Monday, September 13, 1999

The Sarfatti Lectures 2

We are interested in the vanishing of the eigenvalues λ_i of the stability matrix Q^*_{ij}.

In post-quantum theory the sentient field Q* of nonclassical information (q*-bits) is controlled by the actual position X(t) of the material configuration it is piloting. This is the "two-way relation" (Bohm and Hiley) in which the "wave function has sources" in violation of the Born probability interpretation of quantum theory. That is, the formula

$$P(x,t)=\left|\Psi(x,t)\right|^2$$

fails.

Suppose X(t) causes ℓ eigenvalues λ_i to vanish. Therefore,

$$\mathrm{Det}Q^*_{ij} = 0$$

The Morse lemma is no longer valid. We have an instability. Thom's splitting lemma gives a non-Morse part for the vanishing eigenvalues and a Morse part for the n-ℓ nonvanishing stability eigenvalues. The matrix for the Morse part is non-singular. The non-Morse part is called Cat(ℓ, n) the "catastrophe function".

Cat(ℓ,n) = CG(ℓ)+Pert(ℓ,n)

CG(ℓ) = Catastrophe Germ

CG(ℓ) is the non-Morse function at the critical $X_c(t)$ where ℓ eigenvalues $\lambda_i = 0$. Pert(ℓ,n) is the extra piece when X(t) is in the neighborhood of $X_c(t)$.

The points x in configuration space where $\nabla Q^*(x,X(t),t) \neq 0$ are non-equilibrium points. The Morse criticalpoints x where $\nabla Q^*(x,X(t),t) = 0$ but $\mathrm{Det}Q^*_{ij} \neq 0$ are equilibrium points, AKA attractor points on the landscape.The non-Morse points x where $\nabla Q^*(x,X(t),t) = 0$ and $\mathrm{Det}Q^*_{ij} = 0$ from the vanishing of ℓ stability eigenvalues λ_i are "phase-transitions" corresponding to our changing "qualia".