

MIND 2

THE UNIT OF THOUGHT

By Michael Sunderlin

# Prologue

A thought is a thing.

All things exist within boundaries.

Those boundaries can be described.

They can be understood.

A thought is a unit.

It has a boundary.

This book defines it.

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## **PART I — THE NATURE OF THE UNIT OF THOUGHT**

# CHAPTER 1 —

## WHAT THE UNIT OF THOUGHT IS

### 1.1 A thought as a discrete thing

A thought does not arrive as the whole field. It emerges as a separation inside it — a moment that stands apart from the diffuse background. Discreteness is what allows the mind to notice, hold, and work with anything at all.

- A thought becomes visible only when it separates from the surrounding flow.
- Separation gives it shape, and shape gives it identity.
- Identity allows the mind to return to it, compare it, or change it.
- Without discreteness, nothing can be recognized or transformed.

A thought is a discrete event inside a larger system. It becomes a unit of thought only when it stands apart long enough to matter.

### 1.2 Why a thought must be bounded

A boundary is what makes a thing a thing. It marks where something begins and where it ends, defining what belongs to the thought and what does not. Without a boundary, a thought dissolves back into the undifferentiated field.

- A boundary creates identity by separating inside from outside.
- Identity creates stability by giving the thought a place to stand.
- Stability creates the possibility of transformation.
- A thought without a boundary cannot be acted upon.

A thought becomes a unit of thought when its boundary holds firmly enough for the mind to use it.

### 1.3 The unit of thought as the smallest meaningful structure

The mind cannot operate on everything at once. It needs something small enough to hold and stable enough to work with. The unit of thought is that smallest meaningful structure — not physically smallest, but conceptually smallest.

- It is discrete enough to isolate.
- Bounded enough to identify.
- Coherent enough to maintain shape.
- Transformable enough to change without collapsing.
- Meaningful enough to alter the state of the system.

The unit of thought is the minimal structure the mind can reliably grasp, return to, and transform.

### 1.4 The criteria for unit-ness

Not every mental event qualifies as a unit of thought. Some are too diffuse, too unstable, or too incomplete. A structure becomes a unit of thought only when it meets specific conditions.

- Discreteness: it stands apart from its surroundings.
- Boundary: it has a definable inside and outside.
- Coherence: its interior holds together long enough to use.
- Transformability: it can be acted upon without collapsing.
- Meaningfulness: it can change the system in some way.

If any criterion fails, the structure is not a unit of thought. It is noise, drift, or pre-unit activity.

### 1.5 Why cognition requires the unit of thought

Cognition depends on stable, graspable structures. Without units of thought, the mind would have nothing to compare, nothing to select, nothing to transform, and nothing to build from.

- Comparison requires distinct things.
- Choice requires alternatives.
- Reasoning requires stable objects.
- Learning requires repeatable structures.
- Identity requires accumulated forms.

The unit of thought is the part from which all larger structures emerge. It is the smallest stable thing the mind can hold.

### 1.6 Compression

A thought becomes a thing when it separates from the field.

A thing becomes a unit when its boundary holds.

The unit of thought is the smallest structure the mind can grasp, use, and transform.

## CHAPTER 2 —

# THE BOUNDARY OF THE UNIT OF THOUGHT

### 2.1 What a boundary is

A boundary is the line that makes a thought a thing. It separates the interior from the exterior, giving the thought a place to stand. Without a boundary, there is no distinction, no identity, and no usable structure.

- A boundary marks where the thought begins and ends.
- It defines what belongs to the thought and what does not.
- It creates the conditions for stability.
- It allows the mind to return to the same structure again.

A boundary is not decoration. It is the structure that makes the unit of thought possible.

### 2.2 What a boundary does

A boundary performs the essential work of making cognition workable. It holds the interior together while regulating how the thought interacts with its surroundings.

- It differentiates the thought from the field.
- It contains the interior long enough for transformation.
- It regulates what enters and what leaves.
- It preserves coherence under changing conditions.

A boundary is an active constraint. It shapes what the unit of thought can become.

### 2.3 Permeability and containment

A boundary must be neither fully open nor fully closed. Too open, and the thought dissolves. Too closed, and the thought cannot change. Permeability and containment must be balanced.

- Permeability allows new information to enter.
- Containment preserves the interior from collapse.
- Too much permeability introduces noise.
- Too much containment prevents transformation.

A functional boundary allows change without losing identity.

### 2.4 Stability and threshold

A boundary must maintain stability under load. Every boundary has a threshold — the point at which pressure exceeds capacity and the structure fails.

- Stability resists noise and distortion.
- Threshold determines how much the unit can hold.
- Below threshold, the unit remains coherent.
- Beyond threshold, the boundary collapses.

A boundary is stable only within the range it can sustain.

### 2.5 Boundary failure modes

When a boundary fails, it fails in predictable ways. Each failure mode alters the unit of thought in a distinct direction.

- Leakage: permeability increases beyond control.

- Collapse: the boundary dissolves and the unit disappears.
- Rigidity: the boundary over-stabilizes and blocks transformation.
- Fragmentation: the boundary breaks into partial segments.
- Overload: pressure exceeds threshold and ruptures the structure.

Failure modes reveal how the unit of thought degrades under strain.

## 2.6 Compression

A boundary makes a thought a thing.

A boundary holds the interior long enough to matter.

A boundary regulates what can change and what must remain.

The unit of thought exists only because its boundary holds.

# CHAPTER 3 —

## THE INTERIOR OF THE UNIT OF THOUGHT

### 3.1 Internal structure vs. external relation

The interior of a unit of thought is what the mind holds.

The exterior is what the unit encounters.

These two domains must remain distinct for the unit to function.

- Internal structure determines what the thought is.
- External relation determines what the thought interacts with.
- The interior must cohere; the exterior may shift.
- The unit survives only if the interior remains stable under external change.

A unit of thought is defined by the tension between what it contains and what it meets.

### 3.2 What can exist inside the unit of thought

The interior can hold only what supports coherence.

It is not a container for everything — only for what the mind can maintain as a single structure.

- Minimal content that defines the thought.
- The organization of that content.
- Gradients that shape how the content can change.
- Constraints that preserve stability.
- Relations that do not break the boundary.

The interior is small by design. It holds only what the unit can sustain.

### 3.3 What cannot

Certain things cannot exist inside the unit of thought.

They exceed its capacity or violate its coherence.

- Noise that destabilizes the interior.
- Contradictions that cannot coexist.
- Multiple unrelated structures.
- Conflicts that exceed threshold.
- External pressures that belong outside the boundary.

What cannot fit becomes drift, residue, or material for another unit.

### 3.4 Internal coherence

Coherence is the condition that allows the interior to hold.

It is not perfection — it is sufficiency.

- Elements must align enough to remain together.
- Relations must not contradict each other.
- Noise must remain below threshold.
- Gradients must not destabilize the structure.

Coherence determines how long the unit lasts and how reliably it can transform.

### 3.5 How interior structure shapes transformation

Transformation begins inside the boundary.

Operators act on the unit, but the interior determines what can change.

- The interior sets the direction of transformation.
- It limits the magnitude of change.
- It determines whether change is reversible.
- It shapes the meaning produced by transformation.

The interior is not passive. It is the engine of change.

### 3.6 Compression

The interior holds only what can cohere.

What cannot cohere remains outside.

Transformation begins inside the boundary.

The interior is the structure that makes change possible.

## CHAPTER 4 —

# HOW THE UNIT OF THOUGHT FORMS

### 4.1 Loom conditions

A unit of thought does not form in isolation. It forms inside a loom — the background field that sets the conditions for emergence. The loom determines what kinds of structures are even possible.

- The loom provides ambient stability.
- It establishes the dominant pressures in the system.
- It determines the level of noise the system must absorb.
- It shapes what kinds of boundaries can form.

A unit of thought forms only when the loom supports the possibility of structure.

### 4.2 Frame conditions

A frame narrows the field. It selects what the system is attending to and excludes everything else. Without a frame, nothing can stabilize long enough to become a unit.

- The frame defines the current scope of attention.
- It activates distinctions that matter in the moment.
- It determines which operators are available.
- It reduces the infinite to the workable.

A frame is the immediate context that allows a boundary to crystallize.

### 4.3 Gradient conditions

A gradient is a directional pressure inside the system. It pulls the structure toward something or away from something. Without gradients, nothing organizes. With excessive gradients, nothing stabilizes.

- Gradients create direction.
- Direction creates tension.
- Tension creates the possibility of structure.
- Structure forms only when gradients are strong but not overwhelming.

A unit of thought forms when gradients organize content without tearing it apart.

### 4.4 Threshold conditions

A unit forms only when certain thresholds are met. Below threshold, the structure dissolves. Above threshold, the structure stabilizes.

- Minimum coherence: the interior must hold together.
- Minimum boundary strength: the edge must resist noise.
- Minimum separation: the unit must stand apart from the field.
- Minimum alignment: the unit must fit the frame and loom.

Thresholds determine the moment when a structure becomes a unit of thought.

### 4.5 Why units of thought do not form everywhere

Most mental activity never becomes a unit. The conditions rarely align. The loom may be unstable, the frame unfocused, the gradients too weak or too strong, or the thresholds unmet.

- Noise may exceed containment.
- Boundaries may fail to form.
- Coherence may not stabilize.
- Pressure may overwhelm the structure.
- The system may shift before formation completes.

A unit of thought is a structural achievement, not a default state.

#### 4.6 Compression

A loom sets the background.

A frame narrows the field.

A gradient creates direction.

A threshold marks the moment of formation.

A unit of thought forms only when all conditions align.

## **PART II — THE MECHANICS OF THE UNIT OF THOUGHT**

## CHAPTER 5 —

# HOW THE UNIT OF THOUGHT IS CONTACTED

### 5.1 How operators contact the unit of thought

An operator never enters the unit of thought. It meets the unit at its boundary.

Contact is structural, not spatial. The operator encounters the boundary, evaluates what the unit can support, and applies its transformation accordingly.

- Contact occurs at the boundary, not inside it.
- The operator reads the unit's structure before acting.
- The boundary determines what the operator can reach.
- The operator's effect depends on the unit's current state.

A unit of thought is contacted only where its identity is defined.

### 5.2 What operators can change

Operators can modify the interior of a unit of thought, but only within the limits set by the boundary and the unit's coherence.

- They can reshape internal relations.
- They can shift emphasis or meaning.
- They can strengthen or weaken coherence.
- They can reorganize the interior without destroying it.
- They can combine or separate units when boundaries allow.

Operators change structure, not identity.

### 5.3 What operators cannot change

Operators are powerful, but they are constrained by the architecture of the unit of thought.

- They cannot remove the boundary.
- They cannot create a boundary where none exists.
- They cannot stabilize incoherent content.
- They cannot transform noise into structure.
- They cannot act on material below threshold.

Operators cannot override the fundamental conditions that make the unit possible.

### 5.4 Operator-unit compatibility

Not every operator can act on every unit. Compatibility determines whether transformation is possible or destructive.

- The operator's rule must align with the unit's structure.
- The boundary must permit the type of contact.
- The unit must be stable enough to withstand the pressure.
- The system's frame must support the transformation.

Compatibility is the match between what the operator demands and what the unit can sustain.

### 5.5 Operator failure modes

When an operator fails, it fails in predictable ways. Each failure mode reveals a mismatch between operator, unit, and context.

- Misalignment: the operator's rule does not fit the unit's structure.
- Overload: the operator applies more pressure than the boundary can hold.
- Null action: the operator contacts the unit but produces no change.
- Distortion: the operator destabilizes the interior without collapse.
- Collapse induction: the operator breaks the boundary entirely.

Failure is not random. It is the structural consequence of incompatibility.

## 5.6 Compression

Operators contact the boundary.

They change structure, not identity.

Compatibility enables transformation.

Incompatibility produces failure.

## CHAPTER 6 —

# WHEN THE UNIT OF THOUGHT ACTIVATES

### 6.1 What activation means

Activation is the moment a unit of thought begins to move.

It is the shift from being held to being used — from stability to transformation.

A unit activates when internal coherence and external pressure align.

- Activation is the start of change.
- It is triggered, not spontaneous.
- It requires a boundary strong enough to hold.
- It marks the transition from potential to event.

A unit of thought activates when the system demands movement and the structure can support it.

### 6.2 Activation thresholds

Every unit of thought has a threshold — the minimum pressure required to initiate activation.

Below threshold, the unit remains inert.

Above threshold, it begins to transform.

- Threshold depends on boundary strength.
- It depends on internal coherence.
- It depends on the current frame and gradients.
- It determines when activation becomes possible.

A threshold is not optional. It is the condition that separates readiness from action.

### 6.3 Sub-threshold activation

Most activation attempts never cross the threshold.

They remain partial — movements that begin but do not complete.

- Weak signals that do not stabilize.
- Early alignments that do not hold.
- Gradients too small to initiate change.
- Preparatory shifts that increase sensitivity.

Sub-threshold activation does not transform the unit.

It prepares the unit for the moment when transformation becomes possible.

### 6.4 Preconscious activation

Some activation begins before the system becomes aware of it.

This is preconscious activation — movement below the visibility threshold.

- It is active but not yet reportable.
- It shapes what will enter awareness.
- It determines timing and intensity.
- It filters which units rise and which remain hidden.

Consciousness does not initiate activation.

It receives what activation has already begun.

## 6.5 Activation chains

Activation rarely occurs alone.

One activated unit can trigger another, forming a chain of transformations.

- Units linked by shared gradients activate together.
- One shift can propagate through related structures.
- Chains can stabilize meaning or destabilize the system.
- Chains are how small movements become large changes.

Activation chains are the mechanism by which units of thought combine into larger structures.

## 6.6 Compression

Activation is the shift from stability to movement.

Threshold determines when movement begins.

Sub-threshold prepares.

Preconscious activation precedes awareness.

Chains propagate change through the system.

## CHAPTER 7 —

# HOW THE UNIT OF THOUGHT TRANSFORMS

### 7.1 How a unit changes shape

A unit of thought does not remain fixed. Its interior can reorganize while its boundary holds.

Shape change is structural: the unit remains itself, but the configuration inside shifts.

- Internal relations reorganize.
- Emphasis moves between elements.
- Gradients realign under new pressures.
- Coherence adjusts to maintain stability.

A unit changes shape when its interior adapts without losing identity.

### 7.2 How a unit changes meaning

Meaning is not stored inside the unit.

Meaning emerges from how the unit relates to the system.

A unit changes meaning when its role changes, even if its interior remains stable.

- Meaning shifts when external relations shift.
- Meaning shifts when the frame changes.
- Meaning shifts when gradients reorganize.
- Meaning shifts when the system interprets the unit differently.

Shape change alters structure.

Meaning change alters relation.

### 7.3 Local vs. global transformation

Transformation can remain contained or propagate outward.

Local change modifies the interior.

Global change modifies the system.

- Local transformation adjusts internal structure.
- Global transformation alters surrounding units.
- Local shifts can trigger global cascades.
- The system's sensitivity determines how far change travels.

A small internal shift can reshape the entire field.

### 7.4 Reversible vs. irreversible change

Some transformations can be undone. Others cannot.

Reversibility depends on the strength of the operator, the stability of the boundary, and the coherence of the interior.

- Reversible change preserves underlying structure.
- Reversible change allows return to a prior configuration.
- Irreversible change alters gradients permanently.
- Irreversible change reorganizes structure beyond recovery.

Irreversibility is not failure. It is evolution.

## 7.5 Transformation as the core of cognition

Cognition is not storage.

Cognition is transformation.

A unit becomes meaningful only when it changes something — itself, another unit, or the system.

- Without transformation, units are inert.
- Without transformation, patterns cannot form.
- Without transformation, identity cannot develop.
- Without transformation, consciousness has nothing to register.

Transformation is the engine of cognition.

The unit of thought is the material it works on.

## 7.6 Compression

Shape changes inside the boundary.

Meaning changes through relation.

Local shifts can become global.

Some changes reverse; others do not.

Transformation is how cognition moves.

## CHAPTER 8 —

# HOW THE UNIT OF THOUGHT STABILIZES

### 8.1 What stabilization is

Stabilization is the process by which a unit of thought maintains its structure over time.

It is not formation and not activation.

It is the state in which the unit holds steady enough to be used.

- The boundary remains intact.
- The interior remains coherent.
- Gradients remain within range.
- Noise remains below threshold.

A stabilized unit is not static.

It is stable enough to support transformation.

### 8.2 How stability is maintained

Stability is maintained through continuous regulation.

A unit remains stable only as long as internal and external pressures stay within workable limits.

- Internal gradients adjust to preserve coherence.
- The boundary resists noise and distortion.
- Load is redistributed across the interior.
- Operators act without exceeding capacity.

Stability is not a single event.

It is an ongoing process.

### 8.3 The role of repetition

Repetition strengthens stability.

Each re-encounter reinforces the structure, making it more predictable and more durable.

- Repetition consolidates internal organization.
- It reduces variability across activations.
- It increases the unit's resistance to noise.
- It makes future activation more efficient.

Repetition is not redundancy.

It is consolidation.

### 8.4 The role of context

Context determines whether a unit can remain stable.

A unit that is stable in one context may be unstable in another.

- Context sets the ambient pressures.
- It determines which gradients dominate.
- It shifts thresholds for stability.
- It alters how the unit is interpreted.

Stability is relational.

It depends on where the unit is placed.

## 8.5 Stability as a precondition for higher structures

Higher structures require stable units.

Unstable units cannot combine, propagate, or integrate.

- Ideas cannot form from unstable units.
- Patterns cannot accumulate from unstable units.
- Identity cannot develop from unstable units.
- Consciousness cannot register unstable units.

Stability is the bridge between the atomic level and the systemic level.

## 8.6 Compression

Stabilization is ongoing regulation.

Repetition strengthens coherence.

Context determines viability.

Stability enables higher structures.

## **PART III — THE LIFECYCLE OF THE UNIT OF THOUGHT**

# CHAPTER 9 — FORMATION

## 9.1 The moment a structure becomes a unit of thought

Formation is the discrete moment when a structure crosses the threshold into unit-ness.

Before this moment, the system contains fragments, gradients, and partial alignments.

After this moment, the system contains a unit.

- Formation is binary: not a unit → unit.
- It occurs when coherence reaches minimum threshold.
- It requires separation from the surrounding field.
- It depends on the boundary holding for the first time.

Formation is the snap into identity.

## 9.2 Boundary crystallization

Boundary crystallization is the defining event of formation.

It is the moment the edge becomes strong enough to separate inside from outside.

- Crystallization is discrete, not gradual.
- It stabilizes containment.
- It regulates permeability.
- It allows the system to recognize the structure as a thing.

Once the boundary crystallizes, the structure can be contacted, transformed, and used.

### 9.3 First activation

Formation creates the unit.

Activation begins its movement.

First activation is the unit's first encounter with pressure.

- The boundary is tested for the first time.
- Gradients push against the new structure.
- The system evaluates whether the unit can hold.
- Successful activation stabilizes identity.

If the boundary fails, the unit dissolves back into pre-unit activity.

### 9.4 Early instability

New units are unstable.

They have not yet accumulated repetition, reinforcement, or contextual support.

- Coherence is weak.
- Boundaries are thin.
- Gradients fluctuate.
- Noise can overwhelm the structure.

Early instability is not a flaw.

It is a developmental stage every unit must pass through.

### 9.5 Conditions that prevent formation

Most potential units never form.

The conditions required for formation are strict, and failure is common.

- Noise exceeds containment.
- Gradients are too weak to organize content.
- Gradients are too strong and tear the structure apart.
- The frame is unfocused or unstable.
- The loom does not support boundary formation.
- Coherence cannot reach threshold.

Formation fails when the system cannot support the emergence of a stable boundary.

## 9.6 Compression

Formation is the moment a structure becomes a unit.

Boundary crystallization defines the event.

First activation tests stability.

Early instability follows.

Most attempts dissolve before becoming units.

# CHAPTER 10 — USE

## 10.1 How the unit of thought participates in thinking

A unit of thought participates in thinking by being available for transformation.

Thinking is not the creation of new material from nothing.

It is the selective activation, combination, and propagation of units.

- A unit becomes active when contacted by an operator.
- It contributes structure to the current frame.
- It shapes gradients that influence what comes next.
- It provides stability the system can build on.

Thinking is the coordinated use of units under pressure.

## 10.2 How units of thought combine

Units combine when their boundaries allow partial alignment.

Combination does not erase identity; it creates a higher-order structure that uses the units as components.

- Boundaries align without collapsing.
- Internal gradients complement each other.
- Coherence increases rather than decreases.
- The system recognizes the combined structure as workable.

Combination is the mechanism by which small structures become larger ones.

### 10.3 How units of thought propagate

Propagation is the movement of activation from one unit to another.

A unit does not move through the system; its activation does.

- Activation spreads along compatible gradients.
- One unit's transformation triggers another's.
- Propagation can be local or system-wide.
- Chains of propagation create extended patterns.

Propagation is how thinking travels.

### 10.4 How units of thought generate gradients

Units do not merely respond to gradients; they generate them.

A unit's structure creates directional pressures that shape what the system does next.

- Internal organization produces outward influence.
- Boundaries create contrast that generates direction.
- Activation alters the surrounding field.
- Stabilized units create persistent gradients.

Gradients are the forces that make thinking move.

### 10.5 How units of thought influence identity

Identity is not a separate layer.

It is the long-term accumulation of stabilized units and the gradients they produce.

- Repeated units shape what the system expects.
- Stabilized units shape what the system can become.
- Propagated units shape how the system responds.
- Combined units shape the system's higher structures.

Identity is the echo of what the system has used most often.

## 10.6 Compression

Thinking uses units.

Units combine into larger structures.

Activation propagates through the system.

Gradients shape direction.

Identity accumulates from repeated use.

# CHAPTER 11 — DISSOLUTION

## 11.1 When the unit of thought loses coherence

Dissolution begins when the interior can no longer hold together.

Coherence weakens, gradients destabilize, and the structure that once functioned as a unit begins to soften.

- Internal relations drift out of alignment.
- Noise rises above what the boundary can absorb.
- Gradients fluctuate too rapidly to sustain form.
- The interior loses the tension that kept it whole.

Loss of coherence is the earliest sign that the unit is no longer viable.

## 11.2 Boundary collapse

Boundary collapse is the structural event that ends the unit.

The edge that once separated inside from outside can no longer maintain distinction.

- Permeability becomes uncontrolled.
- Containment fails and the interior disperses.
- The unit loses its identity as a thing.
- Inside and outside become indistinguishable.

When the boundary collapses, the unit ceases to exist.

### 11.3 Noise intrusion

Noise intrusion accelerates dissolution.

Noise does not destroy the unit directly — it destabilizes the conditions required for the unit to hold.

- Noise disrupts coherence.
- Noise distorts gradients.
- Noise interferes with internal organization.
- Noise overwhelms the boundary's regulatory capacity.

Noise is the external pressure that pushes a weakening unit past its limits.

### 11.4 Overload and fragmentation

Overload occurs when the pressure on the unit exceeds its threshold.

The structure cannot absorb the load, and the interior breaks apart.

- Overload produces fragmentation.
- Fragments are unstable partial structures.
- Fragmentation is not combination; it is collapse.
- Fragments cannot function as units.

Overload is one of the most common pathways to dissolution.

### 11.5 Dissolution as structural reset

Dissolution is not failure.

It is the system's way of clearing structures that can no longer hold.

- Dissolution removes unstable material.
- It frees capacity for new formation.
- It resets gradients that have become unsustainable.
- It prepares the system for new units to emerge.

A system that never dissolves becomes rigid.

A system that dissolves too easily becomes chaotic.

## 11.6 Compression

Dissolution begins with lost coherence.

Boundary collapse ends the unit.

Noise and overload accelerate failure.

Dissolution resets the system.

## 12. Integration

12.1 How the unit of thought joins larger structures

12.2 How the unit of thought becomes an idea (bridge to the next volume)

12.3 How the unit of thought sediments into identity

12.4 How the unit of thought shapes consciousness

12.5 Integration as the end of the lifecycle

12.6 Compression

## **PART IV — FAILURE MODES OF THE UNIT OF THOUGHT**

# CHAPTER 13 — FRAGMENTATION

## 13.1 What fragmentation is

Fragmentation is the breakdown of a unit of thought into unstable partial structures.

The boundary weakens, the interior loses coherence, and the unit no longer functions as a whole.

- The unit splits into incomplete segments.
- Each fragment holds only part of the original structure.
- None of the fragments can act as a full unit.
- The system can no longer use the structure reliably.

Fragmentation is the intermediate state between stability and dissolution.

## 13.2 Causes of fragmentation

Fragmentation occurs when pressures exceed what the unit can regulate.

It is not caused by a single failure but by the accumulation of destabilizing forces.

- Excessive noise disrupts internal coherence.
- Incompatible gradients pull the structure in opposing directions.
- Operator overload applies more pressure than the boundary can hold.
- Rapid context shifts destabilize the interior.
- Unresolved internal conflicts weaken coherence.

Fragmentation is the system's response to pressures it cannot fully absorb.

### 13.3 Effects on cognition

Fragmented units distort cognition.

They behave unpredictably, consume capacity, and interfere with stable structures.

- Activation becomes erratic and unreliable.
- Meaning becomes inconsistent or contradictory.
- Propagation becomes noisy and misleading.
- Neighboring units are destabilized by partial signals.
- Cognitive load increases without producing structure.

Fragmented units act like noise but with the appearance of structure.

### 13.4 Fragmentation cascades

Fragmentation can spread.

One fragmented unit destabilizes others, creating a chain reaction.

- Shared gradients become unstable.
- Frames lose clarity and precision.
- Activation chains break unpredictably.
- Multiple units lose coherence in sequence.
- The system shifts toward disorder.

A fragmentation cascade is not a single failure — it is a structural contagion.

### 13.5 Repair mechanisms

The system can repair fragmentation, but only under reduced pressure.

Repair is the gradual re-establishment of coherence and boundary integrity.

- Load must be reduced to restore stability.
- Noise must fall below threshold.
- Gradients must realign into workable directions.
- Fragments may dissolve and reform as a new unit.
- Coherence must rebuild before activation resumes.

Repair is not instantaneous.

It is the slow return from partial structure to full unit.

### 13.6 Compression

Fragmentation breaks a unit into unstable pieces.

Pressure, noise, and misalignment cause it.

Cascades spread instability.

Repair restores coherence or dissolves the fragments.

# CHAPTER 14 — RIGIDITY

## 14.1 Over-stabilized boundaries

Rigidity begins when a boundary becomes too strong.

The edge that once protected the unit now over-constrains it, preventing new information from entering and preventing internal structure from adapting.

- Permeability drops below functional levels.
- Containment becomes absolute rather than regulated.
- The boundary resists all gradients, not just noise.
- The unit becomes sealed against transformation.

Over-stabilization turns stability into obstruction.

## 14.2 Loss of flexibility

A rigid unit cannot adjust to pressure.

Its internal structure becomes fixed, and its gradients cannot realign to meet new conditions.

- Internal relations freeze into a single configuration.
- Operators cannot reorganize the interior.
- The unit cannot update in response to context.
- Small pressures produce disproportionate strain.

Flexibility is lost when the unit can no longer change shape without breaking.

## 14.3 Distortion and misinterpretation

Rigidity does not merely block change — it warps meaning.

A rigid unit forces new information into old structures, producing predictable errors.

- Incoming signals are misread through fixed patterns.
- Incompatible gradients are rejected or ignored.
- Activation chains become biased and repetitive.
- The system interprets context incorrectly.

Rigidity distorts cognition by imposing outdated structure on current conditions.

#### 14.4 How rigidity spreads

Rigidity is contagious.

A rigid unit influences neighboring units, pulling them toward the same fixed configuration.

- Rigid activation chains reinforce inflexible patterns.
- Frames narrow to accommodate the rigid structure.
- Gradients align around the rigid unit's constraints.
- Other units adopt similar over-stabilized boundaries.

Rigidity spreads through repetition, not force.

#### 14.5 How rigidity dissolves

Rigidity dissolves when pressure exceeds the unit's ability to hold its fixed structure.

Dissolution is not destruction — it is the reopening of structural possibility.

- Incompatible gradients destabilize the rigid configuration.

- Operators apply pressure the boundary cannot resist.
- Context shifts invalidate the rigid structure.
- Noise disrupts the frozen interior.

Dissolution restores flexibility by breaking the over-stabilized form.

#### 14.6 Compression

Rigidity is over-stability.

Flexibility is lost.

Meaning distorts.

Rigidity spreads through repetition.

Dissolution restores possibility.

# CHAPTER 15 — EMPTINESS

## 15.1 Units with boundary but no interior

An empty unit is a structure whose boundary has formed but whose interior has not.

It looks like a unit, behaves like a unit at first contact, and occupies space in the system — but it cannot perform the functions of one.

- The boundary is present, but the interior is insufficient.
- Coherence is too weak to support transformation.
- Gradients cannot organize meaningful content.
- The unit has shape but no usable structure.

An empty unit is a shell: recognizable, but not functional.

## 15.2 Why empty units form

Empty units form when the system stabilizes a boundary before stabilizing content.

The edge crystallizes, but the interior has not yet accumulated coherence.

- Premature boundary formation under pressure.
- Rapid context shifts that force early stabilization.
- Operator demand that exceeds available content.
- Noise mistaken for emerging structure.
- Frames that require a unit even when none is ready.

Empty units are artifacts of misaligned timing.

### 15.3 How they distort thinking

Empty units distort cognition because they behave like units without functioning like units.

The system treats them as meaningful structures, but they cannot support the operations applied to them.

- They trigger false activation.
- They produce misleading gradients.
- They participate unreliably in chains.
- They create the illusion of structure where none exists.
- They cause overconfident or brittle interpretations.

Empty units are structurally deceptive.

### 15.4 How they propagate

Empty units propagate through repetition.

The system reuses them because they are available, not because they are functional.

- Repeated activation reinforces the boundary.
- The interior remains empty despite reuse.
- Frames incorporate the empty unit as if it were stable.
- Chains pull the empty unit into new contexts.

Propagation does not fill the unit — it stabilizes the emptiness.

### 15.5 How they dissolve

Empty units dissolve quickly once tested.

Pressure exposes the lack of interior structure, and the boundary collapses.

- Gradients fail to align.
- Operators cannot perform meaningful transformations.
- Noise intrudes and destabilizes the shell.
- The boundary collapses or is reabsorbed into the field.

Dissolution is the natural end state of an empty unit.

### 15.6 Compression

Empty units have boundaries without content.

They form from premature stabilization.

They distort cognition and propagate through repetition.

They dissolve when pressure reveals the emptiness.

# CHAPTER 16 —

## NOISE

### 16.1 Units contaminated by noise

A noisy unit is a unit whose interior contains more noise than structure.

The boundary still exists, but the interior no longer behaves predictably.

Noise disrupts coherence, destabilizes gradients, and weakens identity.

- Internal relations fluctuate unpredictably.
- Activation becomes erratic and unreliable.
- Meaning shifts without structural cause.
- The unit cannot maintain stable participation in thinking.

Noise turns a unit into a partially corrupted structure.

### 16.2 Boundary permeability failures

Noise enters a unit when the boundary fails to regulate permeability.

The edge becomes too open, allowing irrelevant variation to penetrate the interior.

- Excessive permeability admits external noise.
- Containment weakens under load.
- Gradients distort as incompatible signals enter.
- The boundary can no longer protect the interior.

A boundary that cannot regulate permeability cannot protect the unit from contamination.

### 16.3 Volatility and instability

Noisy units are volatile.

They activate unpredictably, shift meaning rapidly, and destabilize surrounding structures.

- Activation spikes and collapses without pattern.
- Coherence oscillates between partial and absent.
- Small pressures produce large, inconsistent responses.
- The unit becomes hypersensitive to context.

Volatility is the behavioral signature of noise contamination.

### 16.4 Noise-driven collapse

Noise can drive a unit into collapse.

Collapse occurs when noise overwhelms the interior's ability to maintain coherence.

- Gradients become incompatible.
- Internal organization dissolves.
- The boundary can no longer regulate pressure.
- The unit loses identity and reverts to pre-unit material.

Noise does not destroy the unit directly — it destroys the conditions that allow the unit to hold.

### 16.5 Noise recovery

Recovery from noise contamination is possible, but only under reduced pressure.

The system must restore the conditions that allow coherence to re-emerge.

- External noise must decrease.
- Boundary regulation must be restored.
- Internal gradients must realign.
- The interior must re-establish minimal coherence.

A noisy unit can become functional again if the system regains clarity.

### 16.6 Compression

Noisy units contain more noise than structure.

Permeability failures allow contamination.

Volatility destabilizes activation.

Noise can drive collapse.

Recovery restores coherence and boundary control.

## **PART V — THE UNIT OF THOUGHT IN THE LARGER SYSTEM**

# CHAPTER 17 —

## THE UNIT OF THOUGHT AND PATTERNS

### 17.1 How units combine

Units combine when their boundaries align without collapsing.

Combination is not fusion — each unit retains identity while participating in a larger configuration.

- Boundaries remain intact but coordinated.
- Gradients align into shared direction.
- Coherence increases across units.
- Activation synchronizes without forcing uniformity.

Combination is the first structural step toward pattern formation.

### 17.2 How combinations stabilize

A combination stabilizes when repeated activation strengthens the alignment between units.

Stability emerges from consistency — the system learns that the configuration holds under pressure.

- Repetition reinforces shared gradients.
- Boundary interactions become predictable.
- Noise resistance increases with reuse.
- The configuration becomes easier to re-activate.

Stabilization turns a temporary alignment into a reliable structure.

### 17.3 Why patterns require the unit of thought

Patterns cannot form from undifferentiated flow.

They require discrete, stable elements that can be arranged, compared, repeated, and transformed.

- Units provide stable building blocks.
- Boundaries allow distinct positions within a pattern.
- Coherence allows predictable interaction.
- Repetition of units enables pattern regularity.

Without units, patterns cannot stabilize or persist.

### 17.4 Unit-to-pattern transitions

A pattern emerges when multiple stabilized combinations begin to function as a coherent configuration.

The transition is not a jump — it is the accumulation of stable alignments across contexts.

- Multiple combinations align into a larger structure.
- Repetition across contexts reinforces the configuration.
- Gradients synchronize across participating units.
- The system begins to treat the configuration as a single entity.

A pattern is a higher-order structure built from the reliable behavior of units.

### 17.5 Compression

Units combine through alignment.

Stabilization turns combinations into structure.

Patterns require stable units.

Patterns emerge from accumulated, repeated combinations.

## CHAPTER 18 —

# THE UNIT OF THOUGHT AND IDENTITY

### 18.1 How units accumulate

Identity does not appear all at once.

It forms through the slow accumulation of stabilized units — structures that recur, endure, and shape future cognition.

- Units that repeat become more accessible.
- Stabilized units become part of the system's defaults.
- Accumulated units bias interpretation and response.
- The system begins to rely on these units as anchors.

Accumulation is the long-term memory of structure.

### 18.2 How units sediment

Sedimentation is deeper than accumulation.

A sedimented unit becomes part of the system's background architecture — active even when not in use.

- Sedimented units influence gradients silently.
- They shape what new units can form.
- They constrain what interpretations feel “natural.”
- They persist across frames and contexts.

Sedimentation is the structural foundation of identity.

### 18.3 How units shape long-term patterns

Long-term patterns emerge from repeated unit use.

Patterns are not imposed; they arise from the cumulative influence of many units acting over time.

- Units reinforce certain gradients.
- They stabilize recurring interpretations.
- They bias activation chains toward familiar paths.
- They create durable tendencies in cognition.

Patterns are the behavioral expression of accumulated units.

### 18.4 Identity as a unit-based structure

Identity is not narrative.

Narrative is one expression of identity.

Identity is the structural configuration of sedimented units and the gradients they produce.

- Identity is the system's long-term organization.
- It is the stable residue of repeated activations.
- It shapes what the system expects and how it responds.
- It determines which transformations feel coherent.

Identity is the architecture built from the system's most stable units.

### 18.5 Identity distortions

Identity distorts when the underlying units distort.

Distortion is structural, not psychological — it reflects the condition of the units that compose identity.

- Rigid units over-constrain interpretation.
- Empty units create false structure.
- Noisy units destabilize meaning.
- Fragmented units produce contradictory tendencies.
- Overloaded units bias gradients unpredictably.

Distorted units produce distorted identity.

## 18.6 Compression

Identity accumulates from repeated units.

Sedimentation embeds them deeply.

Patterns emerge from long-term influence.

Identity is a structural configuration.

Distortions arise from distorted units.

## CHAPTER 19 —

# THE UNIT OF THOUGHT AND CONSCIOUSNESS

### 19.1 When units become visible

A unit becomes conscious when it crosses the visibility threshold.

Visibility is not existence — it is appearance.

Many units operate below awareness; only some rise into the conscious field.

- Activation must exceed the visibility requirement.
- Gradients must align with the current frame.
- The boundary must be stable enough to withstand attention.
- Noise must remain below the perceptual limit.

Visibility is the moment a unit enters experience.

### 19.2 Visibility thresholds

Visibility thresholds determine which units consciousness can register.

Below threshold, a unit remains preconscious.

Above threshold, it becomes part of the conscious field.

- Threshold depends on system load.
- Threshold depends on frame clarity.
- Threshold depends on gradient strength.
- Threshold depends on boundary stability.

Thresholds filter the cognitive field into what is seen and what remains unseen.

### 19.3 The boundary of consciousness

Consciousness has a boundary just as units do.

It separates what is visible from what is active but unseen.

- The boundary shifts with attention.
- It expands under low load and contracts under high load.
- It is shaped by gradients, frames, and context.
- It determines the scope of what can be experienced.

Consciousness is not a container — it is a region.

### 19.4 Consciousness as a unit-filter

Consciousness does not generate units.

It filters them.

It selects which units enter awareness based on structural conditions.

- Stable units cross more easily.
- Relevant units cross more quickly.
- Strong-gradient units cross more forcefully.
- Noisy or unstable units struggle to cross.

Consciousness is the surface expression of deeper structural processes.

### 19.5 Consciousness distortions

Distortions occur when the filtering process becomes misaligned.

Distortion is structural, not subjective — it reflects the condition of the units that enter awareness.

- Rigid units dominate visibility.
- Noisy units cross the threshold prematurely.
- Empty units masquerade as meaningful.
- Fragmented units produce unstable experience.
- Overloaded frames narrow visibility too sharply.

Distorted units produce distorted consciousness.

## 19.6 Compression

Units become visible when activation crosses threshold.

Consciousness has a shifting boundary.

It filters units based on stability and relevance.

Distortions arise when unstable units enter awareness.

# CHAPTER 20 —

## THE UNIT OF THOUGHT AND LEARNING

### 20.1 How units refine

Refinement is micro-learning.

A unit refines when repeated activation sharpens its internal structure and reduces variability.

- Gradients become more precise.
- Internal relations stabilize.
- Noise is filtered more effectively.
- Activation becomes easier and more reliable.

Refinement is incremental improvement — the smallest scale of learning.

### 20.2 How units evolve

Evolution is accumulated refinement.

A unit evolves when many refinements stack into a structural shift.

- Repeated transformations reshape the interior.
- Gradients shift in stable, directional ways.
- Boundary interactions become more efficient.
- The unit adapts to recurring pressures.

Evolution is long-term adaptation, not replacement.

### 20.3 How units enable skill

Skill is the reliable use of refined and evolved units.

A skill is not stored as a single structure — it is a network of units that activate, transform, and integrate consistently.

- Stabilized units reduce cognitive load.
- Predictable activation chains support automaticity.
- Coherent gradients guide efficient action.
- Repetition strengthens the network.

Skill emerges when units become reliable enough to coordinate without conscious effort.

### 20.4 Unit-based learning loops

Learning loops are cycles of activation, feedback, and refinement.

They operate at multiple scales — within a unit, across combinations, and across long-term patterns.

- Activation triggers feedback.
- Feedback drives refinement.
- Refinement stabilizes structure.
- Stabilization enables reactivation.

Learning is the accumulation of successful loops.

### 20.5 Compression

Units refine through repeated use.

Evolution is accumulated refinement.

Skill emerges from stable unit networks.

Learning loops drive long-term change.

## **PART VI — WHY THE UNIT OF THOUGHT MATTERS**

## CHAPTER 21 —

# WHY THE UNIT OF THOUGHT MATTERS

### 21.1 The necessity of conceptual atomic structure

Cognition requires atomic structure.

Without discrete units, the system has no stable elements to manipulate, compare, store, or transform.

- Atomic structure provides the smallest workable pieces.
- It allows operations to act on defined material.
- It prevents cognition from dissolving into undifferentiated flow.
- It enables the system to build larger structures from reliable parts.

Atomicity is the foundation of all cognitive architecture.

### 21.2 The impossibility of cognition without the unit of thought

Without units, cognition cannot occur.

There is nothing to activate, nothing to combine, nothing to propagate, nothing to stabilize.

- No units → no structure.
- No structure → no transformation.
- No transformation → no thinking.
- No thinking → no coherence, no identity, no consciousness.

Cognition is impossible without discrete, stable units.

### 21.3 The unit of thought as the smallest stable thing the mind can hold

A unit of thought is the smallest structure that can survive activation.

Anything smaller dissolves into noise; anything larger depends on the unit to exist.

- The unit is the minimal container of coherence.
- It is the smallest structure that can be transformed.
- It is the smallest structure that can be reused.
- It is the smallest structure that can participate in patterns.

The unit is the cognitive atom — the minimal stable form.

### 21.4 The unit of thought as the basis of coherence

Coherence begins at the unit level.

Without stable units, the system cannot maintain consistent meaning or reliable interpretation.

- Units anchor gradients.
- Units stabilize activation chains.
- Units prevent drift across contexts.
- Units allow the system to maintain internal order.

Coherence is the emergent property of stable units interacting predictably.

### 21.5 The unit of thought as the basis of emergence

Emergence requires stable parts.

Higher-order structures — ideas, patterns, identity, consciousness — arise only when units combine and propagate reliably.

- Units combine into patterns.
- Patterns accumulate into long-term structures.
- Long-term structures shape identity.
- Identity shapes consciousness.

Emergence is the upward cascade that begins with the unit.

## 21.6 Compression

The unit provides atomic structure.

Cognition cannot occur without it.

It is the smallest stable thing the mind can hold.

Coherence begins at the unit level.

Emergence depends on units combining into higher structures.

## CHAPTER 22 —

# THE UNIT OF THOUGHT IN THE LARGER ARCHITECTURE

### 22.1 How this volume supports the next

This volume defines the atomic structure on which all higher cognitive architecture depends.

The next volume cannot proceed without it.

Every concept that follows — ideas, patterns, identity, consciousness, learning — presupposes the unit of thought.

- Higher structures require stable units.
- Transformation requires manipulable elements.
- Emergence requires reliable substrates.
- Architecture requires atomic foundations.

This volume establishes the material the next volumes will build on.

### 22.2 Why the sequence matters

The sequence is not arbitrary.

It reflects the order in which cognitive structures become possible.

- Units must form before combinations.
- Combinations must stabilize before patterns.
- Patterns must accumulate before identity.
- Identity must stabilize before consciousness can interpret itself.

The sequence mirrors the dependency chain of cognition.

### 22.3 The unit of thought as substrate

The unit is the substrate of all cognitive construction.

It is the material from which every higher structure is assembled.

- Patterns are arrangements of units.
- Ideas are stabilized configurations of units.
- Identity is sedimented units across time.
- Consciousness is the visibility of units under pressure.

Without the substrate, the architecture has nothing to build with.

### 22.4 The unit of thought as constraint

The unit does not only enable — it limits.

Its properties constrain what higher structures can be.

- Boundaries limit how far combinations can extend.
- Coherence limits how much complexity a unit can support.
- Gradients limit how activation can propagate.
- Stability limits what can persist across contexts.

Constraint is not a flaw.

It is the shape of possibility.

### 22.5 The unit of thought as possibility

The unit is also the engine of possibility.

It enables the emergence of structures that cannot be predicted from its parts.

- Units combine into patterns.
- Patterns accumulate into ideas.
- Ideas stabilize into identity.
- Identity shapes consciousness and learning.

Possibility emerges from the reliable behavior of the smallest parts.

## 22.6 Compression

This volume provides the substrate.

The sequence reflects structural dependency.

The unit constrains and enables all higher forms.

The larger architecture begins here.

## CHAPTER 23 —

# THE LIMITS OF THE UNIT OF THOUGHT

### 23.1 What the unit of thought cannot explain

The unit of thought is foundational, but it is not universal.

There are cognitive phenomena that exceed what a single unit can account for.

- It cannot explain large-scale coherence.
- It cannot explain long-range integration.
- It cannot explain emergent meaning across contexts.
- It cannot explain identity-level continuity.

A unit is necessary, but it is not the whole architecture.

### 23.2 What requires higher-order structures

Some structures only appear when many units interact.

These phenomena cannot be reduced to the properties of a single unit.

- Patterns require multiple stabilized combinations.
- Ideas require coordinated propagation.
- Identity requires sedimentation across time.
- Consciousness requires visibility across many units.

Higher-order structures emerge from interactions, not from isolated units.

### 23.3 Where the unit of thought breaks down

The unit breaks down when the scale of cognition exceeds its capacity.

Its boundary, coherence, and gradients cannot support the complexity required.

- It cannot hold large conceptual spans.
- It cannot maintain coherence across distant contexts.
- It cannot integrate contradictory pressures.
- It cannot represent multi-layered meaning.

The unit is stable only within its scale.

### 23.4 Where the unit of thought gives way to larger patterns

At larger scales, the system stops treating individual units as primary.

Patterns, ideas, and frames take over as the dominant structures.

- Patterns coordinate multiple units.
- Ideas stabilize multi-unit configurations.
- Frames organize meaning across contexts.
- Identity integrates structures across time.

The unit is the material; larger structures are the architecture.

### 23.5 Why the unit of thought is necessary but not sufficient

The unit is indispensable — but insufficient.

It provides the atomic structure, but cognition requires more than atoms.

- Necessary: without units, nothing can form.
- Not sufficient: units alone cannot produce higher-order meaning.
- Necessary: units anchor coherence.
- Not sufficient: coherence must scale beyond the unit.

Cognition depends on the unit, but cognition is not reducible to the unit.

### 23.6 Compression

The unit cannot explain large-scale structure.

Higher-order phenomena require multi-unit interaction.

The unit breaks down at larger scales.

Patterns and ideas take over.

The unit is necessary but not sufficient.

# Epilogue

A thought is a thing.

Its boundary can be drawn.

Its structure can be understood.

Its transformations can be traced.

What began as a thing now stands as a unit.

What stands as a unit becomes the foundation for everything that follows.

Beyond the bounds of a thought,

the mind expands.

# GLOSSARY OF UNCOMMON TERMS (A–Z)

## Activation

The moment a unit of thought is engaged by an operator or gradient, testing its stability and enabling transformation.

## Boundary

The structural edge that separates a unit's interior from the surrounding field, regulating permeability and protecting coherence.

## Boundary Collapse

The failure of the boundary to maintain separation, causing the unit to lose identity and dissolve.

## Boundary Crystallization

The discrete event in which a boundary becomes strong enough to define a unit of thought for the first time.

## Combination

The alignment of multiple units whose boundaries remain intact while forming a higher-order configuration.

## Coherence

The internal organization that allows a unit to hold together under pressure and support transformation.

## Context

The surrounding structural conditions that determine whether a unit stabilizes, activates, or dissolves.

#### Dissolution

The process by which a unit loses coherence, collapses, and returns to pre-unit material.

#### Empty Unit

A structure with a boundary but insufficient interior coherence to function as a unit of thought.

#### Emergence

The appearance of higher-order structures (patterns, ideas, identity) from the reliable interaction of multiple units.

#### Fragment

An unstable partial structure produced when a unit breaks apart under overload or noise.

#### Fragmentation

The breakdown of a unit into fragments that cannot function independently or coherently.

#### Frame

The active structural context that determines which units are relevant, visible, or suppressed.

#### Gradient

Directional pressure within or between units that guides activation, transformation, and propagation.

#### Identity

The long-term configuration of sedimented units and the gradients they produce across time.

#### Idea

A stabilized multi-unit configuration that persists across contexts and supports higher-order cognition.

#### Instability

A condition in which a unit cannot reliably maintain coherence or boundary integrity.

#### Learning Loop

A cycle of activation, feedback, refinement, and stabilization that improves unit structure over time.

#### Noise

Irrelevant or destabilizing variation that disrupts coherence, distorts gradients, and weakens boundaries.

#### Overload

Pressure that exceeds a unit's capacity, causing fragmentation or collapse.

#### Pattern

A higher-order structure formed from repeated, stabilized combinations of units.

#### Permeability

The degree to which a boundary allows signals, gradients, or noise to enter or exit the unit.

#### Propagation

The movement of activation from one unit to another along compatible gradients.

#### Refinement

Incremental improvement of a unit's internal structure through repeated activation.

#### Rigidity

Over-stability in which a unit's boundary becomes too strong, preventing adaptation and distorting interpretation.

#### Sedimentation

The deep embedding of units into the system's long-term architecture, influencing cognition even when inactive.

#### Stabilization

The ongoing regulation that keeps a unit coherent, functional, and resistant to noise.

#### Threshold

The minimum structural requirement for a unit to form, activate, or become visible in consciousness.

#### Unit of Thought

The smallest stable structure the mind can hold — the atomic element of cognition.

#### Visibility

The condition under which a unit crosses into consciousness by exceeding the visibility threshold.

