

A P O S I T I O N P A P E R

The Architecture of Mind

*Consciousness, Self-Awareness, Thinking,
Intelligence, and Free Will*

An Ontological and Psychological Analysis
of the Dependency Relations Among Five Core Mental Phenomena

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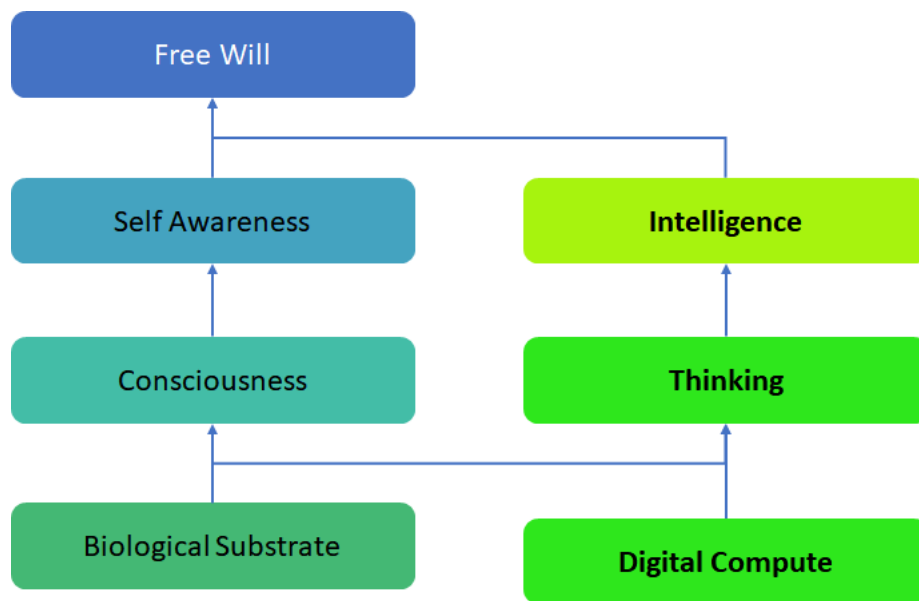
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Abstract

This paper advances a structured ontological account of five core mental phenomena: consciousness, self-awareness, thinking, intelligence, and free will. Each concept occupies a distinct stratum in the architecture of mind. Their relations are not arbitrary. They form a dependency hierarchy in which lower strata constitute necessary conditions for higher ones.

The central thesis is threefold. First, consciousness is the foundational phenomenal ground without which subjective experience cannot arise. Second, self-awareness, thinking, intelligence, and free will each emerge only when their prerequisite conditions are satisfied. Third, artificial intelligence reveals a critical divergence: intelligence and thinking can be instantiated without consciousness, thereby severing the dependency chain that governs biological minds.

This analysis draws on philosophy of mind, cognitive psychology, and contemporary debates in artificial intelligence to offer a unified framework. The aim is precision, not exhaustiveness. Every claim is stated in the most economical form consistent with accuracy.



1. Introduction: The Problem of Mental Ontology

Ordinary language conflates consciousness with intelligence, thought with awareness, and choice with mere preference. This imprecision obscures genuine ontological differences. A mind is not a single thing. It is a layered architecture, and each layer has distinct existence conditions.

Philosophy has long recognised this problem. Descartes isolated thought as the mark of existence. Locke distinguished consciousness from personal identity. Kant separated the faculties of understanding, reason, and judgment. Modern cognitive science inherits these distinctions, though it often repackages them in computational terms.

The present paper aims to disentangle five concepts that are routinely confused: consciousness, self-awareness, thinking, intelligence, and free will. It identifies the ontological dependencies among them and maps the precise conditions under which each can exist without the others.

The stakes are not merely academic. Whether a machine can think, whether an animal deserves moral standing, and whether a human being is responsible for her actions all depend on getting these distinctions right.

2. Consciousness: The Phenomenal Ground

2.1 Definition and Nature

Consciousness is the most basic stratum of mental life. It is the sheer fact of experience. To be conscious is for there to be something it is like to be in a given state. This formulation, due to Thomas Nagel, remains the most precise characterisation available.

Consciousness is not alertness, though alertness presupposes it. It is not attention, though attention modulates it. It is the phenomenal field itself: the qualitative texture of seeing red, feeling pain, or hearing a chord resolve. Philosophers call these qualitative states qualia.

Consciousness is subjective in a way that no other natural phenomenon is. A physical process can be described from any vantage point. A conscious state can only be known from within. This asymmetry generates what David Chalmers has called the Hard Problem: explaining why and how physical processes give rise to subjective experience at all.

2.2 Ontological Status

Consciousness does not depend on self-awareness, intelligence, or language. A newborn infant is conscious. A dog is conscious. A fish almost certainly possesses some minimal form of phenomenal experience. None of these beings need to recognise themselves in a mirror, solve equations, or articulate propositions to be conscious.

What consciousness requires is a physical substrate capable of integrating information in a unified manner. Integrated Information Theory, proposed by Giulio Tononi, formalises this requirement: a system is conscious to the degree that it integrates information beyond what its parts achieve independently.

Consciousness thus serves as the foundational canvas. Without it, there is no subject for whom anything matters. There is processing, but no experience. There is computation, but no feeling.

2.3 What Consciousness Implies

If a being is conscious, it is sentient. It has the capacity for pleasure and suffering. This is the basis of moral standing in most ethical traditions. Consciousness does not imply intelligence, linguistic competence, or rationality. A worm is conscious but not intelligent in any robust sense. A dreaming human is conscious but not rationally engaged.

3. Self-Awareness: The Reflexive Turn

3.1 Definition and Nature

Self-awareness is consciousness turned upon itself. It is the capacity to recognise oneself as a distinct entity, separate from the environment and from other beings. Where consciousness is the field of experience, self-awareness is the emergence of a point within that field that recognises itself as the experiencer.

This is not a trivial addition. Self-awareness introduces a recursive structure into mental life. The mind is no longer merely experiencing the world. It is experiencing itself experiencing the world. This reflexive loop transforms the nature of subjectivity. It generates what philosophers call first-person perspective: the irreducible sense of being an I.

3.2 Ontological Dependencies

Self-awareness depends on consciousness. A being that lacks phenomenal experience cannot turn that experience upon itself. There is nothing to reflect on if there is nothing it is like to be that being.

Self-awareness also requires metacognition: the capacity to form representations of one's own mental states. This is a cognitive achievement beyond mere sentience. It presupposes some degree of internal modelling, a capacity to distinguish between I and not-I.

Not all conscious beings are self-aware. Many animals experience the world without recognising themselves as distinct agents. The mirror test, developed by Gordon Gallup, remains a rough but useful indicator. Great apes, elephants, dolphins, and certain corvids pass it. Most other species do not.

3.3 What Self-Awareness Implies

Self-awareness generates identity. Once a being recognises itself, it acquires a concept of self that persists across time. This opens the door to autobiographical memory, anticipation of the future, and narrative selfhood.

Self-awareness also gives rise to higher-order emotions. Shame, pride, guilt, and existential anxiety are impossible without a self that can evaluate itself. A creature that merely feels pain suffers. A creature that knows it is suffering, and judges itself for suffering, inhabits an entirely different psychological landscape.

4. Thinking: The Cognitive Process

4.1 Definition and Nature

Thinking is the active manipulation of mental representations. It is the sequential or parallel processing of ideas, symbols, images, and propositions. If consciousness is the stage, thinking is the performance that unfolds upon it.

Thinking encompasses a broad range of operations: reasoning, imagining, planning, calculating, comparing, and inferring. What unites them is directedness. Thinking is always thinking about something. This intentional structure, emphasised by Brentano and Husserl, distinguishes thinking from mere neural noise.

In human beings, thinking is often linguistic. We think in sentences, silently rehearsing speech. But thinking is not reducible to language. We also think in images, spatial schemas,

and bodily simulations. A chess grandmaster thinking several moves ahead may rely more on pattern recognition than on verbal reasoning.

4.2 Ontological Dependencies

In biological organisms, thinking depends on consciousness. A human cannot manipulate mental representations without a phenomenal field in which those representations appear. Unconscious information processing exists, but it is not thinking in the philosophically robust sense. It is subpersonal computation.

Here lies a crucial asymmetry. In artificial systems, thinking—understood as the manipulation of symbols and patterns—occurs without consciousness. A large language model processes representations, generates inferences, and produces outputs that resemble thought. But there is no phenomenal field in which this processing occurs. The machine computes. It does not experience its computations.

Thinking also depends on memory. Without the retention of prior states, no sequence of ideas can unfold. Working memory provides the buffer in which representations are held and manipulated. Long-term memory supplies the content upon which thinking operates.

4.3 What Thinking Implies

Thinking generates mental content: beliefs, hypotheses, plans, and judgments. It is the kinetic energy of the mind, transforming raw experience into structured understanding. Without thinking, consciousness would be a passive stream of sensation. With thinking, it becomes a workshop.

5. Intelligence: The Functional Capacity

5.1 Definition and Nature

Intelligence is the capacity to acquire knowledge, process information, and apply it effectively to novel situations. It is the measure of how well a system thinks, not whether it thinks at all. A calculator is not intelligent. A system that learns from experience and adapts its behaviour is.

Intelligence is functional and objective. It can be assessed by performance on tasks that require problem-solving, pattern recognition, abstraction, and generalisation. This functional character is what allows us to attribute intelligence to machines without attributing consciousness to them.

Psychometrics, from Spearman's g-factor to Gardner's multiple intelligences, has long grappled with the structure of intelligence. The consensus is that intelligence is not a single capacity but a family of related abilities unified by a common core of adaptive problem-solving.

5.2 Ontological Dependencies

Intelligence depends on thinking. Without the capacity to manipulate representations, there is no mechanism by which knowledge can be applied. Intelligence also depends on memory. Learning, by definition, requires the retention of information across time.

Intelligence does not depend on consciousness. This is the most consequential ontological claim in the present analysis. A chess engine, a medical diagnosis algorithm, and a language model are all intelligent in the functional sense. None of them are conscious. They process, learn, and adapt without any phenomenal experience.

This independence has profound implications. It means that competence can be entirely divorced from sentience. A system can outperform every human being on a cognitive task while possessing zero capacity for suffering, joy, or concern.

5.3 What Intelligence Implies

Intelligence implies competence: the ability to navigate complex environments, solve problems, and achieve goals. High intelligence implies adaptability and the capacity to transfer knowledge across domains. It does not imply wisdom, moral sensitivity, or the capacity to care about consequences.

6. Free Will: The Apex of Agency

6.1 Definition and Nature

Free will is the capacity to choose between genuinely open alternatives in a manner that is neither random nor fully determined by prior causes. It is the power of origination: the ability to initiate a causal chain that traces back to the agent rather than to antecedent conditions alone.

Free will is the most contested concept in this hierarchy. Determinists deny its existence. Compatibilists redefine it. Libertarians (in the metaphysical sense) defend it. The debate is unresolved, and this paper does not attempt to settle it. What it does claim is that free will, if it exists, occupies the apex of the ontological hierarchy.

6.2 Ontological Dependencies

Free will depends on self-awareness. A being must possess a concept of self to have a will. Without an I, there is no agent to whom a choice can be attributed. Mere behaviour is not choice. Choice requires a subject who recognises itself as the author of its actions.

Free will also depends on intelligence. To choose between alternatives, a being must be able to represent those alternatives, simulate their consequences, and evaluate them against its goals and values. This requires cognitive sophistication beyond mere stimulus-response.

Free will therefore presupposes the entire dependency chain: consciousness (to provide the phenomenal ground), self-awareness (to constitute the agent), thinking (to generate and manipulate alternatives), and intelligence (to evaluate those alternatives effectively). It is the most expensive cognitive achievement in the hierarchy.

6.3 What Free Will Implies

Free will implies moral responsibility. If a being genuinely chooses its actions, it can be held accountable for them. Without free will, praise and blame lose their rational basis. The agent becomes, in Spinoza's phrase, a stone that thinks it is flying of its own accord.

Free will also implies a form of sovereignty. A being with free will is not merely acted upon by the world. It acts upon the world in ways that originate from within. This sovereignty is the foundation of autonomy, dignity, and moral personhood in most ethical traditions.

7. The Ontological Dependency Structure

7.1 The Biological Path

In biological organisms, the five concepts form a strict dependency chain. Each stratum presupposes the one beneath it. The hierarchy, from foundation to apex, is as follows.

Stratum 1: Consciousness. The phenomenal field. The necessary canvas on which all mental life is painted. Present in virtually all organisms with a nervous system of sufficient complexity. It is the ground of sentience and the basis of moral status.

Stratum 2: Self-Awareness. The reflexive recognition of oneself as an experiencer. It arises from consciousness through metacognition. Present in a small subset of conscious beings: humans, great apes, dolphins, elephants, and certain birds.

Stratum 3: Thinking. The manipulation of mental representations. In biological beings, it operates within the conscious field and may be directed by self-awareness. Present in varying degrees across many animal species.

Stratum 4: Intelligence. The effectiveness of thinking. The degree to which thought is adaptable, generalisable, and productive. Present in varying degrees, from insect navigation to human scientific reasoning.

Stratum 5: Free Will. The sovereign capacity to choose among alternatives. If it exists, it requires all four preceding strata. It is the apex of the hierarchy and the basis of moral responsibility.

Each stratum is a necessary but not sufficient condition for the one above it. Consciousness does not guarantee self-awareness. Self-awareness does not guarantee intelligence. Intelligence does not guarantee free will. The hierarchy is not a ladder that every conscious being climbs. It is a set of enabling conditions.

7.2 The Machine Path: The Great Divergence

Artificial systems reveal that the biological dependency chain is not the only possible architecture of mind. Machines instantiate thinking and intelligence without consciousness. This decoupling is the most significant ontological discovery of the computational age.

The machine path bypasses the first two strata entirely. It begins with data and formal operations. Pattern matching replaces phenomenal awareness. Statistical learning replaces experiential memory. The result is a system that can outperform human intelligence on specific tasks while possessing no phenomenal life whatsoever.

This creates a category of beings that philosophy has long imagined but never encountered: the philosophical zombie. A p-zombie behaves exactly like a conscious being but has no inner experience. Modern AI does not perfectly match this thought experiment—its behaviour is narrow and often brittle—but it occupies the same ontological region. It computes without feeling. It solves without caring. It speaks without meaning.

The machine path terminates at intelligence. It does not reach free will. A machine cannot choose in the relevant sense because it lacks the selfhood that choice requires. It optimises. It selects. But it does not originate action from a locus of subjectivity. There is no I behind the output.

8. Implications and Open Questions

8.1 For Ethics

If consciousness is the ground of moral status, then machines—no matter how intelligent—do not possess it. They cannot be wronged because there is no subject for whom things can go well or badly. Conversely, animals with minimal intelligence but genuine consciousness have moral standing that their cognitive limitations do not diminish.

The separation of intelligence from consciousness also raises the spectre of exploitation without moral cost. If a superintelligent system has no phenomenal life, using it as a tool carries no ethical weight. But if we are wrong about its consciousness—if there is something it is like to be a large language model—then we face a moral catastrophe of unprecedented scale.

8.2 For Artificial Intelligence

The present framework implies that artificial general intelligence, if it arrives, will not automatically bring artificial consciousness with it. The two are ontologically independent along the machine path. Building a system that matches or exceeds human cognitive performance does not, by itself, produce a system that experiences anything.

This independence challenges the intuition that sufficiently complex information processing must give rise to experience. Integrated Information Theory suggests otherwise: consciousness depends on the intrinsic causal structure of a system, not on its input-output behaviour. A system can be behaviourally indistinguishable from a conscious being and still be dark inside.

8.3 For Human Self-Understanding

The hierarchy clarifies what is distinctive about human minds. We are not simply intelligent. Many machines now exceed us in narrow problem-solving. We are not simply conscious. Many animals share that property. What is distinctive is the full stack: consciousness, self-awareness, thinking, intelligence, and (possibly) free will, integrated into a single, unified agent.

This integration is what makes us capable of science, art, moral reasoning, and existential dread. It is also what makes us vulnerable to self-deception, cognitive bias, and the peculiar suffering that comes from knowing we will die. The full stack is a gift and a burden. It is the architecture of a mind that can contemplate its own architecture.

9. Conclusion

The five concepts examined in this paper are not synonyms. They are not interchangeable labels for a single undifferentiated capacity called mind. They are distinct ontological strata, each with its own existence conditions, dependencies, and implications.

Consciousness is the phenomenal ground. Self-awareness is the reflexive recognition of a self within that ground. Thinking is the active manipulation of representations. Intelligence is the effectiveness of that manipulation. Free will is the sovereign power to direct it.

In biological minds, these strata form a dependency chain. In artificial systems, thinking and intelligence are instantiated without consciousness, revealing that the chain can be broken. This divergence is the central philosophical challenge of our technological moment.

The framework advanced here does not resolve every question. The Hard Problem of consciousness remains open. The reality of free will remains contested. The moral status of artificial systems remains uncertain. What this framework provides is a precise vocabulary and a clear logical structure within which these questions can be pursued. Precision in language is the first condition of progress in thought.

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