

P3 – Toy Model of Conscious Decision-Making

Ing. David Jaroš

August 31, 2025

Hypothesis

The $\chi(q)$ component of the field encodes mental state oscillations. Decision-making can be modeled as bifurcation in a low-dimensional system governed by free energy minimization.

Model Idea

- Use 1D reduced dynamics: $\chi(q) \sim \psi(t)$
- Introduce potential landscape $F(\psi)$ with bistable points.
- Evolve using Fokker–Planck-like dynamics:

$$\frac{\partial \rho(\psi, t)}{\partial t} = -\frac{\partial}{\partial \psi} (\mu(\psi) \rho) + D \frac{\partial^2 \rho}{\partial \psi^2}$$

Goal

Show this reproduces ”choice” dynamics as spontaneous symmetry breaking or collapse.