

CONSCIOUSNESS SUBJECTIVE TIME AND SHARED REALITY IN A MULTIDIMENSIONAL PROBABILITY FRAMEWORK

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ABSTRACT

How does a field of possibilities become a particular conscious experience, and how do different subjects come to describe a shared world? This conceptual essay develops a multidimensional probability framework that connects these questions without treating speculative metaphysics as established physics. Its strong ontological proposal is that conscious observation participates in the actualization of possibilities across multiple temporal or dimensional domains. A related multiple conscious collapse hypothesis considers whether different subjects could actualize different experiences from a common potential. The essay distinguishes this proposal from a weaker account of context dependent interpretation, which can be investigated without assuming that consciousness changes physical measurement outcomes. Using conceptual analysis and a selective examination of relevant literature, it separates quantum measurement, cognitive probability, subjective time, and social agreement. It introduces a schematic representation of experiential selection, identifies missing definitions in the physical hypothesis, and outlines prospective studies of judgment order, duration estimation, and convergence during dialogue. These studies would assess the psychological component and would not establish the existence of additional dimensions or consciousness induced quantum collapse. The contribution is a set of explicit conceptual distinctions and evidential requirements for interdisciplinary debate. The framework remains provisional, with its strongest claims awaiting an independently specified mechanism and discriminating physical predictions.

Keywords: Consciousness, Subjective Time, Intersubjectivity, Quantum Cognition, Philosophy Of Mind

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1 Introduction

Two people can encounter the same event and leave with different accounts of what happened. They may disagree about its significance, its duration, or the intentions of those involved. Such differences matter in psychology and in social settings where testimony, communication, and judgment depend on how experience becomes a report. They also invite a deeper question: does consciousness merely interpret an already determinate world, or does it participate in making possibilities determinate?

This essay develops the Quantum Interdimensional Consciousness Framework (QICF), a proposed multidimensional probability account of consciousness. Its starting conjecture is that physical possibilities extend across temporal and dimensional domains, and that conscious observation participates in selecting an experienced actuality. The associated Multiple Conscious Collapse (MCC) hypothesis proposes that different conscious subjects might be associated with different actualizations of a common potential. These are ontological conjectures. Neither follows from the existence of perceptual disagreement, and neither is presented as an established consequence of quantum mechanics.

The contribution is to make the conjectures assessable at distinct levels. A psychological account addresses contextual reports and communication. A newly postulated physical extension, called QICF-D, assigns C_x a measurable effective role in the dynamics of an isolated two-state probe. The suffix D denotes dephasing, not a claim that decoherence solves the measurement problem. This extension supplies assumptions absent from the verbal framework and derives conditional physical predictions from them. It is proposed for criticism and testing; no experimental validation or comprehensive review is claimed.

2 Method and conceptual boundaries

The method is philosophical conceptual analysis supported by a selective examination of literature in philosophy of mind, quantum foundations, and cognitive modeling. Sources were chosen to address specific contrasts: subjective experience versus information processing; physical decoherence versus conscious selection; quantum probability as mathematics versus quantum processes as a biological mechanism; and observable reports versus claims about artificial consciousness. This is a purposive discussion, not a systematic search. No participants, datasets, experiments, or computational fits are reported. For this revision, the purposive discussion was extended to peer-reviewed work from 2023–2024 addressing quantum circuit representations of cognition, conversation-related neural alignment, and measurement of target-specific shared reality. Selection was based on direct relevance to the framework's distinctions and proposed measurements, rather than an exhaustive date-limited search. Publication details and the interpretations of these additions were checked against publisher or author records. No systematic-review coverage or reproducible screening count is claimed. The physical extension is constructed by specifying a nonnegative phenomenological rate in an open-system master equation. Its algebraic consequences are derived analytically. This model-building step is distinct from literature-supported findings and is not evidence that such a coupling exists.

Each proposition is evaluated through four questions. What do its terms refer to? What level of explanation does it address? Which observation would distinguish it from an existing account? What result would require its revision? A concept may be useful for organizing discussion while failing these requirements as a physical theory. This essay therefore uses the word framework for the overall proposal and hypothesis for its stronger causal claims.

Consciousness here means the presence of subjective experience. A report is an observable statement about experience; it is not identical to experience itself. Chalmers (1995) distinguishes the problem of explaining cognitive functions from the problem of explaining why those functions are accompanied by experience. The framework does not resolve that distinction merely by giving the transition from possibility to experience a name.

3 Background and competing explanations

Quantum measurement offers a vocabulary of possibilities and outcomes, but borrowing that vocabulary does not establish a role for consciousness in physics. Zurek (2003) explains how interaction with an environment suppresses interference between relevant states and supports effectively classical behavior. The physical interaction involved in measurement should not be equated with a person's awareness of a result. Decoherence and a proposed collapse mechanism must also remain conceptually distinct. Consequently, the fact that an observer reports one result supplies no independent evidence that conscious awareness caused its physical occurrence.

Biological quantum proposals face a separate feasibility question. Tegmark (2000) calculated rapid decoherence for particular modeled brain processes and argued against their supporting the proposed quantum computation. Those calculations concern specified systems and assumptions; they do not license a universal assertion that every quantum effect in biology is impossible. Hameroff and Penrose (2014), by contrast, propose orchestrated quantum processes in neuronal microtubules terminated by objective reduction. Their proposal supplies a candidate physical substrate and reduction account. The QICF-D extension below supplies an effective dynamical rule, but no microtubule substrate or objective-reduction mechanism. It does not appropriate the mechanism or evidential status of Orch OR.

Quantum cognition provides a more immediate mathematical comparison. Pothos and Busemeyer (2013) discuss quantum probability as an alternative formalism for context dependent judgments. Wang et al. (2014) examine a specific constraint on question order effects using survey data. These uses of quantum probability do not, by themselves, establish microscopic quantum coherence in the brain. Their relevance here is methodological: a formal account can make constrained predictions, whereas a verbal analogy can accommodate almost any outcome after the fact. Widdows et al. (2023) implement cognitive decision models as quantum circuits while distinguishing their mathematical representation from a claim that brains physically compute with qubits. This strengthens the requirement that QICF separate formal representation from biological mechanism.

An additional comparator is probabilistic inference. Friston (2010) describes the free energy principle as a framework for understanding brain organization and inference. Differences between subjects can therefore be considered through differences in prior expectations and updating, without assuming consciousness changes external physical events. QICF must explain what it adds beyond such accounts. Relabeling a perceptual update as collapse is not an explanatory advance.

Established neuroscience based theories provide further comparators. Dehaene and Changeux (2011) describe conscious access through a global neuronal workspace that makes information available across brain systems. Tononi et al. (2016) approach consciousness through the intrinsic causal organization of its proposed physical substrate. These accounts address different explanatory targets and should not be treated as interchangeable. QICF would need to specify whether it concerns conscious access, phenomenal experience, or both, before a meaningful comparison becomes possible.

A recent adversarial collaboration directly tested preregistered predictions of global neuronal workspace and integrated information theories using several neural recording methods. The results

supported some predictions while challenging important commitments of both theories (Cogitate Consortium et al., 2025). This provides a methodological example for QICF: disagreement between existing theories motivates discriminating tests rather than validating an additional ontology. The study did not test consciousness induced quantum collapse or extra temporal dimensions.

3.1 Systematic comparison and scope of the contribution

Table 1 compares explanatory targets and operational commitments along common criteria. QICF supplies an integrated research agenda; QICF-D additionally postulates a testable awareness-dependent contribution to physical dephasing. Neither has demonstrated predictive superiority. The conditional physical distinction is an effect on a shielded quantum probe, rather than a change only in interpretation or report.

Table 1 Comparison with established accounts

Account	Target and commitments	QICF contribution and unmet requirement
Quantum cognition	Contextual judgments modeled with quantum probability; specified state and measurement operations permit constrained order predictions (Pothos & Busemeyer, 2013; Wang et al., 2014).	Adds a candidate effect on an isolated quantum probe through Equations (1)–(4). Quantum probability models of reports do not imply this physical effect. Behavioral prediction remains a separate comparison.
Probabilistic inference and free energy	Inference and updating under model assumptions; priors, likelihoods, and the particular inference or action model must be specified (Friston, 2010).	QICF-D postulates awareness-linked excess dephasing beyond measured physical noise. A predictive-inference model is a behavioral comparator, not a substitute for the matched physical null.
Global neuronal workspace	Conscious access and broad availability of information, with neural predictions (Dehaene & Changeux, 2011).	Uses conscious-access proxies but supplies no new access mechanism. Must validate the proxy independently and separate awareness from physical disturbance.
Integrated information theory	Consciousness related to intrinsic causal structure of a physical substrate (Tononi et al., 2016).	Defines C_x as an effective rate rather than a measure of intrinsic causal organization. Its dephasing law does not explain phenomenal experience or single-outcome collapse.
Shared reality research	Felt commonality, communication, and interpersonal influence can be measured separately (Rossignac-Milon et al., 2024).	Separates agreement, confidence, and accuracy in a timing-judgment agenda. Must add explanatory or predictive value beyond existing social influence accounts.

4 The proposed multidimensional framework

4.1 Strong ontological hypothesis

The strong QICF hypothesis associates conscious awareness with the actualization of possibilities. Actualization denotes the hypothesized emergence of a determinate physical outcome; experiential selection denotes an individual's interpretation or report. To move beyond a verbal placeholder, the following QICF-D extension defines C_x as an effective, awareness-dependent contribution to a probe's dephasing rate. This is a new modeling assumption, not a deduction from the original conjecture. The historical name Conscious Collapse Field is retained, but the defined quantity is a phenomenological scalar rate field, not a newly discovered fundamental field or a demonstrated collapse mechanism.

An operational rate, a spatial profile, and an interaction rule can make an effective model testable without identifying its microscopic carrier. They cannot establish why consciousness would produce that rate, equate a behavioral proxy with phenomenal experience, or explain the emergence of a unique outcome. QICF-D therefore addresses a restricted physical commitment: whether independently assessed conscious access predicts excess dephasing under matched physical conditions. The additional temporal domains remain separate conjectures. The model uses ordinary forward laboratory time and does not build reverse causation or extra coordinates into Ψ .

The undefined personal frequency variable is excluded from the revised model. Neither identity nor subjective meaning is assigned a frequency, and no resonance law is proposed. If a future study measures neural oscillations, frequency would mean cycles per second (hertz) in a specified recorded signal, with prespecified acquisition, spectral estimation, and artifact controls. Such an optional physiological covariate would not be C_x , a measure of consciousness, or evidence of physical collapse. Removing the undefined variable prevents numerical language from implying a mechanism that has not been specified.

4.1.1 Operational definition and spatial representation

Consider a phase-coherent two-state probe at fixed location r and N observers at locations r_i . Define $a_i(t)$ between 0 and 1 as a prespecified, independently calibrated proxy for conscious access to a task cue. Its scale is fixed before analyzing probe data; it is not a probability that a person possesses consciousness. One implementation uses detection performance together with visibility reports to calibrate an awareness score in a separate session, and a fixed classifier or scoring rule during the probe experiment. Neither probe outcomes nor the estimated coupling may be used to define a_i . Measurement error and misclassification must be incorporated into uncertainty estimates.

For stationary observers, choose the following candidate spatial rate field:

$$C_x(r,t) = g \sum_i w_i a_i(t - d_i/c), \quad w_i = \exp(-d_i/\ell), \quad d_i = |r - r_i|. \quad (1)$$

Here $g \geq 0$ has units s^{-1} , $\ell > 0$ is a candidate spatial scale in metres, c is the speed of light, and w_i is dimensionless. Retarded timing forbids the postulated dependence from preceding the observer's task cue at the probe location. The exponential spatial profile and additive observer rule are explicitly chosen assumptions; no empirical evidence determines this kernel. A first experiment fixes geometry and estimates $\theta = g \exp(-d/\ell)$, because g and ℓ are not separately identifiable at one distance. Separate spatial tests require preregistered distances and one shared kernel, with no post hoc adjustment of ℓ to rescue a failed fit.

This definition gives C_x an operational unit and spatial representation. The inferred physical quantity is excess coherence decay, not a directly detected new carrier. The awareness proxy is a behavioral or neural covariate; the two-state probe supplies the physical dependent variable. Awareness of an already irreversibly recorded probe result is not the manipulation. Observers receive a task-linked cue during the probe's coherent evolution without obtaining which-state information. Thus, the proposed test concerns generic conscious access near the probe, a narrower and newly specified commitment rather than the complete original ontology.

4.1.2 Candidate interaction and dynamical rule

Let ρ be the probe's density matrix and σ_z the Pauli operator defining its calibrated dephasing basis. In a regime with $H = \hbar\omega\sigma_z/2$ and independently characterized phase noise, postulate:

$$d\rho/dt = -(i/\hbar)[H,\rho] + [\gamma_{\text{env}}(t) + C_x(r,t)](\sigma_z\rho\sigma_z - \rho)/2. \quad (2)$$

$\gamma_{\text{env}} \geq 0$ is the environmental dephasing rate in s^{-1} . The C_x term specifies how the candidate quantity couples to the probe: it suppresses off-diagonal coherence in the chosen basis while leaving the corresponding populations unchanged. With externally specified nonnegative rates, this equation defines a completely positive, trace-preserving dephasing evolution of the Lindblad form (Lindblad, 1976). That mathematical framework supports the form of the equation, not the proposed consciousness dependence. The equation does not supply a stochastic single-outcome selection law. Loss of ensemble coherence cannot by itself demonstrate ontological collapse.

The specification is limited to a calibrated two-state system and a stated laboratory regime. It does not provide a universal preferred basis, a microscopic carrier, a field action, or a relativistic account of coupled observers and entangled systems. Retarded timing is a restriction on this candidate dependence, not proof of a complete relativistic or no-signaling theory. These are unresolved physical requirements rather than quantities hidden inside the awareness proxy.

4.1.3 Quantitative consequences and model-specific constraints

For Equation (2), the off-diagonal element obeys $d\rho_{01}/dt = [-i\omega - \gamma_{\text{env}} - C_x]\rho_{01}$. Relative to a physically matched reference condition, the calibrated fringe visibility V therefore gives:

$$R(\tau) = V_{\text{test}}(\tau)/V_{\text{ref}}(\tau) = \exp[-g \Delta A(\tau)], \quad A(\tau) = \int_0^\tau \sum_i w_i a_i(t - d_i/c) dt. \quad (3)$$

A has units seconds and $\Delta A = A_{\text{test}} - A_{\text{ref}}$. Equation (3) assumes the same baseline dephasing and preparation/readout visibility in both conditions. These assumptions must be checked rather than inferred from a favorable effect. Nonzero reference awareness is included in ΔA . For $\Delta A > 0$ and $g > 0$, $R < 1$; an awareness-independent physical null gives $R = 1$ after matched environmental contributions are removed. If the differential awareness score is constant at fixed geometry, $\log R$ is linear in exposure duration, with slope $-\theta \Delta a$. Saturation of the proxy does not license changing the rate law after data collection.

For N observers at the same distance with identical differential awareness exposure and no added conventional disturbance, the additive extension yields:

$$R_N(\tau) = [R_1(\tau)]^N; \quad R_1(2\tau) = [R_1(\tau)]^2. \quad (4)$$

The second relation requires constant differential exposure and a matched baseline across the two durations. The first is a candidate physical restriction on an additive MCC extension, not proof that observers experience different worlds. If one exposure condition is used to estimate θ , the same θ must predict other durations and observer numbers without condition-specific coupling constants. These restrictions differentiate this particular extension from an unconstrained account in which any visibility shift is retrospectively attributed to consciousness. Other mechanisms could nevertheless reproduce them.

For illustration only, an independently estimated $R_1 = 0.98$ at a given exposure would imply $R_2 = 0.9604$ at the same exposure and $R_1(2\tau) = 0.9604$ under the stated assumptions. These numbers are conditional arithmetic examples, not observations, predicted universal effect sizes, or parameter estimates. QICF-D supplies a family of magnitude predictions conditional on g and exposure, rather than deriving a numerical coupling from the original framework. Equation (2) also predicts zero change in computational-basis populations for an initially diagonal state; a reproducible population shift would challenge this pure-dephasing specification.

4.2 Temporal domains

Four labels organize the temporal conjecture. T_1 denotes ordinary sequential time, operationalized in the psychological studies by clock-measured stimulus duration and trial order. T_2 denotes hypothetical reverse temporal ordering; testing it would require evidence distinguishing reverse causation from memory reconstruction and ordinary information transfer. T_3 denotes subjective temporal density, operationalized here as the dimensionless ratio $r = \text{reported duration} / \text{objective duration}$, with confidence and within-person variability recorded separately. T_4 denotes hypothetical parallel temporal domains, for which no independent observable is currently defined. T_1 supplies a reference scale and T_3 supplies a psychological outcome; T_2 and T_4 remain ontological conjectures.

The distinction prevents familiar psychological phenomena from being recruited as evidence for unfamiliar physics. The temporal labels are a taxonomy of questions, not four measured dimensions. A future physical version would need to explain what an additional temporal coordinate changes, how a transition between domains is detected, and why established temporal regularities remain intact. No claim about backward signaling follows from the present account.

Psychological timing research provides a grounded starting point for T_3 . Emotion can alter duration judgments through mechanisms involving arousal and attention (Droit-Volet & Meck, 2007). Temporal cognition also interacts with perception, attention, and memory (Matthews & Meck, 2016). These findings justify studying subjective duration as a dependent variable; they supply no evidence for reverse time or parallel temporal worlds. A useful QICF extension must therefore predict something beyond an already recognized context effect.

4.3 Multiple conscious collapse

MCC extends the conjecture to several subjects. It asks whether different conscious observers, potentially situated in different dimensional domains, could actualize different outcomes from a common potential. This is stronger than saying that observers interpret the same outcome differently. A difference in testimony can arise through attention, memory, language, expectation, or deliberate reporting. It cannot discriminate between these explanations and the MCC ontology.

The original MCC conjecture faces an agreement problem: why do observers agree on durable records if actualizations are independent? QICF-D does not resolve this ontology. Its additive observer rule offers a narrower physical hypothesis, expressed by Equation (4), while preserving the distinction between ensemble dephasing, a single recorded outcome, and multiple interpretations. Agreement in testimony does not test that rule; coherence measurements under independently varied observer exposure would.

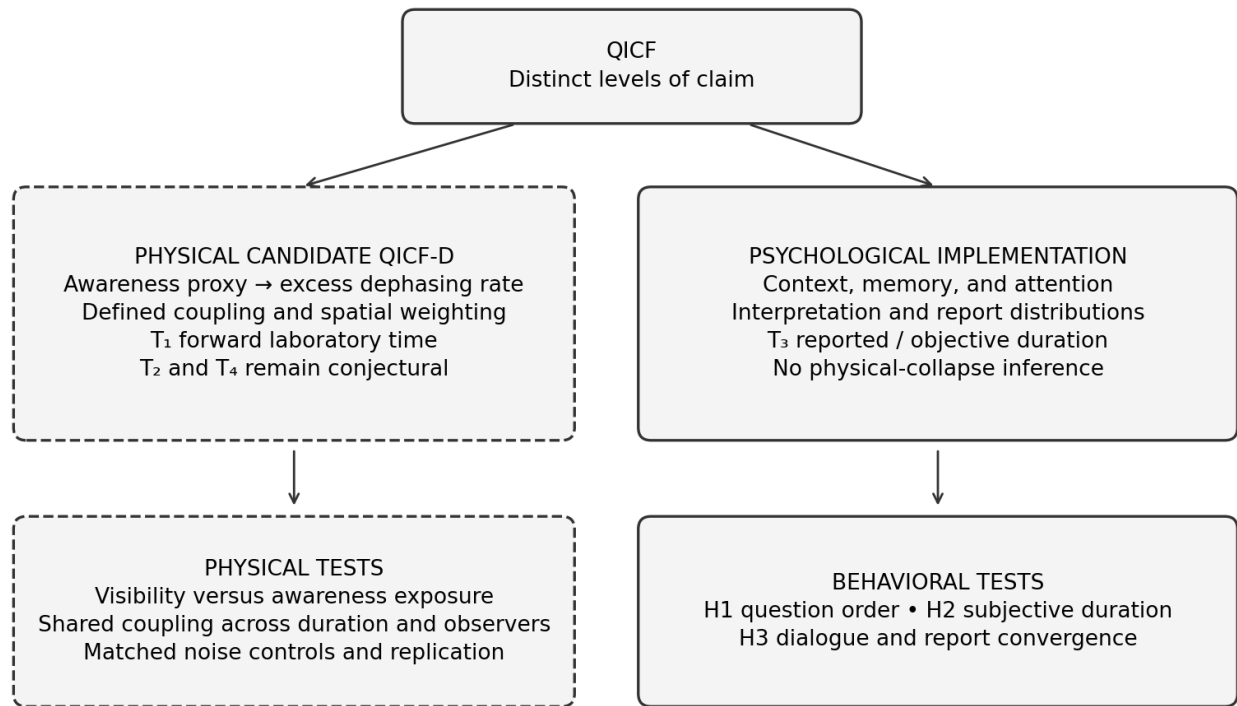
4.4 A weaker experiential representation

For psychological research, experiential selection is represented schematically as $E_i = S(P, K_i, M_i, A_i, t)$. E_i denotes subject i 's interpretation, accessed indirectly through a prespecified report or choice; P is a defined set of response alternatives, not a physical superposition. K_i is randomized contextual information or a recorded contextual rating; M_i is a pre-task expectation or memory score; A_i is attention assessed through task performance; and t indexes trial order or clock time. S denotes a statistical updating relation. Reports are imperfect proxies for experience, so behavioral validation and reliability checks are needed. C_x does not enter this psychological expression.

A minimal implementable candidate uses $p_{ij} = \exp(\eta_{ij}) / \sum_k \exp(\eta_{ik})$, where $\eta_{ij} = \alpha_j + \beta K_j K_i + \beta M_j M_i + \beta A_j A_i + \beta t_j t$, and j indexes prespecified response alternatives. One alternative is the reference category with coefficients fixed to zero for identification. Predictors are coded before fitting, and continuous

predictors are standardized using training data only. E_i is represented by the resulting report distribution. This classical softmax model is a candidate psychological implementation, not a derivation of the physical QICF hypothesis or a novel probability calculus. Its usefulness depends on whether measured contextual dependencies improve held-out prediction over simpler and established models. The framework does not assume that its psychological component must use quantum probability.

Figure 1 Levels of claim and temporal domains



A testable effective rate is not evidence of a new carrier or single-outcome collapse.

Solid boxes show operational psychological constructs; dashed boxes show the proposed QICF-D physical extension and its required tests. Equations (1)–(4) are added candidate assumptions and consequences, not established physical laws. T_2 and T_4 remain untested conjectural labels. The arrows organize the research agenda and do not depict a demonstrated interaction.

5 Shared reality and social science implications

A socially usable account of reality requires more than individual experiential selection. Reports are compared through communication, instruments, records, and conventions about what counts as evidence. The framework proposes examining shared reality as an achieved agreement constrained by those resources. This is an analytical extension of the psychological version, not a deduction from the physical conjecture. Agreement may increase because participants gain information, adopt a common interpretation, conform to authority, or learn how to describe an event.

Consider a hypothetical encounter in which several witnesses view the same ambiguous interaction. Private ratings are first recorded. Participants then exchange accounts and rate the event again. An increase in agreement would not show that they jointly collapsed a quantum state. It would show a change in report distributions that needs explanation. Accuracy must be considered separately from

agreement: a group can converge on a mistaken interpretation. Confidence must likewise be measured separately from both.

This distinction has implications for digitally mediated communication. A shared account may become stable because it is repeatedly presented or endorsed, rather than because it is well supported. The framework directs attention to the transition from private possibility to public certainty. Its practical value would lie in identifying when that transition improves justified understanding and when it obscures unresolved alternatives. It offers no permission to treat external facts as freely chosen by consciousness.

Social neuroscience offers a possible physiological complement to the study of report convergence. Dumas et al. (2010) observed inter-brain synchronization during an interpersonal imitation task. Such synchronization is relevant to interpersonal coordination, but it should not be equated with agreement about facts or a shared conscious field. Any proposed extension to dialogue would require controls for shared sensory input, coordinated movement, and common task timing. Inter-brain synchrony alone would not discriminate MCC from ordinary mechanisms of interaction. More recently, Sievers et al. (2024) found that consensus-building conversation was associated with increased similarity of subsequent brain activity within groups, including during novel related stimuli. This supports studying persistent interpretive alignment; it does not demonstrate a shared collapse field. Rossignac-Milon et al. (2024) developed a target-specific shared reality measure and examined its interpersonal and health-behavior correlates. Their distinction motivates measuring felt shared reality separately from observable agreement, confidence, and accuracy.

6 Prospective evaluation and limits of inference

6.1 Psychological evaluation

Three prospective designs evaluate the weaker component. They introduce explicit auxiliary psychological hypotheses (H1–H3); none is a prediction derived from C_x , T_2 , T_4 , or physical MCC. The signs and planning thresholds below are new commitments proposed for future preregistration, not estimated effects. Similar outcomes can be expected under established accounts. The testable question is whether a constrained implementation predicts new observations better, rather than whether a familiar context effect occurs. Table 2 summarizes the designs.

H1 concerns judgment order. Randomize ambiguous event judgments to $A \rightarrow B$ or $B \rightarrow A$, defining A in advance as a cue expected to increase the salience of an interpretation endorsed by B. The directional hypothesis is $\delta = \Pr(B=\text{yes} \mid A \text{ first}) - \Pr(B=\text{yes} \mid B \text{ first}) > 0$, conditional on successful independent manipulation checks. A 0.10 absolute probability difference is a proposed smallest effect of interest. Fit the candidate in Section 4.4 with coded question position and measured expectation, and compare it with a static classical baseline, a classical sequential-update model, and a prespecified quantum-probability model. The quantum comparator's applicable order constraints should be tested rather than assigning all order effects to quantum cognition (Wang et al., 2014). Failure to predict held-out judgments, or equivalence to an established comparator, would limit the candidate's contribution.

H2 operationalizes T_3 in a prospective timing task in which participants know in advance that they will estimate duration. Keep objective duration constant and randomize full attention versus a concurrent task that diverts attention from timing. The proposed hypothesis is $\Delta = \text{mean}(\log r_{\text{divided}}) - \text{mean}(\log r_{\text{full}}) < 0$. A magnitude of $\log(1.10)$, approximately 0.095, is a proposed smallest effect of interest on the log-ratio scale. This task-specific direction must not be generalized to retrospective timing, where memory demands differ (Matthews & Meck, 2016). A mixed-effects model of $\log r$ would include condition, a prespecified attention-performance measure, expectation, and participant

effects. Compare it with a simpler attention-based timing model and its memory-augmented alternative. The incremental commitment is that expectation adds reproducible predictive information beyond attention; this remains an auxiliary hypothesis, not evidence of another time dimension.

H3 addresses dialogue. Randomize groups to structured reciprocal discussion or a yoked condition receiving the same informational content without reciprocal exchange, matching exposure time and presentation as closely as feasible. Obtain private probability ratings before and after exposure. Define disagreement D as the mean absolute pairwise difference in ratings within a group, on a 0–1 scale. The directional hypothesis is a greater reduction in D after dialogue than after yoked exposure. A 0.05 absolute difference between arms in pre-to-post reduction is a proposed smallest effect of interest. Felt shared reality, measured separately, is predicted to add information about subsequent private report convergence beyond exposure, baseline ratings, and perceived authority. Because such associations can reflect unmeasured social processes, they are not evidence of a new physical field. Use group-level randomization and multilevel analysis; pairwise ratings are not independent samples. Accuracy is scored only for items with a defensible external criterion and is not assumed to improve with agreement.

Table 2 Prospective psychological evaluation plan

Design and measures	Directional auxiliary hypothesis	Comparators and decision criteria
H1 Judgment order Randomized A→B versus B→A; B endorsement, expectation, attention checks.	Prespecified interpretation-priming A increases B endorsement: $\delta > 0$. Planning threshold: $\delta = 0.10$ absolute probability difference.	Static classical, classical sequential-update, and specified quantum-probability models; held-out log score and calibration. Order effects alone do not favor QICF.
H2 Prospective timing Fixed clock duration; full versus divided attention; log r, confidence, within-person variability.	Divided attention reduces mean log r: $\Delta < 0$. Planning magnitude: $ \Delta = \log(1.10) \approx 0.095$. Expectation adds prediction beyond attention.	Attention-only and memory-augmented timing models; held-out duration error and predictive density. No inference about T_2 or T_4 .
H3 Dialogue Reciprocal versus yoked exposure; private ratings, D , felt shared reality, confidence and criterion-based accuracy.	Dialogue produces greater reduction in D . Planning threshold: between-arm difference = 0.05 on the 0–1 scale. Felt shared reality adds predictive information.	Information-only and specified social-influence models; leave-whole-group-out prediction. Convergence may occur without accuracy gains; no inference of MCC.

The thresholds in Table 2 are transparent design choices, not effect sizes reported by the cited literature or constants derived from QICF. They would need justification for the eventual population, task, and measurement reliability before preregistration. A priori power or simulation-based precision planning should target these thresholds, accounting for repeated measures and group clustering. No sample size or completed power analysis is claimed here.

For each implementation, specify equations, likelihoods, parameter counts, priors where used, exclusions, missing-data handling, and the primary outcome before collecting data. Compare the candidate with matched predictor sets and appropriate simpler baselines. Hold out whole participants for H1–H2 and whole groups for H3 to prevent leakage. A proposed decision rule is a positive held-out expected log predictive density difference against the strongest prespecified comparator exceeding twice its estimated standard error, together with acceptable calibration. This is a practical comparison criterion, not a universal significance test. Secondary directional tests should use prespecified multiplicity control, such as Holm correction across H1–H3.

A precise interval excluding the predicted direction would challenge the relevant auxiliary hypothesis. Equivalence within the prespecified smallest effect of interest would indicate no practically meaningful effect for that contrast; an imprecise null result would remain inconclusive. Predictive equivalence or poorer prediction would reject a claim of added model value even if the directional effect were present. Because the candidate models are compatible with established cognitive and social mechanisms, no behavioral success uniquely confirms the ontological QICF proposal. Its current novelty lies in the integrated agenda and explicit separation of evidential levels.

6.2 Physical evaluation of the QICF-D extension

A candidate experiment uses repeated Ramsey or equivalent interference trials on a shielded, independently controlled two-state probe. Participants receive randomized task cues during coherent probe evolution; masking or another validated manipulation varies conscious access without giving information about the probe's state. The physical instrument and phase settings follow a fixed schedule or an independently randomized schedule, with operators and analysts blinded to awareness condition. A physics collaboration must select a probe with a suitable coherence time and quantify its actual noise floor before judging feasibility. No working apparatus or completed experiment is claimed here.

Across several prespecified exposure intervals and observer numbers, fit all raw readout counts using the calibrated likelihood $p(+|\varphi) = [1 + V \cos(\varphi)]/2$, incorporating state-preparation and readout errors. The same θ is shared across conditions. Do not select only trials with desired probe outcomes or use unstable ratios near zero visibility. Log-visibility relations describe model consequences; the count likelihood supplies the main estimation route. Use a calibration dataset to estimate θ and a separate confirmatory dataset to test the duration and observer-number restrictions.

The null sets $\theta = 0$. Alternative models include measured environmental dephasing, device drift, cue-triggered electronics, and participant-related conventional disturbance. Sensory stimulation, participant movement, heat, sound, electromagnetic emissions, data traffic, and apparatus timing can change coherence independently of conscious access. Monitoring and matching must address these pathways. Empty-room trials, nonconscious automated cue processing, yoked display conditions, and sham timing provide complementary controls but do not prove that every conventional pathway has been excluded. Classical and quantum cognitive models concern behavioral judgments and predict no new probe disturbance in the physically isolated setup unless an ordinary coupling is introduced.

The primary confirmatory comparison is a preregistered likelihood-based test of a common positive θ against $\theta = 0$, with the boundary at zero handled by a prespecified parametric bootstrap or another valid boundary-aware procedure. Held-out prediction must favor the shared-rate model over the strongest measured-noise comparator, and both Equation (4) restrictions must remain compatible with the confirmatory data. The significance level, multiplicity policy, parameter bounds, and precision target must be set in advance. A freely fitted positive coefficient in one condition is insufficient.

A finite experiment cannot falsify every arbitrarily small $g > 0$. For a concrete test, preregister a detectable coupling interval or a minimum visibility attenuation ε supported by instrument precision. For one unweighted differential exposure ΔA_{eff} , the corresponding minimum θ is $-\log(1-\varepsilon)/\Delta A_{\text{eff}}$. At the fixed geometry, ΔA_{eff} excludes the fixed spatial weight absorbed into θ . For example, $\varepsilon = 0.01$ corresponds to $\theta_{\min} \Delta A_{\text{eff}} \approx 0.01005$; this is a proposed sensitivity target, not a biological effect size. If an upper confidence bound lies below $\theta_{\min}$, the tested nonzero coupling range is excluded for that apparatus and geometry. The original unrestricted ontology is not thereby disproved.

A reliable $R > 1$ for positive differential awareness exposure, failure of one shared θ to predict other durations or observer numbers, or a population shift contrary to the pure-dephasing equation would challenge this candidate specification. A precise absence of the preregistered minimum effect constrains its magnitude. Conversely, a replicated effect satisfying these restrictions would motivate scrutiny of an awareness-linked physical dependency; it would not by itself identify consciousness as the cause, prove single-outcome collapse, or establish T_2 or T_4 . A carrier and a causal account remain needed. Any future human study requires prospective ethics review and participant consent.

The two research programs have distinct failure criteria. Psychological implementations lose support if measurements are unreliable or established models predict new reports better. QICF-D makes conditional physical commitments that can fail under stated sensitivity and matching assumptions. Its kernel, shared coupling, and dephasing basis must not be changed after a negative confirmatory result. A revised physical model would be a new hypothesis requiring a new test. The undeveloped reverse-time and parallel-domain conjectures must not be used to protect the specified candidate from falsification.

7 Artificial intelligence and epistemic responsibility

The framework does not provide a test of machine consciousness. A system can generate a coherent account of possibilities or simulate conversational convergence without establishing that it has subjective experience. Searle (1980) challenges the inference from executing a program to understanding. His argument is relevant as a philosophical caution, rather than a settled demonstration that artificial consciousness is impossible. QICF adds no evidence that an artificial system possesses C_x or participates in ontological actualization.

The same restraint applies when artificial intelligence evaluates a consciousness manuscript. A fluent assessment or numerical score cannot supply the missing mechanism. Evaluation should examine whether claims have definitions, alternatives, and appropriate evidence. The human author remains responsible for distinguishing original conjecture from established knowledge and for correcting unsupported attributions. The credibility of the framework depends on that separation, irrespective of whether its reviewers are human or automated.

8 Conclusion

QICF connects conscious experience, subjective time, and shared reality while distinguishing interpretation from physical actualization. The QICF-D extension moves one physical claim beyond a verbal placeholder: C_x is an awareness-dependent excess dephasing rate with defined units, a spatial profile, an interaction term, and derived visibility constraints. Exposure scaling and additive observer predictions provide quantitative commitments against an awareness-independent null and constrained environmental alternatives. These commitments follow from explicit new assumptions, not evidence that the proposed coupling exists. The behavioral hypotheses remain separate and cannot validate the physical extension. QICF-D is a phenomenological candidate, not a microscopic theory or a solution to single-outcome collapse; T_2 and T_4 remain conjectural. Progress requires appropriately sensitive confirmatory tests, exclusion of ordinary disturbance, independent replication, and eventually an independently justified carrier and causal mechanism.

Ethics approval

Not applicable. This conceptual essay reports no research involving human participants, animals, identifiable personal information, or patient data. Any future empirical studies would require appropriate prospective ethical review.

Informed consent

Not applicable. No participant data are reported.

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Conflict of interest

None

Data availability

No research dataset was generated or analyzed. The sources supporting the conceptual discussion are listed in the references.

Use of AI tools

ChatGPT (OpenAI) assisted in literature retrieval, structuring and drafting the conceptual argument, distinguishing hypotheses from established claims, and editing and formatting the manuscript, including the revision in response to reviewer comments. AI assistance also supported formulation, algebraic checking, and presentation of the explicitly postulated QICF-D extension. No empirical data or experimental results were generated. The original consciousness conjecture was supplied by the human author. The human author is responsible for verifying the argument, source interpretations, declarations, and final wording, and for approving the manuscript before resubmission.

Author contributions

The sole human author originated the consciousness conjecture and contributed to conceptualization and writing of the original draft. Revision and editing were conducted with the AI assistance disclosed above. Responsibility for final critical review and approval rests with the human author.

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