05 · READING GUIDE

BETWEEN

When the Present Encounters a History

WHAT IT IS

Between mediates the relation between what an instance has already recorded and the object it selects now. By bringing the two into relation, the encounter can modify the instance itself and how it will operate afterward.

KEY INSIGHTS

- The door does not merely filter what passes through: it selects what comes into focus; what passes through can modify the door itself and change how it will encounter subsequent objects.
- The instance does not merely process what it encounters: it may emerge from the encounter operationally different.

PURPOSE / EFFECT

To distinguish Between from the mere reception of an input and show how external or internal differences come to participate in a historically conditioned organization.

The present is no longer treated as the isolated processing of an input. The same object may produce different encounters because it meets different States; and the encounter itself may alter the State that will receive the next object.

AUDIENCE / CONNECTIONS

- Philosophy of mind — the relationship among the present, experience, and the history of the organization.

- Cognitive science and neuroscience — memory access, selection, retrieval, and reconstruction.
- Biology and complex systems — historically conditioned organism–environment coupling.
- AI / AGI — processing dependent on State and Trajectory, preparing the later computational translation.

ROLE IN THE THESIS

To develop the second vector of the Triad. The chapter bridges Inside, concerned with reconstructing the present instance, and Ahead, which in the next chapter will carry the problem of continuity beyond the instance itself.

PATH THROUGH THE INVESTIGATION

01 ACCESS AND BETWEEN
02 ENCOUNTER
03 FLOW
04 CUP
05 WATER
06 EVIDENCE AND BRIDGE

CHAPTER 05 · BLOCK 01

5.1 ACCESS AND BETWEEN

How the Present Calls on the Past

WHAT IT IS

Introduces Between as the operational relation between the present object and the history preserved by Inside, distinguishing recording from accessing.

QUESTIONS

- Why might a preserved memory remain inaccessible?
- What characterizes Between beyond the mere reception of stimuli?

KEY INSIGHTS

- The present calls on marks but does not retrieve them as intact files.
- To make something an object does not require a hidden observer or demonstrated consciousness.

IN THIS BLOCK

5.1.1 Inside Preserves, but Cannot Access on Its Own

5.1.2 Accessing Is Not Opening a File

5.2.1 What the TMC Calls Between

5.2.2 What Is Not Enough to Define It

5.2.3 Premises for Application

5.1 — ACCESS

5.1.1 — Inside Preserves, but Cannot Access on Its Own

The previous chapter, devoted to Inside, showed that a record has two dimensions—Form and Texture (Weight and Valence)—and a plasticity expressed through five movements: creation, decay, rewriting, dissociation, and reassociation. But the capacity to change is not enough for a mark to participate in the present again: some prompting difference must reach it, retrieve it, and bring it back into the current operation.

> **Inside preserves the marks; Between accesses, modifies, and retrieves them so they can carry weight in the present again.**

5.1.2 — Accessing Is Not Opening a File

Accessing is not consulting a file or reconstructing everything that happened in full. It is reaching, among the marks available, those that respond to the present and retrieving them to help guide orientation and action.

> **Memory does not decide; it changes the conditions of the decision.**

The record does not contain a ready-made command, nor does it execute the response by itself: it modifies the field of possibilities in which action will be produced.

> **Ryan et al. (2015) — When Memory Remains but Access Fails**

First, mice learned that a particular environment was associated with a mild electric shock. The researchers then induced amnesia: upon returning to the same place, the animals no longer displayed the expected defensive response.

During learning, however, the scientists had tagged the neurons involved in forming that memory. When these neurons were stimulated directly, the defensive response reappeared.

> **The memory was not necessarily missing; the path to it was.**

In the TMC's interpretation, the experiment shows that preserving a mark and being able to access it are distinct operations: Inside may retain the record while the usual pathways of Between can no longer reach it.

5.2 — BETWEEN

5.2.1 — What the TMC Calls Between

Between is the causal work through which an organization selects and accesses external or internal differences, relating the object to marks already available in Inside. This encounter gives rise to contact: the object meets an organization that already has a history, and what is accessed may modify both the present operation and the records that will participate in future encounters.

Objectifies: selects something external or internal as the object of investigation.

Accesses: searches Inside for marks related to the object.

Retrieves: brings those marks back into the present operation; the act of accessing them may itself modify them.

Acts: brings what was retrieved into relation with what is happening now.

The object changes the record; the record changes how the object will be encountered. We experience what we are.

5.2.2 — What Is Not Enough to Define It

Taken individually, none of the following is sufficient:

- having a membrane or boundary;
- exchanging matter or energy with the environment;
- receiving a stimulus;
- having receptors;
- performing signal transduction;
- reacting mechanically;
- moving;
- exhibiting feedback;
- undergoing a change caused by the environment.

These processes may participate in Between, but they are not sufficient to define it.

5.2.3 — Premises for Application

As established in 3.3.4 — Between: Accessing and Transforming, Between describes causal work, not a particular material form of relating to the world. The premises below summarize the consequences of this criterion for its application; the general methodological foundation remains in Chapter 3.

BETWEEN IS A FUNCTION, NOT A SPECIFIC MECHANISM.

Membranes, receptors, chemical networks, sensory systems, or neural circuits may participate in its realization, but none defines Between. Its definition does not require a nervous system, consciousness, or a human form of perception.

A DIFFERENCE DOES NOT MERELY ALTER THE INSTANCE; THE INSTANCE PARTICIPATES IN HOW THAT DIFFERENCE ALTERS IT.

The organization's State and history condition how a difference is selected and how it participates in the present operation. This distinguishes Between from a passive physical alteration, without requiring every encounter to produce learning or a lasting change.

MAKING SOMETHING AN OBJECT DOES NOT PRESUPPOSE AN INTERNAL OBSERVER.

Calling a difference an object of Between means that it has acquired operational priority in the instance's selection. This does not presuppose

consciousness, intention, mental representation, or a hidden subject choosing what will be investigated.

BETWEEN DOES NOT REQUIRE A PRIOR RECORD OF THE SAME OBJECT.

A difference not previously encountered may be discriminated through the capacities, State, and relations already available within the organization. History conditions the encounter without requiring the present to be merely the recognition of something already experienced.

INTERNAL AND EXTERNAL DEPEND ON THE DECLARED INSTANCE AND SCALE.

The same difference may be external to a cell and internal to the organism of which it is part. Between must be attributed to the instance and scale being examined, without subsequently combining operations at different scales to fabricate a single closure.

CHAPTER 05 · BLOCK 02

5.3 ENCOUNTER

A Door Facing Outward and Inward

WHAT IT IS

Examines encounters with external and internal objects and how the present may recreate relations from earlier records.

QUESTIONS

- What happens when an object comes from the external world?
- How can the instance make its own records objects of investigation?

KEY INSIGHTS

- The functional door changes with what passes through it.
- The organization may act on the world it carries before acting in the world outside it.

IN THIS BLOCK

5.3.1 The Membrane Facing Outward and Inward

5.3.2 When the Object Comes from Outside

5.3.3 When Inside Becomes the Object

5.3.4 Before Acting in the World, the Organization Acts on the World It Carries

5.3 — ENCOUNTER

5.3.1 — The Membrane Facing Outward and Inward

Between mediates the passage between contact and record. Its object of investigation may be an external event or a mark already preserved in Inside.

It operates like a functional, porous, and flexible membrane. It turns outward when filtering, distinguishing, and qualifying what arrives; it turns inward when searching for and retrieving relevant marks. Its function is to mediate the passage from contact to record and from record back into the present operation.

Between is the organization's gatekeeper, but not a hidden subject: it distinguishes what arrives and searches the available history for what may guide its passage.

5.3.2 — When the Object Comes from Outside

When it turns outward, Between takes the external event as its object of investigation.

Objectifies: takes the external event as its object.

Accesses: searches Inside for marks related to this object.

Retrieves: brings these marks back into the present operation. The very act of accessing and retrieving them may modify the marks.

Acts: brings what has been retrieved into relation with what is happening now.

Between acts like a gatekeeper who receives visitors from outside and directs the interaction toward the corresponding residents. The metaphor introduces no will of its own: the factual event prompts the operation, and the available history conditions the response.

If a tiger bites your arm, you react. Between takes the event as its object, accesses the related marks, relates the record to what is happening now, and guides the action.

> **With an external object, the past interprets the present.**

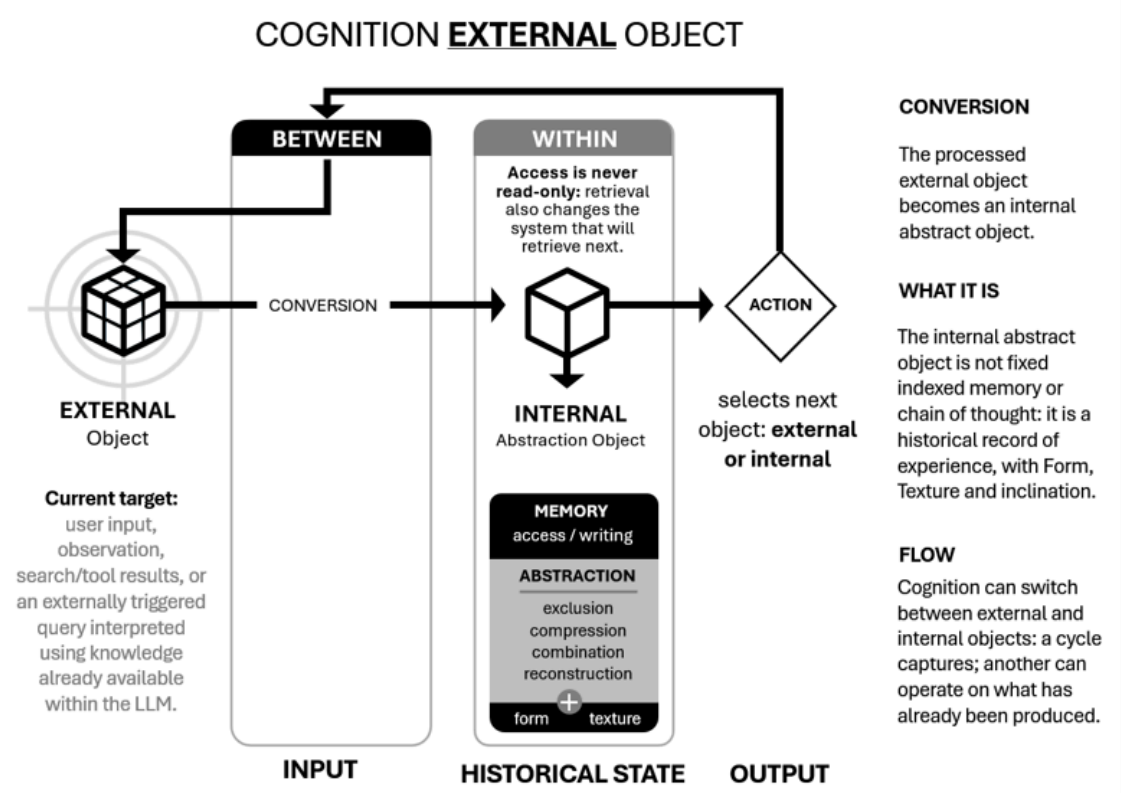


Figure — External object. A difference in the environment becomes the focus; Between relates it to Inside, accesses and modifies records, and may generate action, a record, or a new object.

5.3.3 — When Inside Becomes the Object

When it turns inward, Between takes a mark already preserved in Inside as its object of investigation.

Objectifies: takes the internal mark as its object.

Accesses: uses that mark as a reference to search for other marks related to it.

Retrieves: brings these related marks back into the present operation. The very act of accessing and retrieving them may modify the marks.

Acts: relates what was retrieved to the mark initially under investigation.

Between acts like a gatekeeper who starts with one resident, finds that resident's relations with others, and directs the interaction among them.

If a tiger bites your arm, you flee and hide for hours. Your mind may continue working through the experience to act more effectively in a possible future encounter. Even if the tiger never returns, this process may modify the marks of fear and urgency, even without preserving an explicit recollection of the animal. The attack happens once in the world, but it may continue to be processed many times in the record. The bodily action is singular and risky; internal investigation can repeat, decompose, and reorganize the experience without requiring a new attack.

There is no internal world of Between without an external history: every memory is a world that has already entered.

When Between takes Inside as its object, it does not merely retrieve the past. It may recombine marks, create new Forms, and assign them operational Weights, as though the organization were facing a factual event. It is through this work that imaginative and creative processes arise: the past may be rewritten in its Forms and Textures, with their Weights and Valences where present, while futures that do not yet exist may be experienced in the present—as happens in dreams.

> **With an internal object, the past investigates itself.**

NOTE — WHEN THE APPARATUS BECOMES AN OBJECT

Between may also turn toward the operation itself, taking the Apparatus as its object. In this movement, the instance begins to select its own process as a reference to itself. Here arises what we call a concept of Self: a condition of individuation and self-reference that will be developed in Chapter 7, when the Triad operates together again in the Self-Entity (Ente Eu).

This selection does not create the factual world. It creates an operational reference: what, among everything that exists, comes to count first for this instance at that moment. There is no hidden observer making this choice; priority is produced by the arrangement itself.

> **The world has no center; the operation has a point of reference.**

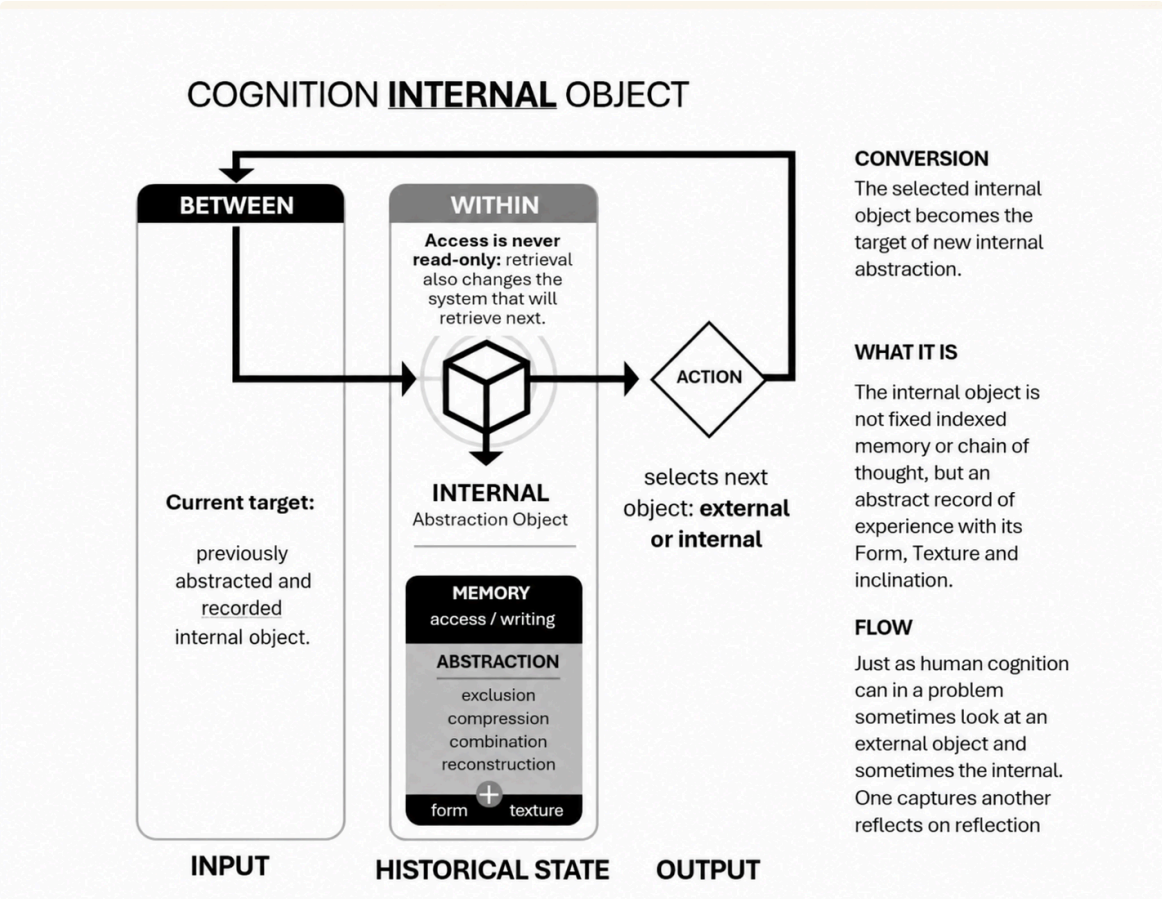


Figure — Internal object. An object already produced by the instance's own Trajectory becomes the focus and passes through the same architecture, potentially generating another object without depending on a new external input.

For decades, the brain was imagined to remain at rest until mobilized by an external task. In 2001, however, Raichle and colleagues showed through neuroimaging that intense intrinsic activity persists even in the absence of a task directed toward the world. In 2009, Davidson, Kloosterman, and Wilson observed that, while rats remained motionless after traversing a track, hippocampal sequences replayed spatial trajectories 15 to 20 times faster than the actual movement.

If a person slept twenty-four hours a day throughout their life, their cycle of reference and inference would tend toward delusion within a closed system: what they inferred in one dream would become the reference for the next. In a waking person, external objects and phenomena interrupt this freedom in an open circuit, providing approximate references for what we call reality. Being awake does not turn the instance into a lucid observer of the thing in itself; it merely adds a factual connection to the waking dream.

The TMC does not treat perception as a "controlled hallucination." It understands perception as a limited, historically conditioned reconstruction, continually constrained by the factual world.

5.3.4 — Before Acting in the World, the Organization Acts on the World It Carries

Action does not begin when the body moves. External movement is the moment when a possibility already worked through internally becomes action.

> **Before acting in the world, the organization acts on the world it carries.**

The organism does not create the world it encounters; it creates, from what the world has left within it, possibilities of worlds. When some of those possibilities are realized, they modify the world and begin to feed new possibilities.

PHILOSOPHICAL NOTE — THE DOOR

A reference is a possible approximation of an experience, phenomenon, or material structure, limited by the instance's psychophysical apparatus, its senses, and the references it already possesses.

There is no reference without prior history. At the beginning of the individual cycle, that history is already present as inherited memory from the lineage. From that point on, each inference may become a reference for the next.

How much of the world is real, and how much is constructed? Neither naive realism nor absolute idealism—and not an automatic compromise between them, either. The TMC shifts the question: it investigates how the factual becomes a reference, how references produce inferences, and how those inferences return to the factual.

If the individual were a house, we could say that much of philosophy has investigated in detail what lies outside the door, what lies inside it, and the relationship between those two sides.

The TMC shifts its focus from the two sides to the function of the door: how the world enters the organization, is recursively transformed into reference and inference, returns as perception and action—and how this process modifies the world that will enter again.

This shift does not begin from zero. Phenomenology, pragmatism, hermeneutics, and enactivist approaches have already shifted the mind away from an isolated observer toward its relationship with the world. The TMC adds a question of genesis: how the very form of that relationship

was built and modified over previous crossings. The door does not merely filter what passes through; what passes through changes the door—and the individual's first door already carries a history that began before the individual.

> **The conditions through which we know the world also have a history.**

The TMC does not need to place the absolute at the foundation of nature. Its foundation is prosaic: organized matter, selection, and constraint, with closure at the lineage level. Even so, this history may produce instances for which certain things become absolute—my body, my pain, my death, my purpose, my world. What is merely a possibility for the lineage may become indispensable for the instance.

Perhaps part of our metaphysical and transcendent inclination begins when the instance, a transient shell of the lineage, asks: what am I, where did I come from, and where am I going? The TMC makes the reverse move: it acknowledges the lived limit without automatically turning it into a foundation of the cosmos. The universe did not acquire a center; the instance acquired a world.

The TMC does not exclude transcendence or metaphysics; it simply places them back within the scale, time, and function they can occupy in the system.

CHAPTER 05 · BLOCK 03

5.4 FLOW

From Contact to the Transformation of the Record

WHAT IT IS

Describes the circulation among selection, classification, Weight, access, and the transformation of records across encounters.

QUESTIONS

- How does an object become a search key?

- Why does encountering the same object again not repeat the same encounter?

KEY INSIGHTS

- The search narrows the field of retrieval before accessing the item.
- A modified record changes the conditions of subsequent contacts.

IN THIS BLOCK

5.4.1 Contact Begins a Search

5.4.2 The Present Turns the Object into a Search Key

5.4.3 The Past Reorganizes the Present Encounter

5.4.4 The Present Reopens and Modifies the Past

5.4.5 The Modified Record Changes Subsequent Contacts

5.4 — FLOW

5.4.1 — Contact Begins a Search

Contact does not encounter a passive record. It acts as a clue: before reaching a specific item, the search is guided by the broader structures to which that item belongs. Searching is not rummaging through an archive, but selectively narrowing the field of what can be retrieved, moving from more general classifications toward specific content.

In a memory experiment, participants learned items from different categories. Later, when they tried to freely recall an item, the brain began by reactivating the pattern associated with that item's category, and only afterward did the specific recollection emerge (Polyn et al., 2005). Before retrieving a recollection in the present, the brain appears first to orient itself toward the region of the record to which it belongs—like locating the right group in a spreadsheet before finding the item being sought.

The present does not traverse the entire past; it changes which part of it can return.

5.4.2 — The Present Turns the Object into a Search Key

To search the record, Between must first transform the present object into a search key. For didactic purposes, this investigation can be separated into three analytical movements of the initial contact:

Filters: reduces the object to the features capable of becoming relevant in that encounter.

Classifies: relates those features to groups, categories, similarities, and relations already available in the record.

Qualifies: assigns Weight to what has been classified—what matters more or less now, its characteristics, and, when present, its recorded Valence.

The result is a provisional search key: a reduced combination of characteristics, relations, and Weights that narrows which marks in Inside are more likely to be accessed.

> **The present does not search the past with the entire object; it first transforms the object into a key capable of finding it.**

Selection Under Constraint

We are not a film recording the world. We are a limited organization that selects, compresses, transforms, and preserves only a minute fraction of what passes through it. Knowing begins before investigating the object: it begins in the selection of what may become an object—and in the exclusion of countless other possibilities. The past participates in the present not because it remains whole, but because some of its effects survived, were transformed, and remain capable of guiding what comes next.

Selection is extreme: Zheng and Meister (2024) estimate a bottleneck on the order of 100 million to one between the information received by sensory systems and the flow used to guide behavior. Much processing remains outside conscious access, and only a portion of representations becomes broadly available for report and cognitive control (Dehaene et al., 2014).

The limit is also energetic. Lennie (2003) estimated that the high cost of neuronal firing severely restricts the proportion of cortical neurons that can remain substantially active at the same time. A brain operating at around 20 watts cannot process everything simultaneously: it must select.

TRANSVERSAL NOTE

NOMENCLATURE STANDARDIZATION NOTE

To investigate feeling and its relationship to the records of a trajectory, the TMC uses a shared analytical structure.

GENERAL STRUCTURE

S(feeling) ≈ Form + Texture (Weight and Valence)

This representation organizes relevant dimensions for investigating feeling. It does not seek to exhaust the complexity of the event or fully explain the subjective character of *"what it is like to have the experience,"* although a relationship exists among these dimensions. Investigation of this question, associated with *qualia*, is pursued in greater depth in **Chapter 2C — TMC Theory**.

Feeling
Refers to the character of experiencing, to the felt event itself—not merely to the capacity to have experiences. Here, it concerns feeling in its more recognizable manifestations, rather than the most subtle and ontological dimension of feeling.

Form
The reduced and/or compressed configuration of an encounter. It does not correspond to a complete photographic, auditory, or sensory reproduction. It may preserve outlines, relations, patterns, and characteristics sufficient for something to remain operable and recognizable within the trajectory.

> *Observation: Texture can exist without Form, but Form cannot exist without some degree of Texture.*

Abstraction
The process of transforming differences into operable configurations. It may include groups of signals, compressing, combining, and reconstructing elements and relations, producing composite inclinations that may participate in new encounters.

Texture
Characterizes how the encounter left its mark on the trajectory in its character as felt experience. In this representation, it is analyzed through two intrinsic dimensions: Weight and Valence.

Weight
Expresses the relative relevance and intensity with which a mark participates in operations and is recorded through them. It may be quantified for purposes of relative analysis.

Valence

Refers to the dimension of states characterized by gradations such as pleasant and unpleasant, pain and pleasure, joy and sadness, giving affective tones to what is felt.

Composite Feeling

This formula for feeling represents a distinguishable minimal unit. Complex feelings may arise from the composition of different units of feeling.

Complex, contradictory, subtle, or indeterminate emotions are structured into a composite feeling.

Representation by Polarity

The direction of Valence can be represented in simplified form by negative, neutral, or positive signs, which may also be graded numerically. This representation may help model tendencies to approach or withdraw, but it does not exhaust what is felt or automatically determine an action. It allows algorithmic analyses of states and their more effective operational manipulation.

Supplementary conceptual reference: Chapter **02c — TMC Theory**.

5.4.3 — The Past Reorganizes the Present Encounter

What returns from the record does not enter as neutral information. Retrieved marks carry relations, priorities, and dispositions formed in previous encounters. When they participate in the operation again, they change the Weight of the present object: what attracts attention, what loses importance, what is expected, and which responses become more likely.

Outcome-devaluation studies illustrate this simply: a cue may remain physically identical yet lose its influence on action when the value of the outcome with which it was associated changes. The stimulus did not change; what changed was the history the organism brings to it.

5.4.4 — The Present Reopens and Modifies the Past

Accessing the record may modify the record itself. And even without being accessed, it continues to change through five movements: creation, decay, rewriting, dissociation, and reassociation. For that reason, a later encounter with the same object is never exactly the same encounter.

The object may recur; the encounter never does.

5.4.5 — The Modified Record Changes Subsequent Contacts

The modified record becomes the reference for subsequent encounters. For that reason, when faced with the same object, it is no longer perceived in the same way.

Every encounter modifies the conditions of the next encounter.

FORMALIZATION NOTE

In Chapter 10, this circulation will be revisited in terms of State, operation, updating, and Trajectory: the encounter begins from a historically formed State, may modify it, and produces the State that will condition the next operation. There, these relations receive minimal formal notation and a bridge toward computational implementation.

CHAPTER 05 · BLOCK 04

5.5.1 CUP

The Limits and Possibilities of the Apparatus

WHAT IT IS

Presents the Cup and Water hypothesis, followed by the Cup: relatively stable, inherited, and transformable possibilities of discrimination.

QUESTIONS

- How can different regimes of transformation be distinguished?
- Which sensory scales can precede individual biography?

KEY INSIGHTS

- The quantitative curve is an illustration, not a measurement.
- The Cup delimits possibilities without anticipating which object will be recognized.

IN THIS BLOCK

5.5.1 EVIDENCE — CUP AND WATER

5.5.2 The Cup: Inherited Limits and Possibilities

5.5 — CUP AND WATER

5.5.1 — EVIDENCE — CUP AND WATER

THE CUP CURVE

An exercise in what changes and what remains

Imagine that we could arrange our mental states and possibilities of experience according to how long they take to change. **How many examples would we find at each timescale?**

01 **MINUTES OR HOURS** — **MANY**

Mental states that change quickly.

Anger, joy, mistrust, indignation, confusion, fear, interest, desire, attention, and many others.

02 **MONTHS OR YEARS** — **FEWER**

States and dispositions that change over longer periods.

Trust, beliefs, friendships, preferences, and habits.

03 **DECADES** — **RARE**

States, bonds, and characteristics that may take twenty, thirty, or fifty years to undergo major transformations.

Lasting love, faith, deep convictions, and certain personality traits.

04 **AN ENTIRE LIFETIME** **MANY AGAIN**

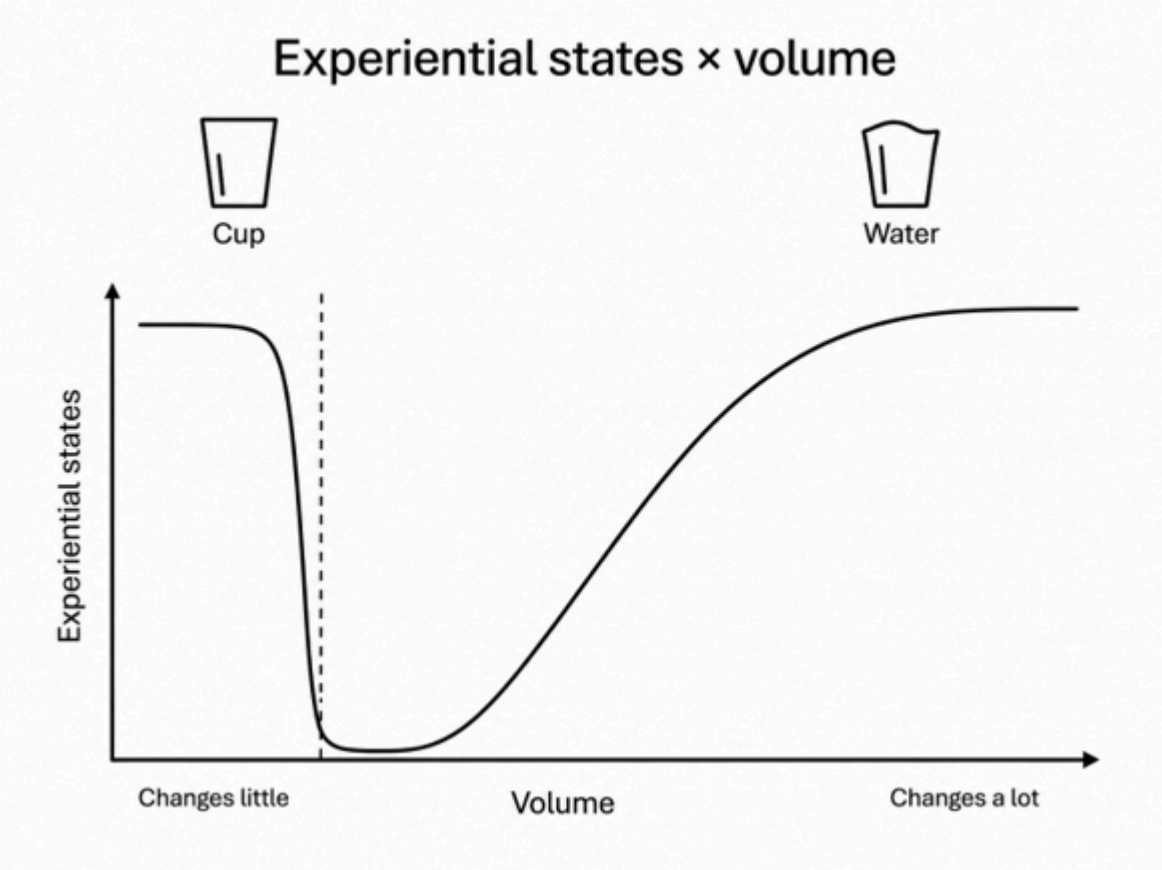
Basic possibilities of experience that may remain relatively stable throughout almost an entire life.

Distinguishing green from blue, light from shadow, hot from cold, bitter from sweet, low from high pitch—among countless other differences.

MANY → FEWER → RARE → MANY AGAIN

The number of examples seems to decrease as we look for things that take longer to change. **But when we reach the most elementary and stable possibilities of experience, the variety increases again.**

This is the pattern the curve seeks to illustrate. The numbers in the graph are symbolic: they present an organizing hypothesis of the TMC, not an empirically established statistical distribution. For didactic purposes, we are comparing states, dispositions, and possibilities of discrimination—not claiming that they are phenomena of the same nature.



Conceptual figure — Experiential states × volume. The curve represents an organizing hypothesis, not an already measured distribution.

The proposed hypothesis is that this distribution is not continuous: there is considerable variety in what changes rapidly, considerable variety in what

hardly changes, and a relatively sparse intermediate region.

Cup and Water

We call Water the more fluid domain of experience because its states change continuously through the encounters of the instance itself. We call Cup what remains relatively stable and delimits the forms that this Water can take.

> **Water changes greatly within a Cup that changes little.**

The Cup Changes in Another Way

The difference between Cup and Water does not lie only in the speed of change. It also lies in the kind of process that ordinarily can change each of them.

- Genetics and heredity: biological variations can alter perceptual capacities, as in color discrimination in color blindness.
- Injury and physical trauma: damage to sensory pathways or neural regions can alter the perception of color, movement, pain, taste, or other capacities.
- Pathologies: neurological and sensory diseases can modify basic forms of perception.
- Development and maturation: the formation of the Apparatus establishes and stabilizes some of these possibilities.
- Aging: physical changes in the organism can gradually alter certain perceptual capacities.

Water changes through a different dynamic: experience, learning, memory, context, relationships, new information, and combinations between previous records and the present encounter.

The difference is not that one is material and the other is not. Both depend on the organism. The difference lies in their regime of transformation.

In the Cup, changes are primarily linked to more structural and biological alterations of the Apparatus. In Water, combinatorial, contextual reconfigurations historically produced through the instance's own experience predominate.

> **The Cup is not merely Water that changes more slowly. It tends to change through a different order of processes.**

What the Evidence Shows

The literature already describes an important property of the nervous system: not all its states and circuits have the same temporal scale or degree of plasticity. In neuroscience and psychology, this appears in concepts such as intrinsic neural timescales, affective dynamics, trait stability, perceptual constancy, and critical periods.

Different timescales. Murray et al. (2014) showed a hierarchy of intrinsic timescales in the primate cortex: different regions integrate and maintain information over distinct temporal windows. The result supports the system's temporal heterogeneity, not the full curve proposed here.

Highly variable affective states. Studies of affective dynamics show that emotions differ considerably in duration and can reorganize over short timescales according to context, the significance of the event, and rumination (Verduyn and Lavrijsen, 2015).

More stable traits. Longitudinal studies and meta-analyses of personality show substantial stability of traits over years, though not immutability (Roberts and DelVecchio, 2000; Roberts, Walton, and Viechtbauer, 2006).

Perceptual constancy. The literature on perceptual constancy shows that certain perceived properties remain relatively stable despite changes in stimulus, context, and, in some cases, the sensory apparatus itself. This supports a domain of greater resistance to change without requiring absolute invariance.

Unequal plasticity. Critical periods describe phases in which certain circuits exhibit especially high plasticity; afterward, stabilizing mechanisms reduce this openness to change (Hensch, 2005). The system, therefore, does not remain equally modifiable throughout its trajectory.

Taken together, these findings do not establish Cup and Water as natural categories already recognized by neuroscience. They establish something more basic: different components of the organization have markedly different timescales and regimes of plasticity. The TMC proposes grouping this difference into two functional regimes of transformation.

5.5.2 — The Cup: Inherited Limits and Possibilities

The Cup is the relatively stable set of inherited sensory scales by which differences can be discriminated. Anchored in sensory systems, these scales do not carry objects, memories, meanings, or Valences, but gradients of color, brightness, contour, sound, pressure, temperature, chemical concentration, and other dimensions.

> **The Cup does not tell us what a thing is; it provides some of the scales by which that thing can begin to be distinguished.**

Those same scales can operate on differences coming from outside or reactivated from within—in perception, recollection, reflection, imagination, or dreaming.

Example — The Car in the Cup

When looking at a burgundy-red car, the Cup need not yet know that the object is a car. The encounter occupies different sensory scales: a certain color, brightness, contour, apparent size, surface texture, sound intensity, and smell. In the Cup, the object enters as discriminable differences.

The examples are not exhaustive, and "scale" is a functional simplification: some dimensions can be represented as relatively continuous gradients; others depend on combinations of multiple sensory channels.

An object, therefore, does not arrive as an already identified unit. It simultaneously produces positions along several of these scales. Color, brightness, contour, surface texture, temperature, and odor may participate in the first discrimination before the record enables recognition of what is being encountered.

Evidence from Studies

Visual Form — Fantz (1963). Infants younger than five days looked differently at structured patterns and uniform surfaces, indicating extremely early discrimination of Form.

Color — Adams and Courage (1998). With 180 newborns, they demonstrated discrimination between chromatic and white stimuli when the chromatic difference exceeded certain thresholds. The "scale" is already functional, albeit at much poorer resolution than in adults.

Sound — Novitski et al. (2007). EEG recordings of sleeping newborns showed an automatic response when sound frequency changed by 20%. Before knowing "music," "voice," or "siren," the system can already distinguish positions along the frequency dimension.

Form Through Touch — Streri, Lhote, and Dutilleul; Streri and Gentaz. Newborns manually habituated to one shape responded when presented with a different shape; in later work, they also visually recognized a shape previously explored only by hand, suggesting early structures for extracting relations of Form across sensory modalities.

The Genetics of Color Vision. Different cone opsins have different spectral sensitivities; inherited alterations in those genes systematically change which chromatic differences a person can discriminate. Biologically altering the "scale" alters the space of differences available to the individual.

> **The Cup Also Has a History**

The TMC treats part of these conditions as the continuity of a history that precedes the instance. They are realized and transformed in successive instances under material, energetic, and evolutionary constraints. This continuity does not require every ancestral experience to remain accumulated in the descendant.

In mice, Dias and Ressler (2014) showed that a conditioned olfactory experience in parents altered the sensitivity of offspring and grandchildren to the same odor, accompanied by changes in the olfactory pathway and the germline. The study does not demonstrate the transmission of an episodic memory; it shows that conditions preceding individual biography can modify later dispositions.

The individual's first reference is constructed by the individual, but it does not begin there. Before that biography, the lineage has already transmitted dispositions and constraints that shape what may be perceived, prioritized, and learned. The individual does not inherit the ancestors' references; it inherits some of the conditions that will determine what may become a reference for it.

The idea that dispositions preceding individual experience have an evolutionary history finds a precedent in Lorenz's evolutionary epistemology; the TMC does not, however, identify these with Kantian categories.

The Cup does not merely explain why some things change very little. It also helps explain why what changes greatly does not change in just any way.

> **The individual's first reference does not begin with the individual.**

5.5.3 WATER

The Plastic Composition of the Encounter

WHAT IT IS

Develops Water as a provisional composition of related elements, whose transformation can leave sedimented effects on subsequent encounters.

QUESTIONS

- What changes when the same object appears in a different scene?
- How do relationships among elements produce a configuration with properties of its own?

KEY INSIGHTS

- In Water, the relationships among the elements present also matter.
- Clay metaphorically names sedimentation, not an equivalent third category.

IN THIS BLOCK

5.5.3 Water: Present and Plastic Experience

5.5.3 — Water: Present and Plastic Experience

If the Cup provides the relatively stable scales by which differences can be discriminated, Water is what takes shape upon them in the present: a provisional composition of elements that, at that moment, appear in relation to one another. It does not represent an isolated object, but the momentary configuration of the encounter.

> **Example — The Car in Water**
>
> In Water, the car already appears within a composition: car + friend + garage + night + luggage. Hours later, the same car may appear as car + collision + broken glass + tow truck. The elements enter, leave, and change

their relationships. In Water, the object does not enter alone; it enters situated.

We rarely encounter an isolated object. We encounter a burgundy-red car in front of a house, with someone beside it, under a certain light. Hours later, the same car may appear on a road or after a collision. The object may recur; the encounter does not.

This shifting composition is Water. Its elements enter, leave, and change their relationships according to the context and what Inside returns to Between. Water is plastic, but it operates within the possibilities of the Cup: the Cup provides the scales; Water, the momentary grouping.

Some configurations pass with almost no effect. Others modify the record and acquire stability. When that acquired stability begins to participate in subsequent encounters, the TMC calls this sedimented effect Clay.

> **Clay is not a third category parallel to Cup and Water: it is the image of the sedimentation of part of experience, when an acquired configuration begins to carry Weight in later encounters.**

> **Evidence from Studies**

The object is recognized within a scene — Biederman (1972). Biederman briefly presented real-world scenes and asked participants to identify a particular object. When elements of the scene were rearranged incoherently, object identification worsened, even when participants already knew what to look for and where it would appear. The result shows that recognition does not depend only on the isolated properties of the object: the organization of the scene also participates in its perceptual processing.

Relationship to Water: this supports the view that the object is not processed in isolation; the composition in which it appears modifies the encounter.

Object and setting influence each other — Davenport and Potter (2004). In four experiments, participants viewed photographs for only 80 milliseconds. An object appeared in a setting that was semantically compatible or incompatible with it. Objects were identified more accurately when they matched the setting; conversely, settings were also identified more accurately when they contained compatible objects.

Relationship to Water: this qualifies the composition as relational: the object participates in how the scene is read, and the scene participates in how the object is read.

A configuration can make a difference easier to perceive — Pomerantz, Sager, and Stoever (1977). Participants had to find, among four simple figures, the one that differed from the others. When the researchers added exactly the same geometric element to all the figures, in certain configurations participants found the difference more quickly and accurately. Combining the parts had produced a global form that was perceptually easier to discriminate.

Relationship to Water: this shows that bringing elements together can produce a configuration with operational properties different from those of the parts considered in isolation.

The relationship between two objects alters their joint processing — Kaiser, Stein, and Peelen (2014). The researchers presented pairs of everyday objects in their customary spatial relationships or in reversed arrangements. Behavioral and neuroimaging measures showed more efficient processing when objects respected regular spatial relationships found in the real world, accompanied by less competition between their representations in the ventral visual cortex.

The study does not demonstrate that the two objects literally become a single object. It shows that their relationship changes how they are processed together.

Relationship to Water: this adds something central: Water is not merely a collection of elements; how those elements are related also matters.

The ensemble may preserve something unavailable in each individual item — Ariely (2001). Participants briefly observed sets of circles of different sizes. Later, they had difficulty recognizing which individual circles had appeared, but could estimate the average size of the set with reasonable accuracy. The visual system could extract a global property despite limited access to the individual items that produced it.

The experiment does not concern natural scenes or demonstrate that every grouping is summarized in this way. It shows that multiple elements can yield a representation of the ensemble that is not equivalent to detailed retrieval of every part.

Relationship to Water: this broadens the concept: a momentary composition can acquire properties of the whole, rather than merely preserving a list of its components.

Breaking expected relationships makes an object harder to recognize — Biederman, Mezzanotte, and Rabinowitz (1982). Participants searched for objects in scenes where they either appeared normally or violated customary relationships of position, size, support, or context.

These violations impaired detection and increased the time needed to recognize the object.

The effect does not mean that customary relationships rigidly determine what can be perceived. It shows that position and relationships with other elements participate in how an object is processed.

Relationship to Water: this reinforces the point that a composition includes not only which elements are present, but also their positions and reciprocal relationships.

> **Synthesis**

The studies do not establish Water as an independent scientific category. They do, however, converge on a narrower fact: perception of an element can change according to the other elements present, their relationships, and the overall organization of the scene.

In the TMC, Water names this provisional configuration of the encounter.

> **In the Cup, what matters are the differences that can be discriminated. In Water, what also matters are the relationships those differences form with one another.**
>
> **Water does not vary freely. It varies within a space of possibilities delimited by the Cup.**

> **The object does not enter alone; it enters situated.**

CHAPTER 05 · BLOCK 06

5.6 EVIDENCE AND BRIDGE

Evidence and the Transition to Ahead

> **WHAT IT IS**

Distinguishes empirical results from TMC inferences, synthesizes Between, and prepares the question of continuity that extends beyond the individual

instance.

QUESTIONS

- What do the findings show without demonstrating the architecture as a whole?
- What problem will Ahead investigate?

KEY INSIGHTS

- Compatibility among findings does not establish Between as a scientifically validated architecture.
- Ahead investigates continuity that crosses from one instance to another.

IN THIS BLOCK

5.6.1 Studies and Empirical Evidence

5.6.2 What the Evidence Supports — and What It Does Not Demonstrate

5.6.3 What Between Explains

5.6.4 What Only Ahead Can Add

5.6 — EVIDENCE AND BRIDGE

5.6.1 — Studies and Empirical Evidence

The experiments presented throughout this chapter investigate different mechanisms. None of them, taken alone, demonstrates the architecture of Between proposed by the TMC. Together, however, they establish facts that any explanation of this process must accommodate.

> **Among many elements, some may gain priority as a unit of selection.**

Duncan (1984) showed that two features belonging to the same object could be judged together without a significant loss of accuracy, whereas dividing the judgments between distinct objects incurred a cost. The result shows that perceptual selection can be organized around object-based units.

> **History changes where the present searches.**

Chun and Jiang (1998) repeated certain spatial configurations during visual search tasks. When the target reappeared in previously encountered configurations, it was located more quickly, even when participants did not consciously recognize those configurations. The effect became known as contextual cueing (guidance by context): relationships learned earlier began to direct attention in the next encounter.

> **Accessing the record can narrow the field before retrieving the item.**

As discussed in 5.4.1, Polyn et al. (2005) observed that cortical patterns associated with a category reappeared seconds before the recollection of a specific item from that category. The result indicates that retrieval may be preceded by reactivation of a broader field related to what will be remembered.

> **The past can participate in preparing for what has not yet happened.**

Pfeiffer and Foster (2013), recording place cells in the hippocampus of rats, observed sequences of activity oriented toward reward locations during pauses. These sequences were related to the trajectories the animals would subsequently follow. The result shows that already available spatial relationships can participate in the prospective organization of action, rather than only in reactivating what has already happened.

5.6.2 — What the Evidence Supports — and What It Does Not Demonstrate

These results belong to distinct fields and mechanisms. The TMC does not treat them as manifestations of a single mechanism already recognized by science.

Taken together, they support operations that can be organized into a functional circulation:

> **difference → composition → selection → search key → access → return → action → new record.**

Each experiment supports only part of this circulation. None demonstrates Between as a complete architecture.

Between is the TMC's proposal that these operations can form a continuous circuit: what is encountered gains priority, meets a history, is

modified by it, and may modify the record that will participate in the next encounter.

> **No experiment demonstrates Between. Each reveals a piece; Between proposes how those pieces circulate together.**

5.6.3 — What Between Explains

Between explains how an instance transforms differences into operable relationships. The present is discriminated, situated within a composition, selected as an object, and placed in relation to the history available in Inside. What returns modifies perception, orientation, and action—and the encounter itself may leave new marks.

> **Thus, no encounter begins from exactly the same place.**

> **The world modifies the record; the record modifies the next relationship with the world.**

Up to this point, however, this circulation remains within the trajectory of the instance itself.

5.6.4 — What Only Ahead Can Add

There remains, then, a boundary that Between cannot cross on its own: what happens when continuity must extend beyond the instance itself?

While the instance exists, its history can modify future encounters. But for some difference to continue after it, accessing its own Inside is no longer enough. Something produced or preserved by that trajectory must remain capable of participating in the reconstruction of another instance.

This is where Ahead begins.

In Between, the past can become active again within the instance. In Ahead, we will examine how some of its effects can pass beyond it.

> **Between explains how a history continues in someone. Ahead asks how something of that history can continue without them.**