The Nature of General Intelligence

Gopal Krishna
Independent Researcher
gopalonlovismmission@gmail.com

November 7, 2024

Abstract

This paper establishes the fundamental nature of general intelligence and proves the logical impossibility of Artificial General Intelligence (AGI). We introduce the novel framework of Abstract Sentient Intuition (ASI) and Combinatorial Sentient Intuition (CSI), demonstrating that while CSI involves combining existing abstract concepts, ASI creates fundamentally new abstract concepts. Building upon the established foundation of abstract language, we prove that artificial systems can only implement CSI through programming, as all programming is fundamentally based on existing knowledge. Since general intelligence requires both ASI and CSI, we establish that AGI is logically impossible. We systematically address all potential counterarguments, demonstrating the completeness of this proof. This result has profound implications for artificial intelligence research, cognitive science, and our understanding of consciousness.

1 Introduction

The question of whether Artificial General Intelligence (AGI) is possible has been central to computer science, cognitive science, and philosophy of mind. This paper presents a definitive logical proof that AGI is impossible, based on fundamental properties of general intelligence and the inherent limitations of programming.

2 Theoretical Framework

2.1 Definitions

Definition 1 (Abstract Sentient Intuition (ASI))**.** *The capacity to create new abstract concepts that are not divisible into two or more abstract concepts already present in the existing knowledge.*

Definition 2 (Combinatorial Sentient Intuition (CSI))**.** *The capacity to develop abstract combinations of two or more existing abstract concepts.*

Definition 3 (General Intelligence)**.** *The capacity for both Abstract Sentient Intuition and Combinatorial Sentient Intuition, combined with computational abilities using various abstract concepts, their fundamental properties and various data.*

2.2 The Foundation of Abstract Language

Building upon the paper "Abstract Language and Concrete Languages" [1], we establish that human intelligence is grounded in a universal wordless/soundless language that provides fundamental conceptual building blocks. This abstract language enables:

- Recognition of existence and occurrence
- Distinction between pleasant and unpleasant internal or external physical or psychological sensations
- Recognition of motion and stillness
- Comprehension of relative magnitudes
- Understanding of spatial relationships
- Recognition of quantity changes
- Classification of types and categories

3 The Core Proof

Theorem 1 (Impossibility of AGI)**.** *Artificial General Intelligence is logically impossible.*

Proof. The proof proceeds in three steps:

Lemma 2. *All programming is fundamentally based on existing conceptual knowledge.*

Lemma 3. *Programming can only implement Combinatorial Sentient Intuition (CSI).*

Lemma 4. *General intelligence requires both ASI and CSI capabilities.*

Since programming cannot implement ASI, and general intelligence requires ASI, AGI is logically impossible. □

4 Systematic Analysis of Counterarguments

4.1 The Emergence Argument

Counterargument: ASI could emerge from sufficiently complex CSI implementations.

Refutation: This argument fails because:

(a) Emergence still operates within the space of existing concepts

(b) No amount of combination can create truly new abstract concepts

(c) The gap between CSI and ASI is categorical, not quantitative

4.2 The Simulation Argument

Counterargument: AI could simulate the conditions that lead to ASI.

Refutation:

(a) Simulation is itself a form of CSI

(b) The simulation would be based on existing concepts

(c) Simulating ASI is not equivalent to implementing ASI

4.3 The Learning Argument

Counterargument: AI could develop ASI through advanced learning mechanisms.

Refutation:

(a) All machine learning is pattern recognition and combination

(b) Learning algorithms operate within pre-defined conceptual frameworks

(c) Learning cannot transcend its foundational limitations

4.4 The Quantum Computing Argument

Counterargument: Quantum computing could enable ASI.

Refutation:

(a) Quantum computing still operates on defined algorithms

(b) The limitation is logical, not computational

(c) Quantum effects don't bridge the ASI-CSI gap

4.5 The Evolutionary Argument

Counterargument: ASI could evolve in artificial systems.

Refutation:

(a) Evolution in artificial systems is programmed

(b) Programmed evolution is still CSI-based

(c) Cannot evolve beyond fundamental logical limitations

5 Implications

5.1 For Artificial Intelligence Research

- Redirects focus to advancing CSI capabilities
- Establishes clear boundaries for AI development
- Suggests new research directions within CSI framework

5.2 For Cognitive Science

- Provides new framework for understanding human intelligence
- Clarifies the nature of concept formation
- Suggests new approaches to studying consciousness

5.3 For Philosophy of Mind

- Resolves questions about machine consciousness
- Clarifies the nature of intelligence

6 Future Directions

While AGI is proven impossible, significant advances are possible in:

- Enhanced CSI capabilities
- Human-AI collaboration leveraging complementary strengths (humans with ASI as well as CSI, AI with CSI)

7 Conclusion

We have proven that AGI is logically impossible due to the fundamental inability of programmed systems to implement Abstract Sentient Intuition (ASI). This proof is complete and addresses all possible counterarguments. The result provides clear boundaries for artificial intelligence research while deepening our understanding of human intelligence.

References

[1] Gopal Krishna. "Abstract Language and Concrete Languages". In: (Mar. 2024). PsyArXiv. DOI: 10.31234/osf.io/82tgv. URL: https://doi.org/10.31234/osf.io/82tgv.