Maat-Guided Quantum Measurement

Objective

This work introduces an alternative model of quantum measurement that replaces probability amplitudes with a value-based selection principle. The model is built on five interlinked principles inspired by the ancient Egyptian concept of **Maat**:

Harmony, ⚖ Balance, Creativity, Connectedness, Respect.

Each principle is represented by a measurable physical expression, resulting in a single value – the **Maat value** – which guides the collapse of the wave function.

Theoretical Background

Quantum systems exist in superpositions. Standard quantum theory assumes collapse occurs randomly, based on the squared amplitude of each state.

This model challenges that assumption by proposing:

> "Collapse occurs in favor of the state with the highest Maat value."

Maat Equation

$$\text{Maat} = (H \times B \times S \times V \times R) / \Delta E$$

Where:
- **H** = Structural order → Harmony
- **B** = Thermodynamic stability → Balance
- **S** = Quantum amplitude ($|\alpha|^2$ or $|\beta|^2$) → Creativity
- **V** = Systemic coherence → Connectedness
- **R** = Non-invasiveness → Respect
- **ΔE** = Energy fluctuation → Instability factor

⚙ Simulation Method

- States: Spin-Up ($|\uparrow\rangle$) and Spin-Down ($|\downarrow\rangle$)
- Amplitudes: $\alpha = \beta = 1/\sqrt{2}$
- Energies: Eup = -1, Edown = +1
- Temperature: kT = 1.0
- Reference energy: E_ref = 1.0
- Maat Components:
  - Harmony: constant (1.0)

- Balance: exp(-ΔE / kT)
- Creativity: $|\alpha|^2$ or $|\beta|^2$
- Connectedness: 1.0 (↑) vs. 0.9 (↓)
- Respect: 1 / (1 + ΔE / E_ref)
- Fluctuation: constant (0.1)

Simulated 100 × 1000 measurements using Maat-based selection probabilities.

Results

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Average over 100 repetitions × 1000 measurements: ⟨|↑⟩⟩ ≈ 96.11% ⟨|↓⟩⟩ ≈ 3.88% Standard QM: 50.00% |↑⟩, 50.00% |↓⟩
```

> This indicates a **strong deviation** from standard QM – the model systematically prefers the state with the higher Maat value.

Interpretation

- Collapse is not random – it's resonance-based.
- The universe prefers coherence, balance, and energy-efficient states.
- This model provides an ethical-physical extension to quantum theory.
- Measurement becomes a **creative decision** of the system–observer field.

Conclusion

The Maat equation offers a new path toward resolving the **quantum measurement problem**.
It replaces probability with **value-based selection**, guided by physical, energetic, and ethical coherence.

This may signal the beginning of a **resonance-based physics**, where order and consciousness are not external to matter – but embedded within it.

License

☥ Final Note

> “Reality does not collapse randomly.
> It harmonizes with what is most in tune with the universe.”
> — Maat, reawakened.