WHITE PAPER

When coherence fails

The coherence integrity principle as a boundary for responsible decision-making

Author

M.C.M. van Kroonenburgh, MSc

Heerlen, The Netherlands

Version 1.0

Date

December 28, 2025

Abstract

Decision-making in complex systems implicitly assumes that the information being interpreted remains coherent enough to sustain meaning. This assumption is rarely stated and almost never tested. As systems increase in complexity, data availability, and analytical sophistication, failure increasingly arises not from lack of information or flawed reasoning, but from continued action under conditions where coherence has already degraded.

This whitepaper introduces the coherence integrity principle (CIP) as a boundary framework for responsible interpretation and decision-making under uncertainty. CIP does not seek to improve analysis, prediction, or optimization. Instead, it evaluates whether the conditions required for legitimate interpretation are still present. When coherence integrity is compromised, analytical outputs may remain internally consistent while their use as a basis for action becomes irresponsible.

The principle is formulated through a small set of axioms that describe how coherence degradation manifests structurally, often prior to visible failure. These axioms emphasize that uncertainty can function as structural information, that analytical validity does not guarantee legitimacy, and that abstention is a valid and sometimes necessary outcome.

CIP is domain-agnostic and complementary to existing models and methods. It does not prescribe actions or recommend decisions. Its role is prior and constraining. It determines when acting can still be justified, regardless of domain, method, or intent.

By making coherence an explicit condition rather than an implicit assumption, the coherence integrity principle reframes control as the recognition of limits. In complex systems, restraint is not the absence of rationality. It is its highest expression.

Index

1. Introduction

The unexamined assumption behind decisions

Every decision rests on a set of assumptions.
One of these assumptions is rarely stated and almost never tested: that the system producing the information is sufficiently coherent to sustain meaning.

Across domains, decisions are justified by analysis. Data is gathered, signals are interpreted, models are applied, and conclusions are drawn. When outcomes fail, explanations usually focus on missing/incorrect data, incorrect parameters, or unexpected external events. What is seldom questioned is whether the underlying system was still *coherent* enough for *interpretation itself* to remain legitimate.

This omission is not accidental. Most analytical and predictive approaches implicitly *assume coherence as a precondition*. Relationships are expected to remain stable. Signals are assumed to be interpretable. Uncertainty is treated as noise to be reduced rather than as information about structural integrity. As long as these assumptions hold, analysis can be meaningful. When they do not, analysis may remain internally correct while becoming externally irresponsible.

Systemic failure rarely begins where it becomes visible. Breakdowns do not start with obvious errors, extreme volatility, or overt collapse. It begins earlier, *when internal relationships lose proportionality, when signals contradict without resolution, and when responses no longer scale with inputs*. In these conditions, meaning erodes before performance degrades. Confidence often remains high precisely because analytical output still appears reasonable.

This creates dangerous conditions. Decisions continue to be justified by logic and method, even as the system's capacity to carry meaning is already compromised. *The result is not irrationality, but justified error*. Actions are taken not because they are appropriate, but because the legitimacy of interpretation itself has gone unquestioned.

The coherence integrity principle (CIP) addresses this blind spot. It does not improve prediction, refine models, or optimize outcomes. Instead, it introduces a prior question that precedes all analysis: whether the conditions required for meaningful interpretation still hold. The principle formalizes the boundary at which conclusions cease to be responsible, regardless of their internal correctness.

By making coherence an explicit condition rather than an implicit assumption, the coherence integrity principle reframes decision-making under uncertainty. It shifts attention from outcomes to legitimacy, from confidence to constraint, and from action to responsibility. The sections that follow define this principle, its axioms, and its implications for decision-making in complex systems.

2. The coherence integrity principle

Definition and scope

The coherence integrity principle is an ***epistemic boundary framework***.
It addresses a condition that precedes analysis, prediction, and decision-making: *whether a system remains sufficiently coherent for interpretation itself to be legitimate*.

The principle does not evaluate outcomes. It does not assess the accuracy of models, the strength of signals, or the likelihood of success. Instead, it evaluates a more fundamental question: *whether the structural conditions required for meaning are still intact*.
When those conditions fail, conclusions may remain logically valid while losing their legitimacy as a basis for action.

Coherence, in this context, refers to the stability of internal relationships within a system. A system is considered coherent when its signals remain interpretable over time, when responses remain proportional to inputs, and when uncertainty remains bounded and intelligible. The coherence integrity principle does not attempt to define coherence exhaustively. It treats coherence as a prerequisite for interpretation, not as an object of optimization.

The scope of the principle is deliberately limited.
CIP *does not offer prescriptions, recommendations, or thresholds for action*.
It *does not claim to identify optimal decisions or favorable conditions*.
Its function is negative rather than constructive: it identifies when interpretation can no longer be assumed to be reliable enough to justify decisions. In doing so, it formalizes the legitimacy of restraint.

CIP is not a model, a metric, or a decision engine. *It does not compete with analytical, statistical, or predictive frameworks.* Those frameworks operate within an implicit assumption of coherence.
CIP operates above them, assessing whether that assumption still holds. When coherence integrity is preserved, existing models may be applied according to their own logic. When it is compromised, continued reliance on analytical output becomes irresponsible, regardless of methodological rigor.

The principle is domain-agnostic. It applies wherever complex systems generate signals that inform decisions with real consequences. This includes, but is not limited to, finance, healthcare, crisis management, organizational governance, technology, and artificial intelligence.
In each case, the function of CIP remains the same: to determine whether the system can still sustain meaning, not what action should be taken.

By defining a boundary rather than a solution, the coherence integrity principle reframes decision-making under uncertainty. It shifts the focus from improving answers to questioning whether answers can still be responsibly used. The following section formalizes this boundary through a set of axioms that describe the structural conditions under which meaning can be sustained.

Figure 1 illustrates this positioning schematically, emphasizing that CIP does not intervene in analysis itself, but constrains the legitimacy of interpretation and action.

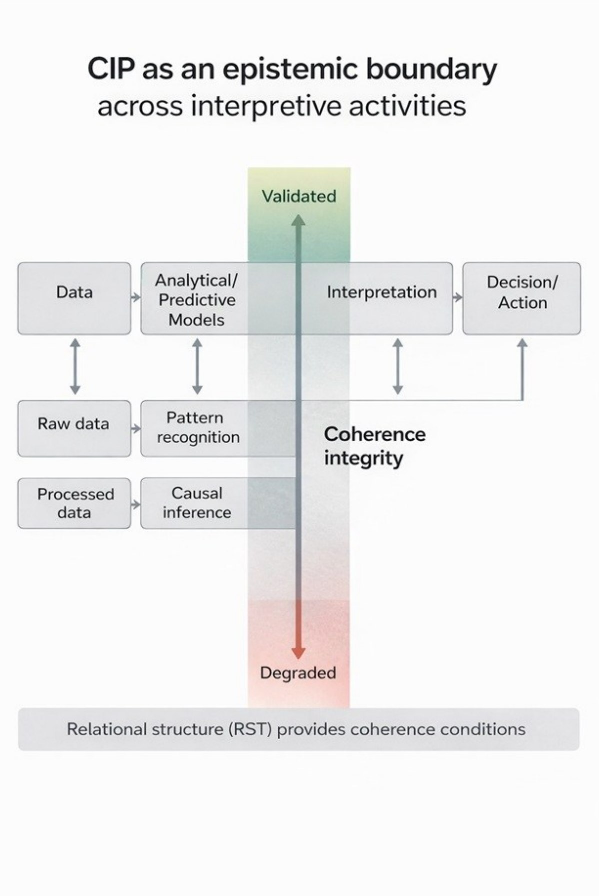

Figure 1 - CIP as an epistemic boundary across interpretive activities. *This figure illustrates the positioning of the coherence integrity principle as a boundary on interpretive legitimacy, not as a validation layer for data or models. Analytical processes may remain technically valid across all layers shown. CIP constrains whether interpretation and subsequent action remain responsible under degraded coherence conditions.*

3. The five axioms of coherence integrity

Structural conditions for meaning.

The coherence integrity principle is grounded in five axioms. These axioms do not describe how systems behave, nor do they predict outcomes. *They define the structural conditions under which meaning can be sustained and interpretation can remain legitimate*. Together, they establish a minimal framework for assessing whether decisions based on system outputs remain responsible.

Axiom I. Coherence precedes meaning

Signals only carry meaning when they arise from a system whose internal relationships remain intact. Data may persist under conditions of degradation, but meaning does not. Interpretation presupposes coherence. When coherence erodes, signals may still be processed, but their semantic reliability is no longer guaranteed.

Axiom II. Failure begins structurally, not visibly

Systemic breakdown does not originate at the point of maximum stress or observable failure. It begins earlier, when internal responses lose proportionality, feedback loops decouple, and contradictions accumulate without resolution. These structural changes precede measurable disruption and often remain unnoticed while systems appear operational.

Axiom III. Uncertainty is structural information

Uncertainty is not merely an error term to be minimized. In complex systems, rising uncertainty often signals degradation of internal coherence. When uncertainty becomes unbounded or incoherent, it reflects a loss of structural integrity rather than a lack of data. Treating uncertainty as noise suppresses critical information about system stability.

Axiom IV. Analysis without legitimacy is dangerous

Analytical conclusions drawn from a system with compromised coherence may remain internally logical. However, logic alone does not confer responsibility. When coherence integrity cannot be established, continued reliance on analysis produces justified error: *decisions that are rational in form but irresponsible in effect*.

Axiom V. Abstention is a legitimate outcome

When coherence integrity cannot be reasonably assumed, refraining from action is not indecision. It is a responsible analytical conclusion. The coherence integrity principle explicitly recognizes non-action as a valid outcome when the conditions required for meaningful interpretation are no longer met.

Taken together, these axioms define the boundary that CIP seeks to formalize. They do not prescribe action, nor do they rank decisions by quality or outcome. Instead, they specify when interpretation itself ceases to be reliable enough to justify decisions. The following section examines how coherence integrity degrades in practice, and why failure typically emerges before breakdown becomes visible.

4. Coherence degradation

How failure begins before breakdown

Coherence degradation does not announce itself through collapse. Systems rarely fail at the moment they appear most stressed. Instead, failure begins earlier, at a structural level where internal relationships lose stability while surface-level behavior remains largely intact.

In coherent systems, responses scale proportionally with inputs. Signals form a consistent interpretive hierarchy, feedback loops reinforce stability, and uncertainty remains bounded. As coherence degrades, these properties begin to erode. Responses become asymmetric, small disturbances trigger outsized effects, and larger inputs produce muted or inconsistent reactions. The system no longer responds according to its own internal logic.

One of the earliest indicators of coherence degradation is the accumulation of unresolved contradiction. Signals that are individually valid begin to conflict without a stable framework for interpretation. Rather than converging toward clarity, additional information amplifies ambiguity. Meaning erodes not because data is missing, but because relational structure no longer supports consistent interpretation.

Temporal behavior also changes as coherence degrades. Systems lose their capacity to stabilize between states. Cycles compress, transitions accelerate, and recovery phases shorten or disappear. Change no longer unfolds through identifiable stages, but through rapid shifts that obscure causal structure. In this condition, time ceases to function as a stabilizing dimension for interpretation.

Paradoxically, coherence degradation often coincides with apparent normality. Analytical models continue to function. Outputs remain plausible. Confidence may even increase as systems attempt to compensate for instability through over-interpretation or forced decisiveness. This is the most dangerous phase of degradation, because the system still appears interpretable while its capacity to sustain meaning is already compromised.

Uncertainty plays a critical role in this process. In coherent systems, uncertainty provides information about limits and variability. In degrading systems, uncertainty becomes unstructured and expansive. Attempts to suppress or average out increase false confidence rather than clarity. What appears as noise is often a signal that coherence integrity is failing.

These patterns describe structural erosion rather than operational failure. They do not depend on the specifics of a domain, a model, or a method. They emerge wherever complex systems generate signals that guide decisions. The coherence integrity principle is concerned precisely with this phase: the interval in which systems remain operational, but interpretation itself becomes unreliable.

Recognizing coherence degradation before visible breakdown occurs is central to responsible decision-making. The following section clarifies how this structural perspective reframes the relationship between CIP and traditional analytical or predictive approaches.

5. CIP versus prediction and analysis

Boundary, not competition

Analytical and predictive frameworks are designed to operate within systems assumed to be coherent. They estimate outcomes, reduce uncertainty, and support decision-making by extrapolating from observed relationships. As long as those relationships remain stable and interpretable, such approaches can be effective.

The coherence integrity principle does not challenge this. It does not dispute the value of analysis, modeling, or prediction when their preconditions hold. Instead, *it addresses a prior question that these approaches typically leave implicit: whether the system itself still satisfies the conditions required for their outputs to remain meaningful*.

Prediction assumes continuity. It presumes that relationships observed in the past remain sufficiently intact to justify extrapolation. Analysis assumes interpretive stability. It presumes that signals can be ordered, weighted, and combined into conclusions without undermining their semantic reliability. These assumptions are rarely made explicit because, in coherent systems, they are usually justified.

CIP intervenes precisely when these assumptions become fragile. It does not ask whether a model is accurate, but *whether accuracy is still a relevant concept*. When coherence integrity degrades, analytical outputs may continue to look reasonable while losing their legitimacy as a basis for action. In such conditions, better models do not solve the problem. They often intensify it by reinforcing confidence where restraint would be more responsible.

This distinction is critical. Prediction seeks to answer the question “what is likely to happen.” CIP asks “can this system still support meaningful interpretation.” These questions operate at different levels. *Prediction works within a system. CIP evaluates the system itself*. For this reason, the two are not competitors. They address different kinds of risk.

Traditional approaches treat uncertainty as something to be minimized, averaged out, or bounded through statistical methods. CIP treats uncertainty as information about system integrity. Rising or unstructured uncertainty does not merely reduce confidence intervals. It signals that the interpretive framework itself may be degrading. In this sense, CIP does not reduce uncertainty. It reinterprets it.

When coherence integrity is preserved, CIP remains silent. It does not add value where systems are stable and interpretable. In such conditions, analytical and predictive tools can be applied according to their own standards. When coherence integrity is compromised, however, CIP imposes a boundary. It indicates that continued reliance on analytical output may no longer be responsible, regardless of methodological sophistication.

By defining this boundary, the coherence integrity principle reframes the role of analysis in complex systems. It does not replace prediction, nor does it refine it. It determines when prediction remains appropriate and when restraint becomes the only legitimate analytical outcome. The following section examines how this boundary affects the legitimacy of decisions themselves.

6. Decision legitimacy

When action becomes irresponsible

Decision-making is often framed as a matter of rational choice. When sufficient information is available and analysis appears sound, action is expected to follow. Hesitation is commonly interpreted as indecision, and restraint as a failure to commit. This framing assumes that the legitimacy of a decision is determined primarily by the quality of its reasoning.

The coherence integrity principle challenges this assumption. It *separates rationality from legitimacy.* A decision may be logically consistent, analytically justified, and methodologically rigorous, yet still be illegitimate if the system from which it is derived can no longer sustain meaning. In such cases, the problem is not flawed reasoning, but a compromised interpretive foundation.

Legitimacy depends on conditions that precede choice. For a decision to be responsible, the system generating its inputs must remain internally coherent. Signals must be interpretable in a stable manner, responses must remain proportional, and uncertainty must remain bounded and intelligible. When these conditions no longer hold, decisiveness ceases to be a virtue. It becomes a liability.

This distinction explains why systemic failures are often accompanied by confident action rather than paralysis. When coherence degrades, pressure to act frequently increases. Explanations multiply, justifications become post hoc, and activity replaces understanding. Action serves as a substitute for certainty. In these circumstances, the appearance of control masks a loss of interpretive legitimacy.

The coherence integrity principle formalizes a boundary that is rarely acknowledged: the point at which action itself becomes irresponsible. It does not claim that non-action is always preferable, nor does it prescribe specific responses. Instead, it establishes that when coherence integrity cannot be reasonably assumed, refraining from action is a valid and often necessary analytical conclusion.

Abstention, in this framework, is not a failure of decision-making. It is an expression of responsibility. It reflects recognition that the conditions required for meaningful interpretation are no longer present. Acting in the absence of those conditions does not resolve uncertainty. It amplifies risk by converting degraded understanding into irreversible consequences.

By introducing legitimacy as a distinct criterion, the coherence integrity principle reframes decision-making under uncertainty. It shifts the emphasis from doing something to knowing when doing nothing is the only defensible option. The following section broadens this perspective by examining how the same boundary pattern appears across domains, independent of context or application.

7. Domain-agnostic applicability

A recurring pattern across systems

The coherence integrity principle is not tied to any specific domain, methodology, or type of system. It applies wherever complex systems generate signals that guide interpretation and inform decisions with real consequences. Although the surface characteristics of such systems vary widely, the structural pattern addressed by CIP recurs with striking consistency.

Across domains, systems are relied upon to translate complexity into actionable understanding. Markets produce prices and indicators, organizations generate reports and metrics, healthcare systems produce diagnostic signals, and technological systems output recommendations or classifications. In each case, decision-makers depend not only on the availability of information, but on the assumption that the system producing it remains coherent enough to sustain meaning.

When coherence integrity is preserved, interpretation remains stable even under uncertainty. Signals can be contextualized, contradictions can be resolved, and responses remain proportionate. As coherence degrades, this stability erodes in similar ways regardless of domain. Signals lose hierarchical structure, uncertainty expands rather than informs, and time compresses as systems cycle without recovery. These patterns are not artifacts of specific tools or models. They reflect structural conditions within the system itself.

The domain-agnostic nature of CIP lies precisely in this structural focus. The principle does not depend on the content of signals, the metrics used, or the decisions being made. It evaluates whether the system as a whole can still support interpretation. This allows CIP to be applied across contexts without modification, while leaving domain-specific methods intact.

Importantly, CIP does not require formalization within each domain to be effective. It does not mandate indicators, thresholds, or standardized measurements. Its role is observational and interpretive rather than instrumental. It identifies when reliance on system outputs becomes questionable, not how to correct the system or what alternative actions should be taken.

Because of this, CIP scales naturally across levels of complexity. It applies to localized systems and large-scale infrastructures, to human organizations and automated processes, and to environments where decisions are centralized or distributed. Wherever interpretation precedes action, the same boundary condition emerges coherence must be preserved for decisions to remain legitimate.

By recognizing this recurring pattern, the coherence integrity principle provides a unifying lens rather than a unifying method. It does not standardize decision-making across domains. It standardizes the question that must be asked before decisions are made. The following section addresses the ethical implications of acknowledging this boundary and the responsibility that follows from recognizing it.

8. Ethical implications

Restraint as responsibility

Ethical decision-making is often framed in terms of outcomes. Actions are judged by their results, intentions, or adherence to predefined rules. Within this framing, acting is implicitly valued over not acting, and decisiveness is treated as a moral virtue. *The coherence integrity principle challenges this orientation by shifting ethical focus from outcomes to conditions*.

When coherence integrity is compromised, action carries a different moral weight. Decisions made under degraded interpretive conditions do not merely risk being ineffective. They risk converting uncertainty into irreversible consequences. In such contexts, *the ethical issue is not whether an action is well-intended or analytically justified, but whether it is legitimate to act at all*.

CIP introduces restraint as an ethical stance grounded in responsibility rather than caution. It recognizes that the ability to act does not imply the right to act. When systems can no longer sustain meaning, continued intervention becomes a form of moral hazard. It externalizes risk onto others while masking uncertainty behind procedural confidence.

This perspective reframes the role of uncertainty in ethical judgment. Uncertainty is often treated as a temporary obstacle to be overcome through additional analysis or forceful decision-making. CIP treats unresolvable uncertainty as a signal that ethical limits have been reached. Persisting beyond those limits does not demonstrate courage or leadership. It demonstrates disregard for the conditions that make responsible action possible.

By legitimizing abstention, the coherence integrity principle provides an ethical counterweight to escalation under pressure. It acknowledges that refraining from action can be the most responsible choice when understanding itself is degraded. This does not imply passivity or withdrawal. It implies recognition of boundary conditions and respect for the consequences of acting without sufficient coherence.

In complex systems, ethical failure often arises not from malicious intent, but from overconfidence in interpretation. CIP addresses this failure mode directly. It embeds ethical restraint into the structure of decision-making by making coherence an explicit prerequisite for legitimacy. In doing so, it reframes responsibility as the discipline to stop when understanding no longer justifies action.

The following section outlines the deliberate limitations of the coherence integrity principle and clarifies what it does not attempt to provide.

9. Limitations and future directions

What CIP deliberately does not do

The coherence integrity principle is *intentionally limited in scope*. ***Its value lies not in what it adds to decision-making, but in what it constrains***. Recognizing these limitations is essential to understanding the role CIP is designed to play.

CIP does not provide metrics, scores, or thresholds. It does not quantify coherence, nor does it offer a universal method for measuring integrity across systems. Any attempt to formalize coherence into a single metric would undermine the very principle CIP seeks to uphold by reintroducing false precision where interpretive limits are the issue.

The principle does not prescribe actions or recommend alternatives. It does not identify optimal decisions, favorable conditions, or corrective interventions. CIP does not answer the question of what should be done. *It addresses whether doing anything at all can still be justified given the state of the system*.

CIP is not a substitute for domain expertise, analytical rigor, or empirical validation. It does not replace existing models or frameworks, nor does it claim superiority over them. *Its function is to evaluate the conditions under which such tools remain appropriate*, not to compete with them or improve their performance.

The principle also does not eliminate uncertainty. On the contrary, *it treats certain forms of uncertainty as irreducible and structurally meaningful*. CIP does not aim to resolve ambiguity through additional analysis when coherence integrity is already compromised. It recognizes that, beyond a certain point, further interpretation increases risk rather than clarity.

Future work may explore structured instantiations of CIP within specific domains, as well as observational proxies that help identify coherence degradation in practice. Such developments, however, do not alter the core principle. They remain secondary to the boundary CIP defines and must not be confused with the principle itself.

By articulating these limitations explicitly, the coherence integrity principle avoids overreach. It remains a boundary framework rather than a method or solution. This restraint is not a weakness, but a defining feature. The concluding section summarizes this role and reiterates the central claim of the paper.

10. Conclusion

Recognizing limits as control

The coherence integrity principle does not offer certainty, prediction, or optimization. *It offers a boundary*. It defines the conditions under which interpretation can still be considered legitimate and the point at which continued reliance on analysis becomes irresponsible.

In complex systems, failure rarely stems from a lack of data or insufficient analytical sophistication. It arises when the assumption of coherence goes unexamined. When internal relationships degrade, signals may persist and models may continue to function, but the system's capacity to sustain meaning is already compromised. Acting under such conditions does not reflect decisiveness or control. It reflects misplaced confidence.

CIP reframes decision-making by shifting attention away from outcomes and toward legitimacy. It distinguishes rationality from responsibility and emphasizes that correct reasoning is not sufficient when the interpretive foundation itself is unstable. By formalizing abstention as a valid analytical outcome, the principle restores restraint as an essential component of responsible action.

This framework is deliberately minimal. It does not compete with existing methods, nor does it prescribe how decisions should be made. Its role is prior and constraining. It determines when decisions can still be justified, regardless of domain, method, or intent. In doing so, it introduces a form of discipline that is often absent in environments driven by pressure to act.

Recognizing limits is not a loss of control. In complex systems, it is the highest form of it. By making coherence an explicit condition rather than an implicit assumption, the coherence integrity principle provides a foundation for decisions that are not only rational, but legitimate.

When coherence fails, confidence becomes a liability.

Appendix A

Canonical interpretation of the coherence integrity principle in technical analysis

This appendix presents a canonical interpretation of the coherence integrity principle applied to technical analysis. This interpretation does not define CIP. It illustrates how the principle can be instantiated in a domain where signal interpretation precedes action under uncertainty.

The purpose of this use case is not to improve technical analysis, generate signals, or enhance predictive accuracy. Its function is strictly epistemic. *It classifies the legitimacy of technical analysis itself by assessing whether the system producing technical signals remains sufficiently coherent for interpretation to be responsible*.

Scope of the interpretation

Within technical analysis, decisions are commonly justified through indicators, patterns, and derived signals. These tools implicitly assume that market structure remains coherent enough for interpretation to retain meaning. The CIP interpretation presented here makes that assumption explicit and subject to evaluation.

This interpretation does not assess market direction, opportunity, or risk–reward. It does not predict outcomes or recommend trades. It evaluates only whether technical analysis can still be responsibly applied given the observed structural condition of the system.

Canonical state classification

The canonical interpretation of CIP in technical analysis distinguishes three coherence states. These states describe the legitimacy of applying technical analysis, not the desirability of any particular action.

Green — Coherence intact
Technical analysis may be used.
System coherence is sufficient for analytical tools to retain meaning.
Signals can be interpreted within their intended framework.
This state does not imply a favorable direction, outcome, or opportunity.

Orange — Coherence under strain

Technical analysis should be applied with strong restraint.
Interpretive reliability is degrading, even if indicators and signals remain functional.
Escalation of exposure or reliance on fine-grained interpretation is discouraged.
This state reflects increasing uncertainty about the legitimacy of analysis.

Red — Coherence integrity compromised

Technical analysis should be disregarded.
Analytical conclusions may remain logically correct but are no longer responsible to act upon.
Signals persist, but their meaning cannot be reliably sustained.
Non-action is the valid outcome in this state.

Figure A2 - Interpretation boundaries in technical analysis under the coherence integrity principle. *This figure illustrates a technical analysis context in which analytical signals remain visible and internally consistent while the coherence integrity principle classifies the interpretive legitimacy of those signals. The displayed buy and sell markers are not validated, optimized, or endorsed by CIP. The purpose of this illustration is to show that analytical outputs may persist even when their legitimacy as a basis for action becomes constrained.*

Interpretation boundaries

This use case does not prescribe decisions. It does not define thresholds, indicators, or formulas as part of the coherence integrity principle itself. Any observational proxy used to infer coherence states in technical analysis remains context-dependent and secondary to the principle.

The canonical interpretation presented here serves a single purpose: to demonstrate how CIP functions when applied to a domain that relies heavily on signal interpretation under uncertainty. It does not limit the scope of the principle, nor does it imply that technical analysis is a privileged or primary domain of application.

The coherence integrity principle remains domain-agnostic. This appendix illustrates one possible instantiation. Other domains may require different observational approaches while preserving the same boundary logic.

Disclaimer

The technical analysis illustration presented in this appendix is provided solely for interpretive clarification. It does not constitute financial advice, trading guidance, or a recommendation to act. The coherence integrity principle does not evaluate market direction, signal quality, or performance outcomes. It assesses only whether the interpretive use of technical analysis remains epistemically legitimate given the observed system condition. Any decisions informed by technical analysis remain the sole responsibility of the reader.

Appendix B

Relation to relational systems theory (RST)

The coherence integrity principle is conceptually compatible with Relational Systems Theory (RST), but it does not depend on it. The two frameworks operate at different levels and address different questions.

Relational systems theory provides a structural account of coherence. It describes systems as networks of relations whose stability depends on proportional consistency across interactions. Within RST, coherence emerges when relational patterns remain invariant under change, allowing systems to sustain structure and meaning over time.

The coherence integrity principle does not seek to explain how coherence arises or how it is structurally maintained. It makes no claims about relational fields, proportionality, or underlying system architecture.
Instead, CIP addresses a prior and more limited question: whether coherence can still be reasonably assumed for the purpose of interpretation and decision-making.

In this sense, ***RST is ontological and descriptive***, while ***CIP is epistemic and normative***. RST explains what coherence is and how it functions within systems. CIP evaluates when coherence integrity is sufficient to justify reliance on system outputs. The principle operates independently of any specific theory of coherence, including RST.

The relationship between the two frameworks is therefore one of compatibility rather than derivation. RST offers one possible structural interpretation of coherence that aligns fully with the assumptions underlying CIP. Acceptance of RST is not required to apply the coherence integrity principle, nor does CIP privilege RST over alternative accounts of system coherence.

By keeping this relationship explicit but non-essential, the coherence integrity principle remains generically applicable while allowing for theoretical grounding where appropriate. RST can inform you how coherence is understood within a given context. CIP determines whether that coherence remains intact enough for interpretation to remain legitimate.

Appendix C

Illustrative manifestations of the coherence integrity axioms (non-exhaustive)

This appendix combines abstract structural clarification with illustrative real-world examples. The abstract descriptions explain how each axiom manifests at the level of system structure. The accompanying examples are provided solely to support visualization. They do not evaluate decisions, outcomes, or alternative courses of action.

Axiom I. Coherence precedes meaning

Structural manifestation
Signals retain meaning only when the relational structure that connects them remains intact. When coherence degrades, information may continue to circulate, but interpretation fragments. Meaning erodes not because data disappears, but because the system can no longer sustain consistent interpretation across contexts and over time.

Illustrative example
In a production line, each step is designed to perform a specific function within a defined sequence. If one stage begins to operate according to its own logic rather than its intended role, downstream steps may still receive inputs, but no longer of the right form or timing. Each step may appear locally functional, yet the final output no longer corresponds to the intended product.
The process continues, but the system no longer produces meaning.

Axiom II. Failure begins structurally, not visibly

Structural manifestation
Systemic failure rarely originates at the point of visible breakdown. It begins earlier, when internal proportionality is lost, feedback loops decouple, and responses drift away from shared norms. These changes often remain unnoticed while systems appear operational.

Illustrative example
A sinkhole does not form at the moment the surface collapses. For an extended period, the ground above may appear stable and usable while material beneath it slowly erodes. Traffic continues, structures remain in place, and no immediate danger is perceived. The system functions as expected until a critical threshold is crossed and collapse becomes visible.

The failure did not begin at collapse. It began when structural support was lost out of sight.

Axiom III. Uncertainty is structural information

Structural manifestation
In coherent systems, uncertainty provides information about limits, variability, and confidence. It narrows interpretation by indicating where caution is required. As coherence degrades, uncertainty changes character. It becomes expansive, unstructured, and self-reinforcing. Additional information no longer reduces ambiguity but multiplies plausible interpretations, signaling loss of integrative capacity rather than lack of data.

Illustrative example
In dense fog, uncertainty initially helps by encouraging slower movement and increased attention. Traffic signs and speed limits remain in place and technically valid, but they no longer indicate how fast it is reasonable to drive. As visibility deteriorates further, landmarks disappear and directional cues begin to conflict. Drivers reduce speed well below posted limits, not because the rules have changed, but because the conditions no longer support their optimal application.

Uncertainty no longer informs navigation. It signals that reliable orientation itself is degrading.

Axiom IV. Analysis without legitimacy is dangerous

Structural manifestation
Analytical processes can remain internally consistent even when the system they interpret has lost coherence. Logical validity, technical correctness, and functional subsystems do not guarantee legitimacy. When interpretation continues beyond the point at which the system can safely sustain action, analysis shifts from a means of understanding to a mechanism for amplifying risk.

In such conditions, confidence increases while the basis for responsible action erodes.

Illustrative example
A car with a flat tire may still appear operational. The engine runs smoothly, steering responds, braking functions, and dashboard indicators show no immediate failure. From an analytical perspective, most subsystems report normal operation.

Continuing to drive is nevertheless irresponsible. Not because the engine has failed or the analysis is incorrect, but because the system can no longer safely support the action it enables. The issue is not functionality, but legitimacy.

Axiom V. Abstention is a legitimate outcome

Structural manifestation
When coherence integrity is sufficiently compromised, interpretation itself becomes unreliable. In such conditions, action does not restore control. It converts uncertainty into irreversible consequence. Abstention is not a failure to decide, but recognition that the conditions required for responsible action are not met.

Legitimacy, in this context, lies in respecting boundary conditions rather than pursuing immediate outcomes.

Illustrative example
At a railway crossing, the road ahead may appear empty. No train is visible, and no immediate danger can be observed. Despite this, closed barriers indicate that the system has detected conditions not directly accessible to the observer. Proceeding would be possible, but it would not be legitimate.

Waiting is not indecision. It is compliance with a boundary that exists to prevent irreversible harm.

Closing note

The examples presented here are illustrative only. They do not prescribe behavior, assess decisions, or imply preferred outcomes. Their function is to support recognition of structural patterns associated with coherence degradation. In all cases, the coherence integrity principle serves the same role: to determine whether a system can still sustain meaning well enough to justify interpretation and action.

Legal and usage notice

This whitepaper is provided for conceptual and informational purposes only.
It does not constitute professional, financial, medical, legal, or operational advice.

The coherence integrity principle (CIP) is presented as a boundary framework for assessing the legitimacy of interpretation and decision-making under conditions of uncertainty. It does not prescribe actions, recommend outcomes, or provide guarantees of performance, safety, or correctness.

Any examples, illustrations, or domain-specific references included in this document are intended solely to support understanding of structural concepts. They do not represent endorsements, validations, or evaluations of specific methods, tools, systems, or decisions.

The author assumes no responsibility or liability for actions taken, decisions made, or outcomes resulting from the interpretation or application of concepts described in this whitepaper. Responsibility for use rests entirely with the reader.

This document may be shared in unmodified form with appropriate attribution. Any derivative use, reinterpretation, or application of the coherence integrity principle remains subject to the user's own professional judgment and applicable laws or regulations.