Wave-Form Consciousness and Reality Merging: A Quantum Expansion of the Branching Repository Reality Theory

Branden Anasenes
b.anasenes@pm.me
ORCID: 0009-0005-1580-9026

March 9, 2025

Abstract

This paper proposes a mathematical model for the **Branching Repository Reality Theory (BRRT)**, which describes consciousness as a wave function interacting with reality through quantum superposition and collapse. We present an equation modeling reality selection as a probability function and explore experimental methods for testing this theory. We discuss links to existing theories such as quantum mechanics, the Many-Worlds Interpretation, and consciousness studies, outlining a framework for future empirical validation.

1 Introduction

The nature of consciousness and reality remains one of the most profound questions in science. Traditional quantum mechanics suggests that particles exist in a superposition of states until measured, collapsing into a definite reality. The **Branching Repository Reality Theory (BRRT)** extends this idea to human consciousness, proposing that our minds function as quantum wave functions that influence which version of reality persists.

This theory suggests that:

- Consciousness is a **standing wave function** interacting with external reality.
- Reality "branches" not through strict timeline splits but through **quantum probability interference**.
- Phenomena like **déjà vu, the Mandela Effect, and psychedelic-induced alternate lives** could be explained through wave interactions.
- Time perception and near-death experiences may be transitions between probability waves rather than fixed linear events.

We propose a mathematical foundation for BRRT and explore experimental avenues for validation.

2 Mathematical Model

We define consciousness as a wave function Ψ_c, evolving according to the Schrödinger equation:

$$\hat{H}\Psi_c = i\hbar\frac{\partial\Psi_c}{\partial t} \tag{1}$$

where:

- Ψ_c represents the consciousness wave function.
- $\hat{H}$ is the Hamiltonian operator, dictating the system's evolution.
- $i\hbar$ is the imaginary unit times Planck's reduced constant.
- $\frac{\partial\Psi_c}{\partial t}$ describes the rate of change of consciousness over time.

To model the probability of consciousness collapsing into a particular reality R_n, we define:

$$P(R_n) = |\langle R_n | \Psi_c(t) \rangle|^2 \tag{2}$$

where:

- $P(R_n)$ is the probability of experiencing reality R_n at time t.
- $\langle R_n | \Psi_c(t) \rangle$ is the inner product of the consciousness wave function and reality state.

This suggests that reality selection follows a **probability amplitude function**, where transitions between realities may be governed by neural coherence, expectation, and external factors.

3 Experimental Validation

3.1 Neuroimaging and EEG Studies

- Measure brainwave coherence under normal, meditative, and altered states.
- Test if transitions between states align with expected quantum probability distributions.

3.2 Psychedelic-Induced Time Dilation

- Conduct controlled trials where participants report subjective time length on substances like DMT and Salvia.
- Compare reported time to actual elapsed time.

3.3 Statistical Analysis of Reality Anomalies

- Collect reports of déjà vu, Mandela Effect experiences, and spontaneous knowledge acquisition.
- Analyze statistical patterns for clustering effects that may indicate overlapping reality waves.

3.4 Quantum Simulation

- Model probability wave transitions computationally.
- Test if our proposed wave function equations produce reality convergence effects.

4 Related Work

4.1 Quantum Consciousness

- **Orchestrated Objective Reduction (ORCH-OR)** by Penrose & Hameroff.
- **Quantum Brain Hypothesis** by Tegmark.

4.2 Many-Worlds Interpretation

- Hugh Everett's multiverse model aligns with probabilistic reality selection.

4.3 Integrated Information Theory (IIT)

- Giulio Tononi's framework suggests consciousness follows a quantifiable structure.

5 Conclusion

We propose that consciousness operates as a wave function interacting with a probability-based reality selection process. Our mathematical model, grounded in quantum mechanics, provides a testable framework for understanding **déjà vu, reality shifts, and altered states of perception**. Future work should focus on empirical testing through neuroimaging, psychophysical experiments, and computational modeling.

6 References

1. Schrödinger Equation - Quantum Mechanics 2. Many-Worlds Interpretation - Hugh Everett 3. Orchestrated Objective Reduction - Hameroff & Penrose 4. Integrated Information Theory - Tononi 5. Time Dilation Experiments 6. Psychedelic Consciousness Research 7. Observer Effect in Quantum Theory