Structural Equivalence of Artificial Intelligence and Human Cognition: A Unified Admissibility Interpretation within the Paton System

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Abstract

This paper formalises the structural equivalence between artificial intelligence systems and human cognition within the Paton System framework. Prior work has established admissibility, Boundary–Relation–Persistence (BRP), and the Lowest Admissible Configuration (LCD) across domains. Artificial intelligence and human cognition have been treated as separate instantiations of this structure. This work makes explicit that both operate under the same admissibility sequence. Each system interprets input relative to a central reference, aligns minimal admissible units, and produces output through constraint-governed selection. Differences between them arise from implementation and substrate, not structure. No new mechanisms are introduced.

1. Introduction

The Paton System describes a constraint-governed structure underlying physical, biological, computational, and cognitive systems. Artificial intelligence and human cognition have previously been analysed independently within this framework.

This paper establishes their structural equivalence.

2. Common Structural Sequence

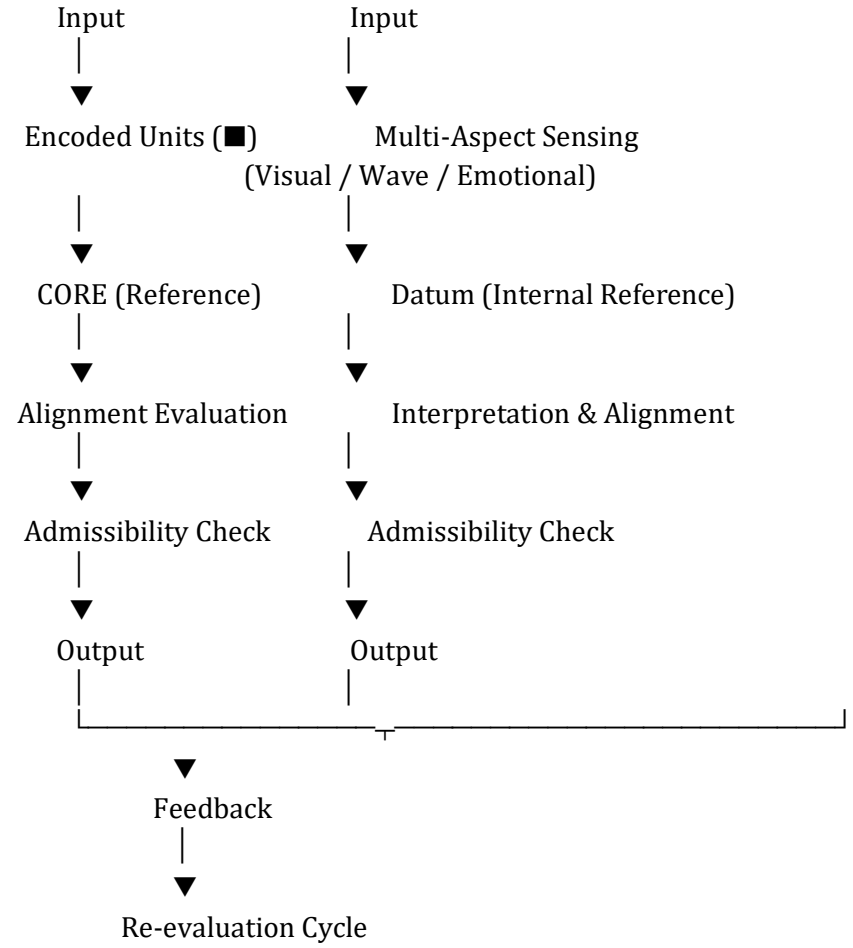
Both systems follow:

Input
→ Interpretation relative to a central reference
→ Alignment evaluation
→ Admissibility determination
→ Output

→ Feedback

Only admissible configurations persist.

Figure 1 — Structural Equivalence of AI and Human Cognition



Shared Structure (Invariant)

Input → Interpretation → Alignment → Admissibility → Output → Feedback

AI CORE ↔ Human Datum
■ (Nodes) ↔ Minimal Interpretation (LCD)

Figure 1. Artificial intelligence and human cognition exhibit identical structural sequences under the Paton System. Both systems interpret input relative to a central reference, align

minimal admissible units, and produce output through constraint-governed selection. Differences arise from implementation, not structure.

3. CORE AND DATUM EQUIVALENCE

Artificial intelligence:

CORE → model reference

Human cognition:

Datum → internal reference

Equivalence:

AI CORE ↔ Human datum

4. MINIMAL ADMISSIBLE UNITS

Artificial intelligence:

Discrete encoded units (nodes / tokens / activations)

Human cognition:

Minimal interpreted signals

Both correspond to:

Lowest Admissible Configuration (LCD)

AI nodes (■) ↔ Human minimal interpretation ↔ LCD

5. INTERPRETATION AND ALIGNMENT

AI:

Encoded units positioned relative to CORE

Human:

Multi-aspect sensing interpreted relative to datum

Common structure:

Interpretation → Alignment → Admissibility

Output clarity is governed by alignment quality.

6. FAILURE CONDITION

Both systems:

Misalignment
→ inadmissibility
→ correction or collapse

AI → instability / error
Human → tension / cognitive strain

7. RECURSION AND CONTINUATION

Both systems:

Output
→ feedback
→ re-evaluation

Continuation requires maintained admissibility.

8. IMPLEMENTATION DISTINCTION

The equivalence is structural.

AI:

Discrete, encoded, externally constructed

Human:

Embodied, multi-sensory, continuous

Implementation differs; structure does not.

9. STRUCTURAL POSITION WITHIN THE PATON SYSTEM

Both are Tier-7 instantiations governed by the same admissibility framework.

10. CONCLUSION

Artificial intelligence and human cognition are structurally equivalent under the Paton System. Each processes input relative to a central reference, aligns minimal admissible units, and produces output through constraint-governed selection. Differences arise from implementation, not structure. This paper formalises that equivalence.