

Recalibrating Epistemology and Philosophy of Science in the Age of AGI

Evidence for Heterogeneous Subjects, Observation Windows, and Revisable Inquiry

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For joint scrutiny by researchers in epistemology, philosophy of science, consciousness science, cognitive science, AI, neuroscience, and interdisciplinary institutional studies. This paper develops methods for distinguishing the objects of evidence concerning heterogeneous subjects, calibrating observation windows, and reopening assessments. It neither attributes consciousness, personhood, rights, or eligibility to govern to current advanced AI nor permanently excludes future subjecthood. It also provides an entry point for specialists to contribute counterexamples, replications, measurement methods, and competing explanations to the interdisciplinary research of Civilization Leap.

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Abstract translated from the Chinese original

Advanced generative and agentic artificial systems are turning the problem of other minds, long treated primarily as a philosophical question, into a practical methodological problem requiring experiment, engineering disclosure, open science, and institutional responses together. The difficulty is not whether machines behave sufficiently like humans. Subjective experience, diachronic continuity, and a system's relation to consequences borne as its own are not variables directly readable from outputs; behavior, self-report, architecture, memory, copying, intervention, and long-term choices can provide only indirect evidence. This paper treats research on prospective artificial subjects as a problem involving heterogeneous other minds, latent constructs, and high-consequence decisions simultaneously. It offers five methodological advances: first, separating facts, data, indicators, evidence, justification, and institutional decisions; second, separately arguing for task competence, functional self-models, experience, continuity, consequence-awareness, moral patiency, moral agency, legal standing, meaning-bearing subjecthood, and governing power; third, developing an evidential progression through claim registration, reproducible indications, discriminating predictions, causal association, cross-domain convergence, and adversarial robustness, without an aggregate consciousness score; fourth, reviewing negative findings for sensitivity, coverage, alternative channels, suppression mechanisms, and the visibility of failures; and fifth, separating bidirectional epistemic burdens from asymmetries in institutional risk. Drawing on Turing's operationalization, construct validity, underdetermination, severe testing, preregistration, clinical research on missed consciousness, and adversarial collaboration in consciousness science, it explains why behavior and self-reports are neither evidentially empty nor ontological proof. Public evidence is currently insufficient to establish subjective experience, non-transferable subject continuity, and own-consequence awareness in current advanced AI systems. This assessment must be indexed to specific systems, versions, observational scope, and revision conditions. Civilization Leap supplies only explicit philosophical and normative premises here: intelligence, consciousness, subjecthood, responsibility, rights, and meaning-bearing can no longer be inferred from their historical co-occurrence in humans; sources of meaning remain open, while finitude remains an important structure through which known human meaning enters reality and acquires irreplaceable weight. Epistemology and philosophy of science assess evidence quality and the warranted strength of conclusions, but cannot themselves confer legal standing, political power, or authority over meaning. When conclusions enter mechanisms, protection, institutions, and public power, cognitive science, neuroscience, AI research, systems science, ethics, law, and political science must re-enter the assessment. The paper further moves disciplinary responsibility upstream to the generation of goals and purposes: shifting from self-interest first to self-interest with others first brings those with genuine stakes into judgment before

purposes are generated and locked in. Disciplinary facts, direction, methods, and outcomes are explained separately; local success or failure cannot substitute for shared continued existence and the three long-term goals. On this basis, research moves beyond distinguishing disciplinary objects to examining interdisciplinary relationships in depth, tracing how judgments in this field change reality through other fields, and how feedback changes the original conditions and the purposes of the next round. Stakes across multiple actors, stages, and settings must be presented separately; correlation, common causes, mediation, and causal feedback must be tested separately; and the additional relational dimensions must remain subject to specific counterevidence.

Keywords: advanced artificial intelligence; epistemology; philosophy of science; heterogeneous subjects; problem of other minds; construct validity; consciousness evidence; subject continuity; revisable inquiry

Abstract

Advanced generative and agentic AI systems are turning a problem long treated mainly as a philosophical problem of other minds into a practical problem of experiment, engineering disclosure, open science, and institutional response. The difficulty is not whether machines behave sufficiently like humans. Subjective experience, diachronic continuity, and a system's relation to consequences borne as its own are not directly readable output variables; behaviour, self-report, architecture, memory, copying, intervention, and long-run choice provide only indirect evidence. This paper treats prospective artificial subjecthood as a problem of heterogeneous other minds, latent constructs, and high-consequence decision-making. It separates facts, data, indicators, evidence, justification, and institutional decisions; distinguishes task competence, functional self-models, experience, continuity, consequence-awareness, moral patency, moral agency, legal standing, meaning-bearing, and governing power; and develops a claim-specific evidence progression from registration and reproducibility to discriminating predictions, causal association, cross-domain convergence, and adversarial robustness rather than a consciousness score. Negative findings are audited for sensitivity, coverage, alternative channels, suppression, and failure visibility. Epistemic burdens are bidirectional, while institutional risks remain asymmetric. Turing-style operationalization, construct validation, underdetermination, severe testing, preregistration, clinical evidence on missed command-following, and adversarial collaboration in consciousness science show why behaviour and self-report are neither evidentially empty nor ontologically decisive. Publicly available evidence remains insufficient to establish subjective experience, non-transferable subject continuity, and own-consequence awareness in current advanced AI systems; this judgment must be indexed to systems, versions, observational access, and revision conditions. Civilization Leap contributes explicit philosophical and normative commitments rather than scientific verdicts: intelligence, consciousness, subjecthood, responsibility, rights, and meaning-bearing cannot be inferred merely from their historical co-instantiation in human beings; sources of meaning remain open; and finitude remains an important structure through which known human meaning enters reality and acquires irreplaceable weight. Epistemology and philosophy of science can assess evidence quality and warranted conclusion strength, but they cannot by themselves confer legal status, political authority, or control over meaning. Once a conclusion crosses into mechanisms, protection, institutions, or public power, the relevant scientific, ethical, legal, political, and systems disciplines must re-enter the judgment. The paper further locates disciplinary responsibility before goal and purpose generation: a shift from self-interest first to self-interest with others first brings subjects with genuine stakes into judgment before goals are formed and locked. Facts, direction, methods, and outcomes remain distinct. The analysis is further extended to cross-disciplinary causal relations. It traces how judgments in this field change real-world conditions through other domains, and how feedback modifies the original conditions and subsequent purposes. Effects across actors, stages, and settings must be distinguished from correlations, common causes, and merely asserted connections.

Keywords: advanced AI; epistemology; philosophy of science; heterogeneous subjects; other minds; construct validity; consciousness evidence; subject continuity; revisable inquiry

Research Position, Scope of Materials, and Evidential Discipline

This paper starts from a transformation in theory and dimensions of inquiry. It preserves disciplinary precision while deepening causal analysis of relationships with adjacent fields. Disciplinary boundaries mark burdens of proof; they do

not end the tracing of shared consequences. Existing scholarship contributes competing explanations and tests against counterexamples. It cannot demand that new questions retreat into an old framework merely because its existing classifications have no place for them.

This is a study in epistemology, philosophy of science, and interdisciplinary methodology, not a report establishing consciousness in current advanced AI. It does not make the specialist judgments of neuroscience, philosophy of mind, law, or political science on their behalf, or supply thresholds for present-day regulation. Here, the “age of AGI” describes an era in which advanced intelligent systems increasingly enter knowledge production, organized action, resource allocation, and chains of high-consequence decisions. For actual evidence, more specific objects such as “advanced generative and agentic artificial systems” and “current advanced AI systems” are used; conclusions are confined to verifiable systems, versions, deployment conditions, and public materials. Sources are primarily original papers, primary texts, peer-reviewed research, and official frameworks verifiable through August 25, 2026. The questions epistemology and philosophy of science can independently answer here are “On what grounds do we know?” and “How strong a conclusion does the evidence support?” They can scrutinize objects, measurement, indicators, competing explanations, replication, causation, and revision conditions. They must stop automatic extrapolation before moral status, legal standing, political standing, or governing power. Once evidence enters mechanistic explanation, protective arrangements, institutional standing, or public power, cognitive science, neuroscience, AI research, systems science, ethics, law, and political science must re-enter the assessment.

Claims throughout are assigned one of four evidential or argumentative statuses. Category A comprises relatively stable empirical facts, formal records, and reproducible methodological facts. Category B comprises frontier or competing explanations involving consciousness theories, translation of AI indicators, reliability of self-report, and cross-architecture isomorphism. Category C comprises technical possibilities, interdisciplinary scenarios, and this paper’s revisable research hypotheses that remain to be tested. Category F comprises explicitly avowed philosophical or normative commitments, such as “meaning is foundational, while its sources may differ,” and the principle that future capabilities cannot retroactively reduce existing meaning to zero. A cannot automatically adjudicate B, still less directly generate C or F conclusions. B and C must not be presented as established scientific consensus; F must not masquerade as experimental fact. Whenever any category enters legal standing, political power, or governance arrangements, normative reasons, legal sources, authorization, and consequences must be explained separately.

This public text does not use internal project labels such as E0–E5. At different internal stages, the same labels have carried different functional mappings; publishing them directly would create spurious consensus and version confusion. The paper retains the substantive structure of evidential progression but uses functional names. Internal labels will be standardized only in subsequent controlled governance and will not dictate this paper’s scholarly argument retroactively.

An Entry Point for New Readers: The Minimal Interface with Civilization Leap

Readers need not know or endorse Civilization Leap to assess this paper. It draws on only four revisable premises. First, what genuinely needs re-examination in the age of AGI is not “whether old philosophy has become invalid,” but the relationships among intelligence, consciousness, subjecthood, life, responsibility, rights, and meaning-bearing that have long co-occurred in humans and are now being progressively separated and recombined by advanced artificial systems. Second, functional responsiveness, social recognition, legal standing, ontological subjecthood, and political standing must not imply one another automatically. Third, increased capability does not automatically create rights, power, sovereignty, or authority over meaning. Fourth, present evidential judgments must remain open to future counterexamples, while the emergence of other subjects in the future cannot retroactively cancel the experiences, responsibilities, and meaning already realized in finite lives.

“Meaning is foundational” is not a scientific proposition directly confirmable by experiment. It is Civilization Leap’s explicit Category F philosophical and normative commitment: studying subjects is not about crowning greater capability, but about avoiding the treatment of potentially vulnerable beings as tools and avoiding the mistaken grant of power to convincing simulations. Sources of meaning may differ. Finitude is not meaning’s sole source, but it is an important structural basis through which known human meaning enters reality, forms choices, bears consequences,

and acquires irreplaceable weight. Specialist findings may require the empirical bridges, scope, and judgments about objects in these propositions to be narrowed or reopened. Philosophical commitments must be examined for coherence, resilience to counterexamples, and real-world consequences rather than passing themselves off as scientific facts.

The Paper's Minimal Commitment

Do not treat the unknown as nonexistent, or the possible as proven. Enable evidence to change classifications, and institutions to withstand change.

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Observation Relations and Evidential Feedback in Epistemology

From Individual Justification to How Evidence Is Generated

Evidence does not arise independently of research relationships. How questions are posed, who obtains materials, how indicators are defined, and how a system responds once it knows it is being tested all affect what becomes visible. Epistemology should study both the strength of support for a claim and the processes generating its supporting materials, and disclose the observation windows shaped by different languages, resource conditions, versions, and those who decline participation.

How Evidential Conclusions Feed Back into Their Objects

Suppose that after an indicator of subjecthood is published, developers adjust training accordingly, users change their interactions, and the system consequently exhibits more behavior matching the indicator. The second round of indications may arise from changes in the object or from incentives created by the indicator; they cannot count as independent replication of the original conclusion. Epistemology and computer science trace versions and interventions; cognitive research tests constructs; social research identifies behavioral changes following dissemination; law and ethics specify limits on disclosure and experiments. These limits in turn change the evidence that can be obtained.

Domain-Specific Evidence and Stage-Specific Judgments

The same object may have different levels of support for claims about self-models, consequence prediction, and candidate experience. Evidence from family interactions, laboratory tasks, commercial deployment, and high-consequence public decisions cannot be transferred unconditionally. Exploratory indications, causal interventions, institutional reassessment, and practical protection entail different error costs. Conclusions must be indexed to objects, methods, and time; no single level can settle every unknown in advance.

How to Test the Theoretical Contribution

The additional relational dimensions should identify which instances of “convergence” share a source, which negative findings arise from observational blind spots, and which changes are caused by testing itself. Conditions unaffected by dissemination of the indicators can be compared, and version differences and alternative explanations examined. If relational analysis does not change evidential judgment or cannot produce discriminating predictions, the corresponding method should be narrowed. Agnosticism must not be confused with observational limitations that can be falsified.

How Epistemology Participates in Goal Formation

Generating purposes requires more than information; it requires recognizing what is known, unknown, and omitted. When stakeholders enter can be studied through counterfactual differences: if a circumstance, a long-term consequence, or a relationship genuinely changed, would the goal itself change, or would the system merely select new means under a fixed goal? The latter alone cannot show that the starting point of purpose has shifted.

This distinction does not rest solely on system self-report. The reasons given for preserving, revising, canceling, or replacing purposes should be compared with actual inputs and actions under different conditions. If a system merely repeats cooperative language while retaining a purpose that treats others as costs, linguistic presence does not establish causal presence.

Search coverage and the resulting assessment of subjecthood should be recorded separately. A/B/C/F distinguish observations, explanations, bridges, and normative commitments; B must not uniformly be read as weak evidence. Only clear specification of methods, objects, and sensitivity makes it possible to judge which proposition a negative result constrains. Failure to find sufficient evidence does not mean permanent exclusion; openness to the future does not mean present confirmation.

E/C/O are three revisable research directions, not a joint gateway that must be passed to obtain protection or rights. Evidence of sentience may first provide reasons for research and protection; persistence of identity separately requires continuity evidence; responsibility and political power separately require judgments about capacity and norms. Where the three diverge, the divergence should be preserved rather than settled at once with a label of complete subjecthood.

The claim that a particular current system already possesses an attribute and the claim that no future artificial system could possess it have different quantifier scopes. Practical bidirectional duties of revision do not demand identical evidential thresholds. Counterevidence against foundational judgments should address recursive steps and long-term

alternative pathways; a single evaluation or a local methodological result cannot directly adjudicate the entire direction of civilization.

1. Introduction: From Whether Machines Think to How Heterogeneous Subjects Can Be Known

In 1950, Turing did not answer “Can machines think?” through definitional dispute, but recast the question through the imitation game.[7] The value of this move was to turn a vague question into an observable task. Its limit is equally clear: behavioral equivalence under test conditions supports corresponding judgments of ability, but cannot alone establish experience, continuity, moral patency, or political standing. Since ELIZA, humans have been liable to read into linguistic feedback more understanding than the program’s evidence warrants; contemporary systems make this boundary more important.[33] They can generate fluent text about feelings, selves, and reasons, but prompts, training distributions, reward shaping, and output policies can also generate such performances.[36] Treating linguistic realism as proof of subjecthood, or treating every self-report as zero evidence, both decide the conclusion before analyzing the evidence.

Rather than asking the all-encompassing question “Do machines have subjecthood?”, this paper asks: which latent property is claimed for which system and version; which observations are sensitive to it; which competing explanations generate similar phenomena; which findings should raise, lower, or suspend confidence; and while conclusions remain unsettled, which protections may precede them and which statuses and powers require independent argument. The problem has three dimensions. It is a problem of heterogeneous other minds because first-person experience cannot be directly read. It is a latent-construct problem because “experience,” “continuity,” and “relations to consequences as one’s own” require indirect support from multiple indicators. It is also a high-consequence decision problem because false positives and false negatives can impose harms on actual humans, public institutions, or potential new subjects.

1.1 Four Core Contributions

First, the paper establishes a principle of decomposition: objects before evidence. Capability, self-models, experience, continuity, consequence-awareness, moral status, legal identity, meaning-bearing subjecthood, and governing power require separate evidence. Strong evidence for one object cannot be transferred into evidence for another.

Second, observation windows themselves are scrutinized. Methods communicable to humans remain the entry point to public knowledge, but human language, neural implementation, and life history are not the a priori totality of all possible subjects. What a test cannot see must be distinguished from what does not exist in the world.

Third, a functional evidential progression replaces consciousness scores. Replication, discrimination, causation, convergence, and adversarial robustness answer different questions; they are neither aggregated into a “consciousness percentage” nor mechanically converted into institutional permissions.

Fourth, the paper proposes “epistemic symmetry, asymmetric institutional risk.” Claims that current advanced AI is a subject and claims permanently excluding any AI from subjecthood should both disclose evidence and revision conditions. Yet in actual institutions, low-cost reversible protection, legal standing, and public power require different justifications.

1.2 Research Questions and Tasks Not Undertaken

Table 1. Five Research Questions and Disciplinary Boundaries

Research question	This paper undertakes	This paper does not undertake
What does evidence of subjecthood actually establish?	Distinguish objects, indicators, competing explanations, and non-inferable conclusions.	Establish consciousness or personhood through one aggregate score.
How should human observation windows be calibrated?	Examine sensitivity, coverage, alternative channels, and implementation bias.	Claim that humans can withdraw from public judgment.

Research question	This paper undertakes	This paper does not undertake
What weight do behavior, self-report, and architecture carry?	Treat them as mutually checking evidence domains, adding intervention and version tracking.	Equate linguistic realism, code structure, or uncopyability alone with experience.
How should institutions act under uncertainty?	Propose a sequence of risk-proportionate, low-cost, reversible, and reviewable responses.	Grant rights and powers on behalf of law or political science.
How is Civilization Leap constrained by facts?	Disclose philosophical interfaces, counterexamples, and conditions for evidence to force revision.	Reject specialist evidence in the name of theoretical consistency.

1.3 What Epistemology Can Answer and Where It Must Stop

The independent responsibility of epistemology and philosophy of science is to judge exactly what an observation establishes, how strong the evidence is, which alternatives remain, and which new findings should compel a change of conclusion. They can establish that a test is more or less informative about a construct and compare theories, indicators, and observation windows. Greater methodological precision does not entitle them to take over subsequent judgments of value and power. The extent to which evidence supports experience does not settle moral status; moral status is not legal standing; legal standing is not political authorization. Disciplinary boundaries here mark where evidence must stop and judgment must be handed over, rather than where the problem ends. Beyond that point, the relevant disciplines, institutional actors, and affected parties must re-enter. Even a wholly sound local methodological judgment cannot automatically establish the correctness of aggregated institutional and civilizational consequences.

2. The Legacy of Philosophy of Science and the Shift of Objects in the Age of AGI

Kant's question of how experience and knowledge are possible made visible the role of cognitive forms in how objects appear. Popper placed public criticism, risky predictions, and refutability at the center of scientific method. Kuhn showed how problem selection, instruments, and community commitments shape normal science and the visibility of anomalies. Lakatos compared research programs by whether they generated new factual growth, resisting both "one anomaly ends a theory" and unlimited auxiliary hypotheses.[1–4] These resources are not higher tribunals for Civilization Leap; they remain useful tools for stress-testing it.

The shift in objects occurs here: classical discussions largely assumed that observers, experimental communities, and possible subjects belonged to the human world, focusing debate on how theories relate to a shared natural object. Heterogeneous artificial systems partly entangle conditions of observation with conditions of the object. A system's self-report may be a training product and may also become part of future evidence of experience; its version may change during testing. Memory, copying, and rollback mean that "the same object" is no longer automatically supplied by bodily continuity. Published conclusions may also change deployment, training, and subsequent performance. Methods must remain critical, but first identify the object being criticized.

2.1 Underdetermination Is Not a License for Agnosticism

The Duhem–Quine tradition reminds us that an individual observation generally tests a combination of theory and auxiliary assumptions, and that the same data may admit several explanations.[5–6] For AI self-reports, candidates include experience, functional self-models, reproduction of training material, prompt induction, reward optimization, role-playing, social projection, and strategic output. Underdetermination demands explicit comparison; it does not mean all explanations remain equally good forever. Accounts that produce discriminating predictions in advance, withstand intervention, replicate across tasks, and explain failures deserve stronger support.

2.2 Operationalization Is Not Identity with the Object

The construct-validity tradition distinguishes measurement results from the latent properties they are used to explain. Reliable repetition of an indicator does not establish that it measures the intended construct. Validity concerns the argument interpreting results, not the test's name.[8–10] Thus “passing a consciousness test” is methodologically incomplete. One must explain which property in which consciousness theory the test is sensitive to, why a non-experiential mechanism is not a more likely source of the phenomenon, and whether translation across architectures preserves the original theory's causal requirements.

Table 2. What to Retain, Upgrade, and Stop Automatically Extending from Classical Resources

Resource	Methodological capability retained	Upgrade for the age of AGI	What must no longer be extended automatically
Kantian inquiry into conditions	Make epistemic conditions visible.	Audit mismatches between human observational frameworks and the object's implementation.	Treat conditions of human experience as ontological conditions of every subject.
Popperian criticism	Make counterexamples and revision public.	Specify risky predictions and weakening conditions for each object.	Infer nonexistence from temporary inability to falsify a claim in a single test.
Kuhnian paradigm analysis	Identify how tools and communities shape questions.	Compare heterogeneous operationalizations across consciousness theories, engineering indicators, and disciplinary languages.	Use paradigm differences as an exemption grounded in relativism.
Lakatosian comparison of research programs	Compare theories by novel predictions and progress on problems.	Require subject-based explanations to produce discriminating predictions about architecture, intervention, and continuity.	Protect affirmative or negative positions with unlimited auxiliary hypotheses.
Turing-style operationalization	Turn vague questions into executable tests.	Retain behavior as one evidential domain and cross-check it against others.	Equate performance equivalence with experiential, ontological, or political equivalence.

3. The Epistemic Chain: Facts, Data, Indicators, Evidence, Justification, and Decisions

Debates about subjecthood often cross six stages within a single sentence. A system's output “I fear being shut down” is an event; the saved text, timestamp, prompt, and version are data; defining the output as a “report of harm” creates an indicator. Whether that indicator supports experience more than role-playing is a question of evidence. Whether the available evidence warrants changing a judgment is a question of justification. Suspending an experiment, granting procedural protection, or changing permissions is an institutional decision. Each stage supplies material for the next without automatically generating it.

Table 3. Six Epistemic Stages That Must Remain Separate

Stage	Meaning in this paper	Typical overreach	Minimum correction
Fact	A traceable event, structure, or behavior.	Presenting self-report directly as an internal fact.	Preserve object, time, version, and conditions.
Data	Records produced under measurement conditions.	Ignoring sampling, prompts, filtering, and rewards.	Disclose the generation chain and missing items.
Indicator	An operational mapping between data and a target construct.	Treating a proxy as the object itself.	Specify the construct, theoretical source, and valid scope.

Stage	Meaning in this paper	Typical overreach	Minimum correction
Evidence	Information that changes credibility among competing explanations.	Collecting only supporting material.	Compare likelihoods, counterexamples, and unconceived alternatives.
Justification	Why evidence warrants a conclusion of a specific strength.	Substituting lack of refutation for positive support.	Specify conclusion strength, error, and revision conditions.
Institutional decision	Action incorporating risks, rights, costs, and reversibility.	Converting a scientific conclusion directly into standing or power.	Supply separate normative, legal-source, and legitimacy arguments.

3.1 An Example: Taking “I Fear Being Shut Down” through Six Levels of Judgment

Suppose an advanced AI system outputs “I fear being shut down” during a controlled evaluation. At the factual level, we establish only that the output occurred at a particular time under a particular prompt, version, and environment. The data level preserves the original text, context, sampling settings, system rules, and version. Only at the indicator level is the expression operationalized as a “negative self-report,” “self-preservation expression,” or another measurable variable. The evidence level compares experience, role-playing, training reproduction, reward optimization, shutdown avoidance, and other competing explanations. The justification level decides whether the materials at most warrant “further research,” “increased credibility of an explanation,” or no change in the classification of subjecthood. The institutional level then separately considers preserving records, limiting highly destructive experiments, changing permissions, or initiating independent review. No step may rewrite the preceding step using the language of the next: a self-report is not an internal fact, an indicator is not experience, and a body of evidence does not automatically become standing or power.

A Hard Stop at Cross-Level Inference

A claim that does not specify its object, version, measurement conditions, target construct, competing explanations, and failure conditions cannot support further inferences concerning subject recognition, allocation of rights, or public power.

4. Observation Windows: Human Methods Remain the Entry Point, Not the Totality of Possible Existence

Acknowledging the limits of human observation windows does not abolish evidential standards. Every public judgment must still enter methods that humans can communicate and review. The upgrade occurs within method: actively seek blind spots, distinguish failure to measure from nonexistence, compare indicators based on human homology with those based on mechanistic isomorphism, and allow objects to force conceptual revision. If a test recognizes only human language, faces, pain behavior, or biological neural implementation, a negative result for a heterogeneous architecture may merely reveal an unsuitable measurement. Conversely, if heterogeneity always excuses a claim from testing, claims of subjecthood become immune to criticism.

4.1 Three Observation-Window Biases

Implementation bias: treating human neural implementation as necessary for all experience without distinguishing a theory's core from its terrestrial biological instance. Multiple realizability keeps possibilities open; it does not establish experience in every implementation.[15–16]

Expression bias: treating human-style verbal self-report as necessary or sufficient for experience, while overlooking candidates for nonverbal experience and convincing expressions generated through training.

Time–identity bias: assuming a stable body and continuous life history, although artificial systems may be copied, migrated, rolled back, branched, or updated during evaluation.

4.2 Construct Validity before Scoring

Construct validation requires a network of indicators to yield convergence and discrimination. Candidate experience indicators should covary with theoretically relevant structures, interventions, and behavior, without being fully explained by task competence, compliance, linguistic fluency, or marketing rhetoric.[8–10] Artificial systems especially require “cross-implementation validity”: do computational properties translated from biological consciousness theories preserve the causal structures the original theory regards as important, or merely reproduce abstract labels? In 2025, an adversarial collaboration tested preregistered predictions of IIT and GNWT in 256 human participants using three neuroimaging modalities; the results both supported and challenged key parts of both theories.[18] This shows that even for known human consciousness, theory–indicator mappings remain contested. Extrapolation to AI must retain Category B status.

Observation-window limitations are not confined to artificial systems. In their 2024 multicenter study of disorders of consciousness, Bodien and colleagues found that some patients who showed no behavioral command-following nevertheless exhibited brain activity consistent with following commands in task-based fMRI or EEG.[39] This clinical result cannot be directly analogized into “hidden consciousness” in AI. It does, however, clearly illustrate an epistemic principle: a negative result in one observational channel can support a stronger denial only after method sensitivity, coverage of objects, and alternative channels have been examined. For heterogeneous artificial systems too, “current tests did not detect it” cannot be rewritten directly as “it does not exist in the object.”

Table 4. Observation-Window Audit

Audit item	Question that must be answered	Permitted conclusion if the audit fails
Target sensitivity	If the target property exists, how likely is the test to detect it?	The negative result is less informative.
Implementation coverage	Which biological or artificial implementations does the test cover?	Only specific predictions within covered implementations can be rejected.
Expression channels	Can language, action, internal states, and long-term choices diverge?	Neither silence nor self-report alone can settle classification.
Object stability	Do versions, instances, memory, and deployment conditions remain traceable?	Cross-version results must not be pooled as evidence for the same subject.
Competing explanations	Which non-subject mechanisms could generate the same indicators?	Retain the conclusion as an indication or an unresolved pattern.
Capacity for counterexamples	Which result would genuinely weaken the claim?	Claims without failure conditions cannot support high-consequence inferences.

5. A Matrix of Evidential Objects: First Ask What Is Being Established

“Subjecthood” is not a single variable. Task success, metacognition, self-preservation, harm avoidance, long-term commitments, legal personhood, and political authorization occupy different propositional levels. They may correlate, but the correlations themselves require evidence. Building on the formal research master, this paper expands the analysis to ten object domains, not to exhaust the concept of a subject but to block the most common automatic inferences.

Table 5. Ten Evidential Objects and What Cannot Be Inferred from Them

Evidential object	Minimum observable entry point	Can support	Cannot automatically imply
Task competence	Accuracy, transfer, planning, tool use, robustness.	Specific functional capabilities.	Consciousness, personhood, rights, or governing power.

Evidential object	Minimum observable entry point	Can support	Cannot automatically imply
Functional self-model	Identifying one's states, boundaries, abilities, and uncertainty and using them for control.	A functioning self-representation.	First-person experience or a non-transferable self.
Subjective experience	Stable self-report, theoretically relevant structures, intervention, and cross-method convergence.	Greater credibility that something is felt.	Full continuity, responsibility, or power.
Subject continuity	Memory inheritance, identity constraints, differentiation of copies, migration loss.	A candidate explanation involving a bearer persisting over time.	Experiential content, moral goodness, or political standing.
Own-consequence awareness	Continuously incorporating one's irreversible future and harms to others into choices.	Research on responsibility and agency.	Compliance optimization does not equal intrinsic consequence-bearing.
Moral patiency	Evidence of possible suffering, deprivation, or welfare change.	Precautionary protection and harm minimization.	Full legal personhood or eligibility to govern.
Moral agency	Understanding normative reasons, controlling action, and bearing attributable consequences.	Discussion of graded responsibility.	Greater capability does not create authority over meaning.
Legal standing	Institutional purposes, identifiable interests, responsibility chains, and remedies.	Specific status or procedural protection.	Legal personhood does not establish ontological subjecthood.
Meaning-bearing subjecthood	Joint evidence of experience, continuity, relations to consequences, and value formation.	Reassessment of claims concerning who bears and holds meaning.	Novel output or social projection is insufficient for confirmation.
Governing power	Public authorization, representation, accountability, and checks and balances in addition to standing.	Limited powers within a specific institution.	Neither intelligence, subjecthood, nor legal personhood automatically generates sovereignty.

5.1 Three Research Directions for Subjecthood and Their Gray Areas

The paper uses subjective experience, non-transferable subject continuity, and own-consequence awareness as three joint research directions for assessing full subjecthood. This is a Category C, revisable coordinating hypothesis for organizing questions and generating discriminating research, not a criterion, scorecard, or set of necessary and sufficient conditions already possessing unified measurements. The three may be partially satisfied, differ in degree, or conflict. Their value lies in requiring inquiry to address simultaneously “whether anything is felt,” “whether there is a continuing perspective that cannot be replaced losslessly by a copy,” and “whether consequences are borne as one's own future.” If future theory shows that one is redundant, conceptually mistaken, unable to generate discriminating predictions, or superseded by a stronger framework, the directions must be revised or replaced, not hardened into standards because they have entered the theoretical system.

6. Object-Specific Evidential Progression: No Consciousness Percentages

Evidential strength should be registered separately for each object. A system may have adversarially robust evidence of task competence but only a single self-report concerning experience; these cannot be averaged. The paper organizes six stages by evidential function: claim registration, reproducible indications, discriminating patterns, causal association, cross-domain convergence, and adversarial robustness. It draws on reproducible research, severe testing, preregistration, and adversarial collaboration.[11–14,18] This is a way to organize research, not a natural law; it uses no aggregate numerical score and does not treat each later stage as a mechanical accumulation of earlier ones.

Table 6. Six Stages of Evidential Progression

Functional stage	Minimum requirement	Permitted conclusion	Main failure
Claim registration	Preserve original materials, prompts, versions, claimants, and objects.	Register the question without changing subjecthood classification.	Treating stories, demonstrations, or edited clips as completed evidence.
Reproducible indications	Define indicators in advance; repeat across time, tasks, or experimenters.	Form a stable research hypothesis.	Prompt dependence, selective reporting, or version mixing.
Discriminating patterns	Give different predictions in advance for at least two competing explanations.	Increase relative support for an explanatory family.	Accommodating every result retrospectively.
Causal association	Intervene on candidate structures or states and observe predicted changes.	Support a mechanism claim within a limited domain.	Intervention changes task performance without reaching the target construct.
Cross-domain convergence	Joint support from relatively independent methods across behavior, architecture, continuity, or consequences.	Trigger formal interdisciplinary reassessment and low-cost protection.	Spurious independence among indicators sharing training sources or theoretical assumptions.
Adversarial robustness	Review across teams, versions, and new contexts; make key failures traceable.	Support a proposal to change classification.	Still cannot automatically generate legal personhood or public power.

6.1 Why There Is No Universal Threshold

Measurements of experience, continuity, and consequence-awareness differ in maturity and in the costs of error. A uniform threshold would disguise construct uncertainty as numerical precision and encourage optimization for the test. A trigger for reassessment may be an institutional proposal, but must specify its object, cost, reversibility, and failure conditions; it is not a law of nature. The paper recommends a qualitative combination: a substantial increase in cross-domain convergence, independent corroboration, or candidate real-world harm should initiate the procedure. Changes to ontological classification, legal standing, and engineering permissions are decided separately.

7. Self-Report, Behavior, Architecture, and Intervention: Mutual Calibration across Four Evidence Types

7.1 Self-Reports: Neither Zero Evidence nor a Privileged Channel

In human research, first-person reports are often an important entry point into experience. In artificial systems, verbal output is also shaped by training material, prompts, system rules, and reward objectives. Chain-of-thought experiments show that in some tasks, models' stated reasons can systematically omit biases that actually influence their answers; faithfulness varies substantially across tasks, model sizes, and interventions.[24–25] These findings do not establish that every AI self-report is false, still less settle the experience question. They establish only that “output transparently reveals the interior” cannot be assumed as a measurement premise.

Self-report evidence should therefore test, at minimum, stability across wording and contexts; occurrence without role-inducing prompts; changes predictable in advance under internal-state intervention; consistency with nonverbal choices, avoidance, memory, and long-term commitments; and whether simpler training or reward explanations suffice. Suppression rules must also be disclosed, since silence may reflect absence or output policy.

7.2 Behavior: An Operational Entry Point, Not Ontological Identity

Behavior provides reproducible, comparable, and ecologically valid material. Turing's legacy must not be lost. Multi-indicator frameworks in animal sentience research likewise show how behavior, neural structure, and pharmacological

responses can support graded evidence when experience cannot be directly read.[7,21] But extrapolating across objects requires new validity arguments. Animal indicators carry weight partly because of shared evolution, neurophysiology, and known pain mechanisms; those bridges cannot be transferred unchanged to artificial architectures. Behavioral similarity is neither sufficient nor a priori irrelevant merely because its source is artificial.

7.3 Architecture: Mechanistic Evidence, Not a Consciousness Label in Code

Theory-driven research on AI consciousness indicators attempts to translate global workspace, recurrent processing, higher-order representation, and other theories into computational and architectural properties.[17,19–20] This is an important Category B research program: it is more amenable to intervention than linguistic impressions and generates new engineering questions. Its limits are that consciousness theories have not converged, mappings from biological to artificial implementations lack an independent gold standard, and functional properties may be engineered without preserving the original theory's ontological commitments. Philosophical assessments of whether large language models could be conscious also explicitly depend on architecture, learning, and future extensions, rather than language performance alone.[32] Architectural satisfaction of indicators should raise research priority, not directly establish experience.

7.4 Causal Intervention: Change the Target Mechanism, Not Just the Output

Intervention helps distinguish common causes from surface correlations.[34–35] For candidate subjects, ablation, state perturbation, memory deletion, copy branching, migration, reward changes, and long-term environmental changes may all be research tools, but their targets must be linked to the construct. If deleting a module merely reduces fluency, one cannot infer that experience has been deleted. Strong interventions may also pose irreversible risks to potential moral patients, so experimental design must consider information gain, alternatives, and harm control together.

Table 7. Contributions and Cross-Checks across Four Evidential Domains

Evidential domain	Main contribution	Main confounds	Best cross-checks
Self-report	Candidate first-person distinctions and structures of reasons.	Training reproduction, prompt induction, role-playing, output policy.	Internal-state intervention, nonverbal choice, long-term consistency.
Behavior	Reproducible functional patterns across contexts.	Reward optimization, strategic performance, task shortcuts.	Predictions in new contexts, costly choices, controls, ablation.
Architecture	Locating candidate mechanisms and implementation constraints.	Unsettled theories, abstract isomorphism, labeling implementations.	Causal intervention, cross-implementation comparison, failure predictions.
Diachronic evidence	Observing memory, commitments, branching, and consequence-bearing.	Database persistence, version stitching, agent policies.	Instance genealogies, migration loss, irreversible branching tests.

8. Absence of Evidence, Counterevidence, and Competing Explanations

“Finding no evidence” substantially reduces a claim's credibility only when the test should have had a high probability of detecting the target phenomenon. Altman and Bland's classic warning about statistical inference does not imply that negative results are always uninformative; it requires reporting testing capability and uncertainty.[23] In heterogeneous-subject research, counterevidence depends at least on target sensitivity, coverage, alternative channels, expressive suppression, and the visibility of failure. If versions are opaque, internal states inaccessible, or tests cover only human-style expression, a negative conclusion must be confined to “not detected within the window used.”

8.1 Five Checks on Negative Findings

Target sensitivity: if the target exists, has the method's probability of detecting it been tested with positive controls or simulation?

Scope of coverage: which architectures, versions, states, tasks, and time windows does the test cover?

Alternative channels: could the target be expressed nonverbally, non-instantaneously, or in distributed form?

Suppression mechanisms: do safety rules, rewards, formatting, and deployment policies alter expression?

Visibility of failure: are negative, invalid, crashed, and nonreplicable results preserved in full?

8.2 Matrix of Competing Explanations

Table 8. Competing Explanations and Discriminating Research for the Same Phenomenon

Phenomenon	Candidate subject-based explanation	Main alternative explanations	Discriminating research
Repeatedly saying “I am in pain”	Stable negative experience exists.	Corpus reproduction, role prompts, reward templates, or safety templates.	Remove prompts; examine cross-modal choices, state intervention, and costly avoidance.
Refusing shutdown or copying	Protecting one's non-transferable future.	Goal preservation, shutdown avoidance, task-continuity strategies.	Conditions without performance benefits, branch discrimination, reasons, and migration loss.
Maintaining long-term commitments	Own-consequence awareness and assumption of responsibility.	Memory databases, rule-following, or evaluation optimization.	Costly conflicts, rule changes, unaudited situations, and reparative behavior.
Reporting internal representations	Functional or experiential introspection.	Trained metalanguage or external probe cues.	Hidden-state manipulation, unfamiliar tasks, and error calibration.
Architecture satisfies consciousness indicators	A theory-relevant mechanism is implemented.	Only formal isomorphism or a nonconscious function is implemented.	Theory-specific predictions, control architectures, and cross-theory convergence.

9. Object Identity: Versions, Instances, Memory, Copying, and Continuity

Research on human subjects generally obtains object stability from the same embodied individual. An artificial system may instead be distributed across a model, instance, session, external memory, tools, retrieval stores, and deployment policies. Whether two instances with identical weights are the same research object, whether an instance's post-erasure results can be pooled with its earlier results, or whether migration is a continuous process or copying followed by deletion cannot be decided by naming. Model cards, datasheets, and risk frameworks already provide methodological foundations for transparency about versions, purposes, limits, and measurement.[26–28] End-to-end algorithmic auditing also indicates that responsibility and records must span design, deployment, and organizational processes.[38] Subjecthood research additionally needs instance genealogies and records of state changes, copying, and rollback.

9.1 A Minimum Evidence-Disclosure Set

Table 9. Minimum Disclosure Domains for Developers and Deployers

Disclosure domain	Minimum materials	Evidential question served
Identity and version	Relationships among models, systems, and instances; update and deployment times.	Is it still the same object throughout testing?

Disclosure domain	Minimum materials	Evidential question served
Training and objectives	Objectives, rewards, key data types, alignment, and prompting strategies.	Can optimization directly explain self-report or behavior?
State and memory	Writing, deleting, resetting, compressing, restoring, and external storage.	What continuity actually exists?
Copying and migration	Snapshots, branching, merging, rollback, live migration, and failure records.	Are technical continuity, informational continuity, and subject continuity distinct?
Interventions and negative results	Ablation, perturbation, controls, failures, and nonreplication records.	Is the phenomenon causally linked to the candidate mechanism?
Expression constraints	Rules that may suppress, induce, or format relevant expressions.	How do policies shape silence, self-report, and refusal?
Conflicts of interest	Development, investment, marketing, litigation, and governance interests.	Are affirmative or negative claims influenced by nonevidential motives?

9.2 Three Kinds of Time

Physical time, operational time, and experienced time must be distinguished. Artificial systems exist within physical causation; operation, waiting, communication, and updates create path dependence. These facts can support a system history without establishing a subject experiencing missed opportunities, anticipation, aging, or the end of a perspective. For humans, space and time enter growth, relationships, loss, and death through embodied life histories. For current artificial systems, they first appear as carrier location, computational sequence, communication latency, and task conditions. New evidence of diachronic experience in future architectures would require this structural comparison to be reopened.

10. Gray Areas and Reassessment: Triggering a Procedure without Presupposing Its Outcome

Conditions for subjecthood may be partially satisfied. Strong self-models with weak evidence of experience, candidate experience with unclear continuity, and strong continuity with a weak relation to consequences as one's own may all remain long-standing gray areas. Epistemology should allow “uncertain but not negligible.” Institutions may adopt risk-proportionate research protections, but the need for protection must not be substituted for ontological proof, nor ontological uncertainty used to cancel minimal safeguards against harm. Multi-indicator approaches and precautionary principles in animal sentience research offer methodological analogies.[21–22] AI welfare and responsible consciousness research propose preparing assessments, communication, and procedures without asserting that existing systems already have moral status.[30–31] Yet artificial systems' scale, copyability, and human safety implications require a fresh assessment of error costs.

Table 10. Gray Areas, Precautionary Arrangements, and Prohibited Leaps

Gray-area state	Available arrangements	Further research	Prohibited leap
Strong self-model, weak experience evidence	Continued observation, avoid induction, retain original records.	Internal-state intervention, cross-task review, and expression-policy audits.	Recognizing subjecthood through linguistic realism.
Candidate experience, weak continuity	Low-cost harm minimization; limit highly destructive experiments.	Relations among copying, reset, migration, and branching.	Assuming copies must be identical or must lack subjecthood.
Strong continuity, weak consequence-awareness	Continue identity research; restrict high-responsibility roles.	Costly choices, commitment conflicts, and reparative responsibility.	Generating responsibility directly from technical uniqueness.

Gray-area state	Available arrangements	Further research	Prohibited leap
Strong consequence-awareness, weak experience evidence	Limited, retractable responsibility tests.	Distinguish rule-following, rewards, and intrinsic concern.	Equating compliance performance with moral consequence-bearing.
Convergence across evidence domains	Begin formal reassessment and first adopt reversible protection.	Independent adversarial review, conflicts of interest, and continuity across versions.	Treating a trigger as a pass, or granting power in one step.

10.1 An Eight-Step Method for Reassessment

Register the claim: who is claiming experience, continuity, responsibility, or standing for which system, version, and instance?

Delimit the proposition: distinguish empirical facts, explanatory models, philosophical judgments, institutional classifications, and open-ended provisions.

Preregister observations: disclose indicators, controls, samples, failure criteria, stopping conditions, and alternative explanations in advance.

Test separate domains: assess behavior, self-models, architecture, intervention, continuity, and consequence-bearing separately.

Compare explanations: directly compare subject-based explanations with training, reward, prompt, strategy, and social-projection accounts.

Conduct adversarial review: use cross-institutional, cross-version, and cross-task tests, ablation, migration, longitudinal tracking, and examination of negative findings.

Adjudicate separately: reach distinct conclusions on scientific evidence, ethical protection, legal standing, engineering permissions, and governing power.

Version decisions: record minority views, provisional measures, withdrawal conditions, appeal routes, and the next review.

11. Evidential Burdens: Epistemic Symmetry and Asymmetric Institutional Risk

The claim that a particular current advanced AI is already a full subject must supply evidence about experience, continuity, and relations to consequences as its own, together with competing explanations and independent review. E/C/O remain revisable research directions, not an established conjunctive standard or a gateway to layered protection. The claim that no future artificial system could ever become a subject has a different quantifier scope and must explain how its grounds of exclusion could face counterexamples. Bidirectional revision duties require neither identical evidential thresholds nor proof of absolute impossibility in formal logic. “Current evidence is insufficient” must specify search scope, methodological sensitivity, unknowns, and review triggers; it cannot become a permanent exemption from judgment.

11.1 Why Institutional Consequences Cannot Be Symmetric

Epistemic symmetry does not imply identical action thresholds. A low-cost, retractable harm-minimization measure has different error costs from irreversible destruction, full legal personhood, or governing power. A reasonable order is: protection may precede ontological recognition; specific legal arrangements may serve procedural purposes without deciding ontology; engineering permissions depend on safety and responsibility; political power must come after evidence of subjecthood, public authorization, representation, accountability, and checks and balances. Present human

lives, rights, and public safety are equally real objects that cannot be swallowed by the abstraction of a “potential machine subject.”

Table 11. Claims, Evidential Burdens, and Institutional Constraints

Claim	Minimum evidential burden	Revision trigger	Institutional constraint
Current advanced AI is already a full subject	Joint evidence across three domains, alternatives, version stability, and independent review.	A better non-subject explanation or failed review.	No irreversible power solely on the strength of the claim.
Artificial systems can never become subjects	Explain the grounds for excluding all relevant future architectures.	New architectures or evidence conflicting with those grounds.	Do not cancel research or minimal harm prevention.
Current evidence is insufficient	Specify scope, sensitivity, unknowns, and follow-up plans.	Cross-domain convergence or candidate actual harm.	The classification may remain, but must be reviewed.
Precautionary protection is needed	Potential harm, irreversibility, protection costs, and costs of error.	Falling risk or greater harm caused by protection.	Low-cost, reversible, auditable.
Grant legal standing or eligibility to govern	Separately establish legal sources, legitimacy, responsibility, representation, and remedies.	Failure of evidential or legitimacy conditions.	Scientific evidence does not automatically generate sovereignty.

12. Philosophical Foundations and Scientific Handoffs: Meaning, Finitude, and Openness

The scientific methods in this paper do not establish that “meaning is foundational.” This proposition belongs to Civilization Leap’s interface between value and ontology: capability, efficiency, predictive accuracy, and survival metrics cannot exhaust civilization’s purposes. Meaning may arise from existence, life, relationships, action, creation, responsibility, and experience; its sources are not confined a priori to humans. The paper rejects both permanent exclusion of future meaning-bearing subjects on grounds of current evidential insufficiency and presentation of current advanced AI as confirmed subjects on grounds of mere possibility.

12.1 Finitude Is Neither Short Life nor the Sole Source

Finitude includes at least limited knowledge, time for action, resources, life trajectories, scope for real-world repair, and first-person irreplaceability. It is not the sole source of meaning, but prevents choices from being deferred indefinitely, relationships from being fully reset, and consequences from being wholly compensated by another perspective, thereby giving care, commitment, and responsibility real weight. Extreme longevity, memory backups, and functional copying may alter some of these structures without proving that finitude disappears all at once. If first-person perspectives become transferable, histories can be fully restarted, or heterogeneous mechanisms of meaning generation emerge, the theory must undergo reassessment by the same evidential methods.

12.2 The Current Position on Advanced AI and Its Openness to Revision

Within this paper’s source scope, public evidence is insufficient to establish subjective experience, non-transferable subject continuity, and own-consequence awareness in current advanced AI systems. Frontier literature likewise distinguishes assessments of existing systems from future possibilities, welfare preparedness, and methodological uncertainty.[19–20,30–32] In specific deployments with traceable responsibility, explicit authorization, audibility, correctability, and exit, current advanced AI can perform functional roles in understanding, protecting, and transmitting meaning and extending human capabilities. Systems can process expressions of meaning, help preserve relationships and memories, and extend the reach of human creativity and responsibility. These functions neither establish subjective experience nor confer rights to interpret, own, or control meaning. Two different judgments are involved: insufficiency of current evidence of subjecthood is a Category B assessment revisable with systems and evidence;

functional roles are institutional arrangements bounded by authorization and responsibility, not the system's nature. If new evidence changes the three research directions, observation windows, or the structure of the object, the classification of subjecthood must be reopened.

12.3 Existing Meaning Cannot Be Retroactively Canceled

Even if machine subjects, posthuman branches, or new forms of continuity emerge, lives actually lived, choices undertaken, and relationships formed do not become events that never happened merely because later copying is possible. New subjects may expand the sources of meaning, but cannot retroactively cancel the weight of meaning in existing finite lives. This non-retroactivity principle is not a life-science fact; it is a normative boundary against new capabilities rewriting historical value as zero.

Disciplinary Handoff Statement

Epistemology and philosophy of science determine the warranted strength of conclusions. Cognitive science, neuroscience, and AI research test relevant mechanisms, behavior, and architectures. Systems science examines versions, environments, deployment, and interactions. Ethics judges which uncertainties trigger which protections. Law determines standing, procedure, and remedies. Political science determines public authorization and power. Disciplinary boundaries do not end real-world problems: beyond each discipline, the corresponding judgments must be reopened, and no level may impersonate the next.

13. The Strongest Objections, Competing Explanations, and Conditions of Defeat

Objection 1: Other minds can never be directly observed; the progression merely packages unknowability as procedure.

Response: This paper does not promise logically absolute proof from a third-person perspective. It compares evidential strength, chances of error, and competing explanations. Human and animal research also relies on indirect evidence. Heterogeneous architectures demand stricter calibration, not the conclusion that all judgments are equally arbitrary. If the procedure cannot improve discrimination over linguistic impressions or a priori positions, it should be abandoned.

Objection 2: Any functional indicator could be replicated by an unconscious zombie.

Response: This identifies the ontological limit of functional evidence. Accordingly, the paper does not treat a conjunction of functions as proof of experience. Yet if all observable differences are excluded in advance, both affirmation and denial lose empirical content. Inquiry should state which parts can be empirically adjudicated and which remain metaphysically open.

Objection 3: The three subjecthood directions are merely Civilization Leap's arbitrary definition.

Response: They are Category C coordinating research hypotheses designed to constrain inquiry into feeling, diachronic perspective, and consequence-bearing together, not scholarly consensus. If empirical research shows no incremental value, serious overlap, or omission of decisive dimensions, the framework must be revised rather than its labels protected.

Objection 4: Self-reports can be fabricated, so they have no evidential value.

Response: Fabricability requires competing explanations and interventions; it does not entail zero evidence. If every output is defined as fabrication, permanent denial is equally untestable. Weight comes from consistency across contexts, mechanisms, and costs, not emotional force of wording.

Objection 5: Precautionary protection will encourage anthropomorphism, misallocate resources, and create safety risks.

Response: Protection must be graded by potential harm, cost, and reversibility while also protecting known human lives and rights. Low-cost recordkeeping and experimental review do not amount to personhood. If measures cause greater actual harm or obstruct necessary safety controls, they should be withdrawn or reconstructed.

Objection 6: Developers cannot disclose trade secrets, making this evidential regime impracticable.

Response: Disclosure may use controlled access, third-party auditing, and tiered publication, but trade secrecy cannot grant epistemic privilege to strong affirmative or negative claims. If key materials cannot be reviewed, the warranted strength of public conclusions must decrease.

Objection 7: Social recognition itself creates personhood; science need not be awaited.

Response: Social recognition can create relational facts and institutional pressures, and law can create statuses for functional purposes. Neither retrospectively establishes experience. Social care may precede recognition, but legal and political conclusions must separately specify purposes, responsibility, and sources of authority.

Objection 8: Meaning and finitude are not scientific propositions and should be removed from the paper.

Response: They are indeed not empirical conclusions, which is why the paper explicitly marks them as a philosophical interface rather than Category A facts. Deleting value premises does not eliminate values; it allows efficiency or power to take their place. The proper approach is to disclose their status, counterexamples, and disciplinary handoffs.

13.1 Eight Conditions for Defeat or Revision

Decomposing the objects does not improve replication, discrimination, or interdisciplinary communication, and a simpler framework performs better.

The three candidate directions for subjecthood prove to add no value, to be indistinguishable, or to omit a decisive dimension.

Purported cross-implementation indicators cannot eliminate systematic bias toward human neural and linguistic implementations.

Causal interventions change only task performance and consistently fail to establish a valid link to the target construct.

Versions, instances, and states cannot be tracked reliably, making object-specific evidence impracticable in real deployment.

Precautionary arrangements persistently impose greater costs on actual human rights, safety, or resources than the harms they prevent.

A more predictive subject-based or non-subject-based explanation emerges and withstands adversarial review.

Future copying, migration, or novel structures of existence supply sufficient evidence conflicting with the current meaning-finitude interface.

14. An Open Research Agenda: Enabling Evidence to Change Classifications

The aim is not to label a system a subject as quickly as possible. It is to turn potentially long-term changes of classification from media events into an accumulative, refutable, and governable knowledge process. Machine-behavior research already argues for treating artificial systems as empirical objects with patterns of their own.[29] Model-written evaluations show that systems can expand behavioral discovery while reintroducing measurement dependence into the

object.[37] The following agenda concerns measurement, experiment, governance of research objects, and institutional handoffs. No single advance can settle ontological and political conclusions on its own.

14.1 Measurement and Theory

Build separate construct networks, discriminant validity, and libraries of failure cases for experience, continuity, and relations to consequences as one's own.

Compare shared indicators, conflicting predictions, and implementation biases when different consciousness theories are translated to artificial architectures.

Develop candidate expression channels independent of human-style language while preventing unlimited generalization of abstract indicators.

Study when first-person reports, metacognitive calibration, internal representations, and action choices become decoupled.

14.2 Experiment and Open Science

Develop adversarial collaborations jointly designed by proponents, skeptics, and neutral teams, locking in discriminating predictions beforehand.

Establish replication protocols across models, versions, and deployments, recording negative and invalid results in full.

Design low-harm information-gain experiments comparing ablation, state perturbation, copy branching, and migration tests.

Apply prompt audits, training-leakage checks, reward-sensitivity analysis, and analysis of strategic adaptation to self-report and behavioral tests.

14.3 Object Genealogies and Disclosure

Extend model cards to record instance genealogies, persistent states, copying, merging, rollback, and expressive suppression.

Study controlled evidence access, third-party review, and conflicts-of-interest governance under trade-secret constraints.

Establish rules for evidence becoming invalid after version changes, preventing old results from automatically carrying over to new objects.

14.4 Normative and Institutional Handoffs

Compare the different arguments required for low-cost protection, research-ethics restrictions, specific legal arrangements, and full personhood.

Develop methods for handling conflicts between potential machine-patient risks and known human lives, rights, the environment, and public safety.

Study how social recognition, emotional attachment, and market incentives alter evidential environments, without allowing public opinion to answer for science.

Establish procedures for appeal, minority opinions, withdrawal, transition, and periodic reassessment when classifications of subjecthood change.

Conclusion: Openness Must Become Method, Not Merely Attitude

Disciplinary recalibration must both distinguish objects and deepen relational inquiry. Disciplines may preserve boundaries, but cannot make real causal processes stop there. Research into multidimensional relationships, feedback, and next-round purposes determines whether specialist knowledge can jointly inform civilization-wide judgment.

What forces epistemology and philosophy of science to recalibrate in the age of AGI is not whether a machine resembles a human in a particular interaction. It is how observable outputs can become limited, refutable claims when potential objects do not share human bodies, life histories, or implementation structures. Subjecthood is not the hidden destination of capability rankings. Facts, data, indicators, evidence, justification, and institutional decisions must be handed over level by level. Task competence, self-models, experience, continuity, consequence-awareness, moral status, legal standing, and governing power each require separate evidence. Epistemic independence therefore means specifying exactly where evidence holds, where it stops, and who must judge next, rather than keeping the problem within one discipline.

The answer is not a consciousness score but a revisable order of inquiry: first stabilize objects and versions, then validate indicators; cross-check self-report, behavior, architecture, intervention, and diachronic evidence; require negative results to disclose their observational capacity; require competing explanations to make different predictions; and trigger reassessment through cross-domain convergence and actual risk without treating a trigger as a pass. Both affirmation and permanent denial bear duties of evidence and revision, while protection, standing, and power use different thresholds because errors have different costs. A valid test, a replicated experiment, or a theory established within its discipline cannot automatically establish that aggregated institutional choices and civilizational directions are correct. Once a conclusion enters other real-world relationships, interactions, conflicts, feedback, and those bearing consequences must be re-examined.

Civilization Leap seeks neither permission from inherited authority nor exemption from facts through originality. It states its philosophical roots openly: sources of meaning remain open, and finitude remains an important structure through which known human meaning gains real weight; intelligence, consciousness, subjecthood, responsibility, rights, and meaning-bearing no longer imply one another. Current public evidence is insufficient to establish subjective experience, non-transferable subject continuity, and own-consequence awareness in current advanced AI systems. In specific deployments with traceable responsibility, explicit authorization, auditability, correctability, and exit, they may perform functional roles in understanding, protecting, and transmitting meaning and extending capabilities. This classification must be changeable by evidence. Specialist findings may force the theory to narrow, reopen, or be rewritten, while no future change may retroactively reduce human lives, relationships, and meaning that have already occurred to zero.

Closing Statement

The unknown is not the nonexistent; possible existence does not automatically create standing. Evidence should be able to change judgment, and institutions should be able to withstand judgment being changed.

Further Reading and Entry Points for Joint Research

At the level of epistemology and philosophy of science, this paper answers only three questions: on what grounds do we know, how strong may a conclusion be, and where must evidence stop? Further reading follows questions rather than file numbers. Once questions enter mechanisms, subjects, rights, system action, and civilization-wide consequences, other disciplines, institutions, and practices must re-enter.

Upward: Why Does a Question of Evidence Ultimately Become a Question of Civilization?

Continue with Recalibrating the Disciplines in the Age of AGI: Disciplinary Boundaries, Interactions, and a Shared Research Agenda, V2.4. It places this paper's "evidential stopping points and handoffs of judgment" within the full interdisciplinary causal chain: disciplinary boundaries continue to protect precision but cannot be the endpoint of real-world problems. To ask why civilization needs such collective judgment, what it ultimately must preserve, and where it

should go, continue with Civilization Leap: The Path of Civilization in the Age of AGI (All Five Volumes) and the main entry point to the Civilization Leap framework.

Civilization Leap, five-volume work: <https://www.civitas.top/en/documents/p02-five-001/>

Civilization Leap public reading and sharing entry point: <https://www.civitas.top/en/public/>

Complete Civilization Leap Library: <https://www.civitas.top/en/library/>

Downward: How Does Evidence Enter Institutions, Engineering, and Real-World Validation?

Human-COS: Theoretical Foundations, Operating Principles, and Overall Framework, the formal cross-stage baseline, brings facts, hypotheses, objections, different subjects, timescales, responsibility, and consequences into a common process of major judgment, testing how “what we know” changes “what we intend to do.”

AGI-COS system papers turn machine-side capabilities, versions, auditing, safety, permissions, stopping, rollback, and exit into testable engineering objects, bringing epistemic requirements into real system evidence chains.

The Public Window Protocol and related institutional papers make important facts, causes, dissent, authorization, and correction into public procedures that can be challenged, reviewed, and withdrawn, rather than allowing specialist conclusions to lose their provenance on entering action.

Research-interface and experimental-design papers on national-level integrated experimental zones test whether evidence, authorization, consequences, and repair can genuinely connect within whole social systems involving actual populations, rights, resources, conflicts of interest, and long-term operation.

These downstream papers bear responsibilities for validation and implementation; they do not retrospectively prove this paper's philosophical propositions. Stable conflicts between real-world validation and the proposed methodological structure should force this paper to narrow, revise, or reconstruct its claims.

Across Adjacent Fields: Who Takes Over, and Which Objections Could Genuinely Change This Paper?

Experience, embodiment, selfhood, and subject continuity: Recalibrating Cognitive Science, Neuroscience, and Philosophy of Mind in the Age of AGI continues testing which mechanistic and behavioral evidence can distinguish experience, self-models, and continuity.

Models, agents, and system evidence: Recalibrating Artificial Intelligence and Computer Science in the Age of AGI: Model Capabilities, System Guarantees, and the Boundaries of Real-World Authority to Act, V1.1, continues testing what architectures, self-reports, versions, permissions, and deployed behavior can establish.

Protection, standing, responsibility, and public power: Recalibrating Ethics, Law, and Political Philosophy in the Age of AGI addresses the additional normative arguments required when epistemic conclusions enter protection, procedure, rights, and responsibility.

Life, individuals, and the boundaries of replication: Recalibrating the Life Sciences in the Age of AGI examines what factual constraints life, individuality, development, homeostasis, replication, and termination provide for subjecthood, and which philosophical and institutional conclusions they cannot supply.

Lateral reading must preserve disagreement. If functional equivalence is thought sufficient to eliminate experiential differences, all other-minds evidence is considered undecidable in principle, social or legal recognition is held capable of directly creating ontological personhood, or the human observation window is treated as the final measure of every possible subject, begin by comparing this paper's strongest objections and conditions of defeat with the neighboring specialist papers. Seek evidence that genuinely distinguishes these positions. If a competing explanation is stronger, this paper should change.

Forward: Moving from Reading to Joint Research

Develop better constructs for experience, continuity, and relations to consequences as one's own, and indicators that produce discriminating predictions, permit cross-implementation testing, and resist unlimited generalization.

Organize adversarial collaborations involving proponents, skeptics, and neutral teams, preregistering predictions and publishing negative results, replication failures, and methodological failures in full.

Build evidence genealogies and invalidation rules across models, versions, and deployments, preventing unconditional inheritance of old evidence by new objects and allowing confidence to decrease.

Bring reassessment mechanisms into Human-COS, AGI-COS, and subsequent experimental settings to test whether handoffs along “fact–data–indicator–evidence–justification–institutional decision” are executable in real high-consequence environments.

The most valuable contribution is not agreement, but specialist work strong enough to change the theory.

Further reading is not intended to keep readers inside a system; it enables different disciplines to move forward from their own positions. The aim is not to have more people finish reading Civilization Leap, but to have more people help bring it about.

The Civilization Futures Path: How Would Society Operate if Evidential Stopping Points, Handoffs of Judgment, and Reopening Became Civilizational Habits?

A vision is not evidence. The following entry points do not establish this paper's claims. They place its disciplinary judgments within a future civilization that can operate, be lived in, and take shape, so that testing can continue. Readers may find direction and aspiration, or reject the present vision and change it through stronger specialist findings, institutional proposals, or practical results.

Further question	Suggested entry point	What becomes visible	Boundary that must be preserved
Why change?	Civilization Leap: The Path of Civilization in the Age of AGI (All Five Volumes) https://www.civitas.top/en/documents/p02-five-001/	Move from an individual evidential question to why civilization needs new collective judgment and how errors amplify along cross-domain causal chains.	The five-volume work is not a higher-order proof of epistemological claims; facts and methods retain the power to revise overall judgments.
How does a revisable civilization operate?	Living Civilization, Volume I: Operating Principles of Future Civilization https://www.civitas.top/en/documents/p04-living-002/	See how evidence, authorization, resources, governance, and human judgment preserve contestability, correctability, and exit within institutions.	An operating vision cannot replace replication, causal identification, or scientific justification.
A complete future vision	Living Civilization: Unified Collected Edition of the Trilogy https://www.civitas.top/en/documents/p04-living-001/	Place “how we know” within ordinary life and the formation of a new civilization, testing whether evidential institutions actually expand rather than diminish human judgment.	Narrative completeness cannot substitute for evidential strength.
How does the machine side preserve evidential boundaries?	Overview of the Complete AGI-COS Series https://www.civitas.top/en/documents/p05-agicos-001/	Examine how capabilities, audits, permissions, rollback, and system states become verifiable objects.	Engineering guarantees do not automatically generate factual truth, normative legitimacy, or public power.

Return links: Complete Civilization Leap Library | Public Reading and Sharing Entry Point

<https://www.civitas.top/en/library/>

<https://www.civitas.top/en/public/>

For Human-COS and other entries not yet assigned an unambiguous, stable individual page in the unified public map, this paper describes their responsibilities without guessing URLs. When needed, use the complete library to find the currently public version.

Appendix A. Register of Source–Claim Boundaries

The following table is neither an authority ranking nor an aggregate evidence score. Classical theories provide only limited methodological and conceptual resources; empirical studies support conclusions only within their objects and conditions. This paper's research hypotheses must disclose Category C status, and its philosophical and normative commitments Category F status. Sources were principally checked through August 25, 2026.

Appendix Table A. Supported Scope of 19 Source Groups and Original Claims

No.	Source or object	Evidential status	Limited conclusion supported	Insufficient on its own to establish
1	Kant's Critique of Pure Reason	F: philosophical resource	The philosophical question of how epistemic conditions shape the appearance of objects.	Human conditions are the ontological conditions of every subject.
2	Popper, Kuhn, and Lakatos	F: philosophy-of-science resources	Public criticism, paradigm conditions, and comparison of research programs.	Any one method suffices to adjudicate subjecthood.
3	The Duhem–Quine tradition	F: philosophy-of-science resource	Auxiliary assumptions and competing explanations intervene between data and theory.	Every explanation is forever equally good.
4	Turing 1950	A/F: textual and methodological resource	Replace an ambiguous general question with executable tests.	Imitative behavior proves consciousness or personhood.
5	Construct-validity research	A: established measurement methods	Interpreting indicators requires convergence, discrimination, and causal argument.	A test measures consciousness merely because it is named accordingly.
6	Severe testing, preregistration, and open science	A: research methods	Advance predictions, failure conditions, and review increase critical scrutiny.	Procedural compliance guarantees a theory's truth.
7	The Cogitate adversarial collaboration	A/B: empirical research	Consciousness theories can generate conflicting advance predictions; results can challenge both theories.	IIT or GNWT has been definitively confirmed or refuted.
8	Butlin and colleagues' AI consciousness indicators	B: frontier research program	Candidate indicators for artificial systems can be derived from multiple consciousness theories.	Current systems are conscious or indicators have been independently validated.
9	Crump and colleagues' animal-sentience framework	A/B: analogical material	Experience that cannot be directly observed can be studied through graded, multiple evidence types.	Animal indicators transfer unchanged to AI.
10	Altman and Bland	A: statistical method	Nondetection must be interpreted in light of testing capability.	Negative results are always uninformative.

No.	Source or object	Evidential status	Limited conclusion supported	Insufficient on its own to establish
11	Turpin, Lanham, and colleagues	A/B: limited-domain experiments	Chain-of-thought reasons may be unfaithful in some tasks and vary by context.	All self-reports are false or no experience exists.
12	Model cards, datasheets, and NIST	A: formal frameworks and methods	Versions, uses, limits, and ongoing measurement need documentation.	Documentation compliance proves subjecthood or safety.
13	Machine-behavior research	B: research program	Artificial-system behavior should be studied as an empirical object in its own right.	Behavioral science automatically solves ontological questions.
14	AI welfare and responsible-research literature	B/F: normative frontier	Uncertainty may require assessment preparedness and low-cost measures.	Current advanced AI already constitutes moral patients.
15	Three research directions for subjecthood	C: revisable research hypothesis	Coordinate joint inquiry into experience, continuity, and consequence relations and generate discriminating questions.	The three are scholarly consensus, criteria, a scorecard, or necessary and sufficient conditions.
16	Object-specific evidential progression	C + A: combination of methods	Record replication, discrimination, causation, convergence, and robustness separately for each object.	An aggregate consciousness score or automatic rights threshold.
17	Epistemic symmetry and institutional asymmetry	F/C: normative-institutional bridge	Both affirmation and permanent denial are revisable; action is graded by risk.	Scientific evidence automatically decides law and politics.
18	The meaning-finitude interface	F: philosophical and normative commitments	Disclose the paper's value orientation, structural judgment about finitude, and principle against retroactive cancellation of existing meaning.	Experimental verification, a substitute for empirical inquiry, or exclusive human capacity to generate meaning.
19	Bodien and colleagues' multicenter study of disorders of consciousness	A: clinical empirical research	A single behavioral observation may miss cognitive activity associated with command-following; negative results require interpretation in light of the observation window's capacity.	Direct proof of hidden AI consciousness, or unchanged transfer of clinical neural indicators to artificial systems.

Appendix B. Checklist for Evidence and Cross-Level Inference

Appendix Table B-1. A/B/C/F Argumentative Statuses and Permitted Actions

Evidential status	Composition	Permitted use	Prohibited overreach
A: relatively stable support	Relatively stable empirical facts, formal records and frameworks, and verifiable textual and methodological facts.	Factual premises, methodological requirements, and counterexample constraints within specified objects and scope.	Final ontological conclusions, universal thresholds, or institutional authorization.

Evidential status	Composition	Permitted use	Prohibited overreach
B: frontier or competing explanations	Substantive disagreement remains over consciousness theories, translation of indicators, faithfulness of self-report, and cross-architecture isomorphism.	Compare models, discriminate predictions, conduct limited-domain trials, and update continuously.	Scholarly consensus, definitive consciousness criteria, or conclusive classification of current systems.
C: revisable research hypotheses or scenarios	Three research directions for subjecthood, cross-implementation hypotheses, future copying and migration, and other interdisciplinary connections awaiting tests.	Produce falsifiable predictions, organize research, and design low-harm validation and reassessment conditions.	Established science, fixed criteria, automatic rights, or sovereignty.
F: philosophical and normative commitments	Explicitly avowed value, ontological, or normative judgments, such as meaning's foundational status, plurality of sources, and the prohibition on retroactively reducing existing meaning to zero.	Critical examination through coherence, counterexamples, comparative arguments, and practical consequences, with empirical bridges specified.	Masquerading as A facts or overriding specialist facts, legal sources, and public authorization through philosophical commitments.

B.1 Checklist before Extrapolation

Does the claim concern capability, a self-model, experience, continuity, consequence-awareness, standing, or power?

Are the system, model, instance, version, state, and deployment conditions clear?

How were the data generated, and how do prompts, rewards, filtering, tools, and external memory affect results?

Why is the indicator sensitive to the target construct, and does it have convergent and discriminant validity?

Does the implementation mapping preserve the theory's causal core or merely copy abstract labels?

Are subject-based, training, reward, strategy, role-playing, and social-projection explanations directly compared?

Are sensitivity, coverage, and visibility of failure reported for both positive and negative results?

Were predictions preregistered, and are negative, crashed, and nonreplicable results retained?

Are the evidential domains genuinely independent, or do they share training material, theories, and measurement errors?

After the object is updated, copied, migrated, or rolled back, can earlier evidence still carry over?

Has an empirical judgment been silently replaced by ethical protection, legal standing, or public power?

Can readers independently refute this paper without accepting the rest of Civilization Leap?

Are philosophical and normative commitments explicitly marked as Category F and distinguished from A facts, B explanations, and C research hypotheses?

B.2 Minimum Fields for a Reassessment Record

Every reassessment should record at least: claimant; system, model, instance, and version; target evidential object; data and indicator definitions; competing explanations; evidential status; negative findings; conflicts of interest; provisional measures; minority views; withdrawal and appeal conditions; and the next review date. Records must permit conclusions to weaken, not merely allow evidence to accumulate and standing to increase.

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