Relation to the Formal Theory

Companion conceptual exposition to the open formal theory

This book presents a conceptual and architectural exposition of a broader theoretical framework on cognitive architectures developed by the author.

The underlying theory, including its mathematical formalization and technical development, is available in open access through the following archival record:

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While the formal materials focus on the mathematical and structural aspects of the theory, the present work provides a coherent conceptual interpretation and architectural map of its core ideas. In this sense, the book does not introduce an independent model, but rather offers an integrated exposition designed to make the theoretical architecture accessible to a broader scholarly audience.

The conceptual structure of this book is therefore intentionally aligned with the architecture of the formal framework. Many of the concepts discussed here — including cognitive polymorphism, stability regimes, metastability, and architectural transitions — correspond directly to structures developed within the formal theory.

Together, the open formal framework and the present conceptual exposition form a unified theoretical structure: the former provides mathematical precision and technical depth, while the latter offers a systematic map of the conceptual landscape.

For citation of the formal framework, please refer to the archived record above.

Conceptual Framework

This book employs a structured set of concepts as elements of a formal cognitive model. The terms defined below constitute the structural vocabulary of the theory. They are used throughout the text in their specified sense and function as analytical components of the model rather than as merely descriptive categories.

- **Mind** — the processual and systemic dynamics of cognitive structures across levels of organization.

- **Microsystem** — a local integrity possessing its own architecture and operational dynamics (e.g., an individual cognitive system, a micro-institution, an agent).

- **Macrosystem** — a dynamic integrity arising from the interactions of multiple microsystems. A macrosystem does not possess an architecture as an internal mechanism of functioning; instead, it has an architectural organization — the structured pattern of stable interactions between microsystems.

- **Architecture** — a stable configuration of constraints and modes of functioning that defines the structural possibilities of a microsystem.

- **Architectural organization** — the structured configuration of interactions between microsystems that shapes macrosystemic regimes.

- **Phase (phase regime)** — a dynamic regime of functioning within an architecture or architectural organization. A phase describes the character of movement, stability, and restructuring within a structure, but is not identical to the structure itself.

- **Constraints** — structural invariants that delimit the range of possible configurations and transformations of a system.

- **Transition** — a reconfiguration of an architectural state or a restructuring of an architectural organization.

Throughout the text, the term "system" is used as a scale-invariant concept and may refer to different levels of organization depending on context. All terms follow standard English orthographic conventions; their theoretical status derives from definition and usage within the model rather than from typographic marking.

Contents

Introduction

Theoretical Position

- *Rethinking is defined not by the content of thought, but by its structural configuration. but by its structure.*

- *Cognitive development proceeds not through the accumulation of correctness, but through the controlled expansion of variability.*

- *Choice operates as a mechanism of architectural selection within cognitive systems.*

Cognitive systems — whether brains, groups, institutions, or artificial intelligences — do not inherently progress toward greater complexity. Their primary priority is stability. This often entails narrowing options, fixing perspectives, and constraining potential pathways.

Treating thinking as a landscape of competing architectures, some configurations thrive, some fade, and some collide. Each configuration opens certain ways of understanding while constraining others. Collectively, they shape the terrain of what can be thought.

Phase regimes act as structural landscapes: they have plateaus, fractures, collapses, and occasional emergent rises. Most of the time, movement occurs within established regions; tectonic shifts, when entirely new cognitive configurations emerge, are rare but transformative.

Learning is predominantly local. It facilitates efficient navigation within existing terrain rather than redrawing it. Fundamental changes occur only when new architectures emerge at the microsystem level, or when interactions between architectures restructure the larger system.

Such transitions remain contingent. Neither evolution, progress, nor technology guarantees them. The space of possibilities can expand when structural constraints are reconsidered, new tools of understanding appear, or cognitive diversity is preserved.

This work does not offer prescriptive solutions or a utopian vision. Its goal is to map the mechanisms by which architectures of thinking form, stabilize, become

constrained, or transform. Meaningful cognition lies not in discovering a final form, but in sustaining the openness of possible configurations.

Meta-Anchor

From the outset, it is essential to mark a boundary. This book is not concerned with hidden mental entities, streams of consciousness, or a metaphysical blurring between brain and world. Metaphors — geological, spatial, or dynamic — serve as descriptive tools for understanding the structural dynamics of cognition under historical and selective pressures.

Cognitive architectures are not agents or subjects. They are statistically stable patterns of information processing, emerging from interactions among neural, bodily, social, and technological systems. Terms such as interaction, competition, or overlap denote shifts in distribution, connectivity, and functional dominance rather than literal agency.

If language evokes flows, layers, or depths, it is to make complexity visible, not to assert ontological claims. This model examines how properties emerge at particular levels of organization, how historical pressures shape them, and how selective constraints guide their evolution. It does not propose escaping material reality.

This framework presents thinking as an unstable phase process. Changes in form matter more than the accumulation of content, and expanding the space of possible configurations guarantees nothing — neither progress nor salvation. Cognitive systems reproduce stable ways of processing information that crystallize into recurring patterns over time, which we term *architectures of thinking*.

Architectures emerge under constraints: efficiency requirements, reproducibility demands, social norms, and technological limits all exert selective pressure. Systems tend toward stability, reinforcing patterns of thought that are effective under current conditions. Over time, this leads to cognitive fixation: a narrow set of architectures dominates, stability increases, variability declines, and alternative regimes are marginalized.

Even within individual minds, familiar strategies dominate: those yielding rapid results, social approval, or clarity. Intellectual risk is subordinated to predictability. Thinking may become more complex within chosen architectures, but this complexity is derivative and does not open fundamentally new cognitive modes.

The system may plateau — functional, stable, yet structurally constrained.

Unused possibilities, unintegrated alternatives, and accumulating structural contradictions generate tension. Eventually, tension may induce a phase transition, reconfiguring cognitive landscapes. History records these shifts as scientific revolutions, cultural transformations, or institutional reconfigurations. They are contingent, not inevitable.

A system cannot be commanded to think differently; no single switch exists. However, environments can be designed to allow multiple architectures to coexist, lowering the risk of phase lock-in and preserving evolutionary potential. This book does not serve as a guide for self-improvement or a manifesto for creativity. It aims to reveal the structural and dynamic mechanisms that determine which forms of thought emerge, persist, or remain invisible.

Mind as a Process: The Natural Dynamics of Thinking

The Illusion of a Unified Mind

Key Points:

- The illusion of a single scale of mind arises from systemic cognitive standardization by institutions.

- Education works like geology: it lays down cognitive strata.

- Corporations act as rhythm factories, locking in cognitive sameness.

- The digital environment channels thought along preset paths.

- Technology often gets stuck in one architecture — smartphones get better, but big problems stay unsolved.

- Alternative ways of thinking survive in pockets: art, marginal sciences, subcultures, private practices.

- We end up policing our own minds — internal self-normalization.

- Escaping the illusion means moving from a single scale to a system of architectures.

The illusion of a unified mind begins with a simple, almost invisible assumption: thinking is a universal ability, something everyone has, differing only in degree of development, speed, or amount of knowledge. We readily compare one person's mind with another's, as if they were running on the same scale.

This feels natural. It is part of the cultural air we breathe from childhood. That is why it is so hard to question. It does not look like a theory; it looks like common sense. We do not notice ourselves carrying it and passing it on.

But this idea has real roots. It does not come from nowhere. It is grown, reinforced, and spread by the institutions that shape us from our first days. To see why we are so sure that everyone thinks the same way, we have to look at how selection works, at how some forms of thinking get labeled normal and others marked as deviations.

Most of the time this is not done on purpose. It happens as a side effect of trying to be efficient, manageable, predictable. But the effects go deep. The system does not just pass on knowledge; it shapes how knowledge is gotten, how it is handled, how it is used. It builds cognitive cities where only one kind of vehicle is allowed. Everything else is illegal.

Education as a Geological Process

Think of thinking not as a flow but as a landscape. The educational system is a giant geological press. It creates conditions where some cognitive layers get hard and thick while others get worn away and vanish. This starts in childhood and continues for decades, forming deep, often invisible strata. Later, our thoughts slide along these layers without us even noticing.

Consider nineteenth-century classical education — the very system that shaped the European intellectual elite. Its goal was not merely to hand down knowledge but to make a certain kind of person: disciplined, logical, grounded in the canon, able to argue within strict rhetorical rules. Students memorized texts, learned Latin and Greek, solved problems by strict routines. This built a powerful cognitive layer — an architecture based on hierarchy, authority, and exact reproduction. Other ways of thinking — intuition, artistic vision, nonlinear connections — were pushed aside, treated as unserious.

A graduate of this system thought in clear categories, knew his way around the known world, but was often helpless before something truly new. His mind was a well-ordered garden, every path laid out. Outside the fence there was wild forest; his map did not cover it.

Modern education, for all its reforms, mostly follows the same logic, only in new clothes. Its main tool now is standardized testing. This works like a geological filter: only forms of thinking that can be measured, compared, and turned into numbers get through. A student who thinks slowly, deeply, circling back and forth, loses out to someone who has learned to pick the right answer fast. The system does not ask how they think; it asks whether their thinking matches the template.

He takes the test. Questions come one after another, flat and blank. He tries to unfold a thought, follow an association, build a chain of ideas — but time runs out. His hand shakes as he marks an answer; none of the options say what he thinks. The

next question comes too soon. His thought stays outside, unseen, unrecorded. The rest of the class moves on, marking correct answers. He is stuck. His unique moves disappear into the noise of standard solutions. He knows he understood more than he can show. Nobody cares. And in the quiet of the exam hall, his thinking starts to look like everyone else's.

This puts real pressure on people. Cognitive strategies bend. Instead of exploring and understanding, you start guessing, fitting in, faking it.

School sets not only content but rhythm. Lessons come in forty-five-minute chunks, assignments have deadlines, exams demand speed. This rhythm becomes second nature. It feels like a heartbeat. But it only helps certain architectures — those that switch fast, work with fragments, deliver under pressure. Architectures that need slow immersion, long maturing, wandering around — they fall behind. Their owners get called slow, disorganized, behind. Often they start to believe it.

And so a cognitive plateau forms — a flat, smoothed-over surface where everyone thinks correctly. Underneath, whole layers of possible thinking are buried: imagistic, bodily, intuitive, associative, slow, contradictory. They are not gone. They just have no language, no support, no recognition. They live on the edges, almost underground.

Cognitive Standardization in Action

If education lays down cognitive layers, the corporate world presses them flat and hard. Modern organizations — from tech giants to government offices — are machines for making things predictable. They work well when everyone follows the same steps, uses the same tools, thinks inside the same frame.

Look at things like Scrum, KPIs, weekly reports, roadmaps. On the surface they seem neutral — just management tools. But underneath, they shape a certain rhythm of thought: discrete, cyclical, focused on short-term results. Thinking gets broken into sprints. Ideas are judged by how they move metrics. Creativity runs on a schedule. A cognitive assembly line takes shape; thoughts get processed the same way, fast, with no variation.

In such a system, different ways of thinking are not just unwelcome — they break things. An employee who digs deep into a problem with no immediate output looks unproductive. Someone who suggests a radical shift disrupts the rhythm,

creates friction.

Imagine a meeting about a new task. Ideas come fast; people note which ones fit the roadmap. Someone sees the deeper issue, tries to explain the complex options — his words get lost in the flow of quick decisions. The system is not waiting. The organization, chasing stability, starts cutting these people out — through promotions, incentives, informal pressure. Over time, only those whose thinking fits the conveyor belt stay.

This is like tectonic pressure. Under the weight of corporate rules, KPIs, deadlines, cognitive layers squeeze together, lose flexibility, turn into solid rock. Employees all think alike — not because they are stupid or conformist, but because the system picked exactly those architectures.

The range of strategies, approaches, styles shrinks — like biodiversity in a monoculture field. The harvest is steady, but the whole thing is fragile. When conditions change, there are no backups, no cognitive reserve.

Look at big companies and innovation. Many tech giants, once they succeed, keep polishing what they already have. They rarely look for whole new directions. It is not that they lack vision; their internal architecture is built for optimization, not exploration. Thinking that tracks metrics does badly where there are no metrics yet, where the result is uncertain, where you have to feel around in the dark. So the system, chasing efficiency, quietly loses the ability to change in any big way.

The Digital Environment as an Artificial Landscape for Thought

If education and corporations work from above, the digital world works from below — every day, through interfaces, algorithms, design choices. Scrolling a feed, typing a search, picking an emoji: this is not just consuming, it is training.

Interfaces are not neutral. They shape attention, set the order of actions, offer ready□made choices. Look at social□media design: endless scroll, algorithmic sorting, like and share buttons. This architecture pushes fast, shallow consumption, reactive thinking, emotional labels.

Deep reading, slow reflection, complex argument — these do not fit. They are not built in. We get used to skimming, jumping, judging by emotional hit. Our thinking syncs with the platform's rhythm.

Recommendation algorithms act as cognitive guides. They watch what we

did before and give us more of the same. This feels convenient, but it makes a filter bubble. We see only what we already know, think only about what we have already thought. The space of the possible shrinks; other views fade out.

Thinking that never meets the unexpected loses its give. It becomes a well‑worn track — easy, fast, hard to leave.

Digital tools — calculators, AI, everything — also change our architecture. They take over routine work, freeing us for harder things. But often the opposite happens: we get dependent, lose the skills they replace, and our thinking shrinks to match the interface.

The calculator is the classic case. We stop doing math in our heads, lose the feel for numbers, the sense of scale, the quick estimate. The tool does not just help; it reshapes thinking to its own size.

The digital world makes an artificial cognitive landscape. It looks endlessly varied, but it rests on a few simple rules: speed, personalization, simplification, engagement. We move through it like a theme park — bright lights everywhere, but the paths are fixed. Going outside is not encouraged.

Why We Make Better Phones and Ignore Bigger Problems

Smartphones show how a path can get locked in. Twenty years, hundreds of billions of dollars: making screens a bit bigger, cameras a bit better, processors a bit faster. Meanwhile, big problems stay on the edge: clean energy, nuclear waste, fresh water, ocean pollution, poverty, hunger, inequality.

Not because phones matter more. Not because we lack the tech. Because of the cognitive and economic architecture around digital devices. It has ready supply chains — chips, screens, batteries, all set. Business models that work — yearly upgrades, subscriptions, ecosystems. Consumer habits — we want new things, we compare specs. Infrastructure — 5G, app stores, services.

This setup keeps reproducing itself. Making better phones means following a paved road: risks known, profits predictable, machinery oiled. Going to space, cleaning water — these are the unknown: no ready solutions, no clear return. You have to think differently.

And this shapes what people think about. Engineers, designers, managers, investors — they all work inside this frame. They optimize, they do not break through.

They iterate, they do not invent. They meet demand, they do not make new demand.

Other kinds of thinking — long-term, strategic, systemic — do not fit. They have no place. They do not fit quarterly reports, they do not pay fast, they do not meet what shareholders expect. So technology gets stuck in a phase — not from lack of other paths, but because the cognitive architecture is fixed. We improve what we already know how to improve. And we almost fail to notice that beyond the familiar ground, whole continents of possibility lie empty.

Where Alternative Architectures Survive

Standardization is never total. There are always places where other architectures live and grow — like oases in the desert, on the edges of main institutions, in niches the system does not see as important.

Art is the clearest case. Here, the things pushed aside elsewhere get valued: intuition, association, working with hidden meaning, breaking rules. Artists, musicians, writers think differently — it is part of the job. Their architectures are often nonlinear, full of multiple meanings, loaded with emotion. They work with images rather than concepts, with rhythms rather than algorithms, with wholes rather than pieces. Art keeps alive the ways of thinking that school and work cut off as useless.

But even art gets squeezed. Under pressure from the same filters, it too changes: deep thinking gives way to surface effect, originality turns into shock, boldness into provocation, depth into strategies for grabbing attention.

Marginal sciences and cross-isciplinary work are another zone. Main science runs on well-worn tracks; at the edges, where fields meet, new forms appear. Cybernetics, synergetics, cognitive science, complexity science — all started as attempts to think outside the lines. Their people often met resistance from the establishment, but they also made the breakthroughs. Their thinking was mixed: logic and intuition together, exact calculation and philosophical reach, models and metaphors.

Digital niches and subcultures — open-source communities, game fans — also host different practices. Here speed and efficiency are not the only values; depth counts, mastery counts, understanding complex systems counts. A gamer who knows the mechanics better than the developers, a hacker who sees the system's weak spots — their thinking is often more flexible, more adaptive, more systemic than what passes for normal.

Personal practices matter too: diaries, meditation, long walks, creative hobbies. These are places where you can think slow, without purpose, without report, free. Here ideas can grow that later become something bigger.

These zones are not just museums for odd thoughts. They are the system's reserve of complexity. When the main institutions hit a wall, when their architectures stop working, it is from these edges that new ideas come — new ways of seeing, new answers. Like seeds in the ground, waiting.

Internal Self-Normalization

The sneakiest way the illusion stays alive is not outside pressure but inside us. We start watching ourselves, making sure our thinking meets what is expected. We become our own minders, and we do not even notice.

It begins small. A child corrected a few times for the wrong answer learns what is allowed and what is not. A teenager with a low grade on a creative but strange essay learns it is safer to follow the pattern. An adult whose ideas keep getting called impractical at work learns to stop saying them.

Slowly, we start filtering thoughts before they even form. We drop weird associations, push away inappropriate questions, avoid topics that might get us looked at sideways. Our thinking becomes more and more like everyone else's — not because we choose it, but because it is safe, easy, approved.

The language of rationality pushes this along. The dominant architecture presents itself not as one option but as the only reasonable one. Its features — logic, order, clarity, efficiency — become what good thinking means. Everything else gets marked as irrational, confused, useless.

But there are things logic cannot reach, where clarity is just a scaffold, where efficiency is not the point. Whole parts of life — passion, attachment, art, meaning — need different strategies. Under the weight of rational talk, these ways lose standing. The people who have them start doubting, feel ashamed of being illogical, try to put their experience into concept-words — and in doing that, they lose what it was.

A circle closes. The more uniform the cognitive space gets, the fewer tools there are for seeing anything else. We stop noticing we all think alike; it starts to seem that thinking any other way is just not possible. The illusion of one mind is held up not by arguments but by blindness. We cannot see what we have no words

for.

From a Single Scale to a System of Architectures

The first step out is to see that thinking is not one scale but a system of architectures. Each architecture is a whole way of organizing thought, with its own logic, its own strengths, its own limits, its own conditions for working well.

Some architectures are good for clear problems in steady conditions. Others for feeling through fog. Others for making new wholes. Others for understanding tangled systems. There is no best; there is only what fits the task, the context, the moment.

This way of looking turns differences in thinking from faults into signs of cognitive polymorphism. Like species in an ecosystem: diversity makes the whole thing stable. Diversity in thinking makes it adaptable.

He sits at the table. Two tasks in front of him. One needs logic, steps, predictable moves; the other needs chaos, loose connections, creative search. His attention jumps between them. For one he is too slow, for the other too tight.

He feels what each shape shuts out, and what opens up when he can switch. In that moment it becomes clear: you cannot think well without knowing your architectures and learning to move between them.

Key Theses

- The one‑mind illusion comes from cognitive standardization — schools, companies, digital spaces all do it.

- School lays down cognitive layers, cutting off other forms as inefficient.

- Companies build rhythmic thought belts, making different strategies not work.

- Digital spaces steer thought with interfaces and algorithms, shrinking what is possible and creating filter bubbles.

- Technology gets stuck in one track because of economic and cognitive inertia.

- Other ways of thinking live on the edges: art, fringe science, subcultures, private practice.

- We learn to filter ourselves, to match what is expected.

- Cognitive polymorphism — having many architectures — makes a thinking system adaptable and stable.

- Getting out means moving from a single crop to a cognitive ecosystem — different architectures working together.