic*. However, the history of continental knowing can be marked by other major widely recognised interventions in this direction: Nietzsche embodied and promulgated his fantasmatic story of potential becoming of the concept (Zarathustra) in *Thus Spoke Zarathustra* (which has massively influenced global artistic-intellectual culture), Freud institutionalised and ritualised the free associative method for thinking original/primal conceptual determination in the foundations of psychoanalysis (which has spawned the birth of modern psychology, even in its reactionary forms), and grounding conceptual determinations in the logical immediacy of our everyday-to-day-ness by Heidegger (which has established a secular globalisation of transcendental finitude against traditional metaphysics). I think that, at least from my readings of the foundations of systems science, as introduced by Bertalanffy, and extended into the contemporary world by various technical scientists, we can now open the "conceptual door," and establish a discourse between the general idea of science, and the nature of subjectivity in-and-for-itself. The job is long overdue, but perhaps the cultural sentiments of our moment are ready to embrace the arduous labour it implies. I, for one, offer this book as either a conversation starter in that direction, or as part of a much larger ecology of intellectual literature, that seeks to keep the fire of that conversation, alive. Again, opening the scientific method to the contents of

---

[5] For a deeper explication of this logic, see: Last, C. 2022. Necessity of Absolute Knowing. In: *Enter the Alien: Thinking as 21st Century Hegel*. Garner, D. & Last, C. (Eds.). Philosophy Portal Books, Independent Published. p. 284-304.

subjective reflection is not to lead us towards an inwardising solipsism, but rather to open us (our subjectivity) to a new strange form of objectivity, in which we, in our very path qua search for truth, are *its* correlate. For example, and again, can we really think our constant external search for other life (earth-like exoplanets, etc.) without also thinking our inner desire to contact the other?   Without also thinking what is implied in the desire to connect the force of the human system towards the alien?   How can this really be thought?   Is this desire constitutive of the human experience?   Is this desire readable in our origin?   I still do not know.   Even if I think science could pay closer attention to the *objective phenomena* of science fiction and the Beings, Worlds, and Events (to borrow a Badiouian frame) implied therein.

Finally, I would like to especially thank the managing director of the BCSSS, Stefan Blachfellner, for not only seeing in me a spark and a fire, but also in kindling that fire, with his own natural warmth, kindness, friendliness, and love.   The moments we shared throughout our first meeting, and on towards our result of my research at the BCSSS, will be precious to me, for the rest of my life.

Cadell Last

Cadell Last

November 16, 2022

CHAPTER 1: DASEIN'S INTERIOR

1.0: Philosophy of Interiority

1.0(a) – Cartesian and Newtonian Foundations: Inside-Outside

This book is about systems and subjectivity, thinking through their nature, problematics and action, through combining the foundations of contemporary systems science, as first established through the work of Austrian biologist and theorist Ludwig von Bertalanffy (1901-1972), with the foundations of continental philosophy, as exemplified in the works of "the German giants": phenomenologist Martin Heidegger (1889-1976), existentialist Friedrich Nietzsche (1844-1900), and logician Georg Hegel (1770-1831), along with "the Austrian outcast": psychoanalyst Sigmund Freud (1856-1939). Bertalanffy challenged science to think of reality in a living, holistic, complex, and relational framework capable of being embedded and embodied in totally new social and technical dynamics. Moreover, "the German Giants" (Heidegger, Nietzsche, Hegel) and "the Austrian outcast" (Freud) have never been put into serious dialogue with a systemic science which allows for a deeper integration with subjectivity. But in order to think this relation between systems and subjectivity, we first need a quick historical overview of how science and philosophy have approached subjectivity in the past.

On the most elementary philosophical level we all know that when we refer to "the subject" or "subjectivity" we are referring to an *inner* space, or an *inner* experience, or a basic feeling of an *inside*. Thus, "the subject" or "subjectivity" is an immediate intuitive contrast to "the object" or "objectivity" in terms of an *outer* place, or an *outer* phenomena, or a basic sense-perception of an *outside*. What is subjective is internal, what is objective is external. From this most basic division or cut, modern society has built knowledge structures designed in

relation to this feeling of an inside, or this sense-perception of an outside.

From the start of scientific inquiry the explicit formalisation of the inside and the outside, a dualistic metaphysics, were required as starting points for serious understanding of reality. In order to simplify, we can say that the scientific task of formalising the inside was most successfully accomplished by Rene Descartes (1596-1650), and the scientific task of formalising the outside was most successfully accomplished by Isaac Newton (1643-1727). Both Descartes and Newton, it is important to note, conceived of their professional identities as natural philosophers (at the time the divide between science and philosophy was less rigid and problematic, or even non-existent). This is in stark contrast to what became actual in the becoming of the scientific notion, which is something frequently referred to today as the "two cultures".[6]

For Descartes, his quest to discover a ground for certain knowledge led him to the notion of *res cogitans* (i.e. mental substance, or the "thinking thing"). In this conception mental substance was a certain ground that we could not doubt without abandoning the entire project of acquiring or building knowledge of reality. The fact of thought's reflective self-transparency:

"I think" (mental) –> "therefore" (certain conclusion) –> "I am" (a real substance/thing)

Represents a fundamental formula of interior subjectivity from which doubt was banished, and certainty was grounded as a starting point of knowledge:

"*I am really here and now as the thing that thinks!*"

For Newton, working under the presupposition that our mental substance (*res cogitans*) could be certainly trusted, he

---

[6] Snow, C.P. 1959. Two Cultures. *Science*, 130.3373: 419.

set out on a quest to discover the nature of objective exterior reality or material being. In this conception what was sought was an explanation for the motion of things situated in a spatial matrix: does our external environment operate according to laws or principles that can be known by us (subjectivity)? In order to formulate this understanding Newton needed to introduce new absolute certainties: space and time as external dualities. Space and time functioned like a stage or background medium upon which things ("bodies") were extended with duration. He proposed that bodies occupied space and moved in time according to a universal force: gravity. Through this system, Newton expanded on the Galilean revolution, which aimed to reduce nature into mathematical formulas (e.g. $F=ma$).

Of course, both these descriptions of the inside and the outside have undergone fundamental revisions since the birth of scientific thinking within natural philosophy. Descartes' mental substance and Newton's absolute space and time are frequently subject to critique from various angles. Cognitive science, for example, claims that thinking substance lacks proper embodiment in the world, or an adequate explanation of mind as an evolutionary process.[7] Here we must think the *bodily thought*, or we might say: "the thing that thinks me." Or quantum physics, for example, claims that Newton's space and time is less fundamental than the wave function where bodies exist in probabilistic superposition as opposed to deterministic locations in space and time.[8] Here we must think not only determinate reality, but how determinate reality emerges from indeterminate reality. At the same time, there are still many unresolved issues within both cognitive science and quantum physics, not to mention the possible intersection between the

---

[7] Clark, A. 2000. *Mindware: An introduction to the philosophy of cognitive science*. Oxford University Press.

[8] French, A.P. & Taylor, E.F. 2018. *An Introduction to Quantum Physics*. Routledge.

two.[9]   For example, how does bodily thought become intelligible in an oscillation between indeterminate fantasies and determinate actualities? We must challenge our notions of both thought and space and time. However, the point here is to emphasise this division between inside and outside, this cut, as an essential division within which our knowledge of scientific reality started to take its form in the becoming of the notion.[10]

For our purposes, in terms of understanding subjectivity from a systemic perspective, we want to see the way in which the work of Bertalanffy could help us understand the integrative systemic interaction of reality; and in terms of understanding systems from a subjective perspective, we want to see the way in which the works of Heidegger, Freud, Nietzsche and Hegel, could help us to understanding the lived realities of subjectivity.   Bertalanffy is our starting point because the systems abstraction he developed as a foundation for a new philosophy and science suggested that the classical intellectual foundations were grounded in a much simpler sociocultural and technological reality than the one that exists today. To be specific, the division between inside and outside is possible to maintain for the sake of simplistic modelling (of self and world), however, as our world has become more and more complex (in large part because of the historicity of science itself), the division between inside and outside itself has become blurrier and blurrier.   Now it may be best to understand reality as one continuous evolving process, where interior thought and exterior spacetime are actually mutually implicated or entangled with each other in a differentiating becoming requiring dialectical thought in triads or even more complex geometrical configurations.[11]

---

[9] For an overview of a conference specifically focused at this intersection, see: Aerts, D, Sandro, S. & Veloz, T. 2020. Preface of the Special Issue International Symposium "Worlds of Entanglement". *Foundations of Science* 25.1 (2020): 1-4.

[10] This leads to a very specific form of realism, see: Zupančič, A. 2017. Realism in Psychoanalysis. In: *What Is Sex?* The MIT Press. p. 73-84.

[11] Thus these ideas are the equivalent of a Kuhnian paradigm shift, see: Kuhn, T.S. 1970. *The structure of scientific revolutions*. University of Chicago Press.

The consequence of increasing complexity means that we can no longer operate on the original Cartesian or Newtonian presuppositions. In the 20th century, and now in the early 21st century, what stands out about the reality of the world, and thus what calls for new philosophy and science, is its *complex sociality* which cannot be reduced to traditional social schemas, and its *information technologies* which cannot be reduced to naive notions of materiality.[12] Bertalanffy's systemic view was meant to integrate and make sense of these new realities. If we think about the nature of the Cartesian *cogito*, it is an essentially isolated mental substance only capable of reflecting into itself a type of closed certainty, as opposed to a dynamically active and open mental substance embedded within a cultural matrix of other minds (like a social network). Similarly, if we think about Newtonian space and time, it was formulated to understand the motion of matter in classical geometry, as opposed to understanding the underlying informational processes within which matter and motion emerge and become encoded (like a living system) distorting the very coordinates and categories of space and time themselves.

END OF FREE PREVIEW

---

[12] Webster, F. 2014, *Theories of the Information Society*. Routledge.

About the Author

Cadell Last (Ph.D) is a philosopher with a background in anthropology, history, complexity and systems theory, and an interest in the foundations of modern continental philosophy. He is the author of *Global Brain Singularity* (his doctoral thesis), focused on the temporal mediation of human civilisation and knowledge; co-author of *Sex, Masculinity, God* (a trialogue with two other men), offering a dialectical approach for thinking the intersection between contemporary sexuality and spirituality; and also the founder of Philosophy Portal, an online education platform teaching the foundational discourses of modern philosophy. *Systems & Subjects: Thinking the Foundations of Science and Philosophy*, is his attempt to bridge his academic career in interdisciplinary scientific fields, and his emerging extra-academic philosophical career, focused on issues of phenomenology and psychoanalysis. You can find links to all of his philosophical work at www.philosophyportal.online.