Coherence, Correspondence, Calibration: A Meta-Epistemological Analysis of Austrian Economics

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Introduction

- Markets generate abundant signals — yet economic frameworks struggle to adapt under persistent anomaly.
- Why do such information-rich systems still experience instability?
- Do systems fail because they coordinate signals but lack an explicit calibration axis to secure metric integrity over time?
- Many intellectual frameworks privilege one reasoning mode while leaving others implicit.
  - Deductive systems risk circularity
  - Empiricism risks noise
  - Adaptive heuristics risk drift
- This work argues: complex adaptive systems require coherence, correspondence, and an explicit calibration axis.

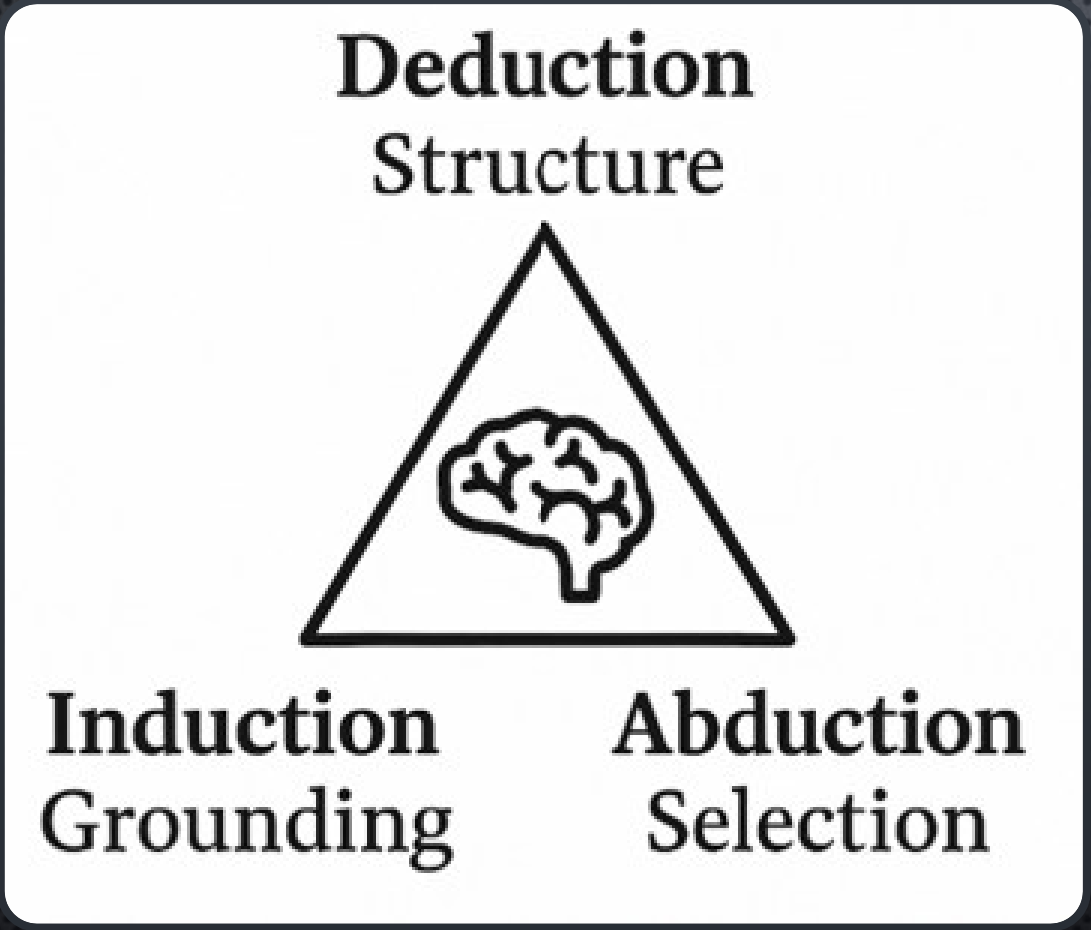
This presentation:

- introduces the **Coherence–Correspondence–Calibration (CCC)** Framework as a structural architecture for evaluating adaptive systems
- applies it to Austrian Economics as a structural case study.

CCC Framework → Analysis → Implication → Working Example

Note: The critique is grounded in system architecture and control-theoretic design principles, not doctrinal disputes.

THREE MODES OF REASONING



KEY INSIGHT: THESE THREE MODES JOINTLY FORM THE MINIMAL ARCHITECTURE OF ADAPTIVE INTELLIGENCE AND KNOWLEDGE SYSTEMS.

COHERENCE–CORRESPONDENCE–CALIBRATION FRAMEWORK

CCC FRAMEWORK ASSESSES THE WORLDVIEW ON THE FOLLOWING THREE CRITERIA:

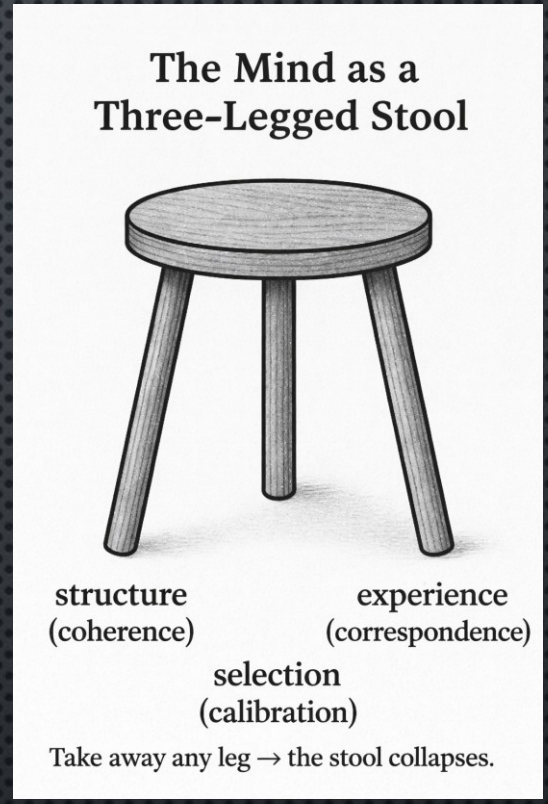
1. ARE ITS RULES AND INTERNAL LOGIC STRUCTURALLY CONSISTENT? → **COHERENCE (DEDUCTION)**
2. DO ITS SIGNALS RELIABLY TRACK REAL-WORLD BEHAVIOUR? → **CORRESPONDENCE (INDUCTION)**
3. DOES IT CONTAIN AN EXPLICIT MECHANISM TO SECURE AND RECALIBRATE ITS EVALUATIVE STANDARD OVER TIME? → **CALIBRATION (ABDUCTION)**

THE CCC TRIAD IS DIRECTLY MERGED WITH THE THREE CLASSICAL MODES OF REASONING.

IRREDUCIBILITY OF THE THREE MODES

- DEDUCTION REQUIRES PREMISES → PREMISES REQUIRE INDUCTIVE GROUNDING.
- INDUCTION REQUIRES CATEGORIES → BUT CATEGORIES THEMSELVES REQUIRE LOGICAL STRUCTURE.
- BOTH REQUIRE HYPOTHESIS SELECTION UNDER UNCERTAINTY → ABDUCTION.

→ NO MODE CAN JUSTIFY ITS OWN STARTING POINT.
→ ISOLATION COLLAPSES FUNCTION.



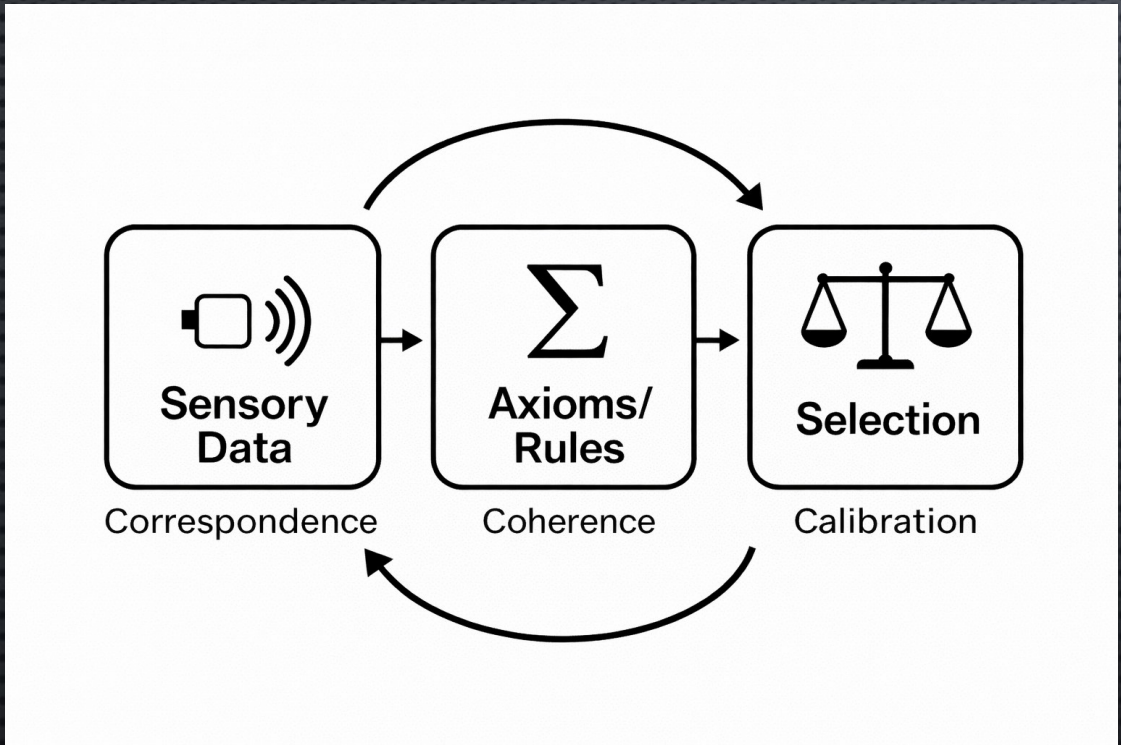
KEY INSIGHT: INTELLIGIBILITY REQUIRES THE TRIADIC REASONING ARCHITECTURE.[1]

- DEDUCTION ↔ INDUCTION ↔ ABDUCTION
- INTELLIGENCE = CLOSED REASONING LOOP

[1] Charles Sanders Peirce, *Collected Papers*, 5.171 (c.1903)

AI SYSTEMS AS AN ANALOGY

LLMS MAKE VISIBLE, AT SCALE, THE INTERACTION OF ALL THREE REASONING MODES. THEIR FAILURE MODES EXPOSE THE NECESSITY OF EACH AXIS.



- WITHOUT INDUCTION (CORRESPONDENCE), THE SYSTEM CANNOT GENERALIZE — IT COLLAPSES INTO EMPTY FORMALISM;
- WITHOUT DEDUCTION (COHERENCE), IT PRODUCES NOISE;
- WITHOUT ABDUCTION (CALIBRATION), — IT LOSES ERROR-CORRECTION AND PRODUCES CONFIDENT BUT UNGROUNDED OUTPUT.

KEY INSIGHT: A SINGLE MODE ALONE IS NON-GENERATIVE — THE SYSTEM CANNOT PRODUCE INTELLIGENCE. ANY ECONOMIC SYSTEM THAT CLAIMS TO BE ADAPTIVE MUST INSTANTIATE ALL THREE STRUCTURALLY.

Case Study: Austrian Economics — Epistemic Structure

- **Foundational Theory Layer**
  - Mises — Purposeful human action as foundational axiom (Praxeology)
  - A priori **deductive** system; Explains intelligibility, not prediction
  - Value-neutral in scope (Wertfreiheit)
- **Market Process Layer**
  - Hayek/Kirzner — Catallaxy, dispersed knowledge, local learning, profit/loss as error, discovery, correction (**Induction**, **Abduction**)

Key Insight:

- AE distributes learning across market actors, but insulates the theory describing that learning from the same revision process.
- The axiomatic base remains methodologically insulated from empirical revision.

CCC Framework Analysis —Architectural Asymmetry in AE

CCC Axis	Level	AE
Coherence	Theory	**Deductive** — Praxeology, axiomatic derivation from action
Correspondence	Market Process	**Empirical** — Catallaxy, evolutionary information system not derived from foundational axioms but institutional analysis.
Calibration	System governance	**Underspecified** — Foundational axioms treated as fixed; no explicit mechanism for revising system-level outcomes under persistent theory–reality divergence.

Key Insights:

- Intelligibility at the theoretical level cannot arise from deduction alone if adaptive learning occurs at the system level.
- A system describing adaptive intelligence must itself be calibratable. Otherwise, the model can remain internally coherent while reality diverges indefinitely.

Methodological choice and its consequence

- Treating economics as a purely a priori science is a legitimate methodological choice. That choice prioritizes logical necessity.
- the logic of choice is a priori; people's expectations converging (coordination) is an empirical hypothesis about real-world coordination.
- Praxeology(axiomatic and deductive) ≠ Catallaxy (empirical process)

The structural consequence is this:

- Action axioms cannot prove empirical claims. They must be tested.
- No layer asks whether the evaluative criteria themselves remain stable under compounding dynamics
- A system without formal meta-calibration can remain internally coherent while accumulating structural drift under its own success conditions.

HUMEAN IS-OUGHT NORMATIVE BRIDGE

- Descriptive statements about the world (what **is**) do not logically entail normative conclusions (what **ought** to be).
- IS claim about how markets behave → OUGHT claim about what policy should do
- OUGHT requires a normative bridge; Therefore: every policy claim embeds a VALUE premise.

Implicit

Both economic traditions show symmetry in the **IS-VALUE-OUGHT** architecture

Austrian Economics

- Markets coordinate dispersed knowledge (IS)
- Coordination / voluntary exchange is preferable (evaluative norm)
- Therefore: non-intervention (OUGHT)

Keynes/MMT (As a Reference)

- Markets produce instability / underemployment (IS)
- Stability / full employment is preferable (evaluative norm)
- Therefore: intervention (OUGHT)

Key Takeaway: Normativity is unavoidable. The question is whether the evaluative premise is explicit and structurally constrained under feedback.

METRIC TARGETING → DRIFT

GOODHART'S LAW: WHEN A MEASURE BECOMES A TARGET, IT CEASES TO BE A GOOD MEASURE

ELEVATE PROFIT/OUTPUT INTO A DE-FACTO EPISTEMIC AUTHORITY.

- WHEN METRIC BECOMES THE GOAL → BEHAVIOR SHIFTS TO GAME THE METRIC
- AUSTRIANS: METRIC DOMINANCE THROUGH MARKET PROFIT SIGNAL → VULNERABLE TO DRIFT
- KEYNES: METRIC DOMINANCE THROUGH POLICY OPTIMIZATION → VULNERABLE TO DRIFT
- EVALUATIVE PREMISES FUNCTION AS FIRST-ORDER SELECTION METRICS IN RECURSIVE SYSTEMS.

- HUME (NORMATIVITY IS UNAVOIDABLE)
- GOODHART (METRICS DRIFT UNDER OPTIMIZATION)
- RECURSIVE SYSTEMS THEORY(FEEDBACK AMPLIFIES DRIFT)

} **SYSTEMS-LEVEL SYNTHESIS**

KEY INSIGHT: RECURSIVE EVALUATIVE SYSTEMS REQUIRE SECOND-ORDER GOVERNANCE.

Cattalaxy and the Calibration Question

- **Catallaxy** — a decentralized order emerging from countless local decisions coordinated through price signals.
- price/profit → signal. What exactly does the signal measure?
- Profit (proxy) measures success within current exchange conditions at current prices, not system coordination of capital structures across time
- No evaluation standard → max(profit as proxy) ≠ max(coordination)
- Entrepreneurial selection pressure shifts behavior toward maximizing the proxy
- "Produce coordination → profit follows" to "maximize profit → regardless of any value add."

If calibration is necessary, where could it exist?

Digital Catallaxy in Practice — CCC in Decentralized AI Markets

- **Bittensor** — an intelligence economy structured around three actor classes:
  - **Miners** — Producers of Intelligence
  - **Validators** — Empirical Evaluators
  - **Subnet Owners** — Incentive Architects
- The **Protocol Layer** has all the rules, constraints, consensus logic (OUGHT)
- token emission venture funding for decentralized experimentation

CCC Axes:

- **Coherence**: protocol rules and consensus logic
- **Correspondence**: empirical scoring of outputs
- **Calibration**: rubric evolution, subnet competition, incentive realignment via Yuma consensus

Key Insight: This illustrates how decentralized systems can embed metric governance and adaptive calibration into protocol logic.

Conclusion: What CCC Reveals

- All adaptive intelligence systems require the CCC triad — coherence, correspondence, and calibration. This critique concerns missing architecture, not the market process itself.
- Over long horizons, systems without governed recalibration can remain internally consistent while gradually drifting away from reality.
- Hume + Goodhart + Recursive systems logic implies necessity of second-order governance
- Coordination claims require an evaluative standard; evaluation implies normativity.
- Most economic debates appear to be about policy, but underneath they are actually about evaluative architecture.
- CCC asks how evaluative metrics themselves are governed, tested, and revised over time.

Key takeaways:

- Praxeology explains the logic of action; Catallaxy describes an empirical adaptive market process. Adaptive systems require calibration of signals.
- Coordination without calibration drifts; calibration without coordination stagnates. Intelligent architecture requires both.

Q&A

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